

Insights into “mysterious processes”: incentivising co-innovation in agrifood value chains

by

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Quotation relating to the thesis title:

From Price, H 1996, 'The anthropology of the supply chain: fiefs, clans, witch-doctors and professors', *European Journal of Purchasing & Supply Management*, vol. 2, no. 2-3, pp. 87-105.

In the future...successful businesses will create value by implementing innovations across organizational boundaries...Supply chain management will need to nurture successful innovation within these cross-functional teams. The fundamental challenges are social rather than technical, involving issues of trust, co-operation, power and politics. As a result of this, the roles and relationships required for best practice supply management are changing... The management of these roles will be a strategic issue, since it will be the key to competitive advantage for many organizations... Innovation and creativity are *mysterious processes* that do not respond predictably to purely rational economic circumstances. Rather, the process of 'condition setting' across organizational boundaries encourages innovation... (pp. 87, 103).

Declaration of Originality

This thesis contains no material which has been accepted for a degree or diploma by the University or any other institution, except by way of background information and duly acknowledged in the thesis, and to the best of the my knowledge and belief no material previously published or written by another person except where due acknowledgement is made in the text of the thesis, nor does the thesis contain any material that infringes copyright.

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Statement of Ethical Conduct

The research associated with this thesis abides by the international and Australian codes on human and animal experimentation, the guidelines by the Australian Government's Office of the Gene Technology Regulator and the rulings of the Safety, Ethics and Institutional Biosafety Committees of the University.

Declarations Signed:

(Lawrence Bryan Bonney)

Date: 10th November 2011

Dedication

This research is dedicated to Neil Lawrence Bonney (1922 -), a single father who instilled in me a curiosity to understand the world, a love of knowledge and the motivation to learn.

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Abstract

The globalisation of agrifood markets and the liberalisation of world trade is creating a new competitive environment. Price-based competition is giving way to innovation-based competition and businesses are increasingly turning to collaborative innovation or ‘co-innovation’ to be able to compete. As a result, the locus of competition has shifted from the individual firm to competition between whole chains. Thus, the core concerns for modern businesses are managing collaboration and innovation across whole value chains (vertical co-innovation) to create competitive advantage. The Australian agrifood industry has been slow to adopt co-innovation and investment lags behind other industries. Although the industry faces unique challenges compared to other industries, little research has been done on the dynamics of co-innovation in agrifood chains or the strategic issue of how firms, executives and employees are incentivised to co-innovate.

Therefore, this thesis addresses the problem of how to incentivise firms, executives and individual employees to co-innovate in agrifood value chains. Because this involves a multi-disciplinary investigation of multi-level systems with complex, interacting variables and the lack of cross-disciplinary research in this field, an exploratory research design based on the constructivist-interpretivist paradigm using a phenomenological strategy of inquiry was adopted. A case study research method was employed to gather data from three purposively selected, contrasting agrifood value chains in Australia and North America using 128 semi-structured interviews with managers and a range of company and public documents. Qualitative content analysis was then undertaken using NVivo 8 computer software.

The investigation found that the mental models held by executives of the most powerful firm, usually the retailer or the processor, determine the form of chain governance and consequently the incentives employed to achieve the chain goals. Achieving those goals requires complex behaviours at firm, executive and employee levels in a dynamic environment and so multiple forms of incentives need to be employed and managed purposefully to motivate such behaviour. Incentives need to be aligned with strategy and have a degree of individualisation. They should also be supported by appropriate chain values, culture and other management functions such as chain partner selection, recruitment and professional development. Firm incentivisation strategies need to incorporate economic, normative and social incentives. Although aligned with overall chain strategy, these will be different at each level of the chain, Tier 1, Tier 2 and Input Suppliers, reflecting their different contributions to creating consumer value, their differential capacities and idiosyncratic aims. Individual incentivisation to co-innovate should incorporate extrinsic, social and intrinsic incentives and take place in a supportive culture if behavioural intentions are to achieve co-innovative outcomes.

The analysis also provided support for the conceptualisation of four conditions that influence co-innovation: relational competence, cultural compatibility, a co-innovation architecture and co-innovation competence. The presence of these conditions was associated with the development of co-innovation and their absence with the inhibition of co-innovation.

The contribution of this study is its systemic, multi-level model of chain incentivisation through the integration of concepts from the value chain, incentivisation, collaboration and agrifood literature. This highlights possible future research in agrifood value chain incentivisation and suggests that managers in value chains should adopt multi-level strategies with multiple forms of incentives to achieve co-innovation.

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Chapter 1: Introduction

1.1. Introduction

Agrifood industries are different from other manufacturing supply chains (Friedland 2004) and in industrialised countries have been under increasing competitive pressure in recent decades due to globalisation and the liberalisation of world trade. These changes have created a new competitive environment where the locus of competition is shifting to whole chains (Christopher 2004) and the core strategy is continuous innovation (Chapman & Corso 2005; Harvey 2006) to create/adapt new products, processes, raw materials, markets or governance (Schumpeter, 1934). Despite the linkage between collaboration, innovation, organisational performance and competitiveness (Ahuja 2000; Baum, Calabrese & Silverman 2000; Prajogo, Power & Sohal 2004; Ring & van de Ven 1994), the agrifood industry has low levels of collaboration, lacks broadly-based forms of innovation and has been slow to adopt vertical collaborative innovation or ‘co-innovation’ (Nasiruddin, Islam & Quaddus 2011; Pitt 2007). The dynamics of collaboration between chain partners to innovate or ‘co-innovation’ are complex (Friedland 2004) and little research has been conducted on whole chain systems.

Incentives are a key means of controlling employee’s (Ouchi 1979; Prendergast 1999; Williamson 1975) and firms’ innovation activities and consequent firm performance (Gimeno, J., Dial & Sengul 2001a; Gottschalg & Zollo 2007; Hult, Hurley & Knight 2004; Sauermann 2005; Vincent, Bharadwaj & Challagalla 2005b). Therefore, this thesis addresses the question of how incentivisation to co-innovate occurs in agrifood value chains. Due to the lack of research into this at a whole chain system level, an exploratory approach has been taken to develop an understanding of the facilitators and inhibitors of the co-innovation phenomenon and how incentivisation occurs to motivate individuals and firms in a chain to co-innovate. This led to the development of a question driven constructivist-interpretivist paradigm for the research and a phenomenological strategy using Type 3 configuration for three contrasting case studies (Yin 2003). Data were gathered using convergent interviewing techniques (Riege & Nair 2004; Williams & Lewis 2005) and relevant documents and analysed using qualitative content analysis (Kohlbacher 2006).

Chapter 1 will introduce the research by providing more detailed background, justification for the research and overview of the methodology explaining key concepts associated with the research and the delimitations of scope and an outline of the following research chapters.

1.2. Background to the research

The globalisation of agrifood markets and the liberalisation of world trade are creating a new competitive environment for primary producers, food manufacturers and retailers. The supplier dominance of the past has given way to retail control of the agrifood value chain that facilitates consumer choice and this has driven supermarkets to move from predominantly price-based

competition to emphasise innovation-based competition focused on creating value in the eyes of the consumer (Wright & Lund 2003)

Innovation is regarded as the modern agrifood firm's strategic response to uncertainty, low margins, poor financial performance and hyper-competition leading to loss of competitiveness; thus, it is a means of changing an organisation in response to changes in the internal or external environment or taking pre-emptive action to maintain competitive advantage (Marshall et al. 2006). Innovation is strongly positively correlated to superior chain performance, and a number of researchers link collaboration, innovation, organisational performance and competitive advantage (Chapman & Corso 2005; Hult, G. T. M., Hurley & Knight 2004; Vincent, Bharadwaj & Challagalla 2005b).

The scale and intensity of continuous innovation for global markets has resulted in firms developing collaborative forms of innovation; between individuals or sections within firms, between firms and consumers in collaborative product design, horizontally between smaller firms to gain the critical mass for R&D or vertically between firms in a chain collaborating at the inter-organisational interface (Bonney et al. 2007). The latter form, involves firms increasingly vertically integrating their systems, processes, assets and governance to collaboratively innovate or 'co-innovate' to optimise their efficiency, effectiveness and consumer value creation. This co-innovation is more than just the sum of the innovation within firms and extends the concept of innovation to a collaborative form which occurs between two or more firms in a chain (Feller, Shunk & Callarman 2006; Maqsood, Walker & Finegan 2007; Porter 1998; Powell, Koput & Smith-Doerr 1996; Sporleder, Thomas L. & Peterson 2003). Consequently, many authors now regard value chains, an alliance of independent partners, as systems operating almost as a single entity (Bäckstrand 2007; Chroneer & Mirijamdotter 2009; Collins & Dunne 2008; Jain, Nagar & Srivastava 2006; Knoppen & Christiaanse 2007).

However, many studies identify the difficulties of collaborating and innovating with external partners (Barringer & Harrison 2000; Nickerson & Silverman 2003; Pittaway et al. 2004b) and the failure rate appears to range from 50 - 75% (Cozijnsen, Vrakking & Ijzerloo 2000; Park & Ungson 2001; Wilding & Humphries 2006).

Agrifood value chains are different from those of other manufacturing industries. There are large disparities of capacity, cultural outlooks, education and skills, management approaches and physical circumstances along the chain from input supplier to consumer. Products are characterised by their biological nature, perishability and seasonal supply. Chains are frequently comprised of a large number of small, diverse, relatively powerless upstream suppliers with a small number of large, downstream buyers (processors) and retailers (supermarkets) (Friedland, 2004). Product perishability drives governance choices within chains to enable the risks to be managed (e.g. contracting to ensure supply, stockpiling and spot markets) (Sporleder, T. L. & Wu 2006). The asymmetry in agrifood chains works against collaboration (Preckel et al. 2004) because there tends to be much greater

intellectual ties to the ownership of the stages of production, more frequent employment of coercive power and less integration all of which plays a significant role in the lack of collaboration and innovation. Despite the potential for achieving important advances in competitiveness, agrifood investment in innovation is low relative to other industries (Damanpour 1991; Grunert et al. 1995)

Australian agrifood value chains are being out-competed in world markets on the basis of price and consumer value attributes (DPIWE & DED 2005; Vanclay 2003). This is acknowledged to be due, in part, to less vertical integration and dysfunctional relationships. These lead to the frequent employment of coercive power, antagonistic and opportunistic relationships, poor alignment and information flows, and a narrow focus on an incremental, new product development (NPD) form of innovation (Cooke 2003; Hastings 2001). In such environments there is little incentive for companies to develop co-innovative strategies or for individual managers to behave collaboratively in their boundary-spanning roles.

Several Agency theorists posit that incentives are a key means of controlling employees' goal-oriented activities (Ouchi 1979; Prendergast 1999; Williamson 1975) and more recent empirical investigations have also linked firm incentives to innovation and firm performance (Gimeno, J., Dial & Sengul 2001a; Gottschalg & Zollo 2007; Hult, Hurley & Knight 2004; Sauermann 2005; Vincent, Bharadwaj & Challagalla 2005b).

Despite this, little research has been undertaken on the dynamics of collaboration in value chains as whole systems (Friedland 2004) and the field is lacking in cross-disciplinary perspectives (Sachan & Datta 2005). Cunningham (2001) in a global literature review of up to twenty seven million articles in 40,000 journals found only one hundred and twenty three formal, peer reviewed journal articles focused on agrifood chain management and yet, as has been argued above, agrifood value chains are distinctly different. Despite his identification of an apparent growth in interest, the application of value chain management principles to this industry appears to be lacking. Much of the literature focuses on collaboration and innovation as separate constructs and on high technology or manufacturing industries such as the automotive and consumer electronics industries. In particular, despite there being evidence that poorly managed incentivisation is a cause of significant under-performance in value chains (Narayanan & Raman 2004) there appears to be little research conducted on incentivising agrifood chains.

If value chains are regarded as systems as suggested earlier in this section, amongst the core constructs of a 'system' are that of hierarchy, emergence, connectedness and recursiveness (Beer 1981; Checkland 1981; Checkland & Scholes 1990). This may mean that the factors influencing co-innovation will operate across several levels – chain, firm and individual employees (Gottschalg & Zollo 2007; Rothaermel & Hess 2007). As one of those factors (Bonney et al. 2007), incentivisation may also operate across multiple levels which will add further complexity to an already vexed issue

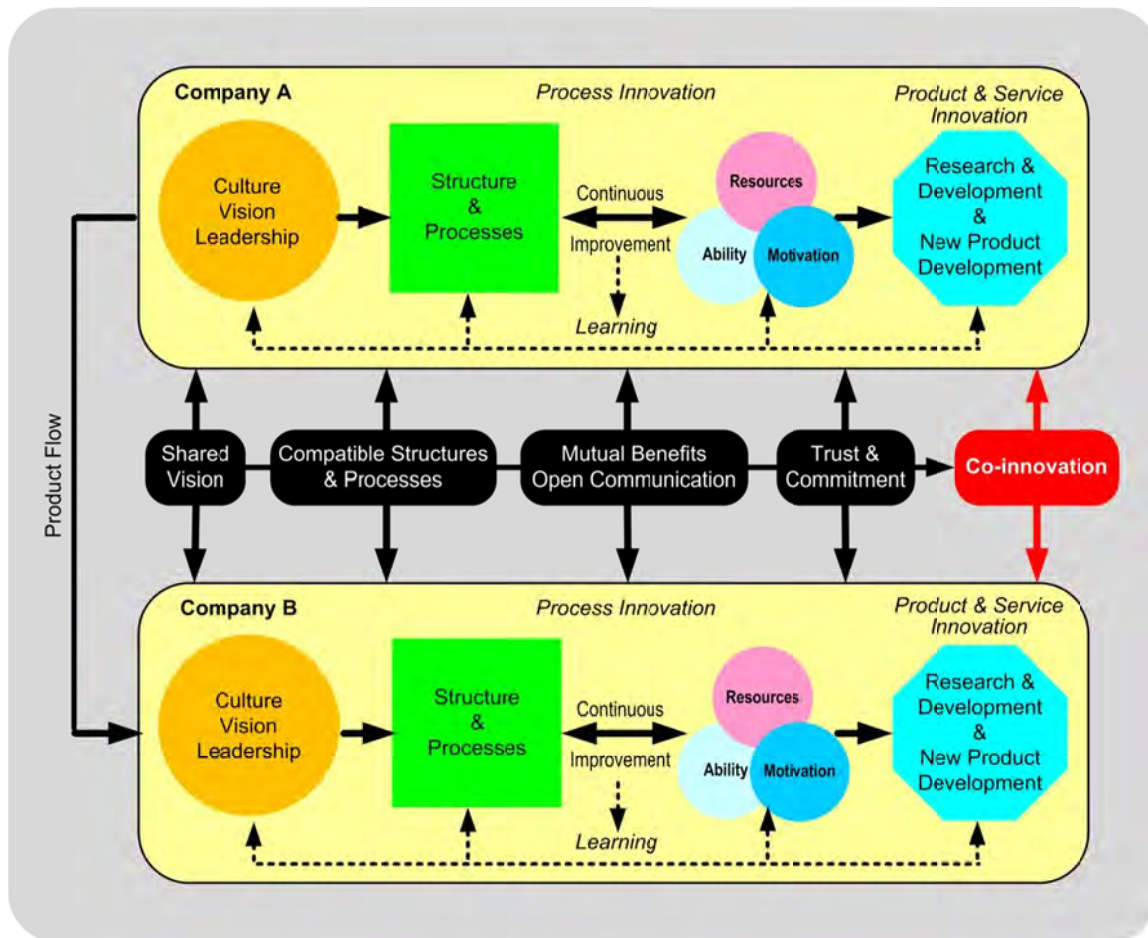
(Miner 2005; Reinholt 2006). Therefore, the purpose of this research is to identify and describe the variables that moderate co-innovation and determine how co-innovation is incentivised in agrifood chains.

1.3. The research problem, research issues and contributions

Agrifood chains in most Developed Countries are part of a global trade in commodities as well as innovative niche products and so many Australian agrifood value chains compete in global markets. Co-innovation can benefit commodity chains by improving efficiency and effectiveness and has the added advantage of improving consumer value creation in niche chains (Dooley & Luca 2010; Fearn, A. et al. 2008). This research focuses on agrifood value chains that supply large supermarket retailers as these have a different set of challenges to small ‘short’ chains supplying local markets. In Australia these types of chains are responsible for the majority of food marketed (Burch & Lawrence 2007; National Association of Retail Grocers of Australia 2011). They involve power and capability asymmetry, large volumes of product, logistical complexity supplying a national market and intense global competition on price. Due to the complexity of such chains, supermarkets usually appoint ‘category captains’ or a ‘lead firm’ to play a quasi-hierarchical role coordinating the upstream suppliers (Altenburg 2006; Bandyopadhyay, Rominger & Basaviah 2009; Vorley 2007). It is the interaction between such retailers, their lead firms and the large number of farms that supply them that will be the focus of this research. The research engages with the whole chain system from input suppliers to retailers in an attempt to identify the interaction of the variables involved in incentivising co-innovation.

Tuominen and Anttila (2006) in empirical research that supports the link between collaboration, innovation, value creation and improved competitive advantage have called for the development of a “...coherent collaboration-innovation-advantage focused roadmap to follow...” (p. 228).

Bonney et al. (2007) have proposed an ‘innovation roadmap’ that brings together multiple perspectives and theories (Figure 1.1), encapsulating the concept of vertical chain integration and the chain as the locus of competition (Christopher 1998) and has been employed in an agrifood context (Clark et al. 2009, 2010; Fearn, A. et al. 2008; Fearn, A. et al. 2009). This shows the flows of raw material, information and governance of relationships between a firm within a value chain and its partners taking a whole-of-chain, consumer-oriented value creation perspective and suggesting that it enhances chain performance and sustainable competitive advantage (Grönroos 1997; Hunt 1997).

Figure 1.1: A value chain innovation roadmap

Source: derived from Bonney et al. (2007)

The model suggests that a firm's inherent strategic characteristics (vision, culture and leadership) drive the systemic enablers (structure and processes) of the productive drivers (resources, ability and motivation) which generate product and service innovation. Through collaboration and learning enabled by trust and commitment, shared vision, compatible structures and processes, the sharing of benefits and communication with partners, the whole chain is able to co-innovate to create value in the eyes of the consumer. This not only improves performance but also creates a competitive advantage that is difficult to replicate.

Many of the components of this model are well established as single factors in organisational or value chain theory so there is a need to further explore how they operate in a systems model such as the 'roadmap'. Motivation and incentivisation are recognised as key aspects of governance (Heide 1994), collaboration (Gottschalg & Zollo 2007; Simatupang & Sridharan 2007) innovation (Vincent, Bharadwaj & Challagalla 2005a) and overall firm performance (Gottschalg & Zollo 2007; Humphrey, Nahrgang & Morgeson 2007). However, it appears that the challenge of developing strategies and management mechanisms to facilitate co-innovation has not been investigated per se and in particular, in an agrifood context. The lack of research in agrifood chains and the apparent strategic importance

of incentivisation to achieving co-innovation suggests that there may be some benefit for farmers, processors, wholesalers and retailers from further investigation of this phenomenon.

Most businesses today rely on the extensive and still quite contested ‘individual motivation’ literature to incentivise their staff (Cohen, WM & Sauermann 2007; Deci, Koestner & Ryan 1999; Deci & Ryan 2000; Miner 2005; Reinholt 2006; Ryan & Deci 2008) whilst lead firms rely on the much less researched ‘channel incentive’ literature to manage their chains (Cohen, SA, Kulp & Randall 2007; Gilliland 2003, 2004; Gilliland & Bello 2001). Google Scholar searches on those terms shows that there are ten times the search engine hits for individual motivation than channel incentives. So the literature is overwhelmingly focused on individuals, suggesting that there may be a need for additional research into how incentivisation works on groups of individuals at the firm and chain levels. Further, because of the lack of cross-disciplinarity in value chain research, there appears to be little understanding of the cross-cutting effects of many of the variables involved in motivation.

The gaps are particularly pertinent for agrifood chains because they are characterised by a large number of small, diverse, relatively powerless upstream farm suppliers and a small number of large, downstream buyers (processors) and retailers (supermarkets) (Cox & Chicksand 2007; Grievink 2003). Some agrifood chains are dysfunctional due to antagonistic and opportunistic relationships, poor alignment and information flows, and a narrow focus on an incremental, new product form of innovation (NPD) (Gedeon & Fearn 2007; Kirwan, Slee & Vorley 2005; Parker & Byrom 2009; Taylor & Fearn 2006). This has produced low levels of collaboration and a lack of broadly-based innovation so few chains exhibit co-innovation (Hastings, 2001; Cooke, 2003). Little is known about the extent of co-innovation or why failure rates for chain collaboration as high as 50% – 70% (Cozijnsen, Vrakking & Ijzerloo 2000; Park & Ungson 2001; Wilding & Humphries 2006) and it is apparent that there are gaps in the research. Further, the growing lack of competitiveness of many Australian agrifood chains, the potential impacts on rural social infrastructure and the national interest in Australia’s food security are significant.

This raises many questions, such as:

- What are the variables that enable and constrain chain co-innovation between firms in a value chain?
- How do incentivisation and motivation work in value chains?
- Are there interactions between the individual, firm and chain level?
- What other factors affect incentivisation and motivation?
- How are incentivisation and motivation managed?

Therefore, research into how to incentivise agrifood co-innovation is both timely and important as it aims to provide researchers, farmers and agrifood managers with an understanding of how agrifood

value chains are managed as a basis for further research and the improvement of management practices.

The research will describe the nature of the facilitators and inhibitors to co-innovation in agrifood value chains and how businesses can incentivise co-innovative, boundary-spanning behaviour. To do this, it proposes to ask:

“How are employees, executive managers and firms incentivised to co-innovate in agrifood chains?”

Due to the complexities and inter-relationships between the parameters of motivation alluded to earlier, a number of subsidiary research questions arise:

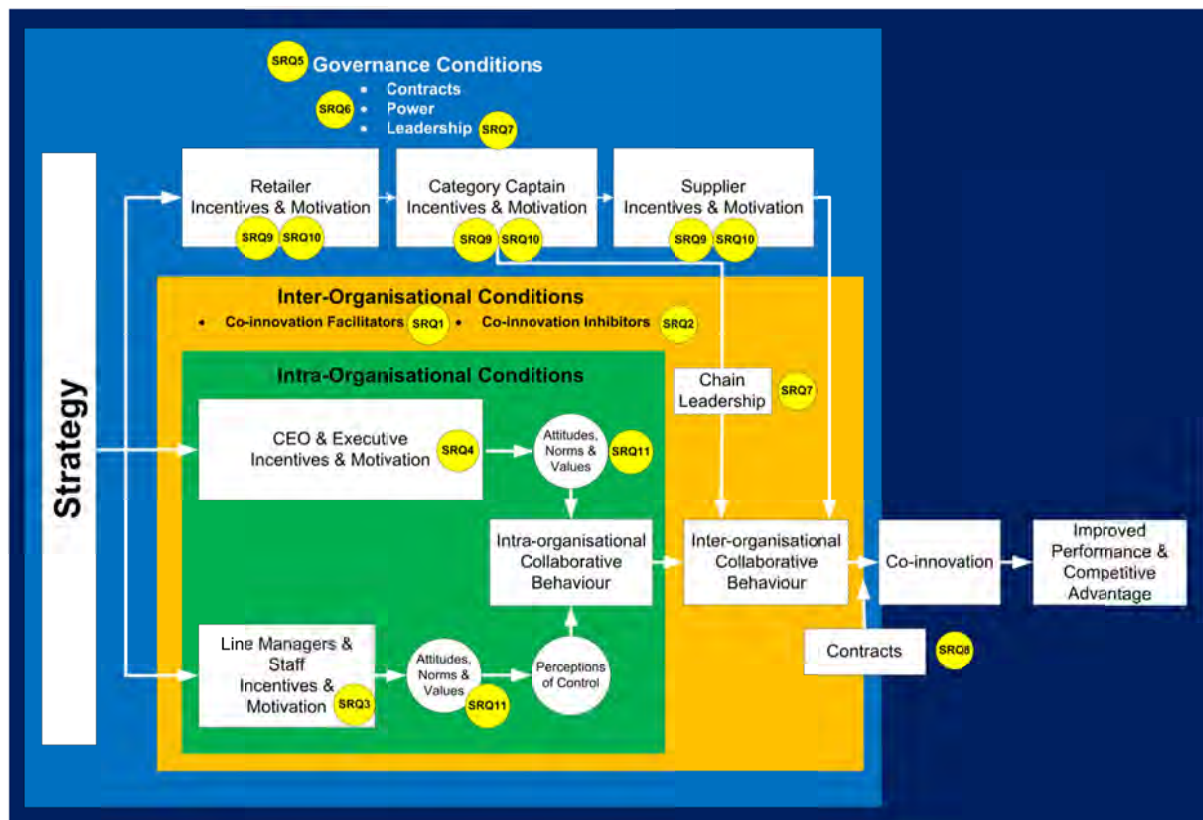
- *SRQ 1: What are the facilitators of collaborative innovation in agrifood chains?*
- *SRQ 2: What are the inhibitors of collaborative innovation in agrifood chains?*
- *SRQ 3: How do agrifood firms incentivise individuals to co-innovate?*
- *SRQ 4: How are senior executives incentivised to co-innovate in agrifood firms?*
- *SRQ 5: How does the form of governance in agrifood value chains influence the incentives employed across the chain?*
- *SRQ 6: How does the power asymmetry in agrifood value chains affect the nature of incentives employed?*
- *SRQ 7: How is chain leadership exercised in agrifood chains?*
- *SRQ 8: How do inter-organisational relationships in an agrifood chain affect the types of contracts used to coordinate chain participants?*
- *SRQ 9: What incentives are used to motivate firms in agrifood value chains?*
- *SRQ 10: What are the motives used to motivate firms in agrifood value chains?*
- *SRQ 11: To what extent do values, attitudes and norms of firms in agrifood chains influence the enactment of incentivised motives?*

Answering these questions will address the issue of how managers can align vision and strategy, design chain performance management and reward systems and influence inter-organisational culture to facilitate chain level co-innovation.

Chapter 2 investigates the extant value chain, collaboration, motivation and innovation literature to identify what is currently known about these questions. In doing so, it focuses on the incentivisation of collaboration and co-innovation in agrifood chains, providing the background to the development of the SRQs. This culminates in the development of a conceptual model that provides an overview of what is known from multiple perspectives and at multiple levels about the facilitators and inhibitors of co-innovation and how individuals, executive managers and firms operating in value chains are incentivised to co-innovate (Figure 1.2).

It identifies that theoretically the most powerful firms in agrifood chains, usually retailers or their operational chain leaders, will adopt a strategy of co-innovation across a value chain to achieve improved performance and competitive advantage of the chain as a whole. They will seek to implement it by manipulating individual and firm level incentivisation (the independent variables) in the presence of facilitating and inhibiting conditions to encourage collaborative behaviours within and between firms that will achieve co-innovation (the dependent variable) between chain partners. The independent variables will be applied at multiple levels within the chain (individual and organisational) because the behaviour of chains and organisations are aggregations of the individual and collective values, attitudes and motivations of the individuals that comprise them, particularly where uniquely influential individuals such as the chief executive officers are concerned.

Figure 1.2: Conceptual model



Answering the research questions provides contributions that are presented in Section 7.4

In summary, they:

- Extend the understanding of the concept of incentive alignment;
- Develop a new model of agrifood value chain incentivisation;
- Apply incentivisation theory to agrifood in Australia which has not previously been done;
- Use a cross-disciplinary approach to understand how co-innovation is incentivised in agrifood value chains;

- Apply the Theory of Planned Behaviour, an individual behavioural construct, at the organisational level to explain the performance or non-performance of incentivised behaviour.

The next section provides a justification for the research.

1.4. Justification for the research

This research is of strategic importance to managers in supply chains (Gimeno, Javier 2004; Gimeno, J., Dial & Sengul 2001b; Lars 2006; Matopoulos et al. 2007; Taylor 2006; Zanquetto-Filho, Fearné & Pizzolato 2003). The potential benefits to individual firms and the pay-offs to value chains from improving performance (Fawcett, Magnan & McCarter 2008; Humphrey, Nahrgang & Morgeson 2007), relationship management (Shub & Stonebraker 2009; Sun & Collins 2009) and sustainability of competitive advantage are high (Hyvönen & Tuominen 2007; Sandberg 2007).

This research also has relevance for academics, government policy-makers, industry leaders and consultants because most of the empirical research to date focuses on single components of innovation and collaboration within the context of individual firms rather than on collaborative innovation between firms within a chain or entire value chains. More specifically, most incentivisation research has been focused on individual employees rather than firms or chains and neglects the interaction between the types and levels of incentives. The earlier discussion has also identified that there is very little research that focuses on agrifood chains and yet they are distinctly different from the manufacturing and electronics industries which are the subject of much of the supply chain and innovation literature.

Since the early 1990s, several authors have also called for cross-disciplinary (Friedland 2004; Halldorsson et al. 2007; Sachan & Datta 2005; Werner & Ward 2004) and multi-level approaches to complex situations such as value chains (Agrawal & Tsay 2002; Capelli & Sherer 1991; Miner 2005; Rousseau & House 1994; Smith, Schneider & Dickson 2006). So this research draws together the streams of cross-disciplinary research in collaboration, innovation and incentivisation in an inter-organisational context in agrifood chains. The view adopted in this research is perhaps best expressed in the following quote:

In reality, cooperation is the predominant factor determining interorganizational relations. Symbiosis, not aggression, is the fundamental nature of economic functioning... (Meyer 2007, p. 152).

The findings in Chapter 7 have utility for both agrifood managers and researchers because there does not appear to have been a previous application of incentivisation theory in a cross-disciplinary analysis of agrifood value chains. Thus, the findings extend the understanding of the concept of incentive alignment and develop a new model of agrifood value chain incentivisation. This may provide guidance to managers for the design of their incentive systems, selection of the form of chain governance and partners, the recruitment of managers and their overall management of co-innovation.

1.5. Methodology

The following section explains how the research was conducted and is more fully explained in Chapter 3.

Because my beliefs and assumptions have influenced both the selection of the research paradigm and the manner in which the methodology has been designed and conducted (Blaikie, N 2007; Morgan & Smircich 1980) I made explicit my own philosophical perspective about research into management and organisational phenomena (Section 3.2). Succinctly, my ontology is that there are multiple, dynamic, intangible realities, culturally, socially and experientially constructed. However, they are by nature idiosyncratic and situationally based, whether held by individuals or groups of people. My epistemological position is one in which data about phenomena are contained in the perceptions of those who experienced those phenomena.

After considering the strengths and weaknesses of the positivist and the constructivist-interpretivist paradigms (Sections 3.3.1 – 3.3.2), the latter was selected as most appropriate because I believed that the ‘value chain system’ was the appropriate unit of analysis, co-innovation is a multi-level phenomenon and that it was important to be able to incorporate multiple stakeholder perspectives. However, because the field lacks a coherent body of underpinning theory (Cunningham 2001; Friedland 2004; Sachan & Datta 2005), the task is to describe and build theory of the phenomenon of incentivisation to co-innovate in agrifood value chains before theory verification is attempted (Borch & Arthur 1995). Therefore, this requires an exploratory, interpretive approach (Section 3.3.3) (Creswell, J. W. 1994; Easterby-Smith, Thorpe & Lowe 2002).

The research design that resulted met the three requisites posed by Chen and Kanfer (2006, p. 225) in one of the few multi-level motivation studies to develop a “...a true multi-level conceptualisation of motivated behaviour...”: 1) the identification of parallel or functionally similar constructs or relationships; 2) cross-level influences need to be considered; and 3) antecedents and outcomes of motivation at both individual and group levels need to be considered.

I then reviewed the major business research traditions (Section 3.4) and selected phenomenology as an appropriate strategy of inquiry for this research into agrifood chains because the incentivising of co-innovation and its antecedents are all dependent on the perceptions of the participants of the motivational conditions.

Hence, this research adopted an exploratory multi-level approach for investigating three purposively selected, contrasting case studies of agrifood value chains in order to understand the intra and inter-organisational phenomena associated with incentivising co-innovation (Section 3.5.2). Yin (2003) describes this as a Type 3 case study design. So, this phenomenological study aimed to facilitate a deeper understanding of the phenomenon of how co-innovation is incentivised (Groenewald 2004).

The independent variable is multi-level incentivisation which can be manipulated to affect the dependent variable, 'co-innovation'. However, its effect is moderated by multi-level facilitators and multi-level inhibitors that promote or hinder co-innovation. Using multiple case studies, as in this thesis, has the advantage as being more robust through employing a replication rather than a sampling logic (Yin 2003).

A 'stratified purposeful sampling' was undertaken (Section 3.5.3.5.1) which divided the sampling frame into strata seeking relatively homogenous sub-groups, with a purposeful sample being selected from each stratum (Onwuegbuzie & Leech 2007).

The development of the case studies was based on one hundred and twenty eight in-depth, semi-structured interviews to determine meanings, themes and detailed descriptions of the phenomena involved in the role of human dynamics in co-innovation that are grounded in the data, conceptually dense, producing a well-integrated framework of concepts that fits the reality of the data and presents a rich, holistic picture of co-innovation in the inter-organisational spaces (Ehrich 2005; Sanders 1982). The principle of attaining 'data saturation' (Lincoln & Guba 1985) underpinned the collection of data from interviews, corporate and public documentary evidence, the researcher's notes and reflexive memoing. When the researcher believed that no new data was emerging from interviews, the case study data was regarded as 'saturated' and this resulted in the following numbers of interviews:

- Case study 1 – 36 interviews
- Case study 2 – 62 interviews¹
- Case study 3 – 30 interviews

With the following interview sample frame sub-strata:

- Executives – 19
- Employees - 109

Interviews employed a variation on semi-structured interviewing called 'convergent interviewing' which is appropriate for strategic investigations such as this (Dick 1999; Jepsen & Rodwell 2008; Riege & Nair 2004). Convergent interviewing is an inductive, cyclical process of selecting, interviewing, analysing and issue analysis (Section 3.5.3.4.1). Stringent confidentiality and ethics procedures were undertaken. Forty three per cent of the interviews were digitally recorded and transcribed with comprehensive interviewer notes and memoranda being taken if interviews were not recorded (see explanation for not interviewing all respondents Section 3.5.3.6.1, p.109). This resulted in rich data sets which were then subjected to qualitative content analysis assisted by NVivo 8 software to manage data, link concepts, identify relationships and build descriptions and explanations of the phenomenon (Section 3.5.4). Potential weaknesses in the research design were identified and

¹ Case study 2 was actually conducted prior to the others and the disparity in numbers is explained in Section 3.5.3.5.1

strategies implemented to increase the validity and reliability of the research outcomes (Section 3.5.5).

The findings have utility for both managers and researchers. The CEOs involved in two of the three case studies stated that they gained a new understanding of the dynamics of their chains from the findings. Specifically the findings developed a new model of agrifood value chain incentivisation (Figure 7.1) showing the interaction of intra-organisational (individual), inter-organisational (firm) and chain level (governance) factors in incentivising co-innovation. This model posits the purposeful management of multiple types of incentives across multiple levels of the chain in the presence of four groups of co-innovation enablers, relational competence, compatible culture, and innovation competence and co-innovation architecture if chain performance in co-innovation is to be maximised. It emphasises the effect of the form of governance on incentives and the importance of incentive alignment with strategy, culture and values for successfully incentivising co-innovation strategy.

The utility for researchers involves implications for value chain theory per se but more specifically for motivation and incentivisation theory through the multi-level conception of incentivisation management and the proposed utility of motivational framing (Lindenberg & Foss 2011) to the guide management of firm level management of motivation. The Theory of Planned Behaviour (TPB) (Fishbein & Ajzen 2010) appeared to have utility in explaining some of the differences in implementation of incentivised strategy. Further implications for co-innovation theory focused on the identification of four critical factors involved in facilitating co-innovation, a shared vision, aligned, broad-based, multiple types of incentives at multiple levels of the chain system, careful selection of strategic partners, and effective boundary spanning. Finally, there were also implications for collaboration theory in the proposition of the inter-organisational conditions that facilitate co-innovation as well as the importance of transformational leadership and followership (Defee 2007).

1.6. Explanation of core concepts

A number of core concepts used in this thesis are defined below. Where occasionally used terms arise in later chapters they will be defined in referenced footnotes.

1.6.1. What is value?

Value is an ephemeral and highly individualised concept, particularly in the context of global, interconnected markets where the ebb and flow of demand may evaporate in an instant of electronic communication. For the purposes of this research, *value is defined as the provision of attributes in a product or service that meet perceived and unexpected consumer needs in terms of the technical utilitarian needs as well as the idiosyncratic individual psychological needs*. The creation of this value may be inherent in the nature of the product or it may be added at downstream points in the chain. Intrinsic to the consumer perspective of this definition is the implicit imperative for all chain

participants to evaluate all their intra-organisational activities in terms of value creation or their functional necessity without value-adding or their identification as waste.

1.6.2. Supply chains or value chains?

The concept of 'value chains' is a term reputedly coined in 1982 by Keith Oliver of Booz Allen Hamilton (Heckmann, Shorten & Engel 2003; Laseter & Oliver 2003) and became widely used after the publication of the seminal work of Michael Porter in 'Competitive advantage' (1985). Fuller, O'Connor and Rawlinson (1993) later linked strategy and logistics as a way of creating value for customers and the 1990s saw an acceleration of conceptual development that identified the elimination of the 'Bullwhip Effect' (Lee, Padmanabhan & Whang 1997) as a means of driving efficiency as well as global supply chain strategy, decentralised chains, partnerships and the influence of environmental awareness on supply chain management.

The Global Supply Chain Forum defines supply chain management (SCM) as "... the integration of key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other stakeholders." (Lambert, Cooper & Pagh 1998, p. 1). This definition is adopted by this thesis.

Further, Mentzer, J. T. et al (2001) have recently made the cogent point that supply chains are a natural phenomenon of business and exist whether they are managed or not. It is the active management of them that is an important requirement for modern marketing and will provide the distinction in the use of the term 'supply chain' or 'value chain' in this thesis.

However, Womack and Jones (2003) recently placed the notion of 'value in the eyes of the consumer' at the epicentre of supply chain management. In this conception, the consumer is the source of value which flows upstream in the form of demand (sometimes leading to the use of the term 'demand chain'), the opposite to the supply of materials or services. When the supply chain focus is on value therefore, the perspective of the observer or for that matter the participant, is different because it focuses downstream on what behaviour creates value for the consumer rather than upstream on supply and the integration of processes and the reduction of waste to improve efficiency. Some, such as Ramsay (2005), have criticised the lack of clarity in the use of the term 'value' in chain relationships, and in doing so have highlighted that there is a bi-directional flow of value in chains. Not only is there a flow of extrinsic and intrinsic value to consumers, there is also a flow of resources, largely in the form of money that flows from consumers upstream to the chain participants. However, there is also a flow of other forms of value such as information, consumer commitment and even co-creative activities (in the co-design or co-innovation of products) that provides tangible benefit to the chain participants.

Thus, 'value chains' are an integration of supply and demand chain concepts with a more holistic view of the role of information/knowledge and inter-relationships that focuses on innovation in

product development and marketing (Feller, Shunk & Callarman 2006). The value chain concept describes the full range of activities that are required to bring a product or service from conception through the different phases of production to deliver to final value to consumers and final disposal after use (Kaplinsky & Morris 2003). Fearne (2009) and Bonney et al. (2007) combine these concepts with a 'strategic relational view' of value chains. Their concept, adopted by this thesis, is of ***chain partners who align their vision to deliver value to consumers then design, invest in and develop shared cultural attributes, motivation, structures, processes and resources to efficiently and effectively deliver that value creating improved competitive advantage for their chain.***

1.6.3. Customers and consumers

This brief explanation would not be complete without mentioning the use in this thesis of the terms 'customer' and 'consumer'. The supply chain literature largely uses the term 'customer' which, depending on context can either refer to the next firm downstream in the supply chain who purchases materials/services from an upstream supplier or the final consumer of the product/service. This use also encompasses an intra-organisational use of the term to mean the next stage of an internal production process (e.g. the washing and bagging of vegetables in a frozen vegetable production line has as its internal customer the low temperature freezing stage of production which in turn has the cool store as an internal customer).

Consistent with the value chain philosophy, this thesis will use both terms; '***customer***' to refer to the next stage of a value chain process and '***consumer***' to refer to the person/s who actually consume the product or service and the downstream end of the chain.

1.6.4. What are innovation and co-innovation?

The definition of the concepts of 'innovation' and 'co-innovation' are important because it has been found that there is a link between the way innovation is defined and the way it is developed within an organisation (Goswami & Mathew 2005; Vincent, Bharadwaj & Challagalla 2005a).

Schumpeter, the eminent Austrian economist whose views greatly influenced our approaches to innovation and entrepreneurship, defined five types of innovation; (i) the introduction of a new product or qualitative change of an existing product, (ii) a process innovation new to an industry, (iii) a new market, (iv) new sources of raw materials and (v) change in the industrial organization itself (Goswami & Mathew 2005 citing Schumpeter, 1934)². The UK Innovation Report (Department of Trade and Industry 2003) simply defines innovation as "...the exploitation of new ideas..." (p. 1) whilst Adams (2003, p. 25) is marginally more focused with "...innovation is about the creation and implementation of a new idea in a social context with the purpose of delivering benefit(s)..." Despite these, innovation is generally regarded today as being product or process based (Damanpour 1991; Mohr 1969; Nohria & Gulati 1996). However, this research adopts the broader Schumpeterian view of

² Schumpeter, J. (1934). The theory of economic development, Harvard University Press, Cambridge.

innovation and combines it with the Adams (2003) notion of context so that ***innovation is regarded as the qualitative change of an existing or creation of a new product , process, market, sources of raw materials or form of governance new to an industry for the purpose of delivering benefits.***

However, much less is written about ‘co-innovation and to develop an appropriate definition the previous definition of innovation from much older literature has been integrated into more modern conceptions of ‘co-innovation’.

Two forms of co-innovation appear in the literature; firstly, ‘horizontal co-innovation’ where businesses collaborate with competitors, non-competitors, research institutions or government (Bossink 2002; Xu et al. 2000) and secondly, ‘vertical co-innovation’ (Bonney et al. 2007; Royer & Bijman 2009; van Blokland & Santema 2006). Bonney et al. (2007, pp. 395-6) defined it simply as: “...innovation at the interfaces between functional departments within organisations and between organisations in the value chain.” Thus, ***co-innovation in a value chain occurs when two or more companies in that chain collaborate to innovate in product, process, raw material inputs, markets or governance to improve the efficiency and/or effectiveness of delivering value to consumers and overall sustainable competitive advantage of the whole chain.***

1.6.5.Motivation, incentives, incentivisation and incentivitation

Pattanayak (2006) citing Pinder (1998) provides a definition inclusive of the different theoretical perspectives on work motivation: “Work motivation is a set of energetic forces that originates both within as well as beyond an individual’s being, to initiate work-related behavior, and to determine its form, direction, intensity, and duration.” (p. 11). This definition identifies motivation as an energising force that induces action in employees and impacts the form, direction, intensity, and duration of behaviour.

‘Incentives’ on the other hand, are stimuli introduced into the work environment to encourage workers to accomplish their individual work-oriented goals e.g. a productivity-linked bonus (Vroom 2005). Seen in another way, motivation is an ‘end’ whereas incentives provide the ‘means’. Incentives induce or elicit motivation in individuals and groups.

‘Incentivisation’, in the context of value chains, is the process of delivering a package of incentives that promote organisational, managerial and employee behaviours that align with chain and organisational goals and values. Incentivisation is often referred to alternatively as ‘reward and recognition’ (Koulikoff-Souvion 2002) and is frequently regarded in the corporate world as a function of human resource management (HRM).

‘Incentivitation’ is the collective noun used to describe the system of incentives referred to in the previous paragraph.

1.7. Justification of the delimitations of scope and key assumptions

This research examines “How are employees, executives and firms incentivised to co-innovate in agrifood chains?” The explanations in Section 1.1 - 1.2 have established that the incentivisation of individual employees and executives as well as firms that comprise a chain are strategic issues in achieving the co-innovativeness that is important to competitive advantage in global markets. It has also established that agrifood chains have characteristics sufficiently different from other manufacturing industries (Friedland, 2004) (Section 2.3), where the majority of value chain research is conducted, to justify this research focused on agrifood chains.

Small local markets are an important segment of the agrifood sector but the majority of Tasmania and Australia’s farmers rely on larger supply chains, such as those supplying the major supermarkets, for the bulk of their business income. Part of the intent of this research was to provide understanding of how incentives are managed to the largest possible cohort of farmers, processors and researchers who might benefit, including those overseas in Developed Countries. Hence, this research focuses on three contrasting agrifood chains in Australia and North America supplying large supermarkets which involve complex logistics and large volumes of product.

Such chains frequently have large asymmetries of power and capability between the retailer, their lead firm which coordinates the chain and the large number of upstream farm suppliers. Due to the complex interactions that influence the design of incentives and their motivating effects, this research investigated the factors operating within and between multiple levels of the incentivisation phenomenon; individual employees, executives and firms within a single value chain system.

In choosing to explore the phenomenon of value chain incentivisation from the constructivist-interpretivist paradigm I have made a number of assumptions that need to be made explicit (Table 3.1) (Collis & Hussey 2003; Creswell 2003; Denzin & Lincoln 1994):

1. My ontological question is “What is the real world of incentivisation in agrifood value chains?”
My ontological assumptions are that:
 - a. The reality of the incentivisation phenomenon is subjective with multiple meanings as seen by the participants in each value chain studied and this is both produced and reinforced by these actors. These will be localised and specific to the chains investigated although there may be elements that will be shared in other chains, in other industries and even across cultures. However, these ‘constructions’ of realities only relate to those who hold them and are dynamic so cannot be viewed as ‘truth’. On one hand, some will converge or “...coalesce around consensus...” (Guba & Lincoln 1994, p. 112) and on the other, there will be dissent (divergence) (Rao & Perry 2003; Riege & Nair 2004). Both views are of value to this research;

- b. Various forms of incentives and the types of motivation that result are inter-related and idiosyncratic, thus complex and multi-level. Understanding the observable outcomes of incentivisation requires an understanding these interactions;
 - c. Executives of chain partner firms, particularly those of the lead firm, are able to use incentives to manage the motivation of employees and partner firms to achieve co-innovation.
- 2. My epistemological assumption is that in order to 'know' that subjective world I, the researcher, need to interact with those people and firms being researched. In doing so my beliefs, values and interests will shape my interpretation. So my understanding of the phenomenon relies on a continuous cycle of constructing and refining concepts based on my progressively developing understanding of the shared meanings and experiences of the research respondents. Thus my perspective is interactionist and transactional (Guba & Lincoln 1994);
- 3. My axiological assumption is that the research will be value-laden and biased hence the researcher's values and beliefs must be made explicit (Section 3.2). Values will be critical to understanding the nature of the phenomenon;
- 4. My rhetorical assumption is that the language of the research, the definitions, language-based concepts, values will be personalised, first-person accounts of lived experiences. The researcher is the "...passionate participant..." (Guba & Lincoln 1994, p. 115) constructing knowledge from multiple voices;
- 5. My methodological assumption is that contrasting case studies employing inductive processes, emergent design and the mutual shaping of concepts about incentivisation, although context-bound, can develop patterns and theories that provide accurate and reliable insights into the phenomenon through verification.

1.8. Outline of the thesis

The thesis developed from this research is approximately 110,000 words in length and comprises seven chapters. Briefly, the content of the following chapters is:

Chapter 2 – A review of the literature

Chapter 2 provides a multi-disciplinary³ review of the literature relevant to the research question which asked: "How are employees, executives and firms incentivised to co-innovate in agrifood value chains?" It provides a background understanding of the variables that facilitate or inhibit the co-innovation phenomenon, then explores in-depth the literature from a wide range of disciplines and perspectives that provide an understanding of individual and organisational motivational theory. From this a model of recursive hierarchical incentive systems conceptualises how firm level incentivisation occurs which combines with an integrated model of individual incentivisation as a

³ Tress, Tress and Fry (2006) define 'multi-disciplinary' as multiple disciplines researching one phenomenon or theme with different goals. This is further explained in Section 2.1.

conceptual multi-level model of how firms are incentivised to co-innovate in agrifood value chains. From this review, some subsidiary research questions are proposed which assist in answering the core research question.

Chapter 3 – Research methodology

Chapter 3 considers the complexity and nature of the research question taking into account the researcher's world-view, experience and skills as well as the appropriate philosophical, paradigmatic and methodological alternatives for an appropriate research design. This process developed a question driven constructivist-interpretivist paradigm for the research and a phenomenological strategy using Type 3 configuration for multiple case studies (Yin 2003) collecting multiple sources of data from semi-structured interviews using convergent interviewing techniques. It then analyses these data using qualitative content analysis, assisted by NVivo 8 software to manage data, link concepts, identify relationships and build descriptions and explanations of the phenomenon.

Chapter 4 – Analysis and findings – case study 1

In the first case study, the chain employs a market form of governance with seriously misaligned inter-organisational goals and incentives which resulted in transactional exchanges and highly individualistic behaviour by the firms in the chain. Amongst the chain partners, a normative-gain motivational frame ensured a norm-driven, risk-averse culture lacking in market and profit orientation. Consequently, the chain failed to deliver value to consumers and so was losing market share, performing poorly with low profitability and was experiencing opportunistic behaviour by its key suppliers as they sought to improve their market access.

Chapter 5 – Analysis and findings – case study 2

In Chapter 5, the chain investigated had a modular or contract specifications form of governance. Individual firm strategy, culture and motivational frames are not aligned and as a result, businesses and people use different methods to work towards different goals. The inter-organisational structures and processes of co-innovation are also critically absent or poor due to the incompatibility, dysfunction or non-existence of partner ICT systems. Similarly, the chain's lack of co-innovation competence and modular form of governance uses formal contracts and the regular application of opportunistic, coercive power appeared to contribute to antagonistic relationships and inhibit co-innovation.

Chapter 6 – Analysis and findings – case study 3

Chapter 6 presents a more relational, co-innovative value chain focused on delivering a wide range of value-added, plain label salad products to a major national supermarket. Despite a major asymmetry of power and capacity between the chain partners it demonstrates a strongly relational, collaborative hybrid form of governance. There is a high degree of strategic alignment with 'contingent

relationship management' for its suppliers, multiple types of incentives and a situationally-based mix of formal and relational contracting employed between firms. This has resulted in consistent high level growth in volume, turnover and profit sustained over many years.

Chapter 7 – Conclusions and implications

Chapter 7 provides an understanding of the key findings from the three case studies as they relate to the subsidiary research questions and the emergent themes. It confirms the theoretical model (with minor amendment) illustrating the inter-relationships between strategic governance factors, inter-organisational facilitators and intra-organisational factors, highlighting the complexity of the phenomenon of incentivisation in agrifood value chains. A number of propositions are developed that may provide the basis for future research and also identifies the unique research contributions in proposing a multi-level model of agrifood value chain incentivisation. The implications of value chains, incentivisation and motivation, co-innovation and collaboration for theory and practical managers are discussed. The chapter concludes with consideration of the research limitations, its implications for methodology and provides some guidance for future research.

1.9. Summary

This chapter has provided a brief overview of the status of agrifood chains generally and Australian agrifood chains in particular. It has highlighted how the new forms of agrifood competition that have emerged in the last twenty years are based on innovation rather than price and that the locus of competition has moved from individual firms to collaborative, integrated value chains. It has argued that agrifood chains are a different case to say automotive or electronics chains because of asymmetry in numbers and business capability. The research problem was identified as being that the current research largely focuses on individual components of the collaboration and innovation phenomena and lacks a systemic approach for understanding how whole value chains are managed. The current literature was briefly reviewed and a research project justified on the basis of its contribution to both research and practical agrifood chain management. A methodology was then proposed within the scope of co-innovation between two or more firms operating in a value chain and finally a brief overview of the thesis chapters was provided.

Chapter 2: A Review of the Literature

2.1. Introduction

Chapter 1 identified how global agrifood value chains are now driven to continuously innovate to meet emerging consumer demand for choice and are increasingly collaborating in the inter-organisational spaces in order to improve efficiency, effectiveness and create value. This requires greater chain coordination and collaboration so the locus of competition has shifted from individual businesses to whole chains (Christopher 1998; Feller, Shunk & Callarman 2006; Maqsood, Walker & Finegan 2007; Porter 1998; Powell, Walter W., Koput & Smith-Doerr 1996; Sporleder & Peterson 2003). This shift also requires a shift in management thinking from that in traditional value chains where individual firm strategies remain the primary driver to one where chain strategy is the primary driver. In essence, this changes the view of value chain management (VCM) from a supporter of strategy where it is simply a mechanism to get products to the consumer, to one where it is critical to performance and therefore is a key element of strategy (Gibson, Mentzer & Cook 2005; Ketchen, JDJ & Hult, GTM 2007).

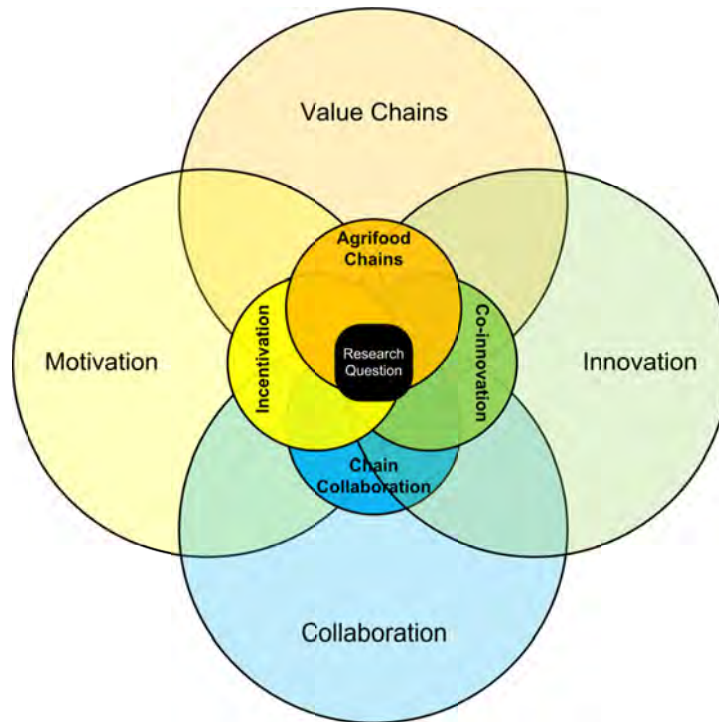
Several empirical investigations (Gimeno, J., Dial & Sengul 2001a; Gottschalg & Zollo 2007; Hult, G. T. M., Hurley & Knight 2004; Vincent, Bharadwaj & Challagalla 2005b) have linked firm incentives to innovation and firm performance. Therefore, this thesis seeks to investigate how firms and people are incentivised to collaboratively innovate or ‘co-innovate’ in agrifood value chains. However, several analyses of the literature in the relevant fields have lamented the lack of cross-disciplinary approaches to whole chain analysis (Friedland 2004; Halldorsson et al. 2007; Sachan & Datta 2005; Werner & Ward 2004) and it has been found that the field is poorly defined, theoretically diverse but narrowly focused on manufacturing and is methodologically narrow and positivistic (Burgess, Singh & Koroglu 2006). Further, Sachan and Datta (2005) found very little research focusing on the facilitators and inhibitors of co-innovation. For these reasons, this thesis will adopt a systems approach to investigating three agrifood value chains cognisant of Friedland’s (2004) comments regarding the complexity of the task.

As already stated in Section 1.5, the research design that resulted met the three requisites posed by Chen and Kanfer (2006, p. 225) in one of the few multi-level motivation studies to develop “...a true multi-level conceptualisation of motivated behaviour...” This involves 1) identification of parallel or functionally similar constructs or relationships, 2) consideration of cross-level influences and, 3) consideration of the antecedents and outcomes of motivation at both individual and group levels.

Therefore, to undertake a multi-disciplinary research project it must be grounded in the existing theoretical base of the component disciplines: value chains, motivation, collaboration and innovation. However, these are very large fields of research so whilst this thesis is situated in these broad areas, it

must focus on the four sub-disciplines as outlined in Figure 2.1. The confluence of these four sub-disciplines contains the research question: “How are employees, executives and firms incentivised to co-innovate in agrifood value chains?”

Figure 2.1: Core research disciplines



This literature review will proceed to address the extant research in each of these disciplines, but first, it is also useful for understanding a multi-disciplinary concept such as co-innovation to place it in the context of the theoretical perspectives found in the literature. Tress, Tress and Fry (2006) describe ‘multi-disciplinary’ as involving several different academic disciplines researching one phenomenon with different disciplinary goals whilst ‘interdisciplinary’ involves unrelated disciplines from different paradigms studying a phenomenon with a single goal. Thus, combining perspectives is a common approach adopted by inter-organisational researchers (Ganesan 1994; Palmatier, Dant & Grewal 2007; Siguaw, Simpson & Baker 1998) and so the following section will explore relevant underpinning theories and categorise them into four perspectives to aid in the analysis of the literature.

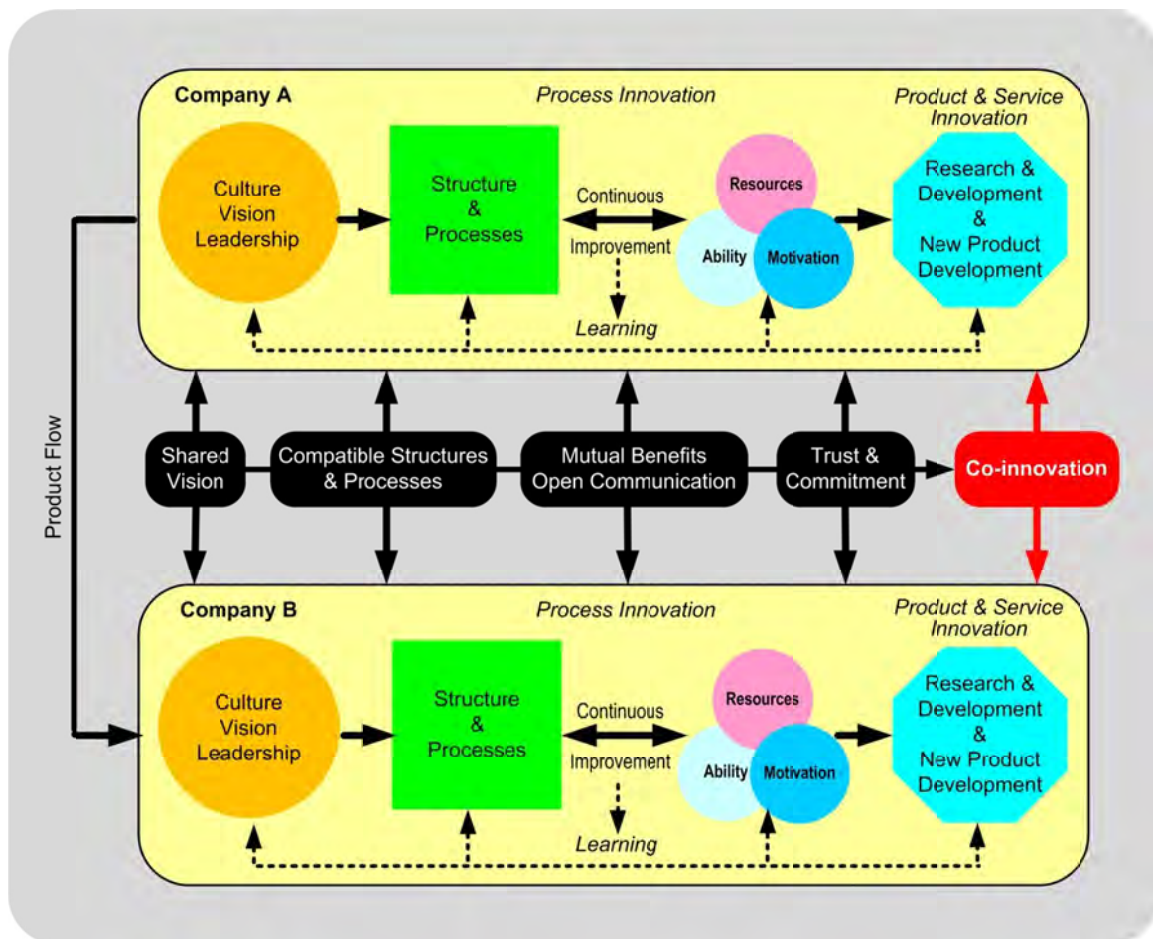
2.2. Theoretical perspectives in Value Chain Management (VCM)

Perspectives are mental models or approaches by which researchers make assumptions about the world, integrate information and attempt to give general meaning yet focus in on an aspect of that world to draw a specific set of conclusions (Long 2007). Halldorsson et al (2007) concluded that there is no unified theory in the field and that using a dominant perspective complemented by one or more other relevant perspectives has the most utility. Whilst a theoretical perspective consists of a single, epistemologically coherent conceptual position, frequently in PhD research a single perspective may

not be adequate when it involves multiple disciplines or methodologies. In such cases, incorporating multiple perspectives may be appropriate to build the epistemological foundations to answer the research questions (Love 2002).

As this research proposes to involve multiple disciplines it requires the analytical power provided by a multi-perspective foundation. However, as Halldorsson et al (2007) observed, the supply chain literature relies on a wide array of theories and this review found at least thirty four theories employed by researchers in the focal disciplines, so the problem arises as to how to coherently review their influence on VCM. Reference to the Value Chain Innovation Roadmap (Figure 2.2) provides some guidance as we can see the relational or affective (vision, goals and leadership) represented in the construct along with strategic management (structure, ability and motivation), economic (resources and material flows) as well as the technological (processes and open communication).

Figure 2.2: A value chain innovation roadmap



Source: derived from Bonney et al. (2007)

This suggests that, at least for the purposes of this thesis, organising the theories into these four categories may be helpful. There is little consensus on the core perspectives and nomenclature, at least this proposed approach to dealing with theoretical diversity is supported by an analysis of the perspectives described in some supply chain articles (Appendix 1.1 to 1.4).

The strategic management perspective (Appendix 1.1) contributes to understanding that firms collaborate in chains to manage their uncertainties about the supply of resources and competencies necessary to develop a competitive advantage that is inimitable and non-substitutable. Its implications for the Value Chain Innovation Roadmap are significant as it underpins the whole organisation and its relationship with its suppliers and customers, its strategic posture and direction (vision, culture and leadership) and its structure and processes. Thus, the strategic management perspective drives the concept of a shared vision and compatible structures and processes between the chain partners and other organisational characteristics critical to co-innovation such as its policies regarding mutual benefits and open communication.

The economic perspective (Appendix 1.2) is a fundamental one within supply chain management and logistics. Conceptually in the Value Chain Innovation Roadmap it underpins the concept of efficiency in material flows or process innovation, 'added value' based on consumer value attributes as well as cost. It also has implications for resource management in that it highlights the important contribution of economic incentives, broadens the notion of assets and the pre-eminence of the new product development (NPD) function as innovation. Its recognition of intangible resources also enables a broader analysis of the value of relationships, knowledge (tacit and explicit) and non-economic incentives whilst enabling broader forms of innovation outside of product and service innovation.

The relational perspective (Appendix 1.3) is fundamental to the concept of the Value Chain Innovation Roadmap as it provides the principles of formal and informal governance⁴ of chains as collaborative systems and the notion of the capacity to use relational interaction with chain partners to develop informal, idiosyncratic processes that improve value-adding and add sustainable competitive advantage. The relational perspective explains the strategic human dynamics of vision, culture and leadership and the critical enablers of innovation and shared vision, cultural alignment and strategic leadership are posited as critical for successful co-innovation. Likewise, the roadmap model suggests that shared learning and the aggregation of knowledge and intellectual property (IP) across the chain combined with extrinsic and intrinsic motivation is necessary to encourage individual employees to exhibit co-innovative behaviour and firms to act in the chain's interests because ultimately it benefits their own interest (self-interest). This is cognisant with Jensen's (1994) view of the "...central proposition of agency theory [which] is that rational self-interested people always have incentives to reduce or control conflicts of interest so as to reduce losses..." (p. 14).

The technological perspective (Appendix 1.4) posits that in order to control a complex system such as a value chain, the governance system must generate at least as much complexity as the system that it

⁴ Governance in the sense used in this thesis involves the non-market coordination of value chains; that is, the formal and informal activities associated with the production, processes, logistics and relationships which enable a chain to deliver products (value) to consumers. It has been conceived as being of two broad types; 'formal' governance using explicit contracts and, 'relational' using norms and social ties from prior experience (Geyskens, I, Steenkamp, J-BEM & Kumar, N 2006; Kaplinsky, 2001; Williamson, OE 1979).

is trying to control. The perspective regards technological solutions as the key enabler of VCM and innovation. It provides essential underpinning theory for the communications, forecasting, demand management and performance management functions. It can be used to analyse structural mechanisms and asymmetrical power, control and communication processes, as well as relationships (environmental and competitor) with the external environment.

Therefore, the Value Chain Innovation Roadmap provides a framework for focusing diverse theoretical perspectives, the strategic management, economic, relational or affective and the technological, on supply chain phenomena.

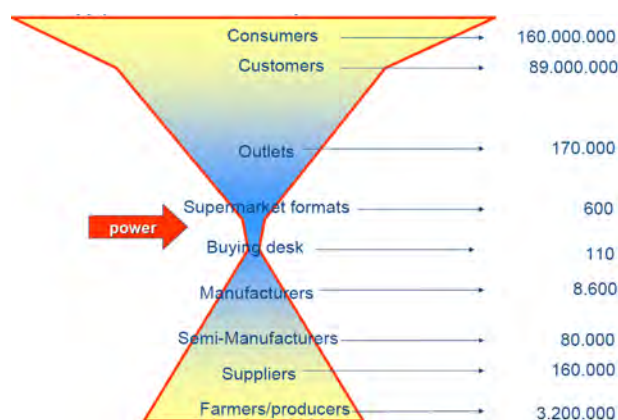
Having explained the core disciplines and theoretical perspectives that underpin this research, the review will now proceed as previously indicated at the end of Section 2.1 to address the four inner, greyed core discipline areas in Figure 2.1 and briefly explain why the focus of this research is on agrifood value chains.

2.3. Why focus on agrifood chains; why are they different?

Three macro-drivers of change have been behind a revolution in global food supply over the last three decades; globalisation of markets, trade liberalisation and pro-corporate de-regulation/re-regulation reducing the influence of the nation state (Ridge Partners 2005; Thompson 2001). This has concentrated unprecedented power in a small number of global food retailers that has transformed the global food market. In Australia, two major supermarkets have seen their market share grow from 40% in 1975 to 79% in 2011 with a turnover of AU\$59 billion (Burch & Lawrence 2007; National Association of Retail Grocers of Australia 2011).

This concentration, which appears to be similar to developments in Europe (Gievink 2003) (Figure 2.3), now exerts extraordinary power over the large number of food processors and farming suppliers that supply them (Cox & Chicksand 2007). From a value chain participant's perspective, this power is

Figure 2.3: The supply chain funnel in Europe



Source: Grievink (2003)

frequently exerted to drive down commodity prices, act opportunistically to leverage short term advantage in supply arrangements, promote the supermarket's 'own brands' that disadvantage suppliers (particularly farmers) and exert control over the operations and development of suppliers (Cox & Chicksand 2007). Australian producers of agrifood commodities are becoming increasingly uncompetitive because they now have to compete with many international producers

advantaged by lower cost structures (DPIWE & DED 2005; Vanclay, Frank 2003). Australian

agrifood value chains are characterised by a large number of small, diverse, relatively powerless upstream suppliers and a small number of large, downstream buyers (processors) and retailers (supermarkets). Grunert et al (1995) have highlighted the difference in innovation capabilities between these two groups. SMEs have limited capacities of time, resources, expertise, market knowledge and, for some, motivation as their reason for farming, are often lifestyle-based (Vanclay, Frank 1998, 2003; Vanclay, F., Mesiti & Howden 1998). This has produced low levels of collaboration and a lack of more broadly-based forms of innovation, so few chains exhibit co-innovation (Cooke 2003; Hastings 2001).

Agri-food chains are subject to unique constraints compared to other industries where value chain dynamics are also often more structured and integrated. Agri-food production is characterised by:

- Long *inflexible* production lead-times;
- *Seasonal* production periods;
- *Perishability* and consequent short shelf-lives;
- Biologically driven *variability* that affects processing yield, transport and storage;
- *Government regulation* constraints regarding environmental issues and food safety;
- Strong *consumer perceptions* about quality and production methods (e.g. organic vegetables or free range eggs) (Aramyan et al. 2006).

Despite these important differences, there has been a lack of research into SCM in the agri-food industry. This has been highlighted by Cunningham (2001) who undertook an extensive study of the leading global databases between 1987-2000 and found only one hundred and twenty three formal, peer reviewed journal articles for this industry.

The differences in the agri-food industry, the lack of research of whole agri-food value chains and its increasing lack of global competitiveness provides this research with an opportunity to make a theoretical and practical contribution that may assist in improving the innovation that occurs between firms in a value chain to improve performance and competitiveness.

The diagram of the discipline focus for this research (Figure 2.1) identified that value chain collaboration is of central concern to co-innovation. Not only is collaboration an integral part of the 'co-innovation' definition, but many writers concur that it plays an important role in chain integration, improved performance and innovation (Eisenberg 1999; Gottschalg & Zollo 2007; Lee, HL 2000; Sauermann 2006, 2008; Simatupang & Sridharan 2007; Soosay, Hyland & Ferrer 2008), so the next section will review the literature regarding value chain collaboration.

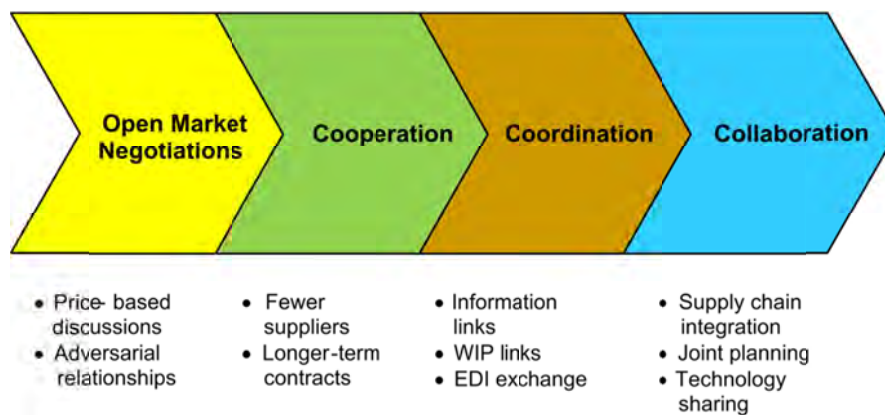
2.4. Collaboration - the foundation for co-innovation

The term ‘collaboration’ is frequently used to describe a wide variety of inter-organisational, intra-organisational and inter-personal relationships such as partnerships, alliances, joint ventures, networking and consortia. Gattorna, Ogulin and Reynolds (2003) believe that collaboration will be the area that brings most benefit to supply chain performance in the future. Simatupang and Sridharan (2002; 2007) have described chain collaboration as “...the act of properly coordinating joint decisions, information, incentives and learning for the achievement of the chain’s goal” (p. 306). Empirical research has found external and internal collaboration is synergistic if driven by external collaboration but alone it is insufficient to improve performance (Stank, Keller & Daugherty 2001). Thus, collaboration is a central function for achieving co-innovation in value chains.

Collaboration with existing or potential suppliers and customers provides firms with the means to supplement their own capabilities and resources to innovate as well as sustain and strengthen their competitive position. It provides complementary assets, codified and tacit knowledge as well as the ability to leverage these to advantage and spreads the risk and cost of R&D (Blomqvist, K. & Levy 2006; Bossink 2002; Faems, Van Looy & Debackere 2005).

Spekman et al (1998) has developed the much cited ‘The Three C’s Model’ (Figure 2.4) of collaborative practices from adversarial and opportunistic relationships in open markets through cooperation and coordination to collaboration which, in the words of Spekman et al, “is the starting point for SCM and has become a necessary but not sufficient condition” (p. 634).

Figure 2.4: The transition from open market to collaborative relationships



Source: Spekman et al (1998)

Each transitional stage requires higher levels of trust⁵ and commitment⁶. Spekman et al (1998) identified the drivers as being increased consumer satisfaction, improved profits, secure sourcing, reducing overall operating costs, strategic positioning, reduced costs and improved efficiencies. In

⁵ Trust is the belief that a supply chain partner will forgo opportunistic behaviour and act consistently to meet their obligations (Ebert 2007).

⁶ Commitment is the devotion of effort and resources by trading partners to sustaining a relationship with long term intent (Cox 2004; Smith, D et al. 2008).

developing this model, Spekman et al (1998) highlighted that this transition is difficult requiring increasingly higher orders of “mindset and strategic orientation” (p. 635). However, a dynamic perspective of collaboration⁷ is of growing influence, particularly amongst network researchers, because of its operational utility for collaboration and network management (McFadden 2001; Powell et al. 2005). It takes a dynamic view of many factors of collaboration with stage theories (Ring & van de Ven 1994), a developmental view of trust (Browning, Beyer & Shetler 1995), notions of interdependence Lejeune and Yakov (2005), collaboration as competitive learning between partners (Hamel 1991) and evolution by multiple reinforcing cycles (Ariño & de la Torre 1998; Doz 1996; Gulati & Gargiulo 1999; Kampstra, Ashayeri & Gattorna 2006).

Firms in a supply chain enter collaborative arrangements to achieve their own goals (self-interest), negotiating among competing interests and brokering consensus among competing value systems, expectations, and the rational, self-interested motivations of all the participants (Baxter 2005). If collaboration threatens their self-interests, organisations will not hesitate to renegotiate or exit the arrangement. Thus in practice chain relationships are dynamic, constantly under review and highly dependent for their developmental level, progression or regression and continuation on both formal and informal perceptions of key issues which are highly idiosyncratic for each participant.

The term ‘coordination’ is frequently used interchangeably with ‘governance’ (Kampstra, Ashayeri & Gattorna 2006). Governance is explained in more detail later in this thesis (Section 2.13.1), but for now should be understood in its broadest sense as “...establishing and structuring exchange relationships as well as aspects of monitoring and enforcement...” (Heide 1994, p. 72). Two closely related conceptions appear to be widely cited. The first, Gereffi, Humphrey and Sturgeon (2005) is a model for global value chains based on empirical research that included a case study of a vegetable value chain. It is based on three factors: the complexity of information and knowledge required, the extent to which this can be codified and supplier’s transactional capability. This resulted in a continuum of five types of chains being identified: markets, modular value chains, relational value chains, captive value chains and a hierarchy or fully integrated chain. This model appears to have some utility in the agrifood industry because it accommodates the variable capabilities of suppliers and the nature of the transactional information/knowledge required.

The second conception by Peterson, Wysocki and Harsh (2001), later empirically confirmed in an agricultural context in Wysocki, Peterson and Harsh (2003), is more applicable and understandable in some agrifood situations. The governance continuum uses the typology of ‘spot/cash markets’, ‘specifications contract’, ‘relationship-based alliance’, ‘equity-based alliance’ and ‘vertical integration’ (p. 174); terms which may be closer to colloquial industry usage than those in the Gereffi

⁷ The dynamic perspective of collaboration which focuses on the processes of formation, evolution and dissolution of relationships and takes a more systemic view though this perspective is less well researched and unified (Davis 2005).

et al model. In addition, Wysocki, Peterson and Harsh provide a “vertical coordination strategy selection” (p. 176) model that may have practical utility.

The complex, multi-layered, dynamic and iterative nature of collaboration emerging through these conceptions is an important development since Spekman et al’s (1998) model. They are of relevance here because they provide insights into the difficulties to be faced in managing the development of collaboration which appears to be somewhat more complex than is implied in the lineal and unidirectional developmental model in Figure 2.4 (Barringer & Harrison 2000; Pittaway et al. 2004).

This review, in developing an understanding of the literature relevant to the research problem of how to incentivise co-innovation in agrifood value chains indicated in Figure 2.1, has so far highlighted some of the unique problems faced in agrifood chains and the complexities in developing chain coordination. The following section will proceed to review the extant knowledge about co-innovation.

2.5. Co-innovation as strategy

The challenge of coping with dynamic global markets, added complexity and the vagaries of market uncertainty has spawned new business forms and new organisational competencies (Marshall et al. 2006). Vanhaverbeke & Peeters (2005) argue that strategic vision drives firms by creating a misalignment between the current and future states which both drives and is driven in an iterative process by the firm competencies producing a new cognition of strategy. They posit that most successful businesses develop new competencies through a series of new corporate ventures or innovation and so inextricably link it to strategy. Thus, the alignment of strategic vision with innovation and competencies is a crucial capability of any management team (Elenkov, Judge & Wright 2005; Vanhaverbeke & Peeters 2005).

One of these new business forms which requires new organisational competencies is value chain co-innovation to create consumer value (Alakeson & Sherwin 2004). Ultimately, the ‘value’ in ‘value chains’ is driven by the firm’s capacity to co-innovate and so business alliances, partnerships and networks with non-competitors and competitors alike have developed in order to give individual firms within chains the breadth and depth of organisational competencies that they need to innovate collaboratively. Hence, this study will focus on ‘vertical co-innovation’ between firms in a value chain.

A number of studies have pointed to the important role that external collaboration plays in providing innovation capability and enhancing consumer value (Faems & Van Looy 2003; Mahnke & Özcan 2006; Moller 2006) and it appears that many companies are now seeking a strategic balance between internal and external innovation for radical (path creating) rather than incremental (path dependent) innovation (Odenthal et al. 2004; Van Looy, Martens & Debackere 2005). Innovation has been found to be strongly positively correlated to superior financial performance for firms (Hult, G. T. M., Hurley & Knight 2004; Lawson & Samson 2001; Vincent, Bharadwaj & Challagalla 2005a; Walker, RM

2004) as well as alliances and chains (Ahuja 2000a; Baum, Calabrese & Silverman 2000; Gulati 1998; Prajogo, Power & Sohal 2004; Ring & van de Ven 1994) thus establishing the link between collaboration, innovation, organisational performance and competitive advantage. Hence, the locus of competition has moved from individual firms to whole value chains (Christopher 1998; Feller, Shunk & Callarman 2006; Maqsood, Walker & Finegan 2007; Porter 1998; Powell, Walter W., Koput & Smith-Doerr 1996; Sporleder & Peterson 2003) and collaboration between chain members for innovation or 'co-innovation' has emerged as a core strategy to achieve competitive advantage.

This does not mean that companies neglect their internal innovation but rather, employing strategic foresight to anticipate trends and conditions, they make a much more focused, explicit linkage of their skills and knowledge with strategic partners to achieve a synergistic form of innovation not otherwise achievable (Odenthal et al. 2004; van der Meulen, de Wilt & Rutten 2003). However, many studies point to the difficulties of collaborating and innovating with external partners (Barringer & Harrison 2000; Nickerson & Silverman 2003; Pittaway et al. 2004b) and the failure rate varies across a range of countries and settings from fifty to 75% (Cozijnsen, Vrakking & Ijzerloo 2000; Park & Ungson 2001; Wilding & Humphries 2006).

Collaborative innovation between two or more companies in a value chain, called 'co-innovation' in this thesis, by definition requires collaboration to occur however there appears to have been little research conducted on the motivations for companies in chains to look outside themselves to collaborate for innovation (Section 1.6.4). Inter-organisational collaboration usually only occurs by purposeful design through corporate strategising (Bruch & Ghoshal 2004). As such, it falls into the category of 'cooperative strategy', a part of the strategic management literature which relates particularly to alliances and partnerships. It is to this body of literature that we have to turn to find some understanding of the corporate motives for co-innovation (Child, Faulkner & Tallman 2005).

Cooperative strategy between two or more firms is an attempt to achieve commonly held or similar objectives that each alone could not achieve because of deficiencies of knowledge, competency, resources or market access (Child, Faulkner & Tallman 2005). The development of cooperative strategy requires supply chains, amongst other things, to align individual business strategies with chain strategies to focus effort (Bolton & Dwyer 2003; Dyer, JH & Singh 1998; Gattorna, JL 2009; Kampstra, Ashayeri & Gattorna 2006; Sandberg 2007; Zajac, Kraatz & Bresser 2000). There also appears to be little equivocation about the need for alignment or 'congruence' between strategy, values and culture (Defee & Stank 2005; Edwards & Cable 2009; Kroes & Ghosh 2010; Lavie, Haunschild & Khanna 2011; Meglino & Ravlin 1998; Rao Tummala, Phillips & Johnson 2006; Roh, Hong & Park 2008; Shub & Stonebraker 2009) and VCM's contribution to competitive advantage (Collins, R & Lim-Camacho 2005; Defee, CC 2007; Dupre & Gruen 2004; Fischer et al. 2009; Gracia, Magistris & Albisu 2010; Hunt & Davis 2008; Lavie 2006). In their application of strategy-structure-performance theory to supply chains, Defee and Stank (2005) explicitly incorporate

individual and organisational 'rewards' that support strategy into the structural component of the internal supply chain environment.

Shields' (2007) has undertaken a useful integration of several of the most recognised corporate strategy models from Porter (1985), Schuler and Jackson (1987) and Miles and Snow (1978, 2003) identifying similarities and then integrating them into four of his own generic strategies: cost defender, quality defender, analyser and prospector. Whilst this typology was developed to enable categorisation of single firms it should also be able to be applied to value chains because highly integrated chains have been identified as acting as if they were a single company (Ketchen & Giunipero 2004). In this thesis, Shields' (2007) conception may have some analytical utility because it encompasses the range of strategies from conservative to aggressive entrepreneurship and incorporates the element of quality and brand management.

Strategy also involves matching the product with the appropriate type of chain to deliver value to the consumer; functional (commodities) products with efficient chains or innovative (niche) products with market responsive chains (Albers, Gehring & Heurmann 2003; Fisher 1997). If a mismatch occurs consumers will fail to have their value needs met and the chain partners will become frustrated by failing to generate the anticipated value for the chain to share.

There appears to also be considerable support for the notion of the importance of managerial mental models to developing the co-innovative attributes of the chain (Gary & Wood 2011; Van de Ven, Andrew H. & Sun 2011). It appears that chain partner cognitive capabilities and perceptions of complexity and risk impact on the choice of governance (Hendrikse 2003; Sirmon, Hitt & Ireland 2007) and the type of governance implemented is a major influence on relationship management including incentives (Grzeskowiak 2006). Further, the mental models individually and collectively implemented by managers determine the executive style of management, particularly with regard to strategy, values, culture and leadership of their individual firms and chain relationships (Elenkov, Judge & Wright 2005; Gimeno, J., Dial & Sengul 2001b). Other studies identify the importance of mental models to performance per se (Gary & Wood 2011; Osborne, Stubbart & Ramaprasad 2001; Pandza & Thorpe 2009) and innovation in particular (Gellynck, Kuhne & Weaver 2011; Roucan-Kane & Boehlje 2009; West 2002). Thus, managerial mental models are an important influence in the way agrifood value chains are managed. They can facilitate change and be malleable through learning processes or be involved in inaction through competing mental models or in resisting change (Van de Ven & Sun 2011; Walker et al. 2006).

Even the mental models about VCM itself appear to mediate willingness to implement the concept. Fawcett and Magnan (2001) found some industry cynicism about VCM as being just another fad and 20% of those investigated had not implemented it because of a lack of channel leverage or senior management support. This suggests that the benefits of VCM and the factors involved in developing

co-innovation are not widely understood or communicated and that a coherent body of theory has not been compiled to support its implementation. This may be understandable as the results from investigations of benefits from VCM have been variable (Corsten & Kumar 2005; Duffy, Fearne & Hornibrook 2003; Fearne, Duffy & Hornibrook 2005; Zanquetto-Filho, Fearne & Pizzolato 2003). However, this review has identified the following benefits:

- *Customer benefits* from improved customer service (Fawcett & Magnan 2001; Zanquetto-Filho, Fearne & Pizzolato 2003);
- *Economic benefits* due to cost reduction (Hartwich, Gonzalez & Vieira 2005; Holweg et al. 2005; Zanquetto-Filho, Fearne & Pizzolato 2003);
- *Profitability and sales growth* (Hartwich, Gonzalez & Vieira 2005; Ledwith & Coughlan 2005; Zanquetto-Filho, Fearne & Pizzolato 2003);
- Improved *business resilience* due to a more sustainable competitive advantage (Bryceson 2006; Fawcett & Magnan 2001; Hartmann, Hoffman & Simons 2010; Ledwith & Coughlan 2005; MacCormack et al. 2007);
- Enhanced *new product innovation* and development (Harabi 2002; Hartwich, Gonzalez & Vieira 2005);
- *Better inter-organisational relationships* with reduced opportunism resulting from increasing trust (Pittaway et al. 2004a), increased information sharing (Holweg et al. 2005), and the strategy of using preferred and tailored relationships (Fawcett & Magnan 2001);
- *Organisational learning* from new learning (Huxham & Hibbert 2005; Pittaway et al. 2004a) and knowledge creation (Blomqvist & Levy 2006) as well as knowledge spillovers (Huxham & Hibbert 2005; Pittaway et al. 2004a);
- *Improved organisational competencies* through pooling complementary skills (Hartmann, Hoffman & Simons 2010; Pittaway et al. 2004a).

So whilst on one hand the evidence of benefits emerging from a co-innovation strategy appears to be considerable, on the other there is also some evidence of variable outcomes. This appears to be cognisant with the parallel evidence of high failure rates for VCM suggesting that designing and implementing VCM and co-innovation strategies is complex and difficult. This makes the case for this investigation into the phenomenon even more compelling and suggests that understanding the key variables involved may be important to this investigation.

2.6. What are the theoretical variables involved in co-innovation?

The review has so far established that collaboration is a central function for achieving value chain goals such as co-innovation by providing the means for firms to complement their own resources and competencies, spread the risk and manage the uncertainty involved in innovation. It has found evidence that collaboration is both a precursor and an integral, on-going condition for co-innovation

to occur (Blomqvist et al. 2007; Davis 2006) and that innovation is strongly positively correlated to superior chain performance, thereby confirming the link between collaboration, innovation, organisational performance and competitive advantage (Chapman & Corso 2005; Hult, G. T. M., Hurley & Knight 2004; Vincent, Bharadwaj & Challagalla 2005b).

This thesis has chosen the model of collaborative innovation between firms in a value chain in Bonney et al (2007) called the 'Co-innovation Roadmap', that extends the current conception of 'co-innovation' beyond horizontal alliances to a vertical form of inter-organisational innovation. The model suggests that the key components of this process are a shared vision, compatible structures and processes, open communication and shared benefits and costs in an environment of trust and commitment enabled by ability, resources and critically, motivation which is the subject of this investigation. These represent the scope of theoretical variables involved in co-innovation.

However, the development of co-innovation in a value chain requires conditions and structures between and within the firms to enable this to occur (Stephens 2006). These may be called 'facilitators' as they facilitate or positively moderate the development of co-innovation. The literature abounds with factors variously called facilitators, antecedents, enablers and other terms that are involved in the dynamics of collaboration and organisational innovation as separate constructs. Similarly there are several terms used to describe other factors that inhibit or constitute barriers to collaboration and innovation and so these are called 'inhibitors' in this thesis (Stephens 2006). Some inhibitors may be the absence of the enablers; for example, low levels of one of the relational variables, 'interdependence' and its components 'reciprocity' (the willingness to reciprocate positive or beneficial actions) and 'mutuality' (common interest) will inhibit or hinder but not necessarily prevent co-innovation from developing.

However, whilst there is some research on collaborative innovation in the alliance and innovation literature, there have been no investigations that establish the factors affecting vertical co-innovation as a distinct construct. In view of the apparent broad acceptance in the collaborative innovation literature that the factors involved its facilitation or inhibition are similar to those involved at an intra-organisational level, this review proceeds on the assumption that there is a commonality of factors across these levels.

In addition, a few factors, such as the absence of trust or communication, prevent co-innovation from occurring and these may be called 'barriers' (Baxter 2005; Kaltoft et al. 2006). It appears that such variables require constant attention in a relationship to ensure that it does not become dysfunctional. However, it also appears that there is a minimum threshold for such factors below which they are absolute barriers to collaboration.

Therefore, the next two sections seek to understand the nature of these facilitating and inhibiting conditions.

2.7. What are the facilitators of co-innovation?

This literature review has found that there are disparate views of what variables facilitate co-innovation and no practical model encompassing the breadth of views to guide researchers or managers. Over sixty six terms have been identified, some with similar or over-lapping meanings but it appears there is no research that provides guidance as to their interaction or relative importance however, a full review of those is beyond the scope of this section of the thesis. There have also been several broad-based approaches to the topic that identified such factors as part of broad ‘competencies’ or ‘capabilities’ (Barratt 2002, 2004b; Fawcett & Magnan 2001; Fawcett, Magnan & McCarter 2008; Lewin & Massini 2004; Macpherson 2001; Peeters & de la Potterie 2005; Rothwell 1992; Seppänen, J 2006; Soosay, Hyland & Ferrer 2008) but these also appear to be of limited utility for this research. Therefore, this review has attempted to develop a more comprehensive typology by clustering these factors into twenty related groups and then thematically grouping them as four ‘conditions’ that appear to influence the development of value chain co-innovation (Appendix 2). These four conditions provide the structure in the following sections to assist in a succinct review.

2.7.1. Relational competence

‘Relational competences’ are the organisational capability to develop and maintain network relationships based on mutual trust, communication and commitment that develop competitive advantage from inter-organisational relationships (Blomqvist & Levy 2006; Dyer, JH & Singh 1998; Marshall et al. 2006).

Lorenzoni and Lipparini (1999) suggest that interfirm relationships play a significant role in strategy and structure, new product development and dynamics of the competency development of partnered organisations. Managers are able to lower exchange costs and optimise the form of governance by recombining their capabilities and internalising specialised knowledge gained from chain partners and the shared learning that takes place within the relationship.

A firm’s ability in selecting valuable and reliable partners, managing those relationships in a chain context over longer time periods (Finch, Wagner & Hynes 2011; Hitt, Keats & DeMarie 1998; Nielsen 2004) and curbing its own tendencies to act solely in its own interest so that its partners will perceive the firm as trustworthy, are essential. However, relational competence appears to be a dynamic capability because at the commencement of a relationship, firms exhibiting relational competence will choose partners who will abide by the industry’s relational norms and have a reputation for fair dealing (Lambe, Spekman & Hunt 2000). As the relationship develops over time, relationship competence is far more oriented towards knowledge sharing, identification of complementary social and economic resources, information exchange, social capital development, cultural alignment and trust – without these there is considerable waste due to misalignment, the lack of codifying relationships and in the need to monitor performance (Finch, Wagner & Hynes 2011;

Marshall et al. 2006). Relational competence is comprised of a number of sub-components which are often interrelated (Seppänen, R, Blomqvist & Sundqvist 2007; Van de Ven, A. H. & Ring 2005):

- *Trust* (Castaldo 2003; Ebert 2007; Kohtamäki, Kekäle & Viitala 2004; Kwon & Suh 2004).
- *Commitment* (Ameseder et al. 2008; Baxter 2005; Blomqvist & Levy 2006; Morgan, RM & Hunt 1994).
- *Interdependence* (Gulati & Singh 1998; Hendrikse 2003; Hülshager, Anderson & Salgado 2009; Lazzarini, Chaddad & Cook 2001; O'Reilly, Haines & Arfini 2003; Spekman, Robert E. et al. 1998).
- *Communication* (Cousins et al. 2006; Ebadi & Utterback 1984; Hummel et al. 2001; Mohr & Spekman 1994; Monge, Cozzens & Contractor 1992; Sydow 1998; Ziegler 2004).
- The exercise of *power* – the ability to leverage resources to appropriate supply chain value (Cox 2004, 2007; Cox & Chicksand 2007; Cox et al. 2002; Fearne, Duffy & Hornibrook 2005; Ferrer, Mario, Hyland & Bretherton 2009; Ferrer, Mario et al. 2010; Harvey 2007; Hornibrook, Sue, Fearne & Lazzarin 2009; Maloni, M & Benton 2000; Wilkinson 1996). Cox et al. 2002 have developed an eight-category framework for analysing dyadic power relationships which may provide a useful analytical tool. It maps 'buyer power resources' (the 'costs of search' and 'scarcity of demand') against the 'nature of supply market scarcity'. This approach appears to be very relevant to many agrifood contexts where there are many small suppliers and only a few large buyers with instances where information about the marketplace is either 'opaque' (hidden but imperfectly discoverable) or has 'transparent' market information.

Of these, trust is the most important to the formation, development and continuation of relationships because the other factors are predicated on the existence of sufficient trust (Hammer 2006; Seppänen 2008; Zaheer & Harris 2006). Trust may operate in two forms, inter-personal and inter-organisational, however it appears they are often linked through boundary-spanners who have a critical effect on interfirm cooperation and opportunism. Where this linkage occurs the stability and longevity of the individual relationship determines the status of the interfirm relationship (Zaheer & Harris 2006).

Ebert (2007) in a meta-analysis of the trust literature between 1966-2006 identified forty two trust variables found operating. For interfirm relationships partnership/collaboration, commitment, cooperation and performance were the most important (in rank order) with culture, independence, industry and opportunism also being highly influential. Interestingly transaction costs only ranked sixth most important. Between individuals, performance, perception, information, communication, control, cooperation, and justice/fairness were ranked most important. Finally, for individuals dealing with firms, organization, information, usability, satisfaction, perception of quality, trustworthiness of the organization, perception of risk were the most critical.

In summary then, whilst relational competence has many essential facets, most appear to be based on the existence of trust.

2.7.2. Compatible co-innovative culture

Organisational culture is a holistic, historically determined, and socially constructed system of shared values defining what is important to a group, its norms and appropriate attitudes and behaviours that guide people's enacted attitudes and behaviours (Detert 2000). Cultural compatibility is an essential facilitator of integration because it helps to build relational capital, manage partnership relationships (Campbell, J & Sankaran 2005) and create relational alignment in the partner selection process that involves the prior steps of technological and strategic alignment⁸ (Emden, Calantone & Droge 2006). Emden, Calantone and Droge (2006) describe culture as being the "cognitions, expectations, mindsets, norms, and values" (p. 337) that influence decision-making and firm behaviour and reduce conflict. Culture underpins values-oriented behaviour and provides the predictability necessary for trust to develop (Huemer 2004). It has been found to be a critical pre-cursor in both collaboration (Balthazard & Cooke 2004; Baxter 2005; Blomqvist & Seppanen 2003) and sustained innovation (Adams 2003; Dombrowski et al. 2007; Khazanchi, Lewis & Boyer 2007; McCosh et al. 1998; Roberts, HC 2010) and business performance (Ahmed 1998; Dombrowski et al. 2007; Ismail & Adbdmajid 2007; Kotey & Meredith 1997; McCosh et al. 1998; van der Panne, van der Beers & Kleinknecht 2003).

The elements of organisational culture that contribute to co-innovation are regarded as:

- *Supply chain leadership* (Boddy, Macbeth & Wagner 2000; Defee, CC 2007; Elenkov, Judge & Wright 2005; Wielemaker 2003).
- *Transparency* (Deimel, Frentrup & Theuvsen 2008; Helper, MacDuffie & Sabel 2000; Hofstede 2002).
- *A market orientation* (Baker, WE & Sinkula 2005; Grinstein 2008; Grunert, K. G. 2004; Keskin 2006; Vázquez, Santos & Álvarez 2001).
- *Organisational learning* (Berghman 2006; Bontis & Fitz-enz 2002; Darroch & McNaughton 2002; Defee, C & Fugate 2010; Hernández-Espallardo, Rodríguez-Orejuela & Sánchez-Pérez 2010; Huemer 2004; Wagner 2003).

2.7.3. Co-innovation architecture

Many writers in the fields of innovation and collaboration refer to the structure or governance of collaborative relationships. Nooteboom (2004) defines governance as the steering of corporate behaviour to satisfy the demands of organisational stakeholders and exploit the potential of inter-organisational relations. Jaatinen et al (2006) believe governance to be a critical factor in collaborative

⁸ Gattorna (1998, p. 3) defines 'strategic alignment' or 'fit' in supply chains as "...the alignment between markets, strategy, culture and leadership, on the premise that the better the alignment, the better the bottom-line performance."

innovation and highlight the complementarity between organisations that is required. Collaboration as a governance mechanism is complex and difficult with cultural differences (Boddy, Macbeth & Wagner 2000) governance failure, interfirm rivalry and self-interest driven opportunism (2001) the main causes of alliance and partnership failure. Nooteboom (2004) recognises the need for the governance of relational risk and relationships and the contingencies that arise within them because of bounded uncertainty. Simatupang and Sridharan (2002; 2007) have developed one of the few models that provides a coherent 'architecture' with five critical elements for managing chain collaboration and co-innovation:

- Chain incentives need to be *aligned* to maximise effort (Cameron & Quinn 2006; Gottschalg & Zollo 2007; Lee, HL 2004; Narayanan & Raman 2004a; Prendergast 1999; Simatupang & Sridharan 2007).
- *Information sharing* enables chain members to capture, store and use the information necessary for chain collaboration, decision-making and performance monitoring (Baihaqui 2007; Kaipia 2007; Li et al. 2006; Patnayakuni, Rai & Seth 2006; Sezen 2008; Simatupang & Sridharan 2007).
- *Decision synchronisation* fosters collaboration between supply chain members (Simatupang & Sridharan 2007)
- *A collaborative performance management system* (Cohen, Kulp & Randall 2007; Delfmann & Albers 2000; Mehra 2005; Narayanan & Raman 2004a; Shen 2005; Simatupang & Sridharan 2007).
- *Integrated value chain processes* encompass the design and implementation of flexible and responsive processes that integrate key chain processes from producer to the consumer (Kudyba 2006; Simatupang, Togar M. & Sridharan, Ramaswami 2002; Simatupang & Sridharan 2007; Trienekens, Hagen & Willems 2003).

However, to extend this to co-innovation it appears necessary for other key elements to be incorporated. Kim and Mauborgne (2009) believe that the failure to align strategy is a key reason for innovation failure whilst Pearce and Ensley (2004) argue the necessity of a shared vision or mental model about a future state for the chain and the tasks that have to be done by all the chain participants to achieve that goal. It also appears that boundary spanning is the key to external perceptions of supply chain leadership and is necessary for effective performance (Defee, CC 2007). Depending on the permeability of the organisational boundary, boundary spanning activity can help a firm acquire new knowledge, improve inter-organisational learning and drive innovation, and can positively affect firm performance (Lane, Koka & Pathak 2006). Therefore, these two additional elements have been incorporated, thus:

- A *shared vision* is a powerful tool for managing networks by creating a common goal, assisting the search for common values, focusing on the consumer and directing learning and innovation (Bolton & Dwyer 2003; Easton, Brown & Armitage 1998; Fawcett & Magnan 2001; Fuchs, Young & Zweidler-McKay 1998; Gattorna, J 1998; Gattorna, JL 2009; Hammer 2006; Jaatinen et al. 2006; Spekman, Robert E, Kamauff Jr. & Myhr 1998) .
- *Boundary spanning* is the critical link between the firm and its environment (Ancona & Caldwell 1992; Christopher & Juttner 2000; Hutt et al. 2000; Joshi, Pandey & Han 2009) and is closely linked to organisational learning, adaptation and new knowledge development which facilitates radical innovation hence must be closely supported by knowledge management (Callahan & Salipante Jr. 1979; Defee, CC 2007; Hallenbeck Jr., Hautaluoma & Bates 1999; Hazy, Tivnan & Schwandt 2003; Ireland & Webb 2007; Shu, Wong & Lee 2005; Taylor 2005).

2.7.4. Innovation competence

In this review, the notion of ‘innovation competence’ is that of Prahalad and Hamel (1990), “corporate-wide technologies and production skills ... that empower individual businesses to adapt quickly to changing opportunities” (p. 81) regarded as the most widely used definition of the term (Manley 2006). A number of writers have focused on innovation competence and it appears to involve the exercise of innovation leadership and the ability to develop an innovation strategy (Munier 2006), learning and relating to external organisations (Gellynck, Vermeire & Viaene 2006; Manley 2006) and developing appropriate culture and governance structures (Nooteboom, B. & Gilsing 2004; O'Connor & Ayers 2005; Rodrigues, Fernandes & Martins 2006). However, the review highlighted, the ‘fit’ between ‘innovation leadership’ and ‘innovation followership’ and specifically transformational forms of those constructs leads to more effective innovation and customer focus (Defee, CC 2007). Importantly, Augier and Teece (2009) have referred to this as “...require[ing] active orchestration of both tangible and intangible assets by entrepreneurs and managers...” and proposed a new theory of “dynamic capabilities” (Augier & Teece 2009, p. 412). This goes beyond mere coordination or adaptation to a purposeful continuous, pro-active selection of opportunities, making choices and orchestrating resources (Bruch & Ghoshal 2004) to achieve efficiencies and broad-based innovation cognisant with the Schumpeterian model (1934, p. 66). The factors involved in this capacity are as follows:

- *Transformational leadership* and *transformational followership* (Defee, CC 2007; Elenkov, Judge & Wright 2005; Sarros, Cooper & Santora 2008) with appropriate senior executive mental models (Kuratko et al. 2005).
- Effective innovation strategies are built on *systematic corporate foresight* practices that scan the environment to identify global trends, foster diverse perspectives, collaboration and

prospective innovations and appropriate development strategies (Pitt 2007; Ruff 2006) and manage the complexities of multiple product innovation (Andriopoulos & Gotsi 2006).

- Innovation strategy is a series of *aligned, goal-directed decisions and actions* matching a firm's skills and resources with environmental opportunities and threats (Faems & Van Looy 2003; Fortuin, F. T. J. M. 2006; Omta, SWF & Folstar 2005).
- *Innovative cultures* are firm-specific (Dombrowski et al. 2007) and are critical to innovation performance (Fallah & Lechler 2008; Hult, G. Tomas M. , Ketchen & Arrfelt 2007; Knight & Cavusgil 2004).

2.7.5. Conclusion

A review of the collaboration and innovation literature for facilitators or enablers identified some sixty six concepts which were categorised into twenty clusters on the basis of semantic or theoretical similarity. These can be further grouped into four 'conditions' that influence co-innovation. As this appears to be the first attempt to bring some coherent and practical structure to the factors enabling co-innovation, it is appropriate to investigate whether or not such a construction has any utility in analysing agrifood chains. Thus, it is recommended that this research asks the following question:

Subsidiary Research Question 1: *What are the facilitators of collaborative innovation in agrifood chains?*

2.8. What are the inhibitors of co-innovation?

Compared to the identification of antecedents or enablers of collaboration and innovation individually, there appears to have been few comprehensive studies of the inhibitors of collaborative innovation per se. Gattorna (2006), citing Barratt's unpublished PhD thesis (2002), lists thirty seven inhibitors of collaboration which highlights the potential complexity of the issue, and hence, given the high failure rate for collaboration it is surprising that the area is so under-researched.

It appears to be assumed that inhibitors are a lack of the enabling factors (e.g. communication is an enabler of collaboration and innovation but the lack of the enabler is inhibitive). However, there have been at least two significant investigations of the inhibitors of collaboration and innovation that have utility for this thesis. Firstly, Barratt (2004b) adopted a layered approach in identifying twelve inhibitors at the strategic, tactical and operational levels for SCM. Interestingly, most are common at the tactical and operational levels whilst only organisational size, mutual benefit identification and a lack of real-time information were common across all three levels. Secondly, Fawcett and Magnan (2001), in a large empirical study identified five categories of barriers: alignment issues, technology deficiencies, relationship challenges, structural concerns, and human resource dilemmas. These were ranked in order of importance according to business function indicating that inadequate information

systems, lack of clear chain guidelines, inconsistent goals, lack of shared risks/rewards, poor costing of processes, lack of aligned performance measures and willingness to share information were the most important barriers. There have also been a number of other studies but the diversity of findings suggests that more work is required to bring some unity in the area. Therefore, the factors identified in the review were clustered into broad themes and used to reduce the range of factors that need to be considered in this analysis of agrifood value chains (Table 2.1).

These appear to provide some guidance for this study and it can be concluded that:

- Inhibitors of co-innovation appear to operate at multiple levels in value chains, namely, the strategic, tactical and operational levels;
- Human and relational variables, numerically speaking, appear to present most of the problems for VCM;
- Both Barratt (2004) and Fawcett and Magnan (2001) identify incentivisation as an issue however Barratt (2004) explicitly identifies it as the organisational motivator of ‘mutual benefit identification’;
- Several other sources either explicitly identify motivation as an inhibitor or incorporate it into a broader issue such as ‘poorly aligned measures’ (Kramer 1999).

Table 2:1 A classification of chain inhibitors from the literature

Types of Inhibitors	Factors	Sources
Corporate culture	<ul style="list-style-type: none"> Defensive boundary mindset Passive defensive culture Short term focus Risk aversion 	<ul style="list-style-type: none"> (Dess et al. 1995; Fawcett & Magnan 2001) (Glisson & James 2002) (Loewe & Dominiquini 2006)
Barriers to information & knowledge flows	<ul style="list-style-type: none"> Complexity of knowledge Lack of a credible source of knowledge Process rigidities Lack of willingness to share Incompatible systems Lack of absorptive capacity 	<ul style="list-style-type: none"> (Barratt 2004b; Bayazit 2007; Dyer, JH & Hatch 2006; Fawcett & Magnan 2001)
Design & governance of the value chain	<ul style="list-style-type: none"> Size of firms Lack of organisational alignment Lack of appropriate metrics Lack of shared vision Lack of strategic outlook Lack of policies & processes Chain attributes – no. of suppliers, trading strategies Complex structure of agrifood chains Dynamics of power in agrifood chains Asymmetric capacity 	<ul style="list-style-type: none"> (Barratt 2004b; Department of Industry Tourism and Resources 2003; Goes & Park 1997) (Fawcett & Magnan 2001; Fortuin, F 2007) (Fawcett & Magnan 2001) (Barratt 2004b; Fawcett & Magnan 2001) (Barratt 2004b) (Fawcett & Magnan 2001) (Larsson et al. 1998)
Poor chain relationships	<ul style="list-style-type: none"> Lack of trust Opportunism Lack of collaboration Lack of honesty Lack of benefit sharing Conflicts of interest 	<ul style="list-style-type: none"> (Barratt 2004b; Bayazit 2007; Fawcett & Magnan 2001; Larsen & Lewis 2007; Matopoulos et al. 2007) (Larsson et al. 1998) (Bayazit 2007; Matopoulos et al. 2007) (Barratt 2004b; Bayazit 2007) (Barratt 2004b; Jain, Nagar & Srivastava 2006; Matopoulos et al. 2007) (Bayazit 2007)
Poor management	<ul style="list-style-type: none"> Lack of skills in management & marketing Insufficient financial, technological & HR resources Lack of an innovation strategy Lack of appropriate organisational structure Lack of management incentives Lack of systematic process Failure to identify different management behaviours needed Employee resistance Asymmetric learning 	<ul style="list-style-type: none"> (Bayazit 2007; Larsen & Lewis 2007) (Department of Industry Tourism and Resources 2003; Dyer, JH & Hatch 2006; Fawcett & Magnan 2001; Fortuin, F. T. J. M. 2006; Larsen & Lewis 2007) (Fortuin, F. T. J. M. 2006) (Fawcett & Magnan 2001; Fortuin, F. T. J. M. 2006) (Barratt 2004b; Fawcett & Magnan 2001; Loewe & Dominiquini 2006) (Fawcett & Magnan 2001; Loewe & Dominiquini 2006) (Manimala, Jose & Thomas 2005) (Bayazit 2007; Fawcett & Magnan 2001) (Larsson et al. 1998)

Further, it appears that there has not been any specific investigation of the inhibitors that operate within agrifood value chains. Given the differences of agrifood chains identified earlier in this chapter (Section 2.3) it is possible that there is a different mix of variables operating. For example, the social learning orientation of farmers, their apparent conservatism regarding change, lack of employment of technology for management purposes and often long histories of dysfunctional relationships with downstream chain participants may well alter the mix and importance of factors operating. Similarly, the lack of understanding of the respective operating environments combined with the great disparity

in educational level and management capability between downstream and upstream participants may also present new barriers to co-innovation.

Thus, this suggests that a possible research question for this research could be:

Subsidiary Research Question 2: *What are the inhibitors of collaborative innovation in agrifood chains?*

The Co-innovation Roadmap in Chapter 1 identifies motivation as one of the critical conditions for co-innovation to occur (Bonney et al. 2007) and in addition, a number of other investigators point to the importance of motivation and incentivitation in achieving the communication, information sharing and relationships that underpin the phenomenon. Narayanan and Raman (2004a) identify the lack of alignment of incentives in value chains as the prime reason for chain partners behaving in ways that are not in the interest of the whole chain. Cohen, Shoshanah A. , Kulp and Randall's (2007) findings support that contention and confirmed that incentives do drive performance in chains. Peterson, HC (2002) notes that incentives are necessary if chains are to go beyond integration and become learning value chains, a key factor in innovativeness.

As highlighted earlier though, agrifood chains are different with respect to their dispersed nature, asymmetric power structures and capability and dysfunctional relationships. It has been reported (Lee, H & Whang 1999; Sauvé 2001) that in highly dispersed and/or asymmetric chains, incentive systems incorporating a strong framework of rules, facilitate decision-making and are particularly suited to eliciting the desired chain behaviour. Thus, understanding the implementation of incentivitation systems in agrifood chains would appear to be an important issue.

Further, as senior managers have the ability to realign firm or individual incentives and provide the resources necessary to achieve chain integration, they appear to play a key role in implementing the culture, processes, systems and structures that support co-innovation (Fawcett & Magnan 2001). This suggests that there is a need to investigate incentivitation at different levels which is consistent with a range of research that has proposed several different layered constructs in the study of value chains; some hierarchical (Lazzarini, Chaddad & Cook 2001), some longitudinal from the upstream to the downstream ends of a value chain (Lazzarini, Chaddad & Cook 2001; Lefebvre et al. 2003), and still others employing a combination of the horizontal and vertical (Barratt 2004a, 2004b; Gattorna, J 2006). It is the latter type that appears to have the most utility for this research as it encapsulates the relational exchanges at the strategic, tactical and operational levels between dyads, triads and even whole chains (Barratt 2004a, 2004b; Gattorna, J 2006). As such, it provides a useful tool for surfacing the nature of relationships and exchanges between firms and individuals within chains. Thus, it is

proposed to use this layered construct as the basis for this research into the incentivisation of agrifood chains.

2.9. How then, can value chains be incentivised?

The focus of this research is how employees, executives and firms in agrifood chains are incentivised to engage in co-innovative behaviour. The strategic, whole-of-chain nature of the ‘interest alignment’⁹ in supply chains seems beyond doubt with Narayanan and Raman (2004a) citing a US\$2.5 billion loss in 2001 by Cisco Systems, a multinational electronics corporation, due to misalignment of incentives in their supply chain and Heide (1994) arguing cogently that it is a “a key aspect of governance” (p. 77) affecting short term performance and long term behaviour.

At the firm level, productive opportunity is a function of cognition, ability and motivation (Gottschalg & Zollo 2007 citing Penrose, 1959; Sirmon, Hitt & Ireland 2007) and internal organisational characteristics regulate external competitive behaviour, thereby linking internal and external firm behaviour (Dulaimi, Ling & Bajracharya 2003; Gimeno, J., Dial & Sengul 2001b). Not only is there an overall positive relationship between motivation and firm performance (Gottschalg & Zollo 2007) but Humphrey et al (2007) in a meta-analytic summary of two hundred and fifty nine studies found that motivational aspects explained 25% of the variance in subjective performance and 24% in organisational commitment demonstrating its critical importance to individual performance.

Corporate boards of management set the underpinning goals in their company to align the different internal interests in productive collaboration and initiate this behaviour through strategy, governance and incentivising the chief executive officer (CEO) as the agent acting on their behalf (Gimeno, J., Dial & Sengul 2001b). The CEO delegates functional responsibilities to his senior executives and incentivises them to manage the implementation of these strategies through communicating vision and values, building culture and enacting policy and performance management mechanisms of which the incentivisation of employees and chain partners are key mechanisms (Bergstresser & Philippon 2006). Finally, other partner firms and their own individual employees respond to those mechanisms (Locke & Latham 2002). As the locus of accountability to the owners/shareholders, the board must be the formal initiating body for any strategy for a firm to engage in co-innovative behaviour (Clarke 2004). Thus, incentives appear to play a critical role at the chain, organisational and individual levels in achieving the boundary-spanning, co-innovative and other necessary internal behaviour which is the focus of this research.

However, incentives are also part of the wider construct of motivation and it is well established in the organisational psychology literature that there are interactions between the two with both positive and negative effects on performance (Bruggen & Moers 2007; Sauermann & Cohen 2007). Motivation

⁹ Gottschalg and Zollo (2007, p. 420) define ‘interest alignment’ as “...the degree to which the members of the organization are motivated to behave in line with organizational goals...” For the purposes of this research, this is regarded as the equivalent to incentivisation.

and incentivisation concepts are often difficult to reconcile because there are a very large number of complementary and sometimes competing theories. There is also a conundrum in that incentives are a subset of motivation and yet may also act as a precursor to motivation. For these reasons, the following explanation will first consider ‘motivation’ and then how ‘incentives’ may be used to develop motivation in individuals.

Seeking to understand how people and firms in value chains are incentivised is not a simple matter. This complexity is evidenced by John B. Miner in his comprehensive four volume series on motivation and leadership (Miner 2005, 2006a, 2006b, 2007) where he evaluated seventy three theories of motivation and included a detailed analysis of thirty eight of those on the basis of validity, importance, practical usefulness and degree of institutionalisation, identifying eight theories as the most influential. These theories, developed from the 1950s to the 1970s, provide the foundation for understanding motivation and in particular, incentivisation in value chains. Whilst they are still relevant, much greater theoretical breadth and depth is now available to support the practical investigation of incentivisation practice such as is required in this study. Hence, a brief summary of these theories and their implications for value chain co-innovation may be found in tabular form in Appendix 3. This table categorises Miner’s (2005, 2006a, 2006b, 2007) eight leading motivational theories as either ‘needs’ or ‘process’ theories (Shields 2007). They provide essential insights into how individuals are motivated to achieve both individual goals and the organisational vision and strategic goals; how, executive level managers overcome the tendency to be secretive about the firm’s strategic intentions to share, jointly plan and enact strategies with chain partners; how, managers and operatives engage in boundary-spanning behaviour sharing information, risks, costs and benefits; and how individual organisations begin to act almost as one unit in the global marketplace on the basis of their commitment to consumer value creation and the development of inimitable and non-substitutable competitive advantage.

The case for a multi-disciplinary approach to this study was outlined at the beginning of this chapter, however, since the early 1990s, several authors have also called for a multi-level approach to complex situations such as value chains (Agrawal & Tsay 2002; Capelli & Sherer 1991; Miner 2005; Rousseau & House 1994; Smith, DB, Schneider & Dickson 2006) and Miner has specifically argued its utility for the field of motivation and incentivisation. Therefore, the following review, in keeping with the overall systems approach to the management of value chain innovation in this thesis, will adopt a multi-disciplinary and multi-level approach to provide an overview of the theoretical basis for motivation, first situating incentivisation within motivation, and then proceeding to describe the current knowledge about incentivisation and incentives at the individual, executive, organisational and chain levels.

2.9.1. Types of motivation

The field has been the focus of some controversy between theoretical perspectives that has encouraged a plethora of researchers into the field and facilitated theoretical breadth and depth bringing a deeper understanding of the nature of motivation. It is now accepted in the literature that there are three forms of individual motivation, although the controversy has been, and to a much lesser extent still is, about how they interact. They are:

a. Amotivation

Amotivation is the lack of intentionality through not valuing an activity and feeling little competence to complete the task and/or that it will not achieve the desired outcome.

b. Extrinsic motivation

Extrinsic motivation is the engagement in activities driven by the aim of obtaining additional tangible or intangible rewards or avoiding known sanctions from the outside environment through a reward system using money, power, recognition, progress towards promotion. Therefore, the involvement in the activity is simply to achieve the tangible reward and the desirable external consequences that follow (Bateman & Crant 2003; Benabou & Tirole 2003; Gagne & Deci 2005; Miner 2007; Reinholt 2006; van Herpen, van Praag & Cools 2003).

The use of performance-contingent rewards in the corporate world is well established and widely accepted by researchers of agency theory (economic perspective) to achieve alignment of individual interest and effort. However, motivation is a multidimensional construct and the role of rewards is contingent on the nature of the task, the characteristics of the rewards and individual values, goals and preferences (Gottschalg & Zollo 2007). The degree to which extrinsic rewards motivate people depends on individual preferences and congruence with individual goals. The degree to which these align with organisational interests is dependent on their fit with rewards and organisational goals. Firms have flexibility in how they can mix and calibrate the motivational variables for individuals and groups within the firm for jobs or specific tasks (Gottschalg 2004; Gottschalg & Zollo 2007). Simatupang and Sridharan (2004; 2005) have highlighted how the alignment of extrinsic motivation in a supply chain is important to successful collaboration because it drives openness, information sharing, decision synchronisation and other processes critical to achieving chain goals and the maximisation of chain profits.

Considerable research effort has also focused on how extrinsic motivational variables can often undermine intrinsic motivators. It is apparent that the introduction of extrinsic rewards in some instances, such as where a task was previously achieved by intrinsic motivational factors, will actually result in a reduction of that intrinsically motivated behaviour. The right rewards stimulate intrinsic motivation and extrinsic interest alignment reinforces intrinsic

motivation and this ability to influence managers to 'love' their jobs is an important strategic tool (Gottschalg & Zollo 2007).

c. Intrinsic motivation

An activity is intrinsically motivating if it is undertaken for its own attributes and can be goal oriented, or focused on the obligations of one's personal or social identities. Hence, ideally the work content should be satisfactory and fulfilling for employees. The behavioural view of organisation (relational perspective) emphasises intrinsic motivation as identification with the firm's strategic goals, shared purposes, the work environment and job characteristics and adherence to norms for their own sake. This is regarded as superior because it reduces transaction costs, develops trust and builds social capital (Ghoshal & Moran 1996; Hackman & Oldham 1976). However, intrinsically motivated employees personal and organisational goals may still be misaligned with those of their employer (Osterloh, Margit & Frey 2000).

In contrast, Agency Theorists (economic perspective) consider intrinsic motivation irrelevant for their purposes (Frey, Bruno S. & Oberholzer-Gee 1997) but Jensen (1994) argues that even the founders of Agency Theory fundamentally recognise that people always have incentives that attenuate conflicts of interest central to agency theory to reduce losses and maximise gains.

Intrinsic motivation posits that under certain environmental conditions, employees may be prepared to undertake work to satisfy an immediate need or for the inherent nature of the work without monetary payments. This is incongruent with the standard assumptions made in transaction cost theory (economic perspective) that individuals are opportunistic and self-interested which can act as a strong form of extrinsic motivation in the absence of rule constraints. Thus, the organisational challenge is to establish the management conditions that reduce the risks and costs of opportunistic, self-interested behavior.

Intrinsic motivation research suggests that the ultimate goal of human beings is the pursuit of meaning in their lives because experiencing meaning promotes wellbeing and happiness (Ryan & Deci 2001; Ryan & Deci 2004; Ryan, Huta & Deci 2008; Sheldon et al. 2004). Therefore, all the motivational characteristics associated with intrinsic work motivation, could be expected to promote meaning (Humphrey, Nahrgang & Morgeson 2007, citing Hackman & Oldham, 1976; Ryan & Deci, 2001; King & Napa, 1998; Zika & Chamberlin, 1992; Fredrickson, 2003 and Deci & Ryan, 2000).

In the workplace, intrinsically motivated people tend to be more aware of their environment, and more attentive to the complexities, inconsistencies, unusual events or unexpected opportunities resulting in deeper learning and more creative output (Beswick 2002). Indeed, Humphrey, Nahrgang and Morgeson (2007) established the synergistic association between

extrinsic motivation's compensation theory (incentives), organisational culture and intrinsic motivation and highlighted the need to consider culture and work design characteristics as contextual for incentivisation because of its potential effect on the outcomes of incentive strategy. They found that motivational characteristics explained 25% of subjective employee performance, 34% in job satisfaction, 24% in organisational commitment and 26% in role perception outcomes. However, equally as important, they also found that social characteristics accounted for an additional 9% of subjective performance, 24% in turnover intentions, 17% in job satisfaction and 40% of organisational commitment.

All the variables discussed in this section are components of the single construct of motivation, yet for thirty five years vigorous academic debate occurred about the effects of the interaction of extrinsic and intrinsic motivation which resulted in a lack of theoretical unity in the field. However, in the last decade there have been attempts to describe a model of motivation by the principals and others that unifies the two theoretical streams (Benabou & Tirole 2003; Darren J. Elding 2006; Latham & Pinder 2005; Reinholt 2006; Ryan & Deci 2000).

2.9.2. An integrated model of individual motivation

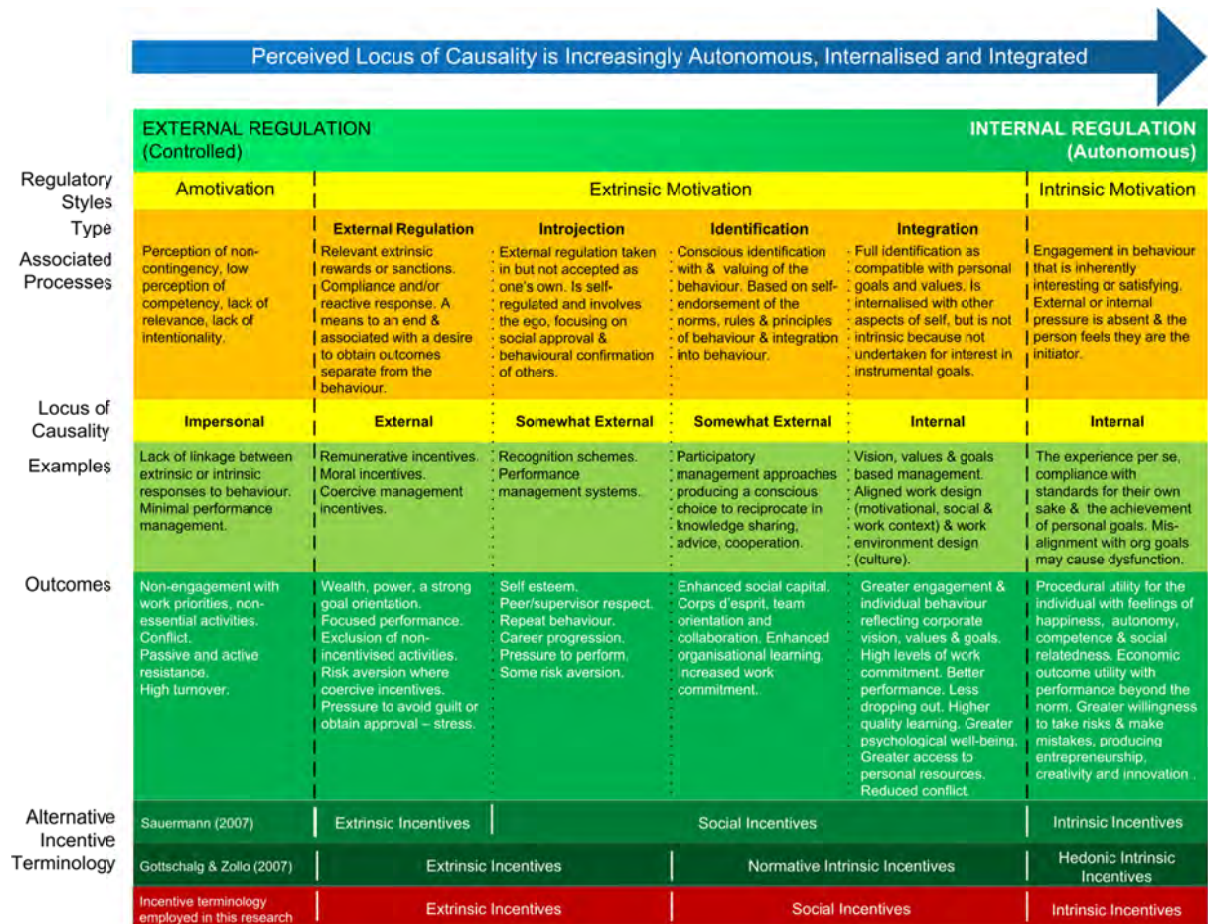
Deci (1971) initiated what became a long-running debate when he first described a relationship between external rewards and intrinsic motivation that became 'cognitive evaluation theory'. In his view, external regulation (e.g. monetary incentives) may have a controlling and an informing function as well as an opposing effect on intrinsic motivation through a phenomenon later called 'crowding-out'. So, there are two potential effects of external interventions on the motivational balance; firstly, intrinsic motivation could decline whenever employees perceive an external intervention to be controlling, which is called 'crowding out'. For example, when an activity that has been historically undertaken for social or hedonic reasons is suddenly the subject of extrinsic reward, then the former motivation is 'crowded out' by the extrinsic reward. Secondly, if employees perceive an external intervention as informing or supporting, then intrinsic motivation increases and this is called 'crowding-in' (Frey, Bruno S. & Oberholzer-Gee 1997; Frey, B. S. & Stutzer 2006; Osterloh & Frey 2000; van Herpen, van Praag & Cools 2003).

The debate about extrinsic and intrinsic motivation over the last three decades has generated a plethora of research that demonstrate that the two types of motivation interact producing both positive and negative effects. Deci and Ryan (1985; 2000b), two of the main protagonists in the debate with their claim that extrinsic motivation strategies could reduce intrinsic motivation, further developed the concept of extrinsic motivation through 'Self-Determination Theory' (SDT). SDT posits the internalisation and integration of values and behavioural regulations and identifies a continuum of four levels of increasingly internalised extrinsic motivation that is also increasingly integrated with the individual's values. These four levels are:

- **External regulation** is where an individual's behaviour is simply a means to achieving a specific benefit as described above (Deci, Edward L. & Ryan 2000)
- **Introjection** occurs when an individual partially assimilates regulation but where it does not become part of the self; that is, it is not integrated into their cognitions and motivations and the behavioural outcomes are not self-determined. Introjection often involves aspects of ego such as pride, shame or guilt, however, whilst it is more resilient than external regulation introjections is still relatively more fragile than where motivation is more deeply held (Deci, Edward L. & Ryan 2000).
- **Identification** occurs where an individual 'identifies' with the inherent value of a behaviour because it is cognisant with the individual's identity and personal goals. Consequently, they experience more freedom of choice and feel internally motivated. However, the behaviour is still instrumental rather than internally spontaneously derived, and is recognised as extrinsically motivated (Deci, Edward L. & Ryan 2000; Gagné & Deci 2005).
- **Integration** is the highest level of internalised extrinsic motivation that an individual can experience. They fully identify aspects of self with the behavioral values, having a sense that the behaviour is part of who they are which makes them feel truly self-determined. However, this type of internalisation is still regarded as extrinsic motivation because the individual is engaged in the activity to achieve personal goals through instrumental mechanisms (Gagné & Deci 2005).

The relationship between these and intrinsic motivation is conceptualised in Figure 2.5. This classifies external regulation and introjection as external forms of regulation whilst intrinsic motivation is regarded as the extreme internal form of regulation. Between these types lie 'identification' and 'integrated' motivation where there appears to be some overlap and/or disagreement regarding whether or not the underlying psychological driver is external or internal (Deci, Edward L. & Ryan 2000; Frey, B. S. & Osterloh 2002; Lindenberg 2001, 2003b; Reinholdt 2006; Ryan & Deci 2000b).

Figure 2.5: A model of human motivation



Source: From Deci and Ryan (2000), Ryan and Deci (2000a; 2008), Gottschalg & Zollo (2005), Frey, B. S. and Osterloh (2002) and Reinholt (2006).

Indeed, Reinholt (2006) has attempted to provide “a more nuanced” conception of motivation from the literature through a continuum of seven categories, four of which are classed as “Well-internalized extrinsic motivation/Moderated intrinsic motivation” (p. 14). However, no subsequent work has been found that validates her model and undertaking that task appears beyond the scope of this exploratory research. Nevertheless, Reinholt’s (2006) work illustrates the nature and degree of disagreement regarding the internalisation of motivating forces and this has important implications for the practical management of behaviour and performance. If the ‘identification’ and ‘integrated’ types of motivation are externally driven or at least have some element of externality then they may be more amenable to incentivisation strategies.

So, for the purposes of this research, the basic model of motivation proposed by Deci and Ryan (2000) has formed the basis for the model in Figure 2.5 which will inform this inquiry into individual incentivisation. The model posits an integrated, controlled-to-autonomous continuum representing the extent of internalization of an external regulation; the more internalised, the more autonomous will be the resulting extrinsically motivated behaviour. Thus, behaviour is regarded as being increasingly autonomous, self-directed, internalised and integrated with the individual’s own goals and values

progressing across the model to the right hand side. When people are more extrinsically motivated they feel greater freedom in decision-making and engagement with the behaviour because it is more congruent with their personal identity and goals. However, Deci and Ryan's (2000) model does not show the dynamic nature of the state of motivation due to either the task situation (consider the cumulative effects of bad management or inappropriate incentive systems) or the development of individual cognitive or ego capacities and self-regulation.

But how can agrifood managers manage external regulation and nuance intrinsic motivation using organisational culture, work design and tailored individual arrangements in practice? The next section reviews the extant literature on the extrinsic, social and intrinsic incentives often employed in non-agrifood industries to develop desired behaviours and shows how framing theory provides some guidance amongst the plethora of theoretical disagreement.

2.10. Incentivation of individuals

Incentives are a fundamental part of human nature and so are socially and economically important in many individual and group activities (Gottschalg & Zollo 2005; Sullivan & Sheffrin 2003). However, the typologies of incentives found in the literature vary according to the perspectives and purposes of the researchers so there is little consistency beyond a basic pecuniary and non-pecuniary split (Campbell, Dennis 2008; Peterson, SJ & Luthans 2006). An 'incentive' is any factor (financial or non-financial)¹⁰ that elicits a particular behaviour, or provides a reason for preferring one choice amongst alternatives. Economic approaches to incentives appear to focus on the nature of the benefit frequently using groupings such as 'financial' or 'monetary' and 'social' incentives (Bandiera, Barankay & Rasul 2007; Bruggen & Moers 2007) and 'pecuniary', 'non-pecuniary' and 'intrinsic' (Fehr & Falk 2002). Social scientists frequently appear to focus on the source of the benefit using the extrinsic/intrinsic dichotomy (Lindenberg 2003a; Reinholt 2006). Work values approaches use 'instrumental' (pay and security), cognitive (personal growth) and affective (recognition) (Elizur & Sagie 1999; Sagie, Elizur & Koslowsky 1996).

It would be helpful for this thesis to use a classification that is relevant to the nature of the research, has some consistency with current theoretical usage within the context of practical management and is mindful of the disconnect between incentive and motivation theory (Lindenberg 2003a). For these reasons I have incorporated the views of Sauerman (2007) who investigated the incentives driving innovation and Gottschalg and Zollo (2007) who investigated the alignment of individual and collective interests in generating sustainable competitive advantage, both themes within this research. However, even within these two views, there is little consistency and the disparities are noteworthy.

¹⁰ It should be noted that for the purposes of this review, the financial or non-financial incentives referred to in this definition of incentives include those associated with an individual's base remuneration as well as extraordinary incentives provided for performance above that required for base remuneration.

Sauermann (2007) classes recognition or 'introjected' motivation as social incentives whilst Gottschalg and Zollo (2007) have a divergent view regarding the 'identification' and 'integrated' forms of motivation as essentially intrinsic. However, understanding this, there is little practical importance in this divergence for this research beyond emphasising the need to identify the position which has been adopted.

Consequently, in characterising incentives in agrifood value chains I have adopted Sauermann and Cohen's (2007) terminology and Gottschalg and Zollo's (2007) classification imposed on the original work of Ryan and Deci's (2000a; 2008) basic structure of motivation as illustrated in Figure 2.5. Thus, the processes of external regulation and introjection are called 'extrinsic incentivisation' and identification and integration are called 'social incentivisation'. The third type of incentives, explained earlier in detail, are those that arise from within the individual, the 'intrinsic incentives'. This approach has been adopted because it appears from the literature that many companies use both external regulation (rewards) and introjection methods (recognition) to incentivise employees and these are indeed directly externally manipulatable by company managers, whilst identification and integration are more clearly identifiable as socially driven forms of motivation that can only be incentivised through organisational culture initiatives by management.

2.10.1. Extrinsic incentives

Extrinsic incentives are pecuniary rewards or tangible sanctions (external regulation) and recognition (introjection) provided formally by the organisation (Figure 2.5). These require the highest degree of measurement and monitoring by the firm (Gottschalg & Zollo 2005; Ryan & Deci 2000a) and bring the individual employee benefits that are essentially:

- Explicit contracts linking reward such as bonuses, salary increments or rewards and aggregate measures such as profit-sharing to objective measures of performance (e.g. sales, or corporate performance as an indicator of CEO performance);
- Recognition oriented through formal recognition schemes or through performance management feedback;
- Promotion, which assumes that job hierarchies motivate, and job security oriented incentives such as with extensions of contracts or conversion from short term to long term contracts;
- Subjective, discretionary measures that allow a more holistic picture of performance to be used and are suited to complex job roles (Prendergast 1999).

The converse to pecuniary-based extrinsic incentives are 'coercive incentives'. Coercive incentives involve sanctions or punishment and are widely used as part of the staff control function, particularly in exchange environments such as in value chains, to promote compliance (Tenbrunsel & Messick 1999). The economic perspective suggests that coercive incentives can enforce cooperation but there

is some evidence that they actually reduce cooperation in some circumstances (Fehr & Falk 2002; Frey & Oberholzer-Gee 1997; Houser et al. 2008; Kreps 1997; Tenbrunsel & Messick 1999). Houser (2008) has found that people cooperate to avoid sanctions where the cost is higher than the cost of compliance. However, where the situation is reversed, then people will fail to comply and use the price they have paid via the sanction as an excuse for self-interested behaviour. In the extreme this may result in criminal activity however it usually manifests itself as dysfunctional behaviour from an organisational (or chain) perspective.

2.10.2. Social incentives

Social incentives affect the ‘identification’ and ‘integration forms’ of motivation (Figure 2.5) and appear to be still influenced by external sources, therefore still potentially manageable for organisational purposes. That is, where there are degrees of individual identification and alignment between the requirements of the organisation and the personal goals, values and attitudes of the individual. There may well be a strong normative element to this as suggested by Gottschalg and Zollo (2007); that is, the individual may well feel a degree of obligation to comply but in the case of ‘integrated’ motivation, it is very much aligned with the individual’s views.

Social incentives are classified as ‘external regulation’ because they have an instrumental goal quite separate from the behaviour itself. An organisation can facilitate social incentives by creating a sense of relatedness, competence and autonomy as part of organisational culture. Such incentives involve the creation of a supportive context for developing relatedness, competence and autonomy; that is, a supportive culture that results in self-determination (Gottschalg & Zollo 2005; Ryan & Deci 2000a).

In situations where performance is hard to measure and monitor such as in ideation and innovation roles, social and intrinsic incentives are critical to innovation (Sauermann & Cohen 2007). However, social incentives may act to cause some more talented individuals to conform with a lower norm performance level, however employees below the norm also lift their performance due to social incentives providing an overall boost to organisational performance (Bandiera, Barankay & Rasul 2007). However, the management of norms through pecuniary rewards, particularly forms of team-based incentive pay, can alter the effect of social norms by inducing effort enhancing social pressure, having either positive or negative effects. Thus, the concept of ‘norm management’ needs to be incorporated into the overall cultural and remuneration management process and is developed further in the discussion of ‘goal framing’ in Section 2.11.5. An important aspect of norm management is the selection of employees on the basis of value and attitudinal fit to the organisation (Huck, Kubler & Weibull 2006). However, Sauermann and Cohen (2007) suggest that social and intrinsic incentives may detract from innovation performance under conditions where the innovators pursue their own directions rather than focusing on the firm’s priorities and where reference to external bodies (such as professional organisations) constitutes a security threat or provides a supporting rationale for cultural conflict. However, notwithstanding the drawbacks, Sauermann and Cohen recommend a strategy of

employing a mix of individuals with a range of motives subject to a range of incentives with a significant emphasis on social and intrinsic components.

2.10.3. Intrinsic incentives

Intrinsic incentives (non-pecuniary) (Figure 2.4) attempt to engage with the individual's desire to engage in fulfilling, self-determined work to motivate desirable work-oriented behaviours. They can be distinguished from social incentives because they require only a subjective internal assessment by the individual involved with minimal information. Firms can employ socialisation regimes that develop desired norms, values and an identification with the company (social motivation) as well as job design to enhance fulfillment and recruitment to ensure organisational 'fit' of new personnel (hedonic motivation) (Gottschalg & Zollo 2005, 2007; Kristof-Brown, Zimmerman & Johnson 2005; Ryan & Deci 2000a). Intrinsic incentives are attributes of tasks that induce commitment and performance on the basis of highly idiosyncratic personal psychology (Amabile et al. 1994; Gagné & Deci 2005; Gottschalg & Zollo 2005; Johnson 1994; Ryan & Deci 2000a). They are not contingent on social relationships and are thus non-social and non-pecuniary.

The literature is unequivocal that non-pecuniary, intrinsic incentives play a significant role in incentivising both work performance per se as well as creativity and innovation (Condly, Clark & Stolovitch 2003; Gagné & Deci 2005; Gottschalg 2004; Humphrey, Nahrgang & Morgeson 2007; Ryan & Deci 2000a; Sauermann 2004; Sauermann 2008; Werner & Ward 2004). Indeed, Humphrey, Nahrgang and Morgeson (2007) have identified in a large meta-analysis that work design features (hedonic intrinsic motivation) can account for as much as 43% in the variance in employee behaviour and outcomes. Therefore, recruitment of managers that 'fit' a firm's strategy is very important for innovativeness.

Whilst the nature of motivation and the incentives that may influence individual work behaviour may now be apparent from this review, it is well recognised in practice that incentivisation is highly idiosyncratic. Therefore, how is it possible to design incentive systems in practice?

2.10.4. The interaction between social and intrinsic incentives

Social and intrinsic incentives appear to interact. Bruggen and Moers (2007) provide one of the few analyses of this interaction in multi-task settings which more closely resembles the reality of most employee's working lives than single task settings. They identified two dimensions of effort; 'effort allocation choice' between two alternative tasks, and 'effort level choice' for each task. Fixed wages benefit effort allocation in accordance with the principal's priorities, but not the level. Financial incentives increase overall total effort, but direct it away from the non-incentivised task, particularly where some tasks are difficult to measure and monitor. Contrary to common perceptions, the non-incentivised tasks are performed at the same level as if there was a fixed wage regime.

Thus, for business this means that managing multi-task situations is a trade-off between less effort from a fixed wage strategy compared to a financial incentive strategy that may generate more effort which is potentially misallocated or has unintended consequences (e.g. for a sales manager, incentivising sales may be at the cost of his/her managing administrative or staff responsibilities). Hence, this is not just a work allocation or effort problem but entails a financial cost to the business in the financial incentive itself, the potential distortions of effort as well as the cost of the unintended consequences.

However, social and intrinsic incentives that are congruent with the corporate objectives and priorities play a critical role in mediating this distortion from financial incentives, reducing opportunism and improving the cost-effectiveness of financial incentives. Social and ethical incentives may be reinforcing and be more powerful where there is good communication; for instance, social incentives may influence people to act in accordance with their ethics whilst ethical incentives may enforce social norms. On the other hand, where the social and ethical norms are not congruent with those of the firm, financial incentives may mitigate their effect on the organisation (Bruggen & Moers 2007). Further, long-term rather than short-term incentives are associated with innovation (Lerner & Wulf 2007) so firms need to consider this when designing social and intrinsic incentives.

2.10.5. The practical management of motivation

The practical management of motivation in organisations is regarded as an extremely important function and numerous theoretical and practical approaches have been tried and found inadequate (Frey & Osterloh 2002; Gottschalg & Zollo 2007). The most influential theories of individual motivation have been reviewed in Appendix 3, but despite forty years of vigorous academic debate, the field is still quite contested (Reinholt 2006).

Deci and Ryan's (2000) meta-theory called 'Self-Determination Theory (SDT)' has been described earlier (Section 2.9.2) and provides part of the theoretical basis for a balanced approach to incentivising people in organisations (Frey & Osterloh 2002). However, it has been criticised by many for workplace naïveté, inconsistency in practical application and the difficulty in isolating intrinsic motivation (Latham & Locke 2008). Modern approaches to the management of organisational motivation have stressed the 'micro-foundations' of aggregate constructs in human behaviour such as organisational motivation (Baron & Kreps 1999; Foss 2010). Examples of such approaches have linked motivation to organisational structure (Frost & Osterloh 2002), fairness, justice and equity (Duffy, Fearne & Hornibrook 2003; Weibel & Rota 2002) or 'action theory' (Frese 2007) but they have failed to provide a comprehensive framework for applied research or practical management. Recently it has been increasingly acknowledged that bringing together the disparate and often polarized views is necessary (Reinholt 2006, 2008).

Lindenberg (1993, 2001, 2003a, 2003b, 2008) has developed a widely cited model for linking incentives with motivation which has found support from motivational researchers such as Osterloh,

Frey and Frost (2001), Reinholt (2006) and Gottschalg and Zollo (2006, 2007). He has postulated that human beings are genetically psychologically predisposed to work together to solve joint problems, innovate and assist efforts to be more efficient and productive. Under certain socio-cultural conditions a unique motivation is triggered which Lindenberg and Foss (2011) call “joint production motivation” which is “...any productive activity that involves heterogeneous but complementary resources and a high degree of task and outcome interdependence...” (p. 502). When this occurs, individuals in an organisation recognise that the situation is one which requires collective action and see themselves as having roles and responsibilities that contribute to the joint achievement of an outcome they could not achieve independently. They are able to anticipate tasks, interdependencies, potential obstacles, timings and apply intelligent and adaptive effort which may, with the right internal resources and external market conditions, translate into superior group performance. However, these special insights are fragile and are easily overcome by more self-serving motivations unless they are supported by the social environment.

Goal-framing theory relates to the motivation of groups of people to achieve collective goals and is based on cognition theory which links the activation of mental constructs that result in goal-oriented behaviour (Förster, Liberman & Higgins 2005; Gollwitzer 1996; Kruglanski & Kopetz 2009; Shah, Friedman & Kruglanski 2002). Lindenberg has identified three ‘supra-individual’ or over-arching cognitive and motivational ‘frames’ that direct the individual cognitive processes of group members towards a group goal. When this occurs, competing individualistic goals are suppressed so that cognition and effort are focused on the group goal. These are:

- Normative goal-frame is ‘we’ oriented, involving sub-goals associated with behaving in socially acceptable ways regarding the joint goals. It is the most fragile or weakest of the three frames but strengthened by the gain goal frame.
- Hedonic goal-frame is a short-term orientation towards improving personal physical and social well-being which is strongly linked to emotions (pleasure, improved self-esteem, excitement, avoidance of effort, negativism or uncertainty). It is strengthened by the normative frame legitimising of the hedonic aspects of tasks and rewards and is the strongest of the three frames.
- Gain goal-frame is oriented towards the improvement of personal resources (e.g. income or status) in the longer term and much less linked to emotions. It is strong but can be displaced by the hedonic goal frame and is strengthened by normative legitimisation of gain (Lindenberg 2003a; Lindenberg & Foss 2011).

When one of the three goal-frames is dominant the other goals are operating in the background but are still influential. In the absence of supporting conditions the hedonic goal-frame dominates the gain goal-frame which in turn dominates the normative goal-frame. The normative frame is collectively focused whereas the others are more oriented towards the satisfaction of individual needs and so each

of these competes to be dominant. The normative frame in particular requires the support of that which is common and binding for the group and the behaviour of the group members, particularly senior managers. Therefore, this highlights the importance of organisational leadership (in particular symbolic behaviour), values and culture. Lindenberg (2008) states:

It is difficult to overestimate the importance of social and institutional support needed for the stabilization of both gain and normative goal-frames (p.682).

Lindberg (2003a) suggests three strategies for developing a balanced approach to the governance of motivation:

- Employ both gain and normative frames to establish a dynamic interdependence;
- Ensure that the background goals stabilise the desired goal-frame;
- Recognise that frame stabilisation occurs through interaction with the other goal-frames.

Lindenberg and Foss (2011, pp. 508 - 17) highlight the importance of values-in-action (Argyris 1983) and purposefully designed governance (culture and relationships) with respect to:

- Integrated task and team design:
 - Clear, shared vision, mission and goals;
 - Supporting the normative frame with individual incentives and performance accountability;
 - Providing group level rewards.
- Governance:
 - Transparency of task and team design;
 - Cognitive and symbolic management that do not emphasise the hedonic or gain frames;
 - Support the normative frame with symbols and symbolic behaviour;
 - Avoid subtle signals from management that undermine the normative frame;
 - Design contingent, recognition-based rewards that are interdependent and avoid 'crowding out' the normative frame;
 - Exercise knowledge/insight based organisational leadership rather than autocratic power.

Thus, 'framing' theory brings important explanatory power because it unites the two competing motivational extremes and also provides practical utility by assisting the design of incentive systems that recognise the simultaneous existence of both extrinsic and intrinsic motives in any situation.

In summary, so far Section 2.11 has demonstrated that the literature regards individual motivation as a multi-faceted construct of both external and internal forms of regulation, contiguous and somewhat overlapping with increasing autonomy as it becomes internally focused. At an individual level there

appear to be extrinsic incentives or, with reference to the integrated model of motivation in Figure 2.5, these are the ‘reward and recognition’ type incentives. They involve explicit contracts for performance, group profit-sharing where appropriate, promotion and subjective discretionary actions to recognise performance. Extrinsic systems also involve coercive sanctions to punish inappropriate behaviour or poor performance and social or non-pecuniary incentives that are still classed as externally controlled because they are fostered by organisational cultural management. However, there are also intrinsic forms of incentivisation that are not controlled by external management but are the function of cultural norms and idiosyncratic attributes. This section has also shown that, at an individual level, it appears there is a need for a mix of both extrinsic and intrinsic incentivisation to achieve the desired performance and avoid the distortions of one form of incentivisation or the other.

Lindenberg’s (1993, 2001, 2003a, 2003b, 2008; 2011) work has also added a perspective that may be important in providing guidance about how the competing theories can be incorporated into a firm’s incentivisation strategy. It provides an understanding of the variability that is often observed in the implementation of incentivisation strategies and how a level of individualisation of incentives may be necessary to achieve internal innovation and inter-organisational co-innovation goals.

As there appears to be little research specifically into incentivising co-innovative behaviour at an individual level in value chains per se and agrifood chains in particular, the following research question is suggested:

Subsidiary Research Question 3: *How do agrifood firms incentivise operational staff to co-innovate?*

However, in considering how individuals may be incentivised in organisations, executive managers appear to be a special case for incentivisation due to their unique position and their extraordinary influence over the outcomes of collaborative and/or innovative behaviour. Therefore, the unique issues involved in aligning the efforts of executives with the best interests of the owners or shareholders are considered in the next section.

2.11. The incentivisation of executive managers: a special case?

The incentivisation of chief executive officers and executive managers is a special case because they are the interface between the principals and their organisation. As such they have an important internal influence over the performance of the business and how it behaves in its operating environment, particularly with respect to its potential for innovation strategy, organisational and chain culture, chain collaboration and co-innovation to achieve sustainable competitive advantage (Elenkov, Judge & Wright 2005; Gimeno, J., Dial & Sengul 2001b) (Lichtenstein & Dade 2007). Whilst not as directly influential, senior and middle managers are also important in strategy implementation and change (Devers et al. 2007) and can often be sources of resistance to new strategic initiatives

(Amburgey, Kelly & Barnett 1993; Waddell & Sohal 1998). Therefore, the design and management of CEO and executive incentives is influential in generating the firm's co-innovative behaviour and so the underpinning theory for the incentivisation of these persons is worth considering in a little more detail. There are two theoretical perspectives that guide CEO and senior executive compensation and incentivisation; agency theory and the managerial power theory within the managerialist approach (Chan 2008; Tosi et al. 2000).

Agency theory posits that shareholders or owners are the principals and the CEO is the agent. It assumes that agents are risk averse, self-centred, may have different goals and have bounded rationality. Hence, to ensure that they align their activities with the interests of the principals and create wealth the agents must be incentivised. In achieving this, the principals face three problems; they are in effect absentee owners, the executives have far superior knowledge of operating the company and finally, the executives may use the firm's resources to pursue objectives that are not in the principal's interest. The primary mechanism employed to achieve alignment is so-called 'arms-length' performance contracting (conducted through a board of directors acting in the shareholder's interest) with incentives to induce the agent to align his/her interests with those of the shareholders/owners (Weisbach 2007). However, these require the monitoring of the agent's behaviour which involves the incursion of cost to acquire information and manage the chief executive officers' (CEOs) risk outlook. Typically, in these contractual relationships there is an asymmetry of information that can be manipulated by the CEO (e.g. the timing of activities to affect share price close to remuneration reviews, option backdating and dividend policy). This is compounded by the operation of external variables (e.g. competition, global economic conditions, new technology, geo-political events), many of which are unidentified and/or unmonitored and may have significant impacts on firm performance. However, the research into the utility of performance contracts and incentives is weak in explanatory capacity and Devers et al (2007), in a large multi-disciplinary study suggest that "goal misalignment is perhaps the most predictable outcome of incentive pay" (p. 1,032) for executives. Tosi et al (2000) also found in a large meta-analysis that over 40% of the variance of CEO pay was accounted for by firm size whilst firm performance accounted for only 4%. The core of the problem with the agency view are the combination of principal-agent goal and risk preferences; it appears that the link between incentives and goal alignment are not as strong as postulated being subject to a tension between strategic choices and personal choices, the idiosyncratic risk aversion of the individual manager and contextual variables (Devers et al. 2007).

Some theorists believe that, in contrast to agency theory, managerial power theory (a component of managerialism) provides a better explanation of the dynamics of executive compensation (Bebchuk & Fried 2004, 2006; Chan 2008; Devers et al. 2007; Tosi et al. 2000). Tosi et al (2000) cite a number of authors in their meta-analysis who suggest that executives are much more focused on increasing firm size for self-aggrandisement than maximising profits for shareholders. Bebchuk and Fried (2006)

provide an insight into how this occurs and list four pay strategies used by senior executives that fundamentally manipulate information, relationships and operations under conditions of asymmetrical information and limited checks and balances. The use of such strategies can occur because just as agency theory posits an alignment problem between shareholders and CEOs, there is also frequently an alignment problem between board directors and shareholder's interests.¹¹

In recent years, executive compensation has become increasingly de-coupled from performance (Bebchuk & Fried 2006; Productivity Commission 2009; Tosi et al. 2003; Tosi et al. 2000) and it appears that incentive and governance systems need to be adapted to the competitive context of the firm because of their effects on the competitive interaction (Gimeno, J., Dial & Sengul 2001b; Productivity Commission 2009; Tosi et al. 2000).

This review highlights that incentivising executives involves far more complex internal and external variables than agency theory postulates and yet both researchers and practitioners alike continue to use extrinsic, largely internally-focused approaches to incentivisation. This poor understanding of the dynamics of executive incentivisation has important ramifications for co-innovation. In agrifood chains the incentivisation of senior managers becomes even more important because of their frequent power asymmetry. The behaviour of the larger firms in the chain, driven by their CEOs and senior managers, may have a large influence over the nature of chain relationships; that is, whether or not there is trust, commitment, transparency, information sharing and risk, cost and benefit sharing. Yet there appears to have been little research conducted specifically on the incentivisation of agrifood executives to operate in a manner that will facilitate the collaborative, equitable behaviour that appears necessary for co-innovation. Therefore the following research question is recommended:

Subsidiary Research Question 4: *How are executive managers incentivised to co-innovate in agrifood firms?*

2.12. Firm level incentivisation

Value chains are complex human constructs of relationships, shared information and inter-dependent assets that have increased in complexity with the emergence of globalisation, deregulation, rising consumer power and rapid growth in technology. Earlier, it has been described how a shift has occurred in the locus of competition to the level of whole chains to enable the development of collaboration and consumer focus to create value. It has also been explained that it is necessary to take a multi-level view of chains in order to understand the dynamics of their operation, including incentivising individuals and senior managers.

¹¹ Describes the conflict of beliefs or emotions that may occur when directors, who often have had previous experience as executives or on other boards, are faced with the dilemma of acting in the shareholders' interest or that of the CEO with whose circumstances they are strongly empathetic.

Many agrifood chains market their products through retail supermarkets which are complex, dynamic and competitive organisations providing the conduit to consumers for a much wider range of products than just food. In Australia, the trend is following that of other major developed countries towards direct contracting of produce as opposed to the spot market selling that has been more traditional in many sectors (Barber & Cutbush 2006; Giovannucci & Purcell 2008). The global trends highlighted at the beginning of Chapter 1 appear to be driving the move away from spot markets to more tightly controlled and aligned agrifood chains (Boehlje, Hofing & Schroeder 1999). Therefore, the issue of how agrifood chains are coordinated to achieve optimal performance and chain level goals is of increasing importance to their sustainability and profitability.

Power and governance are two important mechanisms in agrifood value chain coordination (Gellynck, Kuhne & Weaver 2011; Gellynck, Kühne & Weaver 2010; Grievink 2003) and the following review of the literature describes how it occurs. This section will then examine what the extant literature shows about how, in practice, chains are governed, the types of incentives and motivation that are developed, how incentives can be designed to optimise the chances of them being effective and finally consider the possibility that the Theories of Reasoned Action and Planned Behaviour (Fishbein & Ajzen 2010) may be applicable to organisational behaviour.

Whilst the use of incentives to elicit individual motivation is a mature research area of psychology and organisational psychology, the incentivisation of firms at a chain level appears to have been relatively neglected within relevant fields. Much of the research that has been published in the channel literature employs stochastic modeling approaches rather than systems-based qualitative approaches. Even though firm incentivisation is regarded as an important factor in developing short term collaboration and longer term trust and commitment, the value chain and supply chain literature fails to provide a coherent, comprehensive and practical overview of how firms are incentivised (For example Ahuja 2000b; Gimeno, J., Dial & Sengul 2001a; Narayanan & Raman 2004a). Therefore, this review has been extended to include the governance, contracts, alliance, partnering and channel research in an attempt to develop a model of firm incentivisation. Therefore, this Section 2.12 will review the literature to develop an understanding of how chains are governed, how the communication and control aspects of governance operate in a value chain system, and how contracts and incentives are employed in such a system to drive co-innovation to create consumer value. The next sub-section will commence by explaining how the governance of value chain relationships occurs.

2.12.1. Governance and its relationship to firm level incentivisation

The governance of value chains is a dynamic mechanism for managing the exchange relationships between the buyers, sellers, service providers and regulatory institutions in a chain. This includes the ability of one or more of them to coordinate or control the activities of the other chain participants in

producing a product or service from inception by determining market access, the acquisition of productive capabilities and the distribution of benefit across the chain (Heide 1994; Vlaar 2006).

Some, such as Roucan-Kane and Boehlje (2009) and Peterson, Wysocki and Harsh, (2001) have suggested criteria and rational processes for the selection of the form of governance. But others suggest that decision-making about governance may not be as rational, self-directed and autonomous as the early governance theorists imply (Kogut, B. & Singh 1988; Moatti 2007). The earlier discussion in Section 2.5 suggested that mental models may also play an important part in the form of governance employed whilst Pfeffer and Salancik (2003) suggest that governance may be a constant struggle for autonomy, mediated with external influences and constraints.

Thus, linking theory from a wider range of disciplines may also have utility for understanding the complex decision-making and management practices that occur in chains (Burgess, Singh & Koroglu 2006; Halldorsson et al. 2007). Table 2.2 analyses a range of socio-economic theory to help explain inter-organisational behaviour in the establishment of supply chain arrangements, in particular structuring and management.

Transaction Cost Economics (TCE), Principal-Agent Theory (PAT) and Resource Dependence Theory (RDT)¹² are the core perspectives when considering the appropriate co-innovation architecture within and between firms in a supply chain because they provide insights about the fundamental nature of relationships and the design of contracts that underpin transactional exchanges (Albers 2005; Halldorsson et al. 2007; Palmatier, Dant & Grewal 2007). TCE and PAT highlight the issue of how to balance behavioural and outcomes based incentive approaches which are critical to agrifood chains where many have arms-length, antagonistic and opportunistic relationships and where many contracts are focused strictly on operational quality, quantity and timing parameters.

In particular, RDT provides an explanation for the dynamic tension that may be observed within value chains that are seeking access to the resources they need at an appropriate cost and within stringent time frames.

Network Theory (NT) suggests that because few firms will have all the resources required to develop a sustainable competitive advantage they will need to form relationships with a network of other firms to be able to achieve their aim (Ketchen, DJ & Hult, GTM 2007; Omta, SWFO, Trienekens & Beers 2001; Palmatier, Dant & Grewal 2007). The hypercompetitiveness in many agrifood sectors is forcing manufacturers to not only seek to enhance efficiency and effectiveness but to also generate the innovation necessary to survive and prosper through collaboration with other chain members.

¹² RDT is a refinement of the Resource-Based View (RBV) which takes a broad view of the firm's resources as being relationship-specific assets, knowledge-sharing routines, complementary resources and capabilities and effective governance mechanisms (Hall 1992; Olavarrieta & Ellinger 1997; Wernerfelt 1984).

Table 2.2: An overview of the main theories underlying value chain governance considerations

Theory	Focal Constructs	Problem/s Addressed	Behavioural Assumptions	Explanatory Relevance	Sources
Transaction Cost Economics (TCE)	Relationship-specific investments and opportunistic behaviour.	Efficient governance structure.	Bounded rationality, opportunism.	Governance structure and performance are dependent on the partner's specific investments and the level of opportunistic behaviour.	Williamson (1975, 1979, 1981) Heide (1994) Noordewier, John & Nevin (1990) Parkhe (1993)
Principal-Agent Theory (PAT)	Contracts and incentives.	The most efficient contract – the mix of behavioural and outcome incentives.	Bounded rationality, asymmetric information & risk aversion, goal incongruence, self-interested behaviour.	Applying the behavioural assumptions of PAT to the independent firms that comprise a chain underpins the alignment of contracts and incentives to ensure that they act in the best interests of the whole chain.	Eisenhardt (1989) Hornibrook (2007)
Resource Dependence Theory	Idiosyncratic resource & knowledge access needs; cooperation to reduce environmental uncertainty and power.	Firm behaviour trying to maximise autonomy despite their dependence on others for resources.	Self-interest, bounded rationality, power-orientation, risk aversion.	Extends the RBV by emphasizing the power relations between firms and provides insight into the 'tension' in chains for firms to acquire their needs through collaboration but also to achieve their own goals using three strategies: acquisition, power-based actions and cooperation.	Albers, S. (2005) Boyd (1990) Pfeffer & Salancik (2003 reprint from 1978)
Network Theory (NT)	Trust-based relationships, reciprocity.	Dyadic collaboration.	Bounded rationality, trust.	Emphasises the synergy created by idiosyncratic, trust-based, boundary-spanning relationships between individuals through dynamic exchange and adaptive processes that results in customisation to meet customer's requirements.	Halldorsson et al (2007) Johanson & Mattsson (1987) Gadde & Häkansson (2001) Omta, Trienekens & Beers (2001)
Commitment-Trust Theory	Commitment and trust.	Development of communication, trust and the exercise of power.	Trust and commitment improve behaviour.	Commitment and trust rather than power or dependence are the precursors to developing high performing relationships. Facilitated by the development of norms and communication.	Morgan & Hunt (1994) Palmatier, Dant & Grewal (2007) Cannon, Achrol & Gundlach (2000) Lusch & Brown (1996)
Dependence Theory	Interdependence and dependence asymmetry.	Lack of self-sufficiency in strategic and critical resources, cooperation and conflict.	Firms manage resource dependence by purposefully structuring their exchange relationships.	The dependence structure determines each partner's ability to influence the other and hence interorganisational relationship performance. Partners' interdependence usually positively affects performance whilst dependence asymmetry undermines the relationship due to the use of coercive power.	Bucklin & Sengupta (1993) Hibbard et al (2001) Paulraj & Chen (2007)
Relational Norms Theory	Relational norms (solidarity, mutuality and flexibility).	Solidarity, mutuality, adaptiveness, shared success.	In practice, in extremes the exchange partner will give own needs priority – norms are not absolute.	The strategic capacity to develop long term, trusting, committed, value-creating relationships that confer a more sustainable competitive advantage is highly positively associated with strong relational norms.	Macneil (1980; 2000b) Zaheer & Venkatraman (1995) Lusch & Brown (1996) Sigauw, Simpson & Baker (1998) Cannon, Achrol & Gundlach (2000)

The Commitment-Trust, Dependence and Relational Norms Theories are also very pertinent because of the asymmetry of power and capability between large multinational retailers, food manufacturing suppliers and the mainly small family farms that comprise their raw material suppliers. In some instances, the long history of antagonistic and opportunistic relationships has eroded trust and commitment which are essential for more collaborative, longer term relationships to develop that result in inter-dependence, relationship-specific investments fundamental to co-innovation and the development of sustainable competitive advantage. The fair and equitable use of power with supportive communication and behavioural norms are important perspectives provided by these theories.

However, fundamentally, the issue of governance is a question of organisational boundary decisions; the make, ally or buy conundrum and TCE and PAT are the dominant theoretical perspectives on why different forms of governance are employed within and between firms (Geyskens, Steenkamp & Kumar 2006; Halldorsson et al. 2007). For this reason the discussion will now seek a more detailed understanding of these theories.

2.12.1.1. The implications of TCE for chain governance

TCE proposes that the choice between markets and integrated hierarchies can be determined by the differences in transaction costs (Coase 1937) and the relative efficiency of the different governance structures in solving the issues of uncertainty, asset specificity and transaction frequency (Williamson 1975, 2008b). This forms the basis for the modern governance theory.

Governance is important to any study of firm incentives because it is primarily exercised through the use of power and incentives contained in contracts, regulations and policies (Geyskens, Steenkamp & Kumar 2006; Schilling & Steensma 2001). In markets, prices are the main mechanism for providing information (a blunt, outcomes-based incentive) for solving goal incongruity between suppliers and buyers and rewarding suppliers according to their contribution. In market-based procurement buyers cannot control price, terms of supply, quality, timeliness of delivery or innovation and have to negotiate these conditions. To do so incurs costs of developing, managing and monitoring contracts, the codification of product knowledge and intellectual property (IP) as well as maintaining inter-firm relationships (Altenburg 2006; Grzeskowiak 2006).

Alternatively, hierarchies have a superior ability to measure and reward behaviour through behavioural incentives, deferring incentives or complementing or substituting incentives because their integrated structure allows them to better train, monitor and evaluate their members. In formal hierarchies where the various functions of product transformation are carried out within an integrated organisation, the conditions of supply are imposed by executive fiat.

Thus, it is apparent that behaviour-based rewards are unlikely to succeed in markets because of their inability to achieve the level of monitoring, effective conflict resolution or give direction that will be

accepted (Arrow 1974; Ouchi 1979; Williamson 1975). Likewise, outcomes-based incentives do not provide the complexity of behavioural responses required within integrated hierarchies (Grzeskowiak 2006).

Given the apparent importance of governance, it is unsurprising that there has been a broadening of research because of inadequacies regarding the decision-making strategies, motivation and contingencies involved between the parties in exchange and the development of the hybrid concepts between the bipolar archetypes involving the dynamic combination of price, authority and trust (Gundlach & Achrol 1993). In turn, this has led in practice to the replacement of markets by contractual arrangements and vertical integration (Hendrikse 2003) with an increasing emphasis on ‘relational exchanges’ as opposed to purely ‘transactional exchanges’ (Shub & Stonebraker 2009)¹².

Table 2.3 provides a multi-perspectival view of the governance mechanisms in value chains.

Table 2.3: Governance structures and their use of the main governance mechanisms

Governance mechanism	Types of governance				
Gereffi, G, Humphrey, J & Sturgeon, T 2005	Market	Modular	Relational	Captive	Hierarchical
Wysocki, A, Peterson, H & Harsh, S 2003	Spot Market	Specification contract	Relationship-based alliance	Equity-based alliance	Vertical integration
Contract law	Classical ←————→ Neoclassical ←————→ Forbearance				
Dispute resolution	Court ←————→ Arbitration ←————→ Fiat				
Complexity of transactions	Low	High	High	High	High
Ability to codify transactions	High	High	Low	High	Low
Supplier capabilities	High	High	High	High	High
Administrative controls	Low ←————→ High				
Coordination means	Price ←————→ Bargaining ←————→ Fiat				
Degree of power asymmetry	Low ←————→ High				
Degree of explicit coordination	Low ←————→ High				
Autonomous adaptation (Innovation)	High ←————→ Low				
Cooperative adaptation (Co-innovation)	Low ←————→ High				
Incentive intensity	High ←————→ Low				
Incentive type	Outcome ←————→ Behaviour				

Source: derived from Albers (2005, p. 36); Gereffi, Humphrey and Sturgeon (2005); Grzeskowiak (2006, p. 41) and Wysocki, Peterson and Harsh (2003).

As suggested in Section 2.5, using the terminology from Gereffi, Humphrey and Sturgeon (2005) and Wysocki, Peterson and Harsh (2003) to describe the five types of governance may assist in its interpretation in industry contexts:

1. Markets or spot markets based on independent sellers;
2. Modular value chains or specifications contracts;

¹² Transactional exchange is based on minimal personal relationships, independent from other exchanges with no element of commitment to future exchanges. On the other hand, relational exchange is “ongoing cooperative exchange that is based on relational norms, trust, commitment and long-term orientation” (Grzeskowiak 2006, p. 52). This approach has given rise to ‘relationship marketing’ which is “all (the) marketing activities directed toward establishing, developing, and maintaining successful relational exchanges” (Morgan, RM & Hunt 1994, p. 22).

3. Relational value chains or relationship-based alliances;
4. Captive value chains or equity-based alliances;
5. Hierarchical value chains or vertical integration.

The ‘make, ally or buy’ conundrum which is common for agrifood firms refers to whether or not to rely on market-based procurement, vertical alliances or to vertically integrate to control manufacturing. In practice, it is being resolved by the development of hybrid forms of governance based around relationships and ‘lead firms’ to undertake the organisation of supply (Albers, Gehring & Heurmann 2003; Gereffi, Humphrey & Sturgeon 2005). However, this has not alleviated the problem of managerial ‘bounded rationality’ and ‘satisficing’¹³ which increases with the greater reliance on outsourcing and has resulted in important advancements in chain information systems.

Grzeskowiak (2006) concluded there was a need for the use of a broad range of ‘levers’ for the governance of the hybrid forms and he regards incentive and rule-based control mechanisms as closely related encompassing positive (rewards) and negative incentives (sanctions). Gulati, Lawrence and Puranam (2005) suggest that coordination requires the broader and deeper influences of centralised decision-making and independence of action in the tailoring of coordination mechanisms, norms, leadership, culture and trust. The question of whether or not a firm cooperates, coordinates, collaborates or integrates (Spekman, Robert E, Kamauff Jr. & Myhr 1998) more closely with its chain partners to create value is a matter of corporate strategy (Ghosh & John 1999; Khalifa 2004).

In summary, the TCE perspective on value chains recognises the total transaction costs in governance forms which highlights the performance advantages of relational hybrids where there are long-term relationships, reduced monitoring, relational (informal) contracting, relationship-specific investments which minimise opportunism (Macher & Richman 2008).

2.12.1.2. The role of Principal-Agent Theory (PAT) in chain governance

PAT was originally based on problems facing owners or shareholders and their representatives when ownership and control of economic assets and activities is separated. It seeks to explain the problems associated with the economic relationship by regarding it as a contract. It recognises that between the cooperating parties there may be differences in their willingness to accept risk, potential self-interested agent behaviour, bounded rationality and asymmetric information favouring the agent and ultimately uncertain outcomes – this is the ‘agency problem’. The contract is the governing instrument employed by the principals to ensure their interests are the prime focus of the agent and the resolution of the agency problem incurs the costs of contract design, monitoring and control – the ‘agency costs’. The aim of PAT is to design the most efficient contract with optimal mix of outcomes and behavioural

¹³ The notion of ‘bounded rationality’ in TCE is that managers’ capacity to discover alternatives (e.g. suppliers) and gather information is limited (de Boer, Gaytan & Arroyo 2006). ‘Satisficing’ is decision-making in the context of limited information to achieve adequacy rather optimal solutions (Simon 1957).

incentives to motivate the agent to act in the interests of the principals (Albers 2005; Bergen, Dutta & Walker 1992; Eisenhardt 1989; Hendry 2005). It specifically seeks to prevent opportunistic behaviour and has no *ex ante* explanation for the formation of the relationship as does TCE.

PAT can be applied to individuals (e.g. between the Board and the CEO) or between firms as in alliances and supply chains. In supply chain management, it is the alignment of incentives both individually with chain goals and between each member of the chain that is the challenge (Simatupang & Sridharan 2007). Misalignment is mitigated by balancing rewards and penalties (Baiman & Rajan 2002; Narayanan & Raman 2004a).

Section 2.3 highlighted how agrifood chains are different, particularly regarding the asymmetry of power and capacity between small farm businesses and processors or retailers. This means that the form of governance that evolves for agrifood chains may have significant ramifications for the nature of the chain, its capacity to cope with environmental change and collaboratively innovate. Importantly for this study, according to Table 2.3, the nature of the incentives used to achieve the strategic goals of the chain/firm will vary according to the form of governance. Understanding the dynamics of governance when analysing agrifood chains becomes an important practical issue due to its linkage to strategy and the development of collaborative innovation through incentives and control mechanisms. Therefore, the following research question is proposed.

Subsidiary Research Question 5: *How does the form of governance in agrifood value chains influence the incentives employed across the chain?*

It has been suggested earlier that agrifood value chains may be seen as a system, therefore the following section will consider the chain, channel and systems literature in an attempt to understand how governance relationships operate.

2.12.2. Agrifood chains as recursive systems

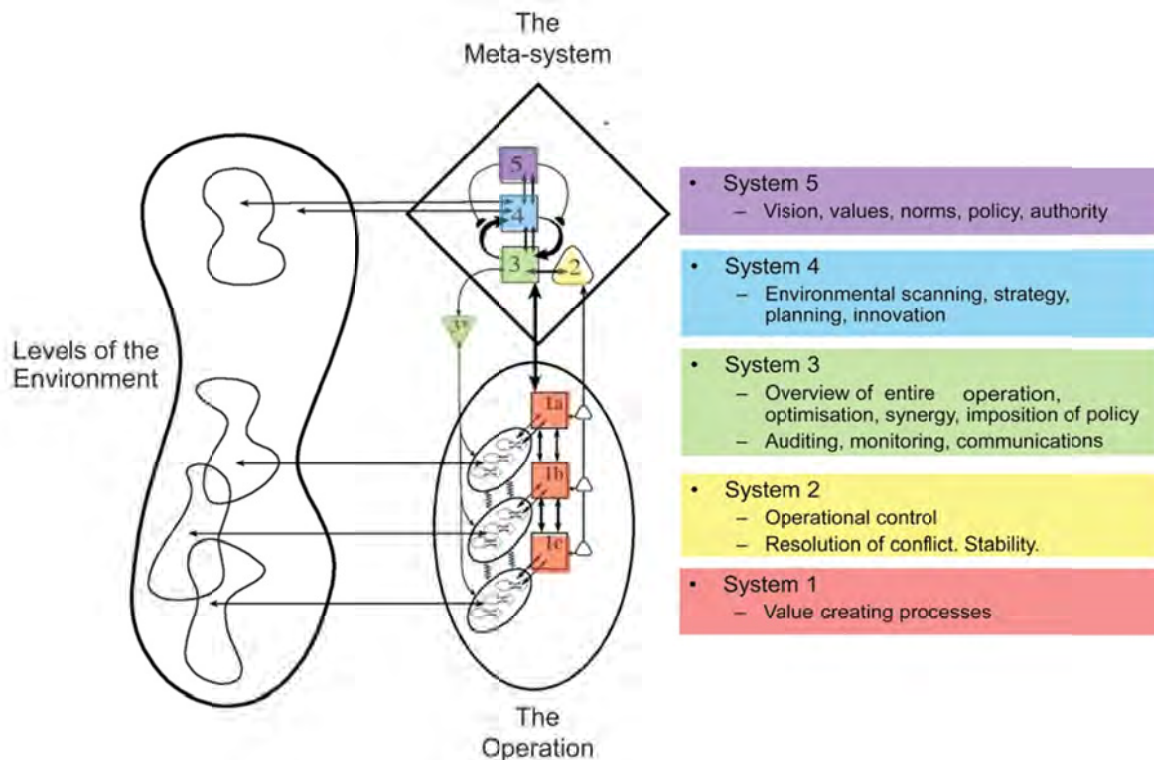
A number of researchers refer to supply and value chains as 'systems' (Bäckstrand 2007; Chroneer & Mirijamdotter 2009; Collins, RJ & Dunne 2008; Jain, Nagar & Srivastava 2006; Knoppen & Christiaanse 2007). The systems approach has as its core concept the notion that a complex whole may have properties related to the whole that are meaningless if viewed only in terms of its component parts. Systems thinking is based on two main ideas; firstly, those of emergence and hierarchy, and secondly, communication and control in open systems (i.e. those that exchange materials with the external environment) rather than closed systems. It provides a general model of organised complexity with a hierarchy of levels of organisation, each more complex than the one below and each level characterised by emergent properties not existing at the lower level, rendering the higher level incomprehensible to the lower one (Checkland 1981; Checkland & Scholes 1990).

Chroner and Mirjamdotter (2009), Espejo (1997) and Verdouw et al (2011) suggest that supply chains are ‘cybernetic systems’ and used Stafford Beer’s Viable¹⁴ System Model (Beer 1981, 1984) as an analytical tool. Cybernetics is based on the notion of recursivity of systems, that is systems within systems, where action by a system within its environment causes some change in that environment through information and feedback loops that cause adaptation. It can be used to analyse, design and control both physical and social systems where action by a system is a constant processes of acting, sensing and comparison with a goal then acting again to adapt more closely to ensure the viability of the system. It is useful for applying to business management applications including those focusing on efficiency and effectiveness (Beer 1981, 1984, 2004). Thus, it appears to provide a framework for the analysis of the governance in agrifood chains across multiple levels because it encompasses material and information flows and relationships (Bonney et al. 2007). In the context of the incentivisation of firms in chains, it may be important in understanding the control and cohesiveness of chains to recognise that systems are recursive and not simply a sequential linear arrangement of entities interfacing with each other as depicted in the typical conception of supply chains (for example Lambert, Cooper & Pagh 1998).

The VSM model, based on Beer’s observations of viable biological systems, specifies five functions or ‘systems’ that provide the conditions for system viability and proposes that:

- Every level of a system is comprised of recursive, autonomous sub-systems or ‘nested’ systems in a hierarchy, where each level of recursivity is simultaneously a whole in itself and part of a higher order entity that is itself a viable whole and has a requisite variety of Beer’s (1981) self-organizing and self-regulatory systems (Beer 1981, 2004; Espejo & Gill 1997).
- Every level of a system has only partial knowledge of its environment and develops sufficient internal variety in its self-organising and self-regulatory characteristics and functions to be able to cope with its internal and external environment, as postulated by Ashby’s Law of Requisite Variety (Ashby 1957). In Beer’s (1981) VSM, this is comprised of five systems, the details of which are illustrated in Figure 2.6;

¹⁴ Able to maintain a separate existence over time (Beer 2004).

Figure 2.6: Beer's Viable System Model applied to value chains

Source: Adapted from Espejo and Gill (1997).

Each agrifood value chain 'system' contains Beer's five core VSM functions attempting to deal with its perceived environment at a level of complexity necessary to survive. Thus, the firms at each level have their own mechanisms for developing strategy, structure, culture, business systems and processes including incentives and motives to control behaviour at a level of complexity sufficient to survive (the 'requisite variety') (2005). Systems 1 – 3 are the 'operational' systems creating value whilst Systems 4 – 5 are the 'meta-system' providing strategic services to operations. The communication between the recursions of the system are comprised of data and information flows that might be part of VMI, ECR or CPFR¹⁵ planning and procurement systems used in supply chains as well as the boundary-spanning activities. It is through this process that each level of the system expands its understanding of the system environment. In the case of supply chains, negotiation and feedback occurs between a retailer and their chain leaders/category captains about for example, the forecast effects of drought on supply systems. The efficiency and effectiveness with which it is done (based on behavioural norms, relational and innovation competence, and the inter-organisational architecture) will determine the ultimate viability of the whole system.

The well documented (Cox 2007; Cox & Chicksand 2007; Grievink 2003) existence of an asymmetry of power and capability suggests that there may be different levels of outlook at the various levels of a chain; whole of chain, retailer, processor or supplier, consistent with Beer's (1981) VSM. Those chain

¹⁵ VMI is Vendor Managed Inventory; ECR is Efficient Consumer Response; and CPFR is Collaborative Planning, Forecasting and Replenishment, all current management information systems used in supply chain management.

partners large enough to have operational divisions will each have their own VSM functions in order to ensure their adaptability and sustainability (e.g. market research, environmental scanning, or the various business intelligence functions). In other cases, the firms involved may be quite small or even just single owner-operators as in the case of primary producers. In the latter case, Beer's VSM functions may simply involve different activities in the labour of one individual; that is, the farmer may simultaneously be responsible for the agronomic functions (The Operation) as well as the business management functions (The Meta-system) associated with running a farm business. Thus, the smaller businesses in the chain may have a less complex, informal and more localised understanding of their operating environment simply because they have less capability for monitoring and sense-making (Bamberry, Dunn & Lamont 1997; Stayner & Doyle 2004; Tanewski, Romano & Smyrnios 2000) and acquire any new knowledge by social means (Kilpatrick et al. 1999). So, farmers' capacity to make sense of the operational environment may be qualitatively variable and quantitatively miniscule by comparison giving them a distinctly different outlook and/or placing them at a significant disadvantage when understanding their environment, their markets, chain needs and operational dynamics. This may have important effects on farmer's attitudes, the nature of relationships and manner in which they undertake important chain activities such as negotiating supply contracts, adapting to the environment and innovating to create value for consumers. These governance issues are those from Agency Theory, managing uncertainty of supply and opportunism; Transaction Cost Analysis concerns with efficiency; and, perhaps the Resource Dependency Theory where the concerns are about how power is exercised and how to achieve their own goals. These will have multiple levels of scope and complexity for the lead company.

On the other hand, the suppliers in agrifood chains may have a much more diverse range of concerns because of the diversity of size and capability in any supply base. They may share the concerns of Transaction Cost Analysis (efficiency) and Resource Dependency Theory (self-interest, bounded rationality, power and risk aversion) with or because of the retailer's focus, but may also have concerns from Commitment-Trust Theory (commitment and trust), Dependence Theory (interdependence and dependence asymmetry), Equity Theory (fairness and equitable treatment), and the Relational Norms Perspective (solidarity, mutuality, and flexibility).

This disparity of knowledge and information may consciously or unconsciously become the basis for power and control within a chain. The manner in which these cross-cutting perspectives idiosyncratically develop different concerns at each level of the value chain system and how incentives interact to produce motivation presents a significant management challenge for retailers and so is an important focus for this research.

Therefore, the following research question is proposed:

Subsidiary Research Question 6: *How does the asymmetry of capability in agrifood value chain systems affect the nature of the incentives employed*

Cox has written extensively about the dynamics of power and asymmetry in supply chains per se (Cox 1996, 1999, 2001, 2004, 2007; Cox & Chicksand 2005; Cox et al. 2002; Cox et al. 2004) as have many others. Amongst them Duffy, Fearne, Hornibrook et al (2005; 2003; 2009) have specifically investigated power, equity and justice in agrifood chains. The VSM, from the well-established field of cybernetics, provides a theoretical basis for understanding these dynamics of power, communication and control in agrifood governance relationships. In agrifood chains, it explains how the differential capacity and outlook between large retailers, wholesalers or processors and the farmers who produce the raw material they use as the basis for food products results in differential environmental understanding along the chain beyond (but inclusive of) the expected idiosyncratic business goals may require different incentives to motivate the chain partners to align chain behaviour in the pursuit of whole-of-chain goals.

2.12.3. How do retailers deal with such diversity and complexity?

Modern food retailers are very complex organisations often merchandising a total of between 30 – 75,000 SKUs¹⁶ (Food Marketing Institute 2011). In the food categories each may have several hundred supply chains (Case Study 3 found, for example, that Greenfresh is supplied by approximately 450 fresh produce chains) and so the task of coordinating the supply chains for their products is beyond the capacity of the retailer alone.

The concept of value chain governance implies that there are one or several of the firms in a chain that determine and manage the parameters of behaviour in the relationships in that chain (Gereffi & Frederick 2009). To achieve this, modern agrifood grocery chains frequently appoint a ‘category captain’ (Bandyopadhyay, Rominger & Basaviah 2009), ‘lead firm’ (Altenburg 2006), ‘focal firm’ (Holcomb & Hitt 2007), ‘channel leader’ (Cooper et al. 1997) or ‘channel captain’ (Smith, DLG 2006) amongst other terms to manage each of the product channels comprising the category¹⁷ (Vorley 2007) because the retailer cannot be expert in every category and product segment (Drake 2006). Understanding why and how this might occur in non-agrifood contexts may be important to understanding how the mechanism might operate within the agrifood industry.

¹⁶ Stock Keeping Units.

¹⁷ A retail ‘category’ is a group of related substitutable or similar products from the perspective of the consumer that have related logistical and merchandising attributes (Bandyopadhyay, Rominger & Basaviah 2009; Kurtulus & Toktay 2007)

Whilst the terminology and definitions vary, there is a common understanding that the aim of category management is to develop and implement coordinated chain strategies, resolve conflict, improve product availability, pricing, the range available, the timing of promotions and to deal with difficult operational issues such as the sharing of risks, costs and benefits across the chain partners (Cooper & Ellram 1993; Dupre & Gruen 2004). In this way, supermarkets have effectively outsourced many of what were previously their own functions (Dolan & Humphrey 2004; Hornibrook, S. 2006; Morgan, NA, Kaleka & Gooner 2007; Smaros 2007) and there is some evidence that the strategy is responsible for a 14 % growth in retail sales and 8% of manufacturing revenues (Raskin 2003).

Thus, 'category management' is a process for managing a product category as a strategic business unit within a retail store (Bandyopadhyay, Rominger & Basaviah 2009; Kurtulus & Toktay 2007). The function differs mainly in regard to which company is responsible for market analysis and making recommendations (Drake 2006). Category captains work with the retailer's category manager to assist with marketing and merchandising whilst also engaging in pseudo-hierarchical behaviour with their upstream chain partners. These upstream partners are legally independent entities but are operationally dependent to a greater or lesser degree on the category captain for market access, information, IP or some other capacity because of the size of their commitment to that buyer or because of their strategic importance to the suppliers' business aims (Altenburg 2006; Bandyopadhyay, Rominger & Basaviah 2009). Their dependence is a common but not universal feature in agrifood chains because of the often considerable asymmetry that exists as well as the level of commitment of those suppliers to any specific chain.

A category captain's role may be broader than just their products and may include the whole category of products. The function is to identify dynamic economic opportunities, coordinate supply by assigning roles and monitoring performance, manage information flows, develop the category and integrate the management of the whole chain system with a long term orientation (Altenburg 2006). Category leaders exert power over other members of the chain through the use of contracts, positive and negative incentives, policies, rules and regulations (Boehlje, Hofing & Schroeder 1999). Incentive and rule-based control mechanisms may be regarded as closely related encompassing both positive (rewards) and negative incentives (sanctions) and so often comprise part of contract specifications, policies or regulations (Grzeskowiak 2006).

According to Beer's Viable System Model (1981, 1984, 2004), each of the entities will have their own internal systems of sense-making and internal control and so when the forms of governance are examined, it needs to be recognised that this control may create a tension between the chain interests and the individual firm's interests. In an attempt to develop a theoretical base for chain governance and incentivisation in the following sections, it is assumed that these continue to co-exist and in some instances overlap as suggested by agency theory.

Having described one of the most common means of implementing a coordination strategy in agrifood value chains, this thesis will focus on investigating agrifood chains that do employ a lead firm governance strategy or have an informal ‘chain leader’ undertaking governance functions and attempt to understand the mechanisms by which this occurs.

Subsidiary Research Question 7: *How is chain leadership exercised in agrifood chains?*

The next section will review some of the literature that provides insight for understanding how agrifood chains are governed.

2.12.4. Contracts, the vehicle for hybrid governance

According to Grzeskowiak (2006), contracting and incentives are the main mechanisms for governing value chains. Williamson (1985, 1986; 2008a) recognised that because of bounded rationality, formal or classical contracting would always be ‘incomplete’ in complex situations requiring adaptivity and that hybrid models of governance had evolved to safeguard against bounded rationality and opportunism.

The notion of contracting is based on three types: (1) ‘Classical’ contracting supports the discrete, static transactions that occur in market exchange (Macneil, Ian R. 1974, 1978; Williamson 1996); (2) ‘Neo-classical’ contracting is more flexible for on-going relationships and so supports hybrid forms of governance such as the settling of disputes through forbearance¹⁸ (Macneil, Ian R. 1978; Williamson 1996); and (3) ‘Relational’ contracting regards contracts as relationships rather than discrete transactions as do classical and neo-classical contracting and are fundamentally based on trust and ‘relational norms’ (Macneil, Ian R. 1973, 1974, 1978, 1985, 2000b).

The types of contracts and incentives employed, along with the administrative controls and the level of adaptability that are generated are a means of distinguishing the type of governance and position on the governance continuum in Figure 2.4 (Spekman et al. 1998).

Therefore, this thesis adopts a very broad view of ‘contracts’ in value chain commercial exchanges, encompassing all forms within the Latin phrase *pacta sunt servanda*, literally ‘keeping one’s word’ (Wehberg 1959, p. 775).

2.12.4.1. Formal contracts

Formal contracts are employed in VCM to make the terms of engagement explicit and unambiguous, share risk in the light of the agency problems, coordinate channels by identifying the intra-chain and provide certainty to facilitate long term relationships (Tsay, Nahmias & Agrawal 1999). This is achieved through incentives, rules and policies (Grzeskowiak 2006; Hobbs & Young 2000) hence formal contracts contain ‘formal incentives’ that are deliberately designed.

¹⁸ Literally ‘holding back’ or refraining from taking action that one has a legal right to do (Brown 1993).

Mighell and Jones (1963) suggest that in practice agricultural contracts can be classified into three broad groups:

- (1) Market-specification contracts representing an agreement by a buyer to provide a market for a seller's output. The buyer may assume some risk and the right to make decisions over the timing of marketing. The farmer retains control over the production practice.
- (2) Production-management contracts entail more buyer control, allowing the buyer to specify and/or monitor production practices, input usage, etc.
- (3) Resource-providing contracts represent the greatest level of control for buyers, who provide a market outlet, supervise production practices and supply key inputs. In doing so, the buyer usually assumes a greater proportion of the risk and may retain ownership of the product, with the farmer, in effect, paid a management fee.

2.12.4.2. 'Relational' or informal contracts

In the view of some, "...all contracts are relational, complex and subjective..." (Austen-Baker 2004, p. 125). It is certainly rare that relationships between firms in a value chain are entirely controlled by formal contracts, so to a greater or lesser degree 'informal' or 'relational' contracting also operates or, indeed, may substitute altogether for a formal contract (Hendrikse 2003). Relational contracts in supply chains are informal and non-codified, often long term and incomplete agreements that are sustained by trust, reciprocity and the perceived future value of that relationship which provide the flexibility to cope with uncertainty and complexity (Baker, G, Gibbons & Murphy 2002; Hendrikse 2003; Jeffries 2000; Makadok & Coff 2009). Grzeskowiak (2006) defines 'relational exchange' as "ongoing cooperative exchange that is based on relational norms, trust, commitment and long-term orientation" (p. 52) and contrasts this to 'transactional exchanges' with no element of commitment to future exchanges.

By definition, this concept is fundamental to the understanding of the incentivising of collaborative innovation as it contains the notion of 'informal' or 'implicit' incentives¹⁹; subjective, unspecified, non-enforceable, reciprocity-based factors that motivate firms towards non-specified behaviours. Implicit incentives may arise deliberately to leave flexibility for unforeseen contingencies (Bernheim & Michael 1998), from the unintended consequences of incentive design (Narayanan & Raman 2004a) or as a result of the organisational cultural factors (Gibbons 2005) and inter-organisational dynamics of trust and dependence (Ganesan 1994). Further, a balance of explicit and implicit incentives may be necessary to achieve the best performance outcomes (Baker, G, Gibbons & Murphy 1994; Barnard 1938; Laffont & Martimort 2002) and through the agency of managers they may also be important in determining organisational competitiveness (Gimeno, J., Dial & Sengul 2001b).

¹⁹ It appears that the interaction between explicit and implicit incentives with extrinsic and intrinsic incentives has not been well researched and yet implicit incentives appear to be amongst the most psychologically powerful motivators (Fehr & Falk 2002).

Finally, the use of informal contracts has been linked to the development of good relationships and structural mechanisms such as inventory management, information systems, whole-of-chain outlook and proximity and appears to have significant effects on the value creation performance of the chain (Jayaram, Kannan & Tan 2004). This is consistent with the notion referred to earlier that both formal and relational contracts are necessary to cope with the complexities of modern commercial exchange.

Relational contracting has its theoretical base in Macneil's (1974; 1980; 1985, 2000b) relational theory of exchange (also called the relational norms approach) where he argued that contracts are part of broader social relationships and conceptualised them in a way that suggests they form a continuum from discrete to relational (Macneil, Ian R. 1973), although he did not use this construction himself (Campbell, D. 2001). Macneil (2000a) also postulates ten common contract norms that focus on the preservation and adaptiveness of relationships that are observable and apply to all contracts. In any relationship the degree of harmony with the norms may influence the success of the relationship in terms of its longevity and the ability of the participants to appropriate the full range of potential benefits inherent in that exchange. The degree to which neo-classical law (formal contracts) harmonises with exchange norms can determine the usefulness of its legal tools and interventions in those exchange relations (Campbell, D. 2001).

Interestingly, Austen-Baker (2009) suggests that the well documented asymmetry of power that frequently exists in agrifood chains may work against the development of relational contracting. Tuusjärvi, Pietiläinen and LWC. Ltd (2009) go further suggesting that a firm's relational culture makes relational contracting more difficult due to possible misalignment of interests (or objectives) with partners or the existence of power asymmetry making the application of norms more difficult.

In summary, there appears to be sufficient evidence in this Literature Review to suggest that the nature of relationships in agrifood value chains may affect the nature of the contracting used to affect chain governance. The possibility of linkages of Macneil and others conceptions of relational contracting to the asymmetry of knowledge and relational competence within firms also supports the value in pursuing this as a research question:

Subsidiary Research Question 8: *How does the form of relationship (governance) in an agrifood chain affect the types of contracts used to coordinate chain participants?*

2.12.5. The incentives and motivations to elicit chain-oriented behaviour

In the literature, two emphases appear to be critical to value chain incentivisation:

- 1) The employment of a multi-faceted program of chain level incentives that are situationally appropriate (Cockburn, Henderson & Stern 1999; Hauser, Tellis & Griffin 2008; Rizzotti 2007;

Sauermann 2008) and this refers to the use of a range of different types of incentives and their alignment with corporate objectives.

- 2) The alignment of incentives across the chain (Bäckstrand 2007; Gimeno, Javier 2004; Gottschalg & Zollo 2005; Narayanan & Raman 2004a, 2004b; Simatupang, T. M. & Sridharan, R. 2002; Simatupang & Sridharan 2008; Williamson 1985, 2000). This refers to the design of incentives for the firms in a chain to elicit consistent behaviour and performance along the chain focused on the whole chain's interests. Narayanan and Raman (2004a) argue that if incentives are misaligned, the chain's performance cannot be optimised and that a company (and by definition, the chain) can increase the 'size of the pie'²⁰ by aligning partners' incentives.

The explanation that follows and the model of value chain incentivisation subsequently developed in Figure 2.8 are cognisant with the discussion of systems and the Viable System Model in Section 2.13.2. The effect of this on the value chain incentivisation model is that the incentives and motives at the retail and lead firm levels are more wide-ranging and strategic than those for 'other suppliers' such as farmers with little capacity for strategic sense-making.

However, whilst there has been some research regarding firm motives, there appears to have been little research on firm incentives. Hence, this discussion canvasses the possible incentives that motivate firms in value chains and the specific motivations for action that arise from these. The discussion will progress from the retailer to the lead firm and then to the other suppliers, which in agrifood chains will predominantly be small farm businesses.

2.12.5.1. Retailer incentives and motivation for chain coordination behaviour

Incentives

In Section 2.1 it was explained that strategic management theory posits that obtaining a sustainable competitive advantage is the core motivation for any organisation and sees this being manifested by either collaborative or competitive approaches (through mergers or takeovers) (Barney, J 1991; Child, Faulkner & Tallman 2005). Profit and returns on investment in the form of dividends or share price and the ability to generate these on a sustained basis in a competitive environment appear to be explicit economic incentives that motivate profit oriented behaviour (Barney, JB 1986; Collis & Montgomery 1995; Cravens 1998; Little 2004; Peteraf 1993; Porter 1996; Wernerfelt 1984). But are there also other less obvious incentives?

Several studies highlight that there are more subtle institutional forces at work in a firm's environmental context that determine the nature of the organisation and its behaviour (DiMaggio & Powell 1983; Meyer & Rowan 2008; Scott 2001; Suchman 1995; Wicks & Berman 2004). A concept relevant to this discussion is that of 'institutional isomorphism' or the tendency of firms in an industry

²⁰ The 'size of the pie' was a phrase used by Jap (1999, 2001) that is now common marketing parlance referring to the size of the market for a product.

to adopt homogenous structures, processes and practices (DiMaggio & Powell 1983; Rindfleisch & Heide 1997; Rogers et al. 2007). Others highlight the influence of industry norms on many firm processes such as strategy, innovation, trust development, culture, and firm performance (Berghman 2006; Gunasekaran, Patel & McGaughey 2004; Roberts, PW & Amit 2003). These introduce a social construction variable as an influence for firms to imitate their competitors or partners and comply with industry norms that Rindfleisch and Heide (1997) suggest may be equally as important as the efficiency concerns of transaction costs and may be characterised as 'normative incentives'.

Increasingly though, there also appears to be social drivers of corporate and business generally, particularly those associated with 'corporate social responsibility' (CSR) and environmental sustainability (Burke 2002; Holme & Watts 2002; Nelson 2004) and these appear to have a particular cogency for agrifood chains (Gelder & Whitehouse 2005; Maloni, MJ & Brown 2006). Social factors may act as incentives for firms to build respectability that can be converted to either the 'triple bottom line' outcomes (Foran, Lenzen & Dey 2005) or simply improved economic performance (Oberndorfer 2004).

Therefore, it appears that there may be three generic groups of incentives operating for retailers in value chains: (1) economic, (2) normative and (3) social incentives.

Retailer motivations

In contrast to the firm incentives literature, there have been a number of studies that provide some understanding of the motivations for chain coordination behaviour by retailers. Several typologies of motivations in value chains are frequently referred to in the literature (Frankel & Whipple 1996; Gersch, Goeke & Freiling 2007; Glaister & Buckley 1996; Kogut, Bruce 1988; Varadarajan & Cunningham 1995) but few models have been empirically tested. Three appear to be amongst the most cited with Kogut (1988) and Frankel and Whipple (1996) being empirical and Varadarajan and Cunningham (1995) conceptual. Of the empirical studies, Kogut (1988) is the most strategic in its approach incorporating strategic competition, transaction cost and organisational perspectives. He reduced firm motivation to five broad strategic drivers (listed in Figure 2.8) however, the notion of 'reducing uncertainty/risk management' appears in three of the other typologies (Gersch, Goeke & Freiling 2007; Sheth & Parvatiyar 1992; Varadarajan & Cunningham 1995) but does not appear to be incorporated in Kogut's typology. Because it is an important element of agency (Eisenhardt 1989; Hendry 2005) and strategic management theory (Fortuin, Frances T. J. M. & Omta 2006; Hamel & Prahalad 1989) it has been added to Kogut's list for the purposes of investigation in this thesis.

2.12.5.2. Lead firm incentives and motivation for supplier coordination behaviour

Incentives

As discussed in Section 2.13.3, lead firms are often chosen by retailers to undertake the operational coordination of value chains. Again, the literature provides little guidance on the types of incentives

that may be used by retailers to motivate lead firms to coordinate their suppliers. As these firms will need considerable capacity to do so, it is likely that they will be larger firms with similar outlooks to larger chain partners, so it will be assumed that the three generic groups of incentives from the previous section will provide broad guidance as to their nature; thus, (1) economic, (2) normative and (3) social incentives.

Motivations

Frankel and Whipple (1996) have reported an extensive global investigation of alliance formation motives in manufacturing across three levels of supply chains; manufacturers, distributors and service suppliers. However, because the chains investigated were from a variety of largely chemical, pharmaceutical, automotive and food/beverage manufacturers it appeared that the motivations for other than the 'manufacturing' level were inappropriate for this study. Hence, the 'manufacturing' level motives were selected for the processing stage of the value chain incentivisation model in Figure 2.8.

2.12.5.3. Incentives and motivation for other chain partners (upstream)

The managerial task of defining roles, responsibilities and accountabilities across a number of independent businesses when there are different goals and cultures with few shared beliefs and little loyalty is onerous, sensitive and time consuming (Frazier 1999; Heide 1994; Murry & Heide 1998). Frazier comments wryly: "Influence attempts to gain control are one thing. Gaining actual control is another." (p. 229).

Incentives

In a large empirical study, Gilliland (2003) identified the highly diverse nature of firm level incentives and the inadequacy of existing typologies to encompass all the facets of control and he proposed a comprehensive typology of incentives. He has distilled these into five categories with sixteen sub-categories that may have some relevance to agrifood chains, despite their significantly different nature to those he researched. In essence they are:

1. Obligation-creating policies
2. Information and process support for growth
3. Enhanced interaction and information exchange
4. Economic incentives
5. Growth and collaboration incentives

Motivations

Broadly, the goal of channel motivation is to facilitate co-innovation that creates consumer value. Quinn and Rohrbaugh (1983) have empirically identified four broad dimensions for organisational effectiveness that Gilliland (2003) has suggested are also relevant for marketing channels. These have

been regarded as motivations that lead firms may seek to elicit from their suppliers in this research: pattern maintenance, adaptability, integration and attainment of chain goals. They have been called ‘functional imperatives’ by Kumar, Stern and Achrol (1992) whilst Gilliland (2003) refers to them as “concerns” (p. 62) for balancing internal and external demands in order to achieve channel stability, flexibility and sustainability. For the purposes of this study they are regarded as motives.

Consistent with the VSM concept of a chain system, the incentives and motives may have a different level of scope at each level of the system. Therefore, having identified a possible framework of incentives and motivations at each level of the value chain from the literature, it appears important to explore what incentives and motives appear to be operating in the agrifood chains being investigated in this study and how that occurs. Therefore, the following research questions are suggested:

Subsidiary Research Question 9: *What incentives are used to motivate firms in agrifood value chains?*

Subsidiary Research Question 10: *What are the motives that energise goal-oriented behaviour in agrifood value chains?*

2.13. The link between incentives, motives and action in exchange relationships

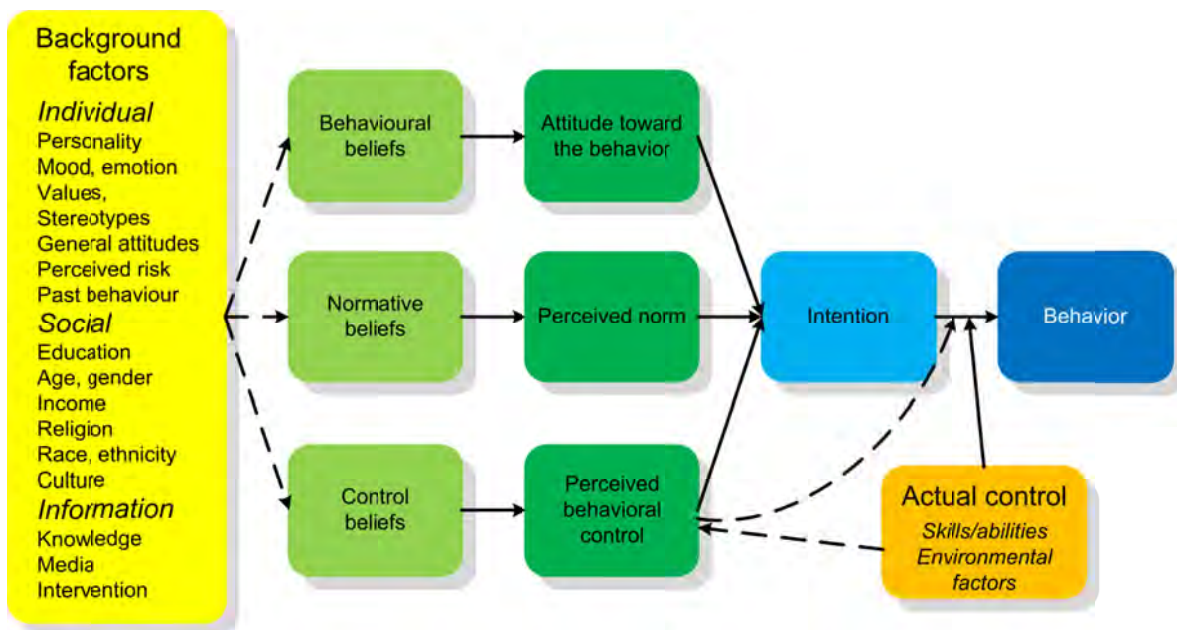
Webb & Sheeran’s (2006) meta-analysis of 47 intention-behaviour tests found that the most frequently used frameworks in behavioural interventions were the Protection-Motivation Theory (PMT) and the Theory of Reasoned Action/Theory of Planned Behavior (TRA/TPB) and that these produced the largest changes in behaviour. However, as the PMT is used for population health studies whilst the TRA/TPB is well established in marketing and public relations, the latter appeared to have the most potential for providing an explanation of why incentives are ineffective or fail over time.

Grzeskowiak (2006) argues that the theory’s internal and external validity in the context of exchange relationships is high. He found support for the influence of relational beliefs on relational intentions and relational intentions on relational behaviour in a structural model of relational exchange based partly on the TRA/TPB. The TRA/TPB (Ajzen, I. & Fishbein 1980; Fishbein & Ajzen 1975) posits that behaviour is driven by a mix of attitudinal, social and intentional variables meaning that actions are embedded in social norms and relations rather than self-interest seeking or ‘opportunism’. The Theory of Reasoned Action (TRA), first developed by Martin Fishbein and Icek Ajzen in the late 1960s and 1970s, has had its predictive validity for explaining the link between beliefs, attitudes, intentions and behaviours consistently confirmed (Armitage & Conner 2001; Hagger & Chatzisarantis 2005; Sheppard, Jon & Warshaw 1988) and consequently is extensively used in a wide number of domains. In the late 1980s, co-author Icek Ajzen recognised that people often do not have volitional

control over goals and behaviour and introduced the construct of ‘perceived behavioural control’ into the model, calling it the Theory of Planned Behavior (TPB) (Fishbein & Ajzen 2010)²¹.

The TPB appears to be important to the understanding of the incentivising of individuals and firms across value chains as it provides the theoretical link between incentives, motives and action. So it may be a useful guide for the implementation of VCM and understanding why it is often not implemented or its implementation fails. At the individual level, the TPB suggests that behaviour follows reasonably and sometimes spontaneously from behavioural, normative and control beliefs (Figure 2.7). In combination, the attitudes, norms and perceived level of personal control may lead to a behavioural intention or a “readiness to perform the behaviour” (Fishbein & Ajzen 2010, p. 21) which is directly related to performing the behaviour. However, because of individual background factors individuals may lack actual or volitional control, and it is only when people have a high level of actual control that a high level of intention can be converted into action. Thus, individual differences between people are also an important influence in enacting intention because it affects how they interpret their past experiences and the information that they have regarding the behaviour in question (Ajzen, Icek 2006; Fishbein & Ajzen 2010).

Figure 2.7: The Theory of Planned Behavior



Source: Fishbein & Ajzen (2010)

At the individual level the beliefs, attitudes, subjective norms and perceived behavioural control variables of the TPB all relate to intrinsic motivation, referred to in the TPB model as ‘intention’.

²¹ For the purposes of this thesis, TPB will be used to denote both the Theory of Reasoned Action and the Theory of Planned Behavior as a unified model unless otherwise indicated.

Recent work by Chatzisarantis et al (2006) suggests that the level of intrinsic motivation may be a predictor of the level of intention and behaviour in the TPB. The 'actual control' variable incorporating the skills, abilities and environmental factors, include culture and extrinsic incentives. So, in the TPB model, the perceptions of individual managers and operatives in a value chain about the outcomes of performing a particular behaviour, combined with their beliefs about how their peer and reference groups may regard the behaviour and the social pressure this creates (subjective norms) as well as their beliefs about their control over the facilitators and inhibitors of that behaviour, determine the level of their motivation or intention. This will then be mediated in reality by the 'actual control' variables, of which incentives will be an important component (Icek Ajzen 2009, pers. comm., 17 September).

This appears to provide important implications for the role of individual beliefs about the behaviour in focus, the prevailing social norms in the organisational culture and extrinsic controls (positive and negative incentives) that are critical to the formation of the motivation to co-innovate. The mediating role of the actual incentive controls is consistent with the motivation literature, particularly that in regard to the 'crowding out' effect (Deci, E. L. 1971; Deci, Edward L. & Ryan 1985; 2000b) and 'crowding in' effects (Frey, Bruno S. & Oberholzer-Gee 1997; Frey, B. S. & Stutzer 2006; Osterloh & Frey 2000; van Herpen, van Praag & Cools 2003). It appears to explain how some firms in a chain, groups within firms and individuals may not be motivated by some general incentive system designs because of perceptions of unsupportive prevailing cultures, leadership styles and innovative behaviour. It also highlights how there may be negative interactions between the actual control of incentives and other environmental factors such as skills or process constraints.

Secondly, the TPB also emphasises the factors important in the design of interventions to facilitate co-innovation and particularly incentive systems. Specifically, by highlighting the behavioural, normative and control beliefs as well as the 'background beliefs' the TPB provides the framework for design. Further, it explicitly supports the notion of multifaceted, individualised and balanced design to suit situational needs, even to the level of the individual.

Therefore, in conclusion, it appears that the TPB provides an important explanatory link between incentives, the motivation that may be elicited and any actions that may or may not follow with regard to co-innovation. It also highlights the importance of a facilitative organisational culture. If this is the case then the question arises of whether or not there is a possible application of the TPB to the idiosyncratic mix of psycho-social variables that influence the tasks, functions and businesses in value chains. It appears possible that just as the TPB may moderate the link between incentives, individual motivation and co-innovation, then when individual beliefs, attitudes, norms and control perceptions

are aggregated at the group (firm) level into organisational culture and climate²², they also moderate firms' motivation (intention) to co-innovate through a group level operation of the TPB.

To begin to explore that concept requires theory to explain how it might occur and empirical research to establish its validity (Icek Ajzen 2009, pers. comm., 17 September). Schneider (1975, 1981, 1983, 1987; 1983) developed a thesis that people and human settings are inseparable and only exist by people behaving in them and knowing them. This led to the development of the 'attraction-selection-attrition cycle (ASA)' (Schneider, B. 1987) which today is an important construct in organisational change and personnel recruitment. More recently, human capital theory (Pennings & Wezel 2007) has also established the impact of individual behaviour on the firm level. Both developments have contributed to the theoretical base necessary to build an explanation of operation of the TPB at the firm level and help explain the transition from incentives to motivation to action. Schneider (1987) stated:

My main thesis is that the attributes of people, not the nature of external environment, or organizational technology, or organizational structure, are the fundamental determinants of organizational behaviour (p. 437).

The ASA model proposes that three linked dynamic processes; 1) attraction whereby people find careers based on their personal characteristics, 2) organisations select people who fit their jobs, and, 3) people who leave organisations do so because they do not fit the environment. The model develops two propositions (Schneider, Benjamin, Goldstein & Smith 1995) that may be of importance:

1. An organisational founder's goals and the approach of top management result in specific policies and practices that develop specific structures, processes and culture. This proposition is supported by the work of Finkelstein and Hambrick (1990) and Schein (1990) and others. This is of particular interest in the agrifood context where there are many family-owned businesses and relates to Dyer's (1986) work that indicates the multi-generational effect of the founder's values in a family business;
2. The ASA cycle will, over time, produce increasing homogeneity of personality in the organisation. Whilst there have been some inconclusive studies (Bretz, Ash & Dreher 1989), Schneider, Goldstein and Smith (1995) claim overall support for the predictive validity of the ASA for homogeneity.

Thus, the ASA appears to provide a theoretical justification of the operation of the TPB at a group level providing the mechanism for the aggregation of individual beliefs, attitudes and norms into the group level where group level incentives (actual control) can induce group level motives (intention)

²² Bauhüs and Goedegebure (2008) distinguish between 'culture' and 'climate' as follows: 1) culture is seen as a pattern of shared beliefs and values developed over an extended timeframe, whilst 2) climate is more concerned with the impact of organisational systems on strategic behaviour in the short term.

that result in action or non-action regarding co-innovation. If, in a company there is an implicit favourable group consensus or cultural view about the likely outcomes of co-innovative behaviours, positive beliefs about the existence of constraints and facilitators to those behaviours and the perceived power of those factors, then favourable group attitudes may emerge with perceived social pressures to act on those behaviours and the intention to act or a 'motive' forms. If the actual controls are positive as perceived, then the strength of that motive may determine the likelihood of it being enacted by the group and the group may then be regarded as being collaboratively innovative.

This 'cultural view' of the mechanism for co-innovative behaviour is supported by the results of the earlier Literature Review highlighting the importance of the 'human factors' in co-innovation; relational competence, innovation competence and a compatible co-innovative culture and the importance of the facilitating co-innovation architecture. It provides insight into how co-innovation can be investigated through the analysis of the factors that influence intra-organisational culture and inter-organisational relationships as well as how the recommended interventions might be designed using 'cultural levers'.

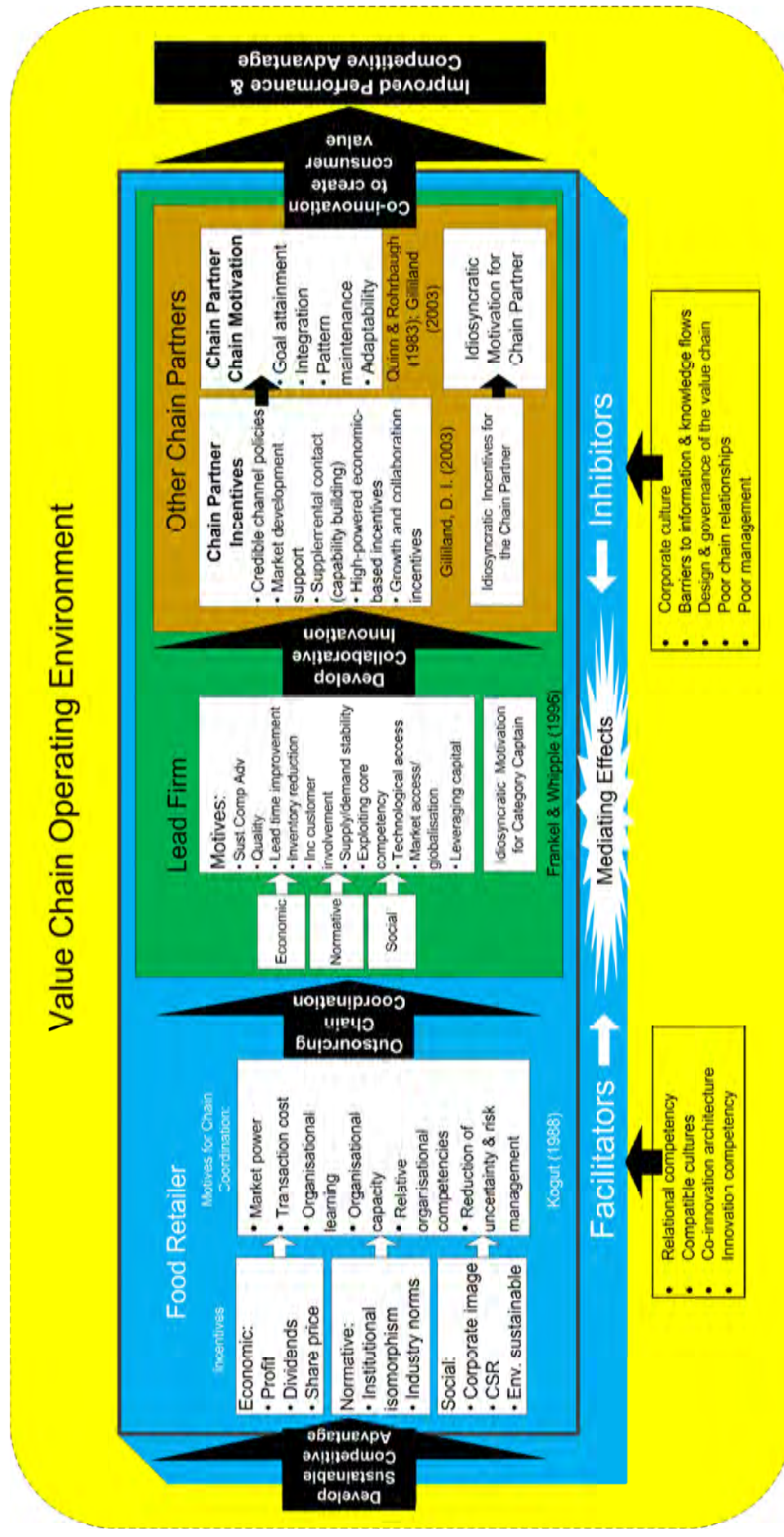
Subsidiary Research Question 11: *To what extent do values, attitudes and norms of firms in agrifood chains influence the enactment of incentivised motives?*

2.14. Towards a conceptual model of incentivising agrifood value chain co-innovation

To this point in the explanation of how agrifood firms are incentivised to co-innovate, the literature suggests that the nature of governance and hence relationships is determined by strategy and the complexity of the product attributes. It has also been argued that there are differences in the nature of the incentives that motivate firms across the chain due largely to the nature of governance and their capacity identify and respond to complexity of the environmental issues affecting the chain. Where there is a large asymmetry between the power and capability of the firms in the chain category management strategies appear to provide an important means of coordinating the behaviour and performance of suppliers. Further, it appears that the employment of multiple types of incentives, the balance between them and their alignment with both firm and chain strategy is essential to improve chain performance.

If, as the literature suggests, value chains are complex human systems operating in a hierarchy of recursive systems, these apparent relationships may be represented as in Figure 2.8.

Figure 2.8: A model of value chain incentivization



In this model, the basic driver of the core strategy of the agrifood retailer's value chain system is to seek a more sustainable competitive advantage through co-innovation. In this system of agrifood businesses, the asymmetry identified by the literature means that the primary producer suppliers may have less capacity to 'make sense' of the global environment and co-innovate than other industries and therefore often resist change and impute negative motives on downstream chain partners. This inability often combines with their political and community linkages to make dealing with the farming members of an agrifood chain a sensitive management task.

The expectations or benefits that incentivate the retailer are economic (profit, dividends and share price), the industry norms and corporate social responsibility. These may energise goal-oriented behaviours (Kogut, Bruce 1988) and a motivation to coordinate its value chain to assist in achieving sustainable competitive advantage. To achieve this, many retailers may appoint a 'category captain' or facilitate the development of a 'lead firm' to coordinate the chain operationally. In agrifood industries such firms are often the wholesaler or processor or a larger firm in the chain with sufficient capacity to undertake the task.

These lead firms will often have less capacity to understand the global operating environment than the retailer and whilst they may have their own idiosyncratic economic, normative and social incentives that motivate them to achieve their own goals, there will be a significant alignment of these with those of the retailer. Motivations such as market access and globalisation, competitive advantage over similar firms supplying the retailer will be important market considerations for them as will operational concerns such as lead time, quality and inventory reduction (Frankel & Whipple 1996).

Recognising that collaborative innovation is necessary to achieve the quantum of continuous innovation required to create the consumer value and compete successfully in the food marketing system, the lead firm will employ five types of incentives to elicit the sort of behaviours required for collaborative innovation or co-innovation (Gilliland 2003). They will include obligation-creating policies (e.g. provision of bank guarantees for supplier development), support for the development of the information and business processes necessary for co-innovation (e.g. provision of access to custom-designed supply/demand ICT systems), enhanced interaction and information exchange (e.g. sharing of vision, development plans etc), economic incentives (e.g. benefit sharing, performance bonuses) and growth and collaboration incentives (e.g. access to long-term exclusive markets for NPD). The lead firm will be seeking to elicit motivation amongst suppliers to achieve their negotiated goals, develop more integrated or relationship-specific assets, systems and processes, facilitate adaptive behaviours and to maintain those behaviours over the long term (Gilliland 2003; Quinn & Rohrbaugh 1983). Again, the model accommodates the co-existence of idiosyncratic supplier motives within the chain as long as they are aligned or non-conflicting with the chain's vision and goals.

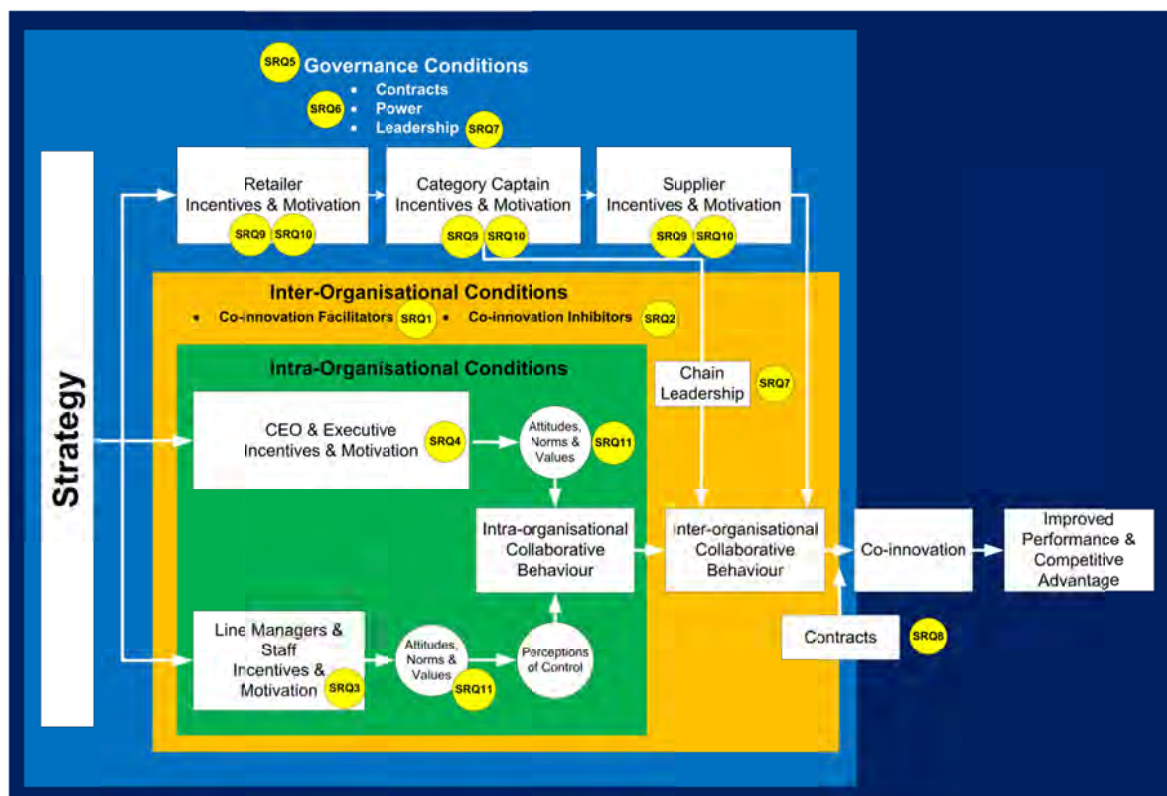
Finally, the purpose of this series of recursive incentive and motivation frameworks is to coordinate these independent firms to collaborate to innovate to create consumer value in a manner that improves chain performance and confers a more sustainable form of competitive advantage. These activities are conducted in the presence of a range of intra and inter-organisational facilitators and inhibitors, identified earlier from the literature, that mediate the effectiveness of the incentivisation system in achieving its co-innovative goal.

2.15. Conceptual model

This chapter has reviewed the underpinning theory for VCM to provide an overview of what is known from multiple perspectives and at multiple levels about the facilitators and inhibitors of collaborative innovation, or ‘co-innovation’ and how individuals, executive managers and firms operating in value chains can be incentivised to co-innovate.

Miles, MB and Huberman (1984) suggest the use of conceptual models in qualitative research to explicate the relationships of the phenomena being investigated. Figure: 2.9 incorporates the incentivisation and motivation of individuals and organisations that appear to interact to develop aligned behaviour at the whole chain level.

Figure 2.9: Conceptual model of the co-innovation phenomenon



Succinctly, it identifies that theoretically the most powerful firms in agrifood chains, usually retailers or their operational chain leaders, often processors or wholesalers, will adopt a strategy of co-innovation across a value chain to achieve improved performance and competitive advantage of the

chain as a whole. They will seek to implement it by manipulating individual and firm level incentivisation (the independent variables) in the presence of facilitating and inhibiting conditions to encourage collaborative behaviours within and between firms that will achieve co-innovation (the dependent variable) between chain partners. The independent variables will be applied at multiple levels within the chain (individual and organisational) because the behaviour of chains and organisations are aggregations of the individual and collective values, attitudes and motivations of the individuals that comprise them particularly where uniquely influential individuals such as the chief executive officers are concerned.

2.16. Chapter summary

In response to changes in the nature and locus of competition in global markets that have brought a focus on new forms of innovation, Chapter 2 has sought to provide a multi-disciplinary review of the literature relevant to the research question that asks: “How are employees, executives and firms incentivised to co-innovate in agrifood value chains?”

It firstly reviewed the four theoretical perspectives: strategic management, economic, relational and technological perspectives, justified the focus on value chains per se and agrifood chains in particular and reviewed the notion of collaboration as an essential precursor of co-innovation. It then provided a background understanding of the variables that facilitate or inhibit the co-innovation phenomenon; relational competence, compatible co-innovative cultures, governance mechanisms and innovation competence. The Chapter then explored in-depth the literature from a wide range of disciplines and perspectives that provided an understanding of individual and organisational motivational theory. The various types of individual motivation were illustrated via an integrated model which then provided a framework for considering incentivisation for individual employees and executive managers within organisations.

The chapter then considered the nature of governance in agrifood chains and how the complexity of their products and capacity to respond to their environment affects the nature of chain relationships and the differences in the incentives that motivate them. Because of the complexity of managing the operation of potentially thousands of chains that may supply a food retailer and the large asymmetries often exist between the power and capability of the firms in such chains, retailers have developed the practice of outsourcing operational chain category management to a larger, more capable firm in the chain, often a processor or wholesaler.

Overall, the review found that most research dealt with individuals and to some extent organisational strategy for individual incentivisation whilst very little research appeared to have been conducted on how to incentivise firms in chains to co-innovate. Further, it appeared that whilst the agrifood industry was a special case due to the unique nature of its products, and its asymmetrical structure and capacities, almost no research appeared to have been conducted into how to incentivise co-innovation.

This led to the development of a model of recursive incentive systems to conceptualise how firm level incentivisation occurs. This was combined with the integrated model of individual incentivisation developed earlier as a conceptual multi-level model of how firms are incentivised to co-innovate in agrifood value chains.

In reviewing the body of literature regarding the co-innovation problem some possible subsidiary research questions were proposed and the following chapter will incorporate those questions into a methodological approach focused on the core research problem of how to incentivise people and firms to co-innovate in agrifood value chains.

Chapter 3: Research methodology

3.1. Introduction

Collaborative innovation or ‘co-innovation’ has become a focal issue for agrifood value chains in global markets as a means of developing more sustainable forms of competitive advantage. However, the rate of successful implementation of the strategy is low and human factors appear to play a significant role in this failure. The previous chapter explored the extant literature across a range of disciplines at several levels in the fields of value chains management, collaboration, motivation and innovation. It also established the complex interaction of a wide range of variables in the development and management of co-innovation. Several studies identified the importance of motivation to the concept of innovation within organisations (Sauermann, H. & Cohen 2007; Vincent, Bharadwaj & Challagalla 2005a, 2005b) and incentives at the chain level to facilitate value chain management strategies (Cohen, SA, Kulp & Randall 2007; Cohen, WM & Sauermann 2007; Narayanan & Raman 2004; Sauermann, Henry 2008). Whilst some investigations have been undertaken of collaborative innovation horizontally in networks of organisations or involving consumers in co-creative product design, there appears to have been little investigation of the notion of co-innovation vertically between organisations in a value chain. These theoretical gaps gave rise to the question of: **“How are employees, executives and firms incentivised to co-innovate in agrifood value chains?”** and a number of subsidiary questions. Research questions provide the link between the data or empirical indicators and the research concepts and determine the research practices (Denzin, KN & Lincoln 1994; Punch, KF 1998) so this Chapter seeks to explicate those links.

According to Creswell (1994), the factors influencing the selection of a research paradigm (philosophical approach), methodology and specific methods include the researcher’s worldview, training and experience, psychological attributes, the nature of the problem and the ultimate audience for the research report. Therefore, in keeping with Creswell’s (2003) advice, this chapter aims to:

- Clarify the researcher’s perspective;
- Assess the alternative ways of approaching the research question;
- Justify the appropriateness of the methodology for the problem being investigated within the context of beliefs about the nature of social reality (the ontology), the ways of gaining knowledge about this reality (the epistemology) and the origin, nature, types, functions and interrelationships of values and, in this context, how they affect participant and researcher’s views (the axiology) about the research problem expressed through the research question above (Creswell, J. W. 2003; Easterby-Smith, Thorpe & Lowe 2002);
- Ensure the communicability of the outcomes to the target audience.

3.2. My research perspective

Miles and Huberman (1994, p. 4) have suggested:

It is good medicine, we think, for researchers to make their preferences clear. To know how a researcher construes the shape of the social world and aims to give us a credible account of it is to know our conversational partner.

So, it is important to make my philosophical perspective about research into management and organisational phenomena explicit before selecting the research paradigm and discussing the methodology and methods. This is because my beliefs and assumptions will influence both the selection of the research paradigm and the manner in which the methodology is designed and conducted (Blaikie, N 2007; Morgan & Smircich 1980). Therefore, this section is an exploration of my research worldview and the research topic which position this thesis.

I am a mature aged former senior executive of both private and public sector organisations who has conducted a successful foresight, strategy and change consultancy in Australia and New Zealand for the ten years prior to undertaking this research. I was originally trained as an agricultural scientist and during my career undertook post-graduate training in human resource development, change management and strategic foresight. After initially farming three hundred hectares of processing vegetables I spent twenty five years establishing or remediating public sector agencies and private companies as a senior executive to CEO. In my private life I also spent many years in operational or board level functions for organisations working with 'street kids' and later the short/long-term fostering of children in crisis. Both experiences have developed my perceptions about the complexity of managing people and large organisations and solving problems in a highly dynamic environment. I have always respected the contributions that both the positivist and constructivist-interpretivist approaches bring to understanding phenomena in these fields and my professional praxis has been based on systems approaches to the management of bio-physical and human resources. From time to time I have used both quantitative and qualitative methods (specifically the grounded theory approach) and consequently, I am comfortable with high levels of ambiguity and believe I have the requisite technical skills for the task.

I believe there are multiple intangible realities, culturally, socially and experientially constructed, that are by nature idiosyncratic and situationally based whether held by individuals or groups of people. These constructions are dynamic as they are tested and modified by experience (my ontology).

To understand how individuals and groups behave, a researcher must interpret the meanings as embodied in words and actions of the social actors which is to construct the researcher's view of those meanings. Thus, my epistemological position is one that recognises: 1) data about phenomena are contained in the perceptions of those who experienced those phenomena; 2) due to the complexity of those phenomena, including their psychological, emotional, social and economic effects on the

participants, the researcher is required to engage with the participants to ensure the quality of the data collected.

The author is also of the view that a defensible position for the choice of the methodology is derived from matching the research problem and research question with the appropriate paradigm (interpretivism) with an appropriate methodology (phenomenology) and the researcher's epistemological position. A phenomenological study aims to shed light on the meanings of human experience and in doing so, can facilitate a deeper understanding of the phenomena themselves and therefore provide insights into how to manage and lead co-innovation (Groenewald 2004).

The audience for the thesis is largely academic, consulting or managerial personnel and I have assumed that they will have an appropriate understanding of the qualitative research approach. Therefore, my personal goals for this thesis are, firstly, to bring together a body of multi-disciplinary theory that provides broad new insights and secondly, to present the outcomes of exploring the phenomenon of incentivising co-innovation in such a way that other researchers are encouraged to add their efforts in what appears to be an important yet daunting field for practising managers.

3.3. Theoretical perspectives and knowledge claims

Research into organisations and their management is a systematic and methodical inquiry that increases knowledge (theory) or solves a problem (Sekaran 1992). Theory may then be used to develop capacity through the design of tools that can be used in practice which ultimately informs further theory development (Senge & Scharmer 2001). Thus, the development of management theory is fundamental to the improvement of management practice. The development of theory can be approached from several different perspectives or "worldviews" (Patton, MQ 1990, p. 37) that, depending on which one is adopted, change both the processes and outcomes of the research as well as the researcher's role in that research. These perspectives or worldviews are sometimes called 'paradigms' (Kuhn 1962) which encompass the philosophical, social and the technical levels. The philosophy of the research being planned must be considered at the commencement of the design process whilst the social aspects of a paradigm later affect how that research is conducted (e.g. strategies and ethics) and the technical level influences the methods used (Burrell & Morgan 1979; Denzin, KN & Lincoln 1994; Patton, MQ 1990).

It is appropriate then that the philosophical level is considered at the commencement of this chapter. The philosophy of research involves identifying the assumptions in five areas in the objectivist/interpretivist dimension; the ontological, epistemological, axiological, methodological and assumptions about human nature (Burrell & Morgan 1979).

Ontology bounds the domain under discussion and is the claims and assumptions about the nature of social reality, its components, structure and how they interact (Blaikie, NWH 2000) whilst epistemology concerns how we know things and the construction of knowledge. Epistemological

assumptions are either positivist where true objectivity is possible or anti-positivist where there is inter-dependence between the knower and the known, making social science intrinsically subjective. Axiology is the assumptions about the role of values in a paradigm and how they influence what is known. The assumptions about human nature are either deterministic where individuals are products of their environment or voluntarist where they create their own environment (Putnam 1983). Finally, methodology falls into either nomothetic methodology investigating relationships and regularities or ideographic approaches which focus on why individuals interpret their world the way they do (Guba, Egon G. & Lincoln 1994; Putnam 1983).

Possibly the most succinct means of explaining the differences and importance of ontologies, epistemologies, axiologies and methodologies is via a table which facilitates comparisons more easily (Table 3.1).

Table 3.1: Positivist and constructivist-interpretivist paradigm assumptions

Assumption	Question	Positivist Paradigm	Constructivist-interpretivist Paradigm
Ontological	<i>What exists in the world? What is the form and nature of reality?</i>	Reality is objective and singular, apart from the researcher.	Reality is subjective with multiple meanings as seen by the participants in the study.
Epistemological	<i>What counts as knowledge? What is the relationship of the researcher to the researched?</i>	Researcher is independent from that being researched.	Researcher interacts with that being researched.
Axiological	<i>What is the role of values?</i>	Value-free and unbiased.	Value-laden and biased.
Rhetorical	<i>What is the language of research?</i>	Formal, based on a set of definitions, uses impersonal voice, employs accepted quantitative words.	Informal, evolving decisions, personal voice, employs accepted qualitative words.
Methodological	<i>What is the process of research? How can the inquirer go about finding out knowledge?</i>	Logical-deductive process, cause and effect, static design with the categories pre-determined, producing context-free generalisations leading to prediction, explanation and understanding. Accurate and reliable through validity and reliability.	Inductive processes, mutual shaping of factors, emergent design, context-bound, patterns and theories developed for understanding, accurate and reliable through verification.

Source: Derived from Collis and Hussey (2003) Creswell (1994, 2003), Denzin, KN and Lincoln (1994) and Punch (1998).

In dealing with conceptual issues in discussions of methodology, the use of alternative terminology is notable and may be confusing, particular in the constructivist paradigm. For example, the phenomenological paradigm may also be called constructivist, interpretivist, qualitative, subjectivist and humanistic (Collis & Hussey 2003). This is further compounded by the interchangeable use of ‘methodology’ and ‘method’. This thesis will use the term ‘constructivist-interpretivist’ and will

define ‘methodology’ as the systematic study of the philosophy of methods used in a particular field or tradition and a ‘method’ is a particular set of procedures used for data gathering in accordance with a particular theory or philosophy (Brown 1993).

Some writers also use the terms ‘quantitative’ and qualitative’ to describe paradigms of research, however, this study adopts the view that a positivist paradigm employs quantitative methods and a constructivist paradigm uses qualitative methods.

It is important that the choice of a research paradigm for a PhD thesis is explained and justified. However, whilst the positivist perspective is comparatively coherent and stable, the constructivist-interpretivist perspective is somewhat complex, contradictory and contested in a plethora of parallel discourses (Denzin, KN & Lincoln 1994; Easterby-Smith, Thorpe & Lowe 2002; Punch, KF 1998) and so the following explanation is an attempt to convey the basic characteristics of the main research paradigms as succinctly as possible to stay within the scope of this section and the thesis.

Denzin and Lincoln (2003) identify seven interpretive paradigms; positivist/post-positivist, constructivist, feminist, ethnic, Marxist, cultural studies and queer theory. But these have been more simply and clearly categorised by Creswell (2003) as post-positivism, constructivism, advocacy/participatory and pragmatism because there is some commonality in Denzin and Lincoln’s typology. However, for most management research the two main traditions of social science research are the positivist paradigm, associated with quantitative methods, and the constructivist-interpretivist paradigm, which is associated with qualitative methods (Easterby-Smith, Thorpe & Lowe 2002). The following two sections will evaluate these alternatives and Section 3.3.3 discusses which is appropriate for this research.

3.3.1. Strengths and weaknesses of the positivist paradigm

Post-positivism is the basis of contemporary empirical research and is also called ‘scientific method’ or ‘quantitative method’ and, with its pro-genitor ‘positivist method’ has dominated research for well over a hundred years. Post-positivism emerged from the works of Karl Popper, Jacob Bronowski, Thomas Kuhn and Charles Hanson (Clark 1998). They challenged the notion on which positivism was founded; that reality is objective, singular, and apprehendable by scientific method, but their views were still based on notions of reducing an external reality that can be measured through objective measurements of observations and seeking to understand causality (the link between causes and outcomes) using logical-deductive methods (Creswell, J. W. 2003; Denzin, KN & Lincoln 1994; Easterby-Smith, Thorpe & Lowe 2002). Post-positivism also retains three characteristic activities from positivism: **reducing** the complexity of the real world through experiments whose results are validated by their **repeatability** and building knowledge by the **refutation** of hypotheses (Checkland 1981). However, in contrast to positivism, post-positivism is more realistic in that it accepts that evidence may not be directly observed but is inferable from interviews or questionnaires and need not

exclude non-numerical data found outside of quantitative method. Whilst they remain distinctive, there is an acceptance that the researcher shapes the research process by imposing structure or categories, that truth is not necessarily generalisable because of contextual effects and that there are inherent truths that emerge from the interpretive methodologies based on experiences or meanings (Clark 1998).

Babbie (1998) argues that there is a place for positivism in social research but that unlike naturalistic science²³, paradigms are not true or false or even supplanted as in the Kuhnian tradition but only more or less useful in a specific context. This supports Hussey and Hussey's (1997) assertion of the popularity of positivism in business research due to its situational precision. In their view, positivism and constructionism-interpretivism should be regarded as being at opposite ends of a continuum. Positivism in social research is based on three assertions: firstly, that the methodology of naturalistic positivism can be adapted to social contexts, secondly that its outcome will be causal laws and thirdly that these results will be value-free (Giddens 1974). Positivism in social science explains social 'regularities', 'rates', 'associations', 'patterns' using methodologies such as cross-sectional studies, experimental studies, longitudinal studies and surveys (Pawson & Tilley 1997). It is useful for testing and validating already constructed theories about how and why phenomena occur, particularly where they are developed before data are collected. Research findings can be generalised where the number of samples and sample sizes are large; cause-and-effect relationships can be generated if the key variables are controlled; and data collection is quick, less time consuming, are useful for studying large numbers of people and are relatively independent of the researcher (Johnson & Onwuegbuzie 2004).

3.3.2. Strengths and weaknesses of the constructivist-interpretivist paradigm

Constructivism and interpretivism are related approaches which posit that reality is a human construction and individuals construct many and varied meanings for everyday objects or experiences. Schwandt (1994) states:

Proponents of these persuasions share the goal of understanding the complex world of lived experience from the point of view of those who live it...for understanding meaning, for grasping the actor's definition of a situation, for *Verstehen*. The world of lived reality and situation-specific meanings that constitute the general object of investigation is thought to be constructed by social actors... (p. 118).

These meanings are often developed through interaction with other individuals and groups and through historical and cultural understandings (hence 'social construction'). This leads the researcher to seek to understand those multiple views through broad, general questions that allow participants to subjectively convey the meaning of a complex phenomenon through discussions and interactions with

²³ 'Naturalistic' refers to the researcher not manipulating the research setting (Patton, MQ 1990).

the researcher. Thus, constructivist-interpretivist research is more process focused, set in cultural and historical contexts and employs inductive logic. Researchers' own values, attitudes, culture and experiential background may influence their interpretation and so in this paradigm it is necessary for researchers to explicitly 'position' themselves as it may affect the research design and outcomes (Creswell, J. W. 2003; Easterby-Smith, Thorpe & Lowe 2002). Whilst positivism focuses on objects external to the researcher, constructivist-interpretivist social science focus on action and behaviour generated from the minds of the participants (Hussey & Hussey 1997). There is an acknowledged relationship of the researcher with the researched and so the verification of what exists in the social world being researched depends on the researcher's interpretation (Giddens 1974). The methods employed include action research, case studies, ethnography, grounded theory, hermeneutics and participatory inquiry (Creswell, J. W. 2003).

Constructivism-interpretivism is useful for describing complex, dynamic phenomena, rich in the detail of naturalistic settings requiring responsiveness to the context or stakeholder needs but where there are a limited number of examples. It can inductively generate tentative explanatory theory (using the Grounded Theory approach and, in some instances, case studies), determine how participants interpret 'constructs' and how and why phenomena occur as well as idiographic causation and allow cross-case comparison (Eisenhardt 1989; Johnson & Onwuegbuzie 2004).²⁴

On the other hand, the methods used in constructivism-interpretivism may not produce generalisable results and may be difficult to make quantitative predictions and test hypotheses (if they contain quantitative components). Data collection and analysis are also likely to be more time consuming, the results more open to researcher bias and because of all these characteristics, have less credibility with some sections of the potential audience for research (Johnson & Onwuegbuzie 2004).

Given these attributes of the two main paradigms of inquiry, which is the most suitable to investigate how people in agrifood chains are incentivised to co-innovate?

3.3.3. The appropriate research paradigm

In choosing the appropriate approach to this research, the researcher has been mindful of Patton's (1990) advice to: "...favour methodological appropriateness as the primary criterion for judging methodological quality..." (p. 39).

In the Kuhnian tradition, staying within one perspective avoids the potential difficulties in managing the ontological (the nature of reality), epistemological (the relationship between the knower and what can be known) and the axiological (the values) perspectives of two paradigms (Kuhn 1962). More recently, both Creswell (1994) and Denzin and Lincoln (1994) advise against the selection of multiple paradigms in research projects, however, some have put forward cogent arguments associated with overcoming paradigmatic deficiencies to support the case for multi-paradigmatic approaches (Gioia &

²⁴ Idiographic means the determination of the causes of a particular event (Johnson & Onwuegbuzie 2004)

Pitre 1990) and meta-triangulation (Lewis & Grimes 1999). However, this thesis will adhere to the Kuhnian tradition and focus on one paradigm to underpin research design.

In selecting the research design, it is helpful to consider how these two paradigms influence research design (Table 3.2).

Table 3.2: Implications of positivist and constructivist-interpretivist paradigms

	Positivist Paradigm	Constructivist-Interpretivist Paradigm
The observer	Must be independent	Is part of what is being observed
Human interests	Should be irrelevant	Are the main drivers of science
Explanations	Must demonstrate causality	Aim to increase general understanding of the situation
Research progresses through	Hypothesis and deductions	Gathering rich data from which ideas are deduced
Concepts	Need to be operationalised so that they can be measured	Should incorporate stakeholder perspectives
Units of analysis	Should be reduced to the simplest terms	May include the complexities of 'whole' situations
Generalisation through	Statistical probability	Theoretical abstraction
Sampling requires	Large numbers selected randomly	Small numbers of cases chosen for specific reasons

Source: Derived from Easterby-Smith, Thorpe and Lowe (2002, p. 30)

The literature review in Chapter 2 demonstrated that whilst there was a plethora of research focused on the fields of value chain management, collaboration, innovation and motivation individually, there was very little cross-disciplinary research into co-innovation, particularly at the organisational and chain levels. This led to the development of the research question: **“How are employees, executives and firms incentivised to co-innovate in agrifood value chains?”** and a number of subsidiary questions focussing at the level of whole chain systems.

The positivistic ontological position that a single, social reality exists (Creswell, J. W. 1994) is less appropriate in value chain research as ‘reality’ is constructed in the minds of those chain participants being interviewed and this is what drives their actual behaviour within their organisation and value chain. Similarly, the researcher consciously or sub-consciously brings his/her own construction of ‘reality’ particularly where, as in this case, he/she brings the experiences from a long career in management to the investigation. Thus, there will be many ‘realities’ for the participants that are absolutely essential to the aim of discovering the mechanisms of the co-innovative processes.

There are also problems in the epistemological and axiological position of positivism in the context of the dynamics of co-innovation. In the positivist view, there is a single objective reality with causalities that can be measured, both of which would be unlikely to adequately describe the influences operating in a typical value chain. Further, in positivism, the researcher’s relationship to the researched must be one of independence and value-free (Creswell, J. W. 1994), however attaining such a position constrains the scope of possible research in the field considerably and ultimately the breadth and depth of knowledge and understanding that is generated. These constraints may mean that any

categories or typologies brought to the research may not be at all relevant to a local population or that the researcher may miss out on phenomena because of the positivist focus on theory testing rather than theory generation (called the ‘confirmation bias’). Finally, the knowledge produced may be too abstracted or generalised for application at a situational level (Johnson & Onwuegbuzie 2004).

This suggests that a constructivist-interpretivist research paradigm is more appropriate because:

- The unit of analysis, the chain, is at the whole ‘system’ level;
- Co-innovation in value chains is a multi-level phenomenon of such a scale and complexity that only small numbers can be investigated;
- It involves multiple stakeholder perspectives at multiple levels in the system;
- The field lacks a coherent body of underpinning theory which therefore requires an exploratory, interpretive approach to discover the nature of a dynamic phenomenon and the multiple perspectives of the actors involved (Creswell, J. W. 1994; Easterby-Smith, Thorpe & Lowe 2002).

Strauss and Corbin (1990) believe that qualitative methods are useful for analysing and understanding the underlying nature of phenomena and Maxwell (1996) claims that qualitative methods illuminate participant meanings, contexts, causal mechanisms, processes and unanticipated influences as well as generate new theories. However, as mentioned earlier, the constructivist-interpretivist paradigm has its own weaknesses and these will be addressed in the following sections of this chapter that outline the research methodology in more detail.

3.4. The strategy of inquiry

In the previous section, the underlying philosophies of research that brought assumptions about the nature of reality were considered and the constructivist-interpretivist paradigm was selected as the most appropriate to answer the research question and suited to the researcher’s outlook, skills and experience. This then leads to a discussion of the strategies of inquiry that might provide direction for the design of research procedures.

Many ‘traditions’ of qualitative strategies have evolved demonstrating the philosophical approaches and research applications for the paradigm. This complexity has required simplifications to facilitate the selection of appropriate methods such as Tesch’s (1990) cognitive map of four groupings of twenty six strategies and Wolcott’s (2001) nineteen strategies in a tree format. However, Creswell (1994) has simplified these into four designs frequently found in social research; ethnography, grounded theory, case studies²⁵ and phenomenological studies. Collis and Hussey (2003), writing specifically about methods for business research, have further added action research, feminist perspective, hermeneutics and participative inquiry to this list. To facilitate comparison of these

²⁵ Note that ‘case study’ is both a strategy of inquiry and a method.

inquiry strategies and aid the selection of an appropriate research strategy for this thesis, they have been briefly described in Table 3.3 with respect to their focus, data collection, data analysis and the narrative design of their output.

The strategy of inquiry to be adopted to answer the research question: **“How are employees, executives and firms incentivised to co-innovate in agrifood value chains?”** must be appropriate for the highly contrasting cultures and needs of the participating groups (e.g. farmers and corporate executives). This research seeks to understand how they collaborate together to innovate to create a sustainable competitive advantage for their value chain, their motivations for doing so and how incentives could be used to motivate individuals, organisations and whole chains to co-innovate.

Several of the traditions outlined in Table 3.3 do not appear to be appropriate. An ethnographic approach is not appropriate because this study is not primarily about the culture of a group; action research is not appropriate because the researcher has no mandate or role in intervening in the value chains under study; a feminist approach is not warranted because this study is not about the experiences of women in agrifood chains (although there might well be interesting and useful research conducted on that topic); neither is this a study focusing on historical text nor is there any mandate or participant willingness to be involved in a participative inquiry to understand a particular group within agrifood chains. Thus, grounded theory, case study and phenomenological approaches remain as potentially appropriate choices of research strategy.

Table 3.3: Dimensions for comparison of the major business research traditions

Traditions	Focus	Data Collection	Data Analysis	Narrative Design
Ethnography	Describing/interpreting a cultural & social group	<ul style="list-style-type: none"> Primarily interviews & observations with other artifacts over an extended time in the field 	<ul style="list-style-type: none"> Description Analysis Interpretation 	Description of the cultural behaviour of an individual or group
Grounded Theory	Developing a theory grounded in the data from the field	<ul style="list-style-type: none"> Interviews with 20-30 people until categories are 'saturated' 	<ul style="list-style-type: none"> Open coding Axial coding Selective coding Conditional matrix 	Theory or theoretical model
Case Studies	In-depth analysis of a single or multiple cases	<ul style="list-style-type: none"> Multiple sources incl documents, interviews, archival records, observations, physical artifacts 	<ul style="list-style-type: none"> Descriptions Themes Assertions 	An in-depth study of a case or cases
Phenomenology	Understanding experiences about a phenomenon	<ul style="list-style-type: none"> Long interviews with up to 10 people 	<ul style="list-style-type: none"> Statements Meanings Themes General description of experience 	Description of the 'essence' of experience
Action Research	Simultaneously both a method & an intervention in a single case study where researcher & client learn from each other	<ul style="list-style-type: none"> Agreement on aims for an intervention Mutual control and feedback 	<ul style="list-style-type: none"> Mutual control 	Action plan developed by the client
Feminist Perspective	Challenging the traditional methods by which knowledge is generated and the source of the views reflected.	<ul style="list-style-type: none"> Knowledge is grounded in the experiences of women Researcher is immersed in or empathises with the women being studied 	<ul style="list-style-type: none"> All methods but from a standpoint Dialectical Non-hierarchical Reflexive Interactive 	<ul style="list-style-type: none"> Incorporating gender Privileging subjectivity Avoiding exploitation Empowering women by giving 'voice'
Hermeneutics	Interpretation of the meaning of text-based data with particular attention to the historical and social context.	<ul style="list-style-type: none"> Text-based words and numbers 	<ul style="list-style-type: none"> Iterations of labeling, analysis and re-labeling 	Not common but is relevant for historical analysis to mediate contemporary understanding.
Participative Inquiry	Research 'with people' rather than 'research 'on people' to improve the quality of data and as a more democratic means of understanding oppressed groups	<ul style="list-style-type: none"> Collaborative research within a group Participants involved in data gathering and determining research direction Researcher develops questions/answers as a shared experience 	<ul style="list-style-type: none"> Phenomenological, interpretive Participants involved in data analysis 	<ul style="list-style-type: none"> Informational or propositional output Transformations of personal being or social processes Competence

Source: Derived from Collis and Hussey (2003) and Creswell (2003)

The literature review in Chapter 2 found that there was little research into the incentivisation of firms and whole value chains to co-innovate, particularly in the agrifood industry. Thus, the first challenge is to describe and build theory of the phenomenon of incentivisation to co-innovate in agrifood value chains before theory verification is attempted (Borch & Arthur 1995).

Onwuegbuzie and Leech (2006) state that there are five standard research objectives for qualitative research; exploration, description, explanation, prediction and/or influence. Exploration involves the use of inductive methods to explore a phenomenon to develop tentative theory or generalise, a descriptive goal identifies and describes the antecedents, nature, and causes of a phenomenon and an explanatory goal develops theory to explain causality and the relationships between phenomena. This project has chosen an exploratory goal as the most appropriate and that is reflected in the research question.

Whilst grounded theory is useful for the development of both formal and substantive theory (Glaser 1992), the focus in this study on describing the phenomenon of incentivating co-innovation in a specific, applied situation using a perspective where there has been little theoretical development probably narrows the focus of the research strategy to phenomenology or case study approaches.

The research question implies that it is the intention to investigate several chains as it refers to plural chains. However, every value chain is unique due to its people, relationships and context and so a multiple case study approach enables some degree of analytical comparison between two or more value chains highlighting common and unique practices that influence the incentivisation phenomenon. As the case study approach (as distinct from case study as method) focuses on a single case, it appears that a phenomenological approach is the most appropriate research strategy for this study.

Phenomenology arose out of the turmoil of post-World War One when the German philosopher Edmund Husserl (1859 – 1938) rejected the notion that objects in the external world exist independently, that knowledge about them is reliable and able to be investigated using quantitative techniques. He posited that people can only be certain about how the world appears through their perceptions (Groenewald 2004). Hence, the phenomenological researcher seeks to describe the central, underlying meaning of experiences for individuals emphasising the intentionality of consciousness based on memory, image and meaning as accurately as possible without employing any pre-determined framework but remaining true to the facts (Creswell, John W. 1998; Groenewald 2004). Therefore, phenomenological researchers are reluctant to be too prescriptive about precise techniques because it may impinge on the integrity of the phenomenon (Holloway 1997; Hycner 1999).

However, phenomenology is ‘empirical’ in the sense that it focuses on the researcher’s reflection on actual events and that the processes, data and findings are made available for peer scrutiny. The objectivity of the researcher is achieved not through disinterested independence but by this recognition of the influence and contribution of the researcher to the phenomenon and the influence of the phenomenon on the researcher and the encouragement to others to approximate our perspective and see what outcomes are achieved. Phenomenological data are verifiable in a holistic sense but the individual experiences and views that comprise it may not necessarily be so because of the dynamic

nature of experiences and perceptions. Whilst phenomenology makes these experiences explicit it still respects the differences between individuals and the ambiguity this creates about 'reality'. This ambiguity refers not to deficient clarity, but to the existence of multiple, parallel perceptions of reality. (Huberman & Miles 2002).

Phenomenology, in dealing with the realism in people's minds, is related to the epistemology of 'realism' in alliance management studies (Easton 1998). Pintrich and Schunk (1996) state:

Individual's personal and subjective self-perceptions are important ... regardless of the 'accuracy' of the perceptions ... (p. 161)

and Patton (1990) concurs:

There is no separate (or objective) reality for people. There is only what they know their experience is and means. The subjective experience incorporates the objective thing and a person's reality (p. 69).

Realism in phenomenological research in business networks is described as attempting to understand "...the common reality of an economic system in which many people operate independently..." (Perry, Riege & Brown 1998, p. 1952) even if that understanding is partial and imperfect. This partial picture of reality can then be triangulated with other perceptions and data to improve understanding.

Phenomenology is appropriate for this research into agrifood chains because the incentivising of co-innovation and its antecedent relational and innovation competences, organisational cultures and governance architecture, are all dependent on the perceptions of the participants of the motivational conditions. Figure 2.8 identifies that multi-layered incentives (individual, executive and firm levels) are mediated by the independent variables which are the multi-layered facilitators and inhibitors on the dependent variable, co-innovative behaviour.

The researcher operates in the reality of the dynamic social world of chain and corporate management rather than viewing the phenomenon as a disinterested observer and in doing so obtains different and far richer data than might be possible with a positivistic approach. He/she suspends all pre-judgements about what might be 'real' and proceeds to build reality in terms of the experience of the individual participants by 'bracketing' his or her own pre-conceptions to understand the phenomenon through the voices of the participants. This has been extended to a suspension of belief and a cultivation of doubt to help open one's self to the work at hand (Laverty 2003).

Data may be collected through case studies (Perry 1998) and typically, this will require cycling through substantial interviews and researcher self-reflection and then analysis of the data which reduces it to specific themes or clusters of meanings searching for all possible meanings and finally producing a textual description of what was experienced and how it was experienced (Creswell, John W. 1998).

3.5. The research methods

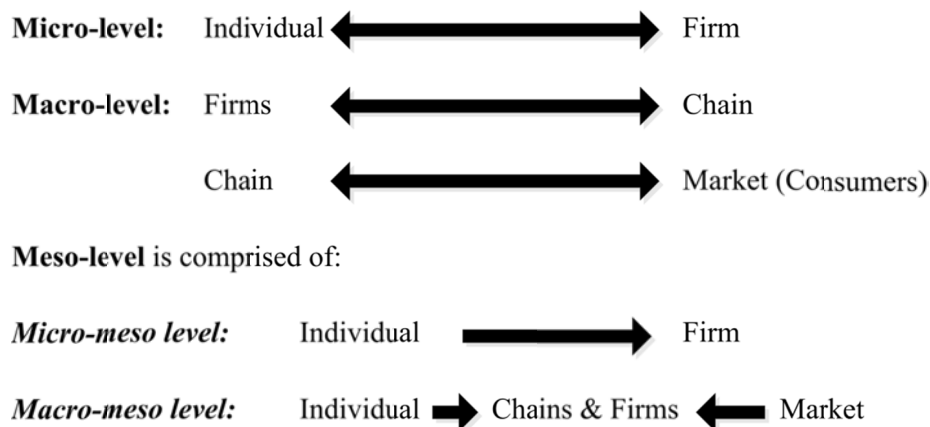
Managing co-innovation between organisations in a value chain is a highly complex relational activity that involves the dynamics of individual and group behaviour. The literature regarding the incentivisation of co-innovation appears to be lacking the depth and coherence to form a foundational body of theory and this led to the selection of a phenomenological research strategy and the development of research questions rather than the hypotheses necessary to determine causal relationships. Therefore, this research investigated a number of agrifood value chains in order to understand the management phenomena associated with incentivising co-innovation in the inter-organisational spaces at multiple levels; the individual employee, the executive manager and the firm levels.

3.5.1. A multi-level approach

Hackman (2003) suggested that multi-level approaches to investigating organisational phenomena may improve understanding, uncover subtle factors influencing those phenomena, surface unexpected interactions and inform the development of theoretical constructs. A number of other researchers have proposed layered conceptions of value chains, some hierarchical (Lazzarini, Chaddad & Cook 2001), some longitudinal from the upstream to the downstream ends of a value chain (Lazzarini, Chaddad & Cook 2001; Lefebvre et al. 2003), whilst still others employ a combination of the horizontal and vertical (Barratt 2004a, 2004b; Gattorna 2006). It is the latter type that appears to have the most utility for this research as it encapsulates the relational exchanges at the strategic, tactical and operational levels between dyads, triads or even whole chains (Barratt 2004a, 2004b) and employs this to propose more flexible, customer-focused chains (Gattorna 2006). Thus, it provides a useful tool for surfacing the nature of relationships and exchanges between firms and individuals within chains. The existence of such multi-layered constructs has also long been recognised and debated within the fields of psychology, sociology and organisational behaviour particularly for the investigation of motivation (Capelli & Sherer 1991; Huber 1991; Miner 2005; Smith, Schneider & Dickson 2006).

The typology of multi-layered construct theory (House, Rousseau & Thomas-Hunt 1995; Mattsson 1997) applied to the system-in-focus in this research is the incentivisation of the firms and the individual employees that comprise them in an agrifood value chain in the context of its market.

Thus, the micro-meso-macro frame is:



Thus, variables operating at the individual level are affected by and may affect other individuals and groups in the firms that comprise value chains. In some cases, individuals also affect the nature of inter-firm relationships by the nature of the relationships they form and the behaviour they demonstrate; particularly if those individuals are key boundary-spanners such as chief executives or sales account managers or retail buyers. They do this through both individual actions that impinge on others as well as through the aggregation of their values, beliefs, attitudes and behaviours into group and organisational culture. To add to the complexity, this occurs both within and between firms.

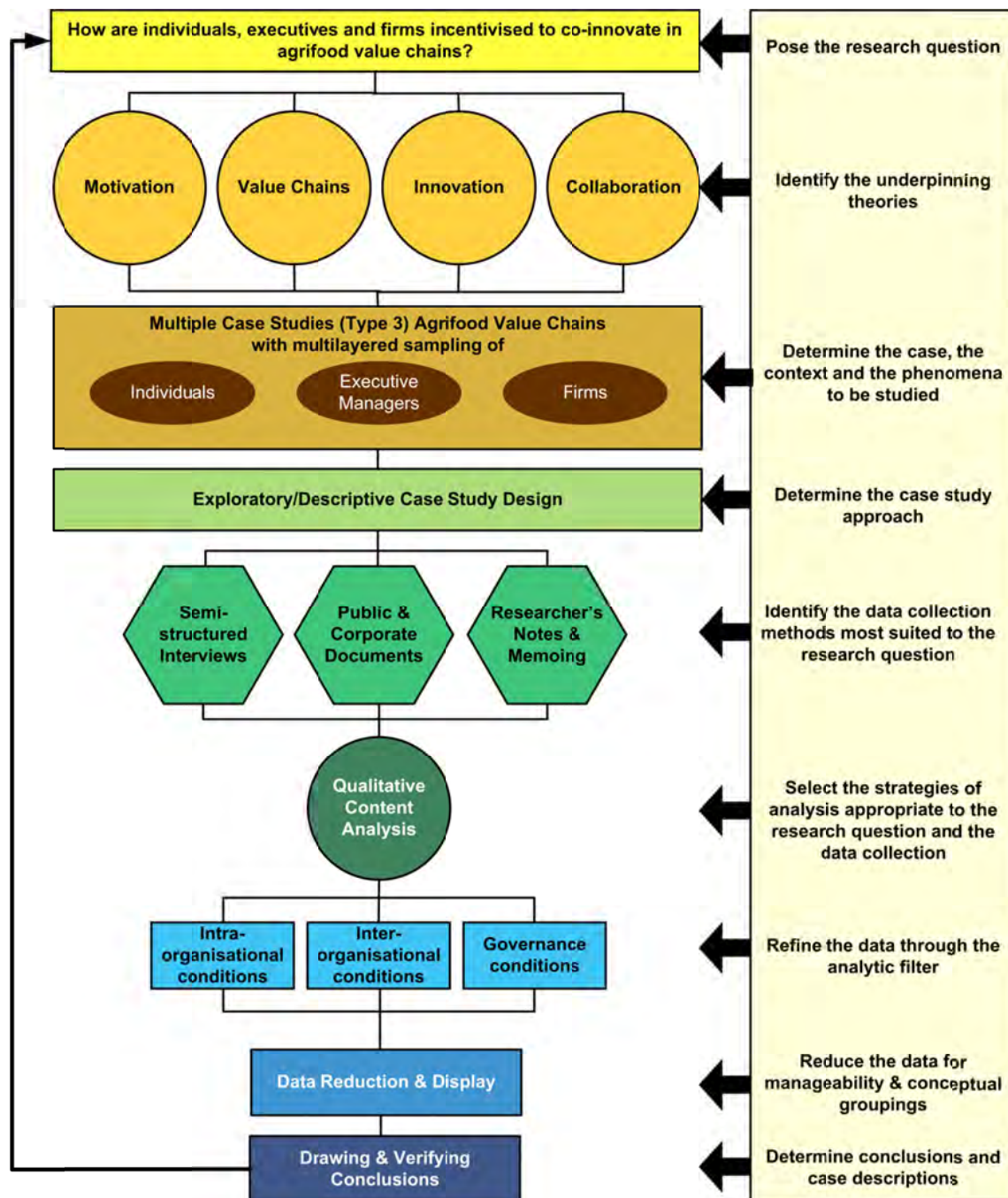
Therefore, this research design sought to develop an understanding of these interactions by recognising and attempting to address them where others have rarely done so. It did this theoretically through a multi-disciplinary review of the literature and methodologically by explicitly focusing on the individual employee, executive manager, organisational and chain levels through explicit interview guides. Further details are explained in the following sections on research design, data collection and data analysis.

3.5.2. Research design

The research design is “...the logic that links the data to be collected (and the conclusions to be drawn) to the initial questions of the study...” (Yin 1994, p. 18) or a “blueprint” (Yin 2003, p. 21) that ensures the evidence is linked to answering the research question. Punch (1998) refers to this as the “empirical criterion” (pp. 46-47) and regards it as the core of a research design.

Rosenburg and Yates (2007) have demonstrated the value of a schematic representation for case study approaches by providing a clear visual map of procedural steps, the inter-relationship of complex, multi-faceted concepts and an audit trail for other researchers to follow. Figure 3.1 provides such an overview of the procedures adopted in this research.

Figure 3.1: Overview of research procedures



Source: After Rosenberg and Yates (2007).

Yin (2003) identifies five important components of research design:

- The study's questions;
- Any propositions;
- The unit of analysis;
- The logic that links the data to the propositions;
- The interpretation criteria that will generate the findings

These five elements will be elaborated in the following sub-sections providing the logic for the selection and implementation of the research design.

3.5.2.1. The study's research questions

Qualitative research questions are typically "...open-ended, evolving, and non-directional..." (Creswell, John W. 1998, p. 99) aimed at gaining insights into the experiences and social processes existing within a specific phenomenon rather than comparing groups or relating variables (Onwuegbuzie & Leech 2006). Blaikie (2007) advises that the types of research questions depend on the nature of the research problem and the state of knowledge in the area. Where there is little or no research on a particular topic then it is appropriate to ask 'what' questions before proceeding to 'why' or 'how' questions. 'What' questions are focussed on the exploration and description of phenomena, 'why' questions on understanding and explanation, and 'how' questions on enabling change and practical outcomes.

In researching the extant literature it was apparent that whilst there had been considerable research at the individual level and to some extent at the firm level in incentivisation, the underpinning theory for managing co-innovation at a chain level is lacking. Hence the research question asked: **"How are employees, executives and firms incentivised to co-innovate in agrifood value chains?"** Whilst this is a 'how' question focusing on enabling change and practical application, it is underpinned with subsidiary questions that pose 'what' questions to explore and provide some confirmation of the influence of the large number of variables identified at the micro, macro and meso levels of research. They are designed to redress gaps in the theoretical knowledge and delineate the focus of the study (Collis & Hussey 2003).

Underlying the design of these questions is the view, founded in the viable systems literature (Beer 1981; Christopher 2007), that because value chains are multi-level systems, the variables involved at each level may be distinctly different or they may interact and so that they must be managed holistically if chains are to be incentivised. Therefore, the focus of the following subsidiary research questions (SRQ):

***SRQ 1:** What are the facilitators of collaborative innovation in agrifood chains?*

***SRQ 2:** What are the inhibitors of collaborative innovation in agrifood chains?*

***SRQ 3:** How do agrifood firms incentivise individuals to co-innovate?*

***SRQ 4:** How are senior executives incentivised to co-innovate in agrifood firms?*

***SRQ 5:** How does the form of governance in agrifood value chains influence the incentives employed across the chain?*

***SRQ 6:** How does the power asymmetry in agrifood value chains affect the nature of incentives employed?*

SRQ 7: *How is chain leadership exercised in agrifood chains?*

SRQ 8: *How do inter-organisational relationships in an agrifood chain affect the types of contracts used to coordinate chain participants?*

SRQ 9: *What incentives are used to motivate firms in agrifood value chains?*

SRQ 10: *What are the motives used to motivate firms in agrifood value chains?*

SRQ 11: *To what extent do values, attitudes and norms of firms in agrifood chains influence the enactment of incentivised motives?*

The first two questions, SRQ1 and SRQ2 ask ‘what’ questions aiming to explore and describe the phenomenon of co-innovation within and between firms in agrifood value chains. The specification of two separate but similar questions in SRQ1 and SRQ2 is necessary because it appears that the effects of these variables may be distinctly different at the micro, macro and meso levels of the chain, as discussed in the previous section. Thus, SRQ1 aims to describe the independent variables operating internally in firms that may moderate co-innovation, the dependent variable. SRQ2 similarly seeks to describe the external factors that moderate co-innovation.

SRQ3 and SRQ4 are ‘how’ questions whose purpose is to identify how co-innovation can be incentivised both internally in firms and externally between firms in chains. This again recognises the potential for distinctly different variables to be involved at the three levels under study and is focused on both describing how agrifood firms and chains are incentivised in the case studies and inductively proposing how this might operate in other agrifood chains.

Yin (2003) identifies five major research strategies; experiments, surveys, archival analysis, historical analysis and case studies. He also identifies three conditions that determine their usage:

- The level of control of behaviour exercised by the researcher;
- The form of question posed;
- The temporal emphasis.

The chain systems being researched are subject to the effect of contemporary events and, as independent companies, are certainly not under any control by the researcher, so the research problem requires description not manipulation of the behaviours. The research problem also involves complex cross-interactions of a number of variables at several levels, sequences of events and some ambiguity of the boundaries of the entities (Langley 1999). Whilst quantitative experimentation could bring understanding to some components of the phenomenon, at this stage of theoretical development in the field, the focus needs to be on describing the nature of the phenomenon, management practices and chain/organisational conditions.

Similarly, both archival and historical analysis, whilst having somewhat compatible forms of questions, can be ruled out as appropriate methods because the research problem requires analysis of current value chain practices operating as real-time, dynamic variables; the description of contemporary events and the current perceptions and experiences of the chain participants.

The remaining methods appropriate for this research problem are survey and case study methods. The emphasis on 'what' and 'how' questions from the literature, the depth of interrogation involving highly confidential matters and the breadth of variables that may be encountered suggest that surveys may not be appropriate as the main method employed.

Therefore, from this analysis, it would appear that the research problem and the consequent questions that arise indicate a case study method is the most appropriate research method because it is able to cope with a broad, complex set of variables which cannot be detached from their context and where there may be triangulation employing multiple sources of evidence and/or using 'multiple methods' of data collection (Yin 2003).

Case studies are an accepted method in both constructivist-interpretivist and positivist paradigms across a number of fields including social science and practice-oriented fields such as management (Yin 2003). The method is popular for PhD research (Perry 1998; Yin 1994), can be used for theory development (Eisenhardt 1989; Parkhe 1993) and is particularly useful in investigating strategic alliances (Easton 1998; Lawrence & ul-Haq 1998; Parkhe 1993).

Case studies may be exploratory of current practice, illustrative of innovative practice, experimental and evaluative in implementation or explanatory of phenomena (Collis & Hussey 2003). Stake (1994) describes the latter as instrumental cases that develop insight or refine a theory. This study to understand how people and firms are incentivised to co-innovate in agrifood chains is therefore an explanatory or instrumental case study.

3.5.2.2. The research propositions

Yin (2003) advises that whilst research propositions or hypotheses encapsulate the research issue and direct the search for appropriate sources of data, in exploratory research strategies specific propositions may not exist. Punch (1998) concurs, indicating that the more general the research question, as is frequently the case with qualitative research, the less likely there will be an hypothesis.

Whilst hypothesis testing is increasing, it is still used in only 15.5% of research articles in the leading supply chain and logistics journals (Sachan & Datta 2005). This research does not propose any hypotheses because of its exploratory nature however, the explication of the research problem and the literature review have highlighted the lack of research in a number of areas giving rise to the eleven subsidiary research questions. Yin (2003) has advised in such cases a research purpose and success criteria should be identified, and therefore the remainder of this section will comply with that advice.

The purpose of this research focuses on the interaction of the broad parameters of the ‘innovation roadmap’ proposed by Bonney et al. (2007) outlined in Figure 1.1. This brings together multiple perspectives and encapsulates the chain as the locus of competition and the concept of vertical chain integration in an agrifood context. It also proposes that through its relationships and relationship-specific investments it creates a competitive advantage that is difficult to replicate (Grönroos 1997; Hunt 1997).

Thus, succinctly, the purpose of this research is to identify and describe the variables that moderate co-innovation and determine how co-innovation can be incentivised in agrifood chains.

3.5.2.3. The unit of analysis

One of the strengths of qualitative research is its ability to look at phenomena holistically (Patton, MQ 1990). In Section 3.5.2.1, a rationale justified the selection of a case study method. The unit of analysis is an important component in the determination of the research design and data collection strategy. It is related to the way the research questions have been stated and need to be related to other studies conducted in the field to facilitate comparison. It defines the boundaries of data collection such as the people to be included and the nature of the data to be collected (Yin 2003). Thus, Easterby-Smith, Thorpe & Lowe (2002) define it as the “...entity that forms the basis of any sample...” (p. 44) and Boyatzis (1998) refers to it as “the entity on which the interpretation of the study will focus” (p. 62).

Many writers on value chains regard them as systems that potentially can be integrated almost to the point of being a single entity (Arlbjorn & Halldorsson 2002; Friedland 2004; Gereffi, Humphrey & Sturgeon 2005; Kaplinsky & Morris 2003; Sachan & Datta 2005; Wilkinson 2001). The previous section established that the unit of analysis for this study is the whole value chain. Thus, the smallest unit of analysis possible was a ‘dyad’ or two firms adjacent to each other in the value stream i.e. a supplier-buyer pair. However, in all case studies in this research, a triad or supplier-buyer/supplier-buyer group or three consecutive participants in a value chain system were able to be investigated which provided improved insights into the overall functioning of the flows of material, information, the nature of relationships and the boundaries of the firm as it relates to integration.

The unit of analysis also determines the type of case study that is employed. Yin (2003) has identified four types of case study designs:

- Type 1 with a single unit of analysis that is the case study; which in the context of this research, is a single value chain in a single context;
- Type 2, a single case study of multiple units of analysis. This is perhaps appropriate when investigating an over-arching phenomenon such as internal innovation practices within individual firms in a single value chain;

- Type 3, a multiple case study design where there are several units of analysis, each in its own context. In a value chain context, this would be several value chains each constituting a case study;
- Type 4, where there are multiple case studies each with multiple units of analysis which might involve the firms from several value chains.

Yin (2003) argues that single case studies are most appropriate for the exploration of a previously unresearched area whilst multiple case study designs are suited to description, building theories or theory testing. Gable (1994) concurs, concluding that the cross-case analysis of multiple cases offers greater opportunity for the triangulation of data and explanatory outcomes.

Because the research question for this study is describing the extension and interaction of theory in a new context as well as being focused on the incentivisation of co-innovation in value chains at multiple levels (employee, executive manager and firm), a Type 3 case study design is most appropriate to this research.

However, the selection of a Type 3 multiple case study design is linked to and has implications for the sampling methodology and data collection methods which will be detailed in the next section.

3.5.3. Data collection

The design employed is consistent with the preceding sections that describe a constructivist-interpretivist paradigm, a phenomenological research strategy and case study methodology. The following sections describe how the data were collected.

3.5.3.1. The variables being investigated

Collis (2003) suggests that identifying the variables is the first step in the explication of data collection processes because the data collected are related to the variables involved. Qualitative variables are non-numerical attributes of the phenomena under investigation.

In Figure 2.8, the conceptual model postulates that the independent variable is multi-level incentivisation which can be manipulated to promote a change in the level of co-innovation. This relationship is moderated by multi-level facilitators and multi-level inhibitors that promote or hinder co-innovation. Both incentivisation and co-innovation are complex concepts with cross-cutting, multi-level component variables that are not suited to simple numerical measures or even to multiple measures of the phenomena if we are to understand how incentivisation can be designed and managed. For this reason, the phenomena require the collection of rich, exploratory data more suited to interpretive rather than quantitative analysis.

3.5.3.2. Sampling methodology

Multiple case studies have the advantage of being more robust through employing a replication rather than a sampling logic. That is, by either replicating similar findings (literal replication) or contrasting

findings for predictable reasons (theoretical replication), the findings can gain credibility with an audience for its rigour (Yin 2003).

Sampling is the process of selecting an appropriate “...portion, piece or segment of a whole...” (Onwuegbuzie, A & Leech, N 2007a, p. 105) and the sampling methodology adds research credibility because it informs the quality of inferences made from the findings (Onwuegbuzie & Collins 2007). Hycner (1999) states:

The critical issue here is that the phenomenon dictates the method (not vice-versa) including even the selection and type of participants. In fact, part of the ‘control’ and rigor emerges from the type of participants chosen and their ability to fully describe the experience being researched (p. 156).

In general terms, there are two forms of sampling that can be used in both quantitative and qualitative research; ‘probability’ based (random) sampling and ‘non-probability’ sampling. The purpose of probability sampling is generalisation whereas the purpose of ‘non-probability’ sampling is to ensure the illumination of a phenomenon through the richness of the information gathered (Onwuegbuzie, AJ & Leech, NL 2007; Patton, MQ 1990). For qualitative research generally, and phenomenological research in particular, it is the latter form that is frequently the most appropriate form of selecting the study participants.

Based on these two types of sampling, Onwuegbuzie and Collins (2007) have built on the work of Patton (1990) and Miles and Huberman (1994) and identified twenty four sampling schemes that may be used by both quantitative and qualitative researchers. Nineteen of these are based on non-probability or purposeful sampling and of those ‘stratified purposeful sampling’ where the sampling frame is divided into strata seeking relatively homogenous sub-groups, with a purposeful sample being selected from each stratum. This appeared to be the most applicable to this research because the research question sought to understand how two levels of individuals in firms, employees and executive managers, and firms themselves can be incentivised to co-innovate in agrifood chains. Thus, in this research, stratified purposeful sampling was used to select cases that compared and contrasted the management of the incentivisation variables to develop an understanding of how co-innovation is incentivised in agrifood chains.

3.5.3.3. The types of data collected

The types of data collected included:

1. Digital audio recordings of interviews and their transcripts;
2. Interviewer’s notes;
3. Interviewer’s observations of people, processes and facilities;
4. Company documents provided to the researcher;

5. Publically available documents about chain participants, the chain or the operating environment, including government statistics (Stake 1995; Yin 2003).

3.5.3.4. Data collection methods

The data collection methods for these multiple case studies included:

- In-depth, semi-structured interviews, tape recorded and transcribed;
- Obtaining documentary evidence incorporating text and graphics;
- Researcher's notes and reflexive memoing.

These methods are outlined in more detail in the following sub-sections.

3.5.3.5. Semi-structured interviewing

There are a number of interviewing typologies that have been developed around the degree of structuring of interviews, the depth to which they probe interviewees' experience of the phenomena and the degree of standardisation between respondents (Fielding & Thomas 2001; Fontana & Frey 1994; Patton, MQ 1990). It appears that Fontana and Frey's (1994) typology is one of the most commonly cited in the literature, so it has been employed in this thesis:

- 'Structured' referring to the employment of standard questions using the precisely the same wording for every interviewee and where response categories are pre-coded;
- 'Semi-structured' where a list of questions are used more as a guide for a less constrained, more conversational style of interview;
- 'Unstructured' interviewing which is more of a free-ranging conversation directed by the interviewee where the questions are open-ended, not pre-planned and follow-up questions are emergent as the interview progresses.

This research methodology employed semi-structured interviewing to enable the researcher to understand as far as possible the complex variables involved in value chain co-innovation without any *a priori* categorisation that might constrain the responses. However, a variation on the semi-structured type called 'convergent interviewing' appeared to be appropriate for strategic investigations (Riege & Nair 2004; Williams & Lewis 2005), where there are critical, entrenched issues (Jepsen & Rodwell 2008), where the issues may not be known prior to the interview and where the key issues are being sought (Dick 1999). Convergent interviewing is an inductive, cyclical process of selecting, interviewing, analysing and issue analysis (Section 3.5.3.5 Field Procedures describes the process) which enables:

- The identification of key convergent and divergent issues;
- Their explication through initial analysis after each interview;

- Later validation or discard through progressive refinement of the interviewing that reduces uncertainty by identifying the key issues;
- Knowing when to stop interviewing through progressive exploration (Rao & Perry 2003).

Riege and Nair (2004) also suggest that firstly, the researcher should have adequate *a priori* knowledge of the theory and the context in which the interviews are conducted due to the importance of interviewer credibility for senior managers. Secondly, they suggest that divergent views should not be discarded but incorporated into further questioning and be presented in the data analysis. This advice was integrated into the project method which incorporated prior theory into the Interview Guide and Prompts (Appendix 6) and pursued 'divergent' views to validate any 'outlier' issues of substance.

Interviews used Riege and Nair's (2004) recommendations for convergent interviewing; namely the employment of a sequence of designing questions, collecting the data, analysing the data and interpreting the data in each interview. This was largely a reflective process conducted prior to interview in the field ('anticipatory' reflection), during interviews ('reflection-in-action') and immediately after interviews ('reflection-on-action') and occasionally discussed with individual members of the Advisory Panel (Raelin & Coghlan 2006; Schön 1983). It resulted in the identification of key emergent issues for further exploration in subsequent interviews. However, the full breadth of potential topics for questioning was never superseded because the Interview Guide and Prompts were always the basic framework for the researcher and some issues returned to central focus as interviewing continued. For example, in CS2, chain strategy appeared to have become a data saturated²⁶ issue in early interviews with executives, but in later re-interviews with the processor's CEO and Marketing Director, important new divergences in strategy emerged which affected firm level incentivisation.

The process identified 'agreements' and 'disagreements' amongst interviewees, explored them in greater depth and sought confirmation or disconfirmation from other sources (triangulation). In both situations, caution was exercised in accepting the emergence of an issue due to 'reactivity'²⁷ factors such as the 'Hawthorne effects' or interviewee bias (Riege & Nair 2004).

²⁶ Naturalistic sampling is based on informational richness rather than statistical considerations and so 'informational redundancy' or 'data saturation' occurs when no new information or data are being generated by the samples (Lincoln & Guba 1985).

²⁷ Reactivity factors occur where the presence of an interviewer affects the nature of interviewee responses; generally they comprise the 'Hawthorne effects' where the respondent interprets the interviewer's presence as special treatment or the 'novelty effect' where the respondent reacts differently because of the introduction a novel factor such as an audio recorder (Onwuegbuzie, A & Leech, N 2007b).

An Interview Guide and Discussion Prompts²⁸ (Appendix 6) assisted me to be systematic, efficient and consistent across time and space across large numbers of interviews (Patton, MQ 1990).

However, the Guide had to be used flexibly because of considerable variation in the emphasis and orientation of questions and discussion dependant on the subject's function, position and knowledge.

3.5.3.5.1. Documentary data

Documentary data took many forms and varied from case to case in the breadth of types and their richness in detail. They comprised company annual reports, policy papers, marketing research data, internal staff memos, plans, process models and personal documents (e.g. a family constitution; a philosophical book used by a CEO as the basis for his management style). This type of data was independent of the case study's conduct, broad-ranging from very specific facts, policies, directions to value-based philosophical evidence of mental models held by key participants and used as a base for managing their firm (Yin 2003).

3.5.3.6. Field procedures

The following sub-sections explain how the method was actually implemented in the field.

3.5.3.6.1. Sample size and frame

It is a common misconception that sample size is unimportant in qualitative research (Sandelowski 1995). Onwuegbuzie and Collins (2007) regard the selection of the sample size as being equally important to the selection of the sampling scheme (or methodology) because it is critical to the validity of the statistical (quantitative) or analytic (qualitative) generalisations that might be made from the research findings. They indicate that the sample size should be driven by the research objective, research question and research design but that in qualitative studies it should not be so small as to constrain informational redundancy (data saturation) when theoretical saturation²⁹ has occurred. Conversely, the sample should not be so large that it becomes cumbersome or impractical.

Onwuegbuzie and Collins (2007), after a comprehensive review of the methodological literature recommend minimum sample sizes of three to five cases, up to three interviews per sub-group of sampling and between six and ten phenomenological interviews per case. Given that this study focuses on three strata in each case (individual employees, executive managers and firms), then approximately twenty interviews per case appears to be an adequate sample size. However, whilst such advice provided a guide for planning, the overriding consideration in determining the number of interviews was data saturation.

The 'sampling frame' is the population from which the sample was drawn for the study (Collis & Hussey 2003). The selection of the agrifood chains for study was accomplished through the formation

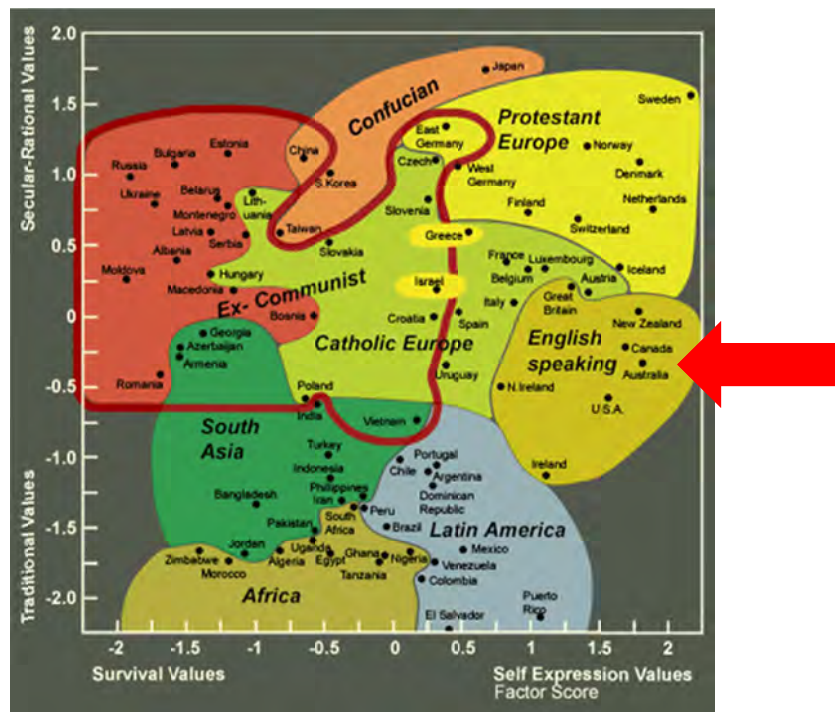
²⁸ The Interview Prompts were a 'reminder' for the researcher about the possible factors operating and were used to refresh memory prior to and during interviews. They were developed from the Literature Review.

²⁹ 'Theoretical saturation' arises where data saturation has occurred, all the paradigm elements are established and no new theoretical concepts are emerging (Strauss & Corbin 1990)

of a panel of agrifood value chain researchers with global knowledge and networks (Appendix 4). In this instance the sample frame was ‘agrifood chains’ in Industrialised, English-speaking Countries, namely Australia, UK, Canada, New Zealand and the USA, reflecting my personal aim to broaden the utility of this research thesis beyond Tasmania/Australia.

There are three compelling arguments to support the inclusion of case studies from Canada and Australia. Firstly, cultural differences between countries must be sufficiently large to invalidate comparisons (Gerhart 2008) and in this instance there appears to be sufficient cultural similarities between these countries to allow valid conclusions to be made. Inglehart and Welzel (2011) state that it is the nation’s values not its geographic position that determine their cultural similarity. Hofstede’s (1980, 1983, 1993) foundational work regarding the cross-cultural effects on management practices and theories suggests that there are strong similarities between Australia and Canada. Although there are other theories and constructs, Hofstede’s work is widely used by researchers and practitioners alike (Yeganeh, Su & Sauers 2009). His quantitative study of seventy nations, including Australia and Canada, ranked countries according to six key cultural differences (Hofstede, Hofstede & Minkov 2005; Minkov & Hofstede 2011). The Anglo-based cultures, Canada, the USA, New Zealand and the UK are consistently grouped very closely together when the cultural parameters are mapped (Inglehart & Welzel 2005; Inglehart & Welzel 2011) (Figure 3.2).

Figure 3.2: The world value survey cultural map 1999-2004



Source: (Inglehart & Welzel 2005, p. 63)

This is specifically supported by other research on cooperative/competitive behaviour (Cox, Lobel & McLeod 1991), incentivisation (Van der Stede 2009) and creativity (Nakata & Sivakumar 1996), all

important constructs in this research. This demonstrates the close cultural similarities between Australia and Canada. Further, the effect of national cultural differences at individual company level on incentivisation appears weak compared to the influence of corporate culture which suggests that company differences may be more important when comparing the management practices and organisational cultural characteristics of specific companies or chains from closely related national cultures (Van der Stede 2009). This suggests that the inclusion of case studies from culturally closely related countries is methodologically valid and that case study characteristics other than national culture may be more important considerations in when selecting the research frame; for example, industry and product type, executive characteristics and management strategies.

Secondly, the methodological approach adopted in this research is a 'hybrid approach' which examines whole systems, develops propositions across multiple systems, is based on constructs that are assumed to be separable from their embedded system but are contextualised when mapped back onto other systems and are interpreted in terms of the reduced system to develop general principles. As such, it is a commonly employed approach to cross-cultural management research and the critical question is one of appropriateness (Earley & Singh 1995).

Thirdly, in this instance, construct validity is high as motivation, incentive and organisational culture research has been a major cross-cultural endeavor over the last fifty years and in practice, the broad structure of incentivisation approaches has been highly universalised, particularly across Western industrialised countries (Tsui, Nifadkar & Ou 2007; Van der Stede 2009).

However, Hofstede (1983, 1993) and others (Hills 2002; Jaeger 1986; Newman & Nollen 1996; Segalla et al. 2006) warn that there are national cultural idiosyncrasies that should not be ignored. Aycan et al (2000) regard culture as a moderating variable which requires a thorough understanding of the specific culture being studied. Peng, Nisbett and Wong (1997) compared methodologies to address the problem of cross-cultural validity in research and concluded that qualitative approaches may have improved validity, particularly for exploratory research.

Hence, in selecting case studies from two different countries (Australia and Canada) this research has been influenced by two studies that recommend approaches to improve validity. Firstly, Cavusgil and Das (1997) emphasise a thorough evaluation of substantive knowledge, a broad sampling design, sound instrumentation design and concurrent collection of data. Secondly, McGauhey (2004) suggests that there are three related elements that are important when seeking to describe management in international contexts: 'thick description' which captures the meaning or intent of actions on social constructs can be understood; 'holism' to be able to make connections between things rather than fragmentation; and, 'polyphony' where many people or 'voices' provide their views with equal consideration in constructing the social reality (Rodriguez 2004). These elements have all been incorporated into the research design, as explicated in Table 3.6.

Therefore, the inclusion of case studies from Australia and Canada in the research frame appears to be justified contingent on the adaptation of the methodological tactics outlined.

As explained in Section 3.5.3.3, a stratified purposeful sampling methodology was used to select the three case studies of agrifood value chains. The criteria for choosing the focal case studies were:

- Industry sector – different agrifood sectors;
- Product – different product types;
- Market context – contrasting governance, strategies, competitive environment and industry status;
- Co-innovativeness – contrasting status.

Table 3.4 outlines the evaluation of the three case studies chosen against these criteria.

Table 3.4: ‘Stratified purposeful sampling’ evaluation of the focal case studies

Criteria	Case Study 1	Case Study 2	Case Study 3
Industry sector (Product)	Meat (Fresh pork)	Processed Veg (Frozen vegetables)	Fresh Produce (Processed fresh lettuce)
Market context	Commodity-based Highly regulated & subsidised Intense competition from cheap imports Industry collapse	Commodity-based Branded & private label strategies Intense competition from cheap imports Mature market	Commodity-based Private label strategies Intense competition by innovative alternatives Market growth
Co-innovativeness	Low	Low to moderate	High

Further, the farm suppliers were also segmented to ensure that a range of views were collected. The next section describes the process of pre-project negotiations which included obtaining a list of potential farmer interviewees categorised as ‘strategic suppliers’, ‘arms-length suppliers’ and ‘occasional or minor suppliers’. These formed the basis for stratification of farmer interviews and each comprised approximately one third of the total sample.

However, whilst the recommendations for sample sizes provided by Onwuegbuzie and Collins (2007) were used as a guide, the most important determinant of sample size was data saturation. The interview sample frame is outlined in Table 3.5.

Table 3.5: Interview sample frame by stage of value chain³⁰

Chain Stage & Sampling Strata	Case Study 1	Case Study 2	Case Study 3	TOTALS
<i>Retailer</i>	24 (24)	19	2* (1)	45 (25)
<i>Logistics</i> [#]	0	2	1	3
<i>Processor</i>	5 (5)	28 (7)	14 (14)	47 (26)
<i>Farmers</i>	5	9	6 (4)	20 (4)
<i>Input suppliers</i> [#]	2	4	1	7
Strata - Executives**	6 (6)	6 (6)	7 (6)	19 (18)
Strata - Employees	30 (23)	56 (1)	23 (13)	109 (37)
TOTAL INTERVIEWS	36	62	30	128 (55)

Notes:

* = The retailer was only willing to involve their GM & Category Manager

= Nil appropriate or low number of regular providers

** = Farmers are not categorised as executives

() = Bracketed numbers are the number of digitally recorded interviews

It may be noted that Case Study 2 has a much larger number of interviews. This occurred because many farmers declined to be interviewed in accordance with the requirements of Australian Human Research Ethics and so the researcher took comprehensive notes which constrained the richness of data collected. As a result, more interviews were undertaken to ensure data saturation. In this case, interviewees were randomly selected from a list of 240 farmers and triangulation with other interviews and the falsification process inherent in interview processes (Section 3.5.3.5) ensured the validity of data. As in the other two cases, the analysis of the data was also validated with the retailer and processor and both accepted the analysis as accurate.

Each interviewee was interviewed for approximately one hour in a venue of their choosing and, with the interviewee's permission, the interview will be digitally tape recorded. Some key executives were re-interviewed.

³⁰ Note that the numbers of interviews in each sampling strata are highlighted in grey above the 'Total Interviews'.

3.5.3.6.2. Securing commitment

Securing the commitment of chain partners in each case study chain was an important task. It occurred at three main levels:

Step 1. The chain level:

Initial approaches were made to the chief executive officer (CEO) of the lead firm in each chain. The CEOs were briefed about the proposed research, its impact and benefits, confidentiality and ethics procedures and their active collaboration sought. After gaining the cooperation of that person, formal involvement was negotiated by the signing of the approved project Ethics Consent Forms and Confidentiality Agreement (Appendices 5A and 5B). This CEO was then asked to make the initial approach to his chain partners seeking their cooperation.

Step 2. Other chain partners:

If interest was expressed by the chain partners at initial contact, they each received the Project Information Sheet, Confidentiality Agreement and Ethics Consent Form and an appointment was made for a follow-up telephone call to answer any questions and negotiate their involvement. Those consenting to participate were asked to sign and return the Confidentiality Agreement and Ethics Consent Form.

Step 3. Line manager interviews:

Each participating company's CEO was then asked to nominate appropriate functional managers involved in the focal chain and to arrange for appointments for interviews. Each junior manager was provided with the same Project Information Sheet and Ethics Consent Form received by the CEOs and receive a follow-up phone invitation to participate and to arrange appropriate times and venues and answer any questions the respondent might have prior to the interview.

Step 4. The farmer/farm manager level:

The CEOs of the agrifood processor in each chain nominated a panel of farmers for possible interview and asked to rate them as being 'strategic suppliers', 'arms-length suppliers' and 'occasional or minor suppliers'. The panel approach preserved the identity of those farmers actually interviewed and the stratification enabled a broad range of views to be elicited. Each farmer selected was invited to participate by an initial phone call. If they expressed interest they each received a Project Information Sheet, Confidentiality Agreement and Ethics Consent Form. No farmers declined to participate although at interview many declined to be audio recorded.

3.5.3.6.3. Maintaining confidentiality and privacy

Each CEO of participating firms, their managers and each individual farmer participating in the research received a Confidentiality Agreement and Ethics Consent Form approved by the University of Tasmania.

- a) The Confidentiality Agreement specified in broad terms the purpose and nature of the research, the type of the information required, how its confidentiality will be maintained through handling, storage and archiving procedures and how the information will be used and published maintaining any confidentiality required (Appendix 5B).
- b) Privacy of individuals was maintained through arrangements for selecting those farmers to be interviewed (Section 3.5.3.5.2) and the interview procedures specified in the Ethics Information Sheet and Consent Form (Appendices 5A and 5B).

All raw data have been stored in the School of Agricultural Science and:

- Documents were stored in a locked filing cabinet during the project and original documents were dealt with in accordance with the provider's wishes at the project's completion. All hard copy documents have either been returned to the owner if requested or held in the School of Agricultural Science, University of Tasmania premises for a period of at least 5 years from the date of publication, then destroyed by security shredding.
- Computer files and digital audio files have been stored in a Microsoft Private Folder, an encrypted, password-protected file folder on the researcher's PC which will provide an extremely high level security;

3.5.3.6.4. Handling internal company documents

At interview, ad hoc requests for documentation were occasionally made by the interviewer to corroborate, elaborate or complement, or expand statements made adding breadth and depth to the research. These were handled in accordance with the Confidentiality Agreement and returned to the interviewee following analysis if requested or archived to be destroyed after five years in accordance with the Ethics Guidelines.

3.5.3.6.5. Conducting the interviews

The literature provides much advice about how to conduct interviews (Fontana & Frey 1994; Patton, MQ 1990; Punch, KF 1998; Yin 2003). However, Myers and Newman's (2007) guidelines appeared to encapsulate much of that advice and so formed the basic guide for interviews in this research:

- Situate the researcher;
- Reduce social dissonance;
- Represent the range of voices;
- Employ the interviewee as an interpreter;
- Use mirroring of the subject's responses in questions and conversations;
- Be flexible to explore;

- Ensure and assure confidentiality.

The interview process was designed to gain the trust of the interviewee to facilitate engagement and openness. The setting for interviews was chosen by the interviewee. Generally this was in workplaces such as corporate offices and farms. I ensured that I appeared culturally compatible, dressed appropriately, and used the appropriate mode of language. I also ensured I was briefed about the interviewee's context and accurately presented my credentials and background, clearly identifying that this was academic research, the confidentiality arrangements and explained the planned research outputs and benefits. Interviewees were informed they had the right to not participate, to choose to not be recorded and to amend their interview notes/transcripts if they did.

Interviews were usually at least an hour in duration and in some instances longer. Forty three per cent of interviews were digitally recorded using an Olympus DS-50 Digital Voice Recorder and the audio files typed up by a major national transcription service used by the Australian Parliament and major legal firms with an accuracy exceeding 99%. In some instances, key people such as CEOs or senior executives were interviewed several times. Recorded interviews usually involved fifty five to sixty three questions per interview which generated 12 – 15,000 words. Where hand written notes were the only record of interviews, the researcher added his memoranda notes immediately after leaving interviews. Notes averaged 1,500 – 2,500 words when typed.

3.5.3.6.6. Notations and memoing

In phenomenological researching the researcher is part of the process because it is his/her perspective, knowledge and experiences that are creating the data. Logging this is called 'researcher reflexivity' and is important because it highlights potential biases, interests and ignorance and contributes to the validity of the research findings. Field notes were made manually during the data collection process and later transferred to the 'memoing' function in NVivo 8. They encompassed:

- Interviewer observations, reflections and ideas about the research processes (e.g. the theoretical model was conceived in a series of 'middle-of-the-night' ideas that were immediately recorded);
- Informal discussions held outside the formal interviews (e.g. in CS2 discussions with the president of a farmer's association);
- Interviewee demeanour will be recorded because body language may also provide data (e.g. in CS3 several people became quite emotional when speaking about how their company had supported them during personal traumas) (Richards 2005).

3.5.3.6.7. Validation

Where interviews were digitally recorded, the ability to retrospectively listen to check interview content or nuances of meaning improved the accuracy of the data. Where data were recorded as hand

written notes the relative amount of text was much less, however the quality of data was not proportional to the volume of text and hand written notes were very effective in eliciting the data.

Throughout the data collection process, the researcher maintained a sceptical mindset, seeking confirmation or disconfirmation from other sources.

Data provided in interviews were validated by cross-referencing with other interview statements, corporate documents and publically available information using a constant 'cycling through the data' method. On occasion, interviewees were contacted for a follow-up clarification by telephone or interview.

3.5.3.6.8. Participant feedback

Participant feedback, also known as "member checking", (Richards 2005, p. 140) is a means for the interviewer to check that he/she has 'heard' what was said by the interviewee. It usually involves providing interviewees with a copy of the draft report or interviewee-specific case study sections late in the research process (Richards 2005).

In this research, member checking was undertaken by:

- The participating large businesses and farmers were provided with a draft case study report summary for their perusal. This was followed by a Powerpoint presentation and discussion of approximately one to two hours duration. All CEOs and executive management groups validated the findings for their chain;
- Individual interviewees at all levels were provided with a copy of their interview transcript/notes to approve its inclusion in the data set. Only two interviewees made changes and these were of a technical nature which did not change the substantive content of the interview. No-one withdrew their interview.

3.5.4. Data analysis

The data generated were analysed using qualitative analysis methods cognisant of Yin's (2003) four principles of case study analysis:

- a) Demonstrate that all the evidence has been addressed;
- b) Address all major rival interpretations;
- c) Focus on the most significant aspect of the case studies;
- d) The researcher should employ his/her own prior knowledge and expertise to further the analysis.

So the analytical processes included the following.

3.5.4.1. Data triangulation

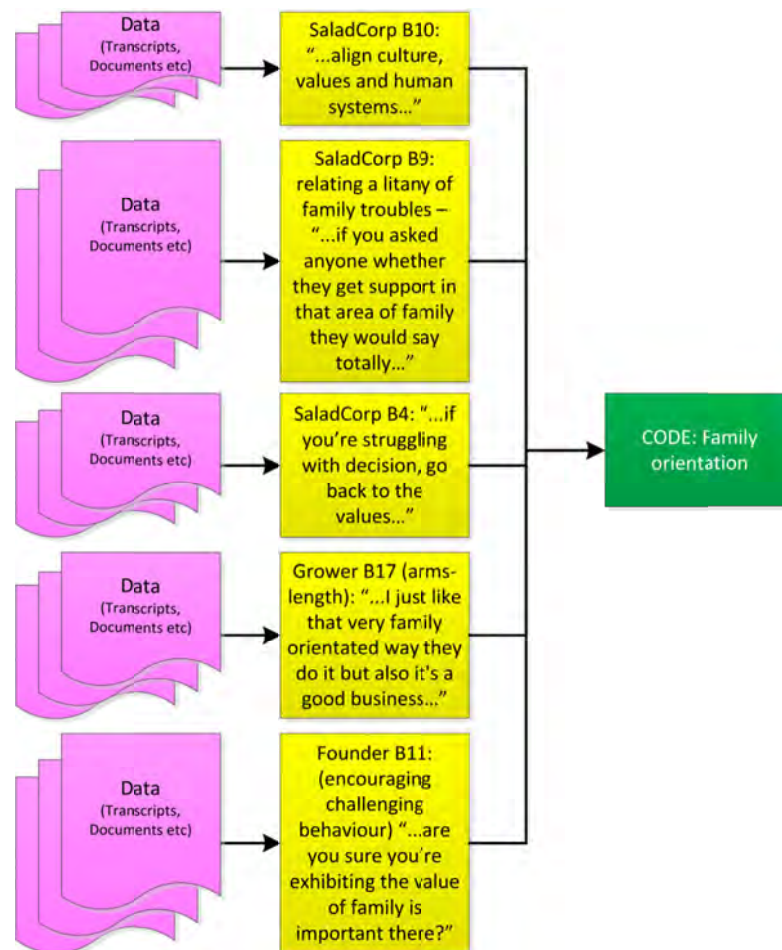
Thurmond (2001) defines triangulation as “the combination of two or more data sources, investigators, methodologic approaches, theoretical perspectives or analytical methods within the same study” (p. 253), a slightly expanded version of Janesick’s (1994) much-quoted definition. Generally, triangulation is associated with mixed methods, strategies and paradigms (Creswell, J. W. 2003; Onwuegbuzie & Collins 2007; Tashakkori & Teddlie 2003; Teddlie, Tashakkori & Johnson 2008). However, Thurmond’s (2001) definition makes clear that it can also be as simple as using several different data sources (after Yin, 2003) within a case study method or employing several different researchers on the one case study. This research triangulated the data sources to develop confidence, facilitate innovative and adaptive problem-solving and the integration of theories (Denzin, KN & Lincoln 1994; Duffy 1987; Jick 1979). It mainly employed different data sources and these included other interviewees and documentary data. Examples are firstly, using ‘arms-length suppliers’ to confirm/disconfirm the views of strategic suppliers or secondly, where views in different companies in the chain were compared. Such triangulation was facilitated by the use of NVivo 8 software to store and link multiple forms of data for analysis to develop themes, categorising, abstracting to develop new conceptual understanding of the incentivisation for co-innovation (Richards & Morse 2007).

3.5.4.2. The process of data analysis

The data were collected in this exploratory research from three contrasting case study value chains by one hundred and twenty eight interviews, other documentary data and the notes and memos of the researcher. Patton, E and Appelbaum (2003, p. 67) state that “The ultimate goal of the case study is to uncover patterns, determine meanings, construct conclusions and build theory...” and this is achieved by “...examining, categorizing, tabulating testing or otherwise recombining both quantitative and qualitative evidence to address the initial propositions of the study...” (Yin 2003, p. 109) by iterative data collection and analysis (Hartley 1994).

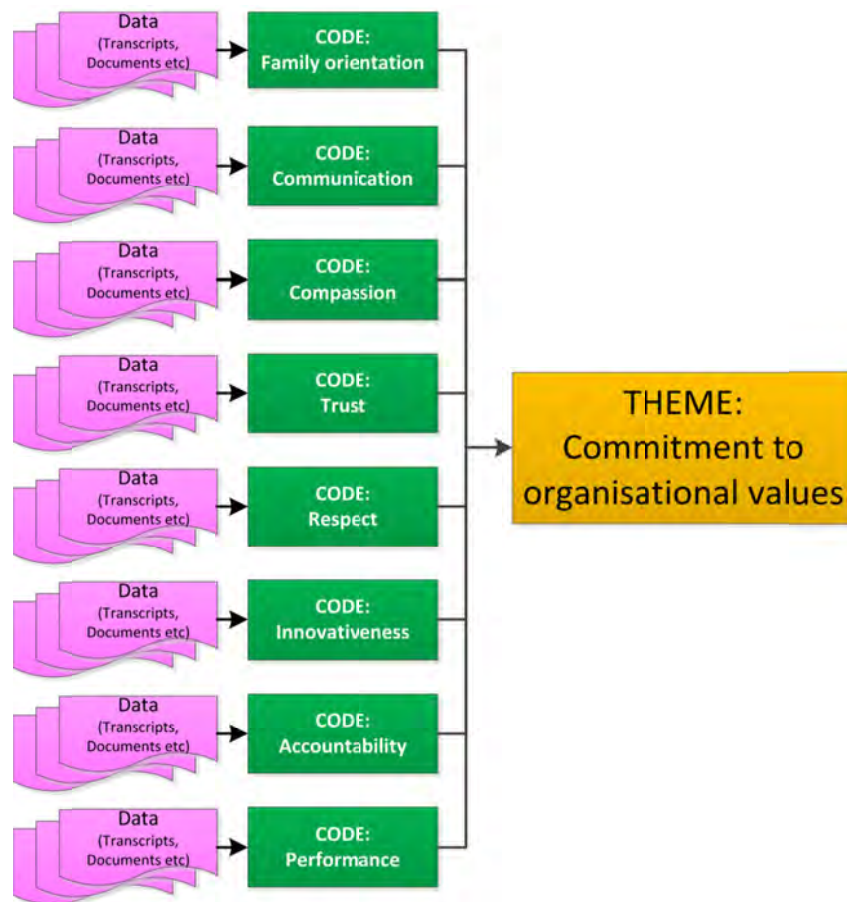
The pattern matching technique is applied to documentary text and interview transcripts and identifies categories (known as ‘codes’) of words, phrases, sentences and paragraphs containing important concepts, ideas, perspectives, experiences, emotions, values, attitudes of a person who has experienced the phenomena. The process adopted was that of Zhang and Wildemuth (2009). All recorded conversation was transcribed verbatim and the unit of analysis used was a ‘theme’ rather than a linguistic units such as phrases or paragraphs. The data were reduced and organised using NVivo 8 software so that ‘themes’ were grouped into an NVivo ‘node’ (Richards & Morse 2007).

For example, in Case Study 3, 19 out of 30 respondents made reference to the ‘family orientation’ of the lead firm SaladCorp in various ways (Figure 3.3), so through a process of data reduction and organisation that became a ‘code’ (Boyatzis 1998; Zhang & Wildemuth 2009).

Figure 3.3: Data reduction and code development

These were compared and contrasted to other sources in an iterative process that became increasingly abstracted to develop higher order categories or ‘codes’ (Miles & Huberman 1994). This is called ‘qualitative content analysis’ (Kohlbacher 2006, p. 10) and the descriptive or causally related patterns or ‘themes’ that are directly observable (the manifest level) or underlie the phenomenon (the latent level). Themes may be theory driven or generated deductively from prior research or inductively from the data that at a minimum describes or even interprets a phenomenon (Boyatzis 1998). To continue the previous example, the ‘Family orientation’ code was grouped with other thematically related codes to form the theme of ‘Commitment to organisational values’ (Figure 3.4).

The codes and themes developed became the coding framework which was tested on a sample of text from the other case studies to determine its utility. This was then applied to all the data in a ‘constant comparative’ or iterative process (Glaser & Strauss 1967) that cycled through the data refining both coding and codes as new clustering occurred and new codes emerged or refined.

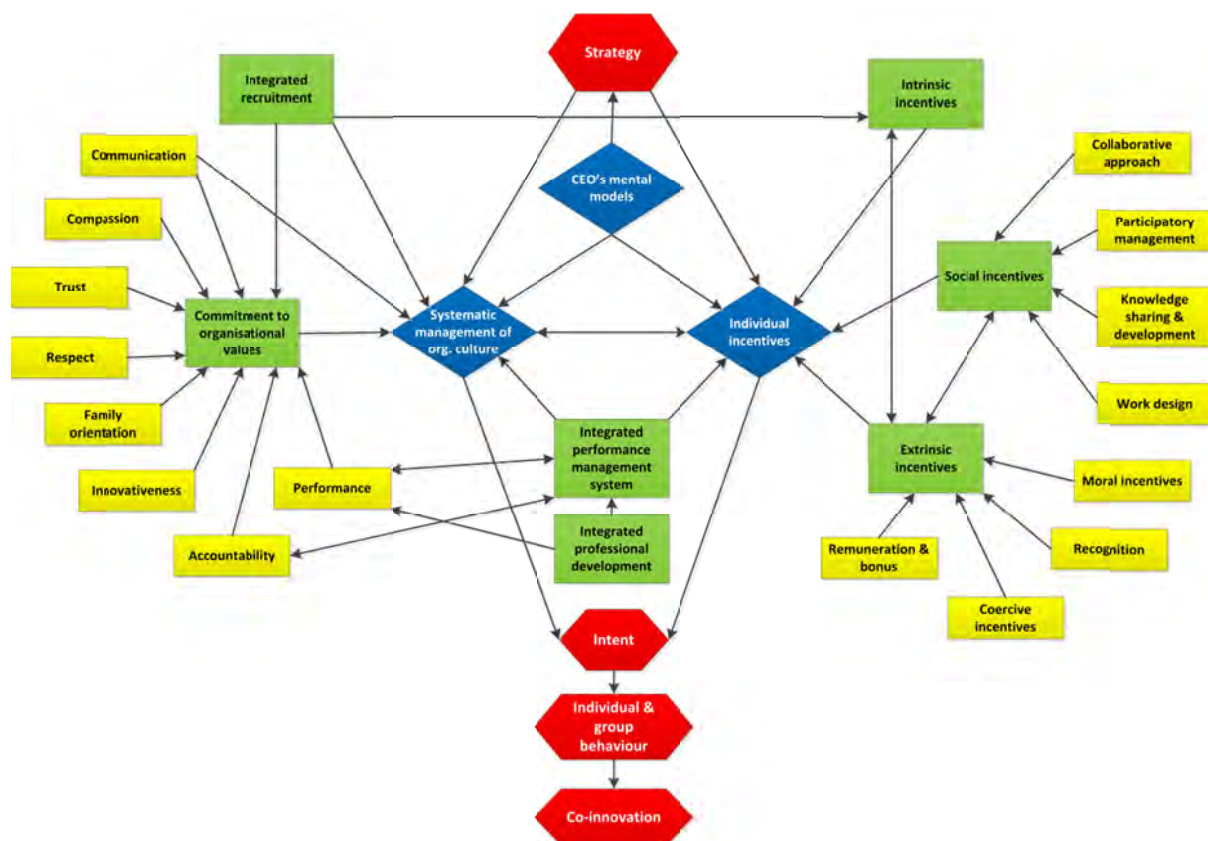
Figure 3.4: The development of 'themes'

Gradually, as theoretical sensitivity developed understanding and insight into what was relevant to the inquiry, themes were clustered into categories of higher order abstractions which appeared to provide explanations and relationships which made sense in the context of the data (Miles & Huberman 1994). In this way, for the example, the theme of ‘Commitment to organisational values’ emerged as related to other themes at the same level such as ‘Recruitment’, ‘Performance management’ and ‘Professional development’. These themes were related to a higher order theme of ‘Systematic management of chain culture’ which was influenced by other themes ‘Individual incentives’ (Extrinsic, Social and Intrinsic) and ‘CEO mental models’ about the nature of culture and incentivisation (Figure 3.5). This led to the development of ‘Intention’, ‘Individual and group behaviours’ that were co-innovative and ultimately, in Case Study 3, co-innovation occurring.

The within-case analysis involved incorporating all digitised data forms into NVivo 8 software, then coding³¹ and relating it using a “...compare-and-contrast process to extract observable differences between or among the samples...” (Boyatzis 1998, p. 42). Patterns and themes were developed using NVivo to explore the relationships between the most important independent and dependent variables (Richards & Morse 2007).

‘Cross-case synthesis’ then combined the within-case analyses of the individual cases treating each as a replication. This involved testing validity of the codes or themes across the sampled cases. Some codes were discarded and other new ones emerged which then had to be tested on earlier sampling (Boyatzis 1998). This technique was the primary means of increasing internal and external validity to produce more reliable and generalisable findings (Voss, Tsikriktsis & Frohlich 2002; Yin 2003).

Figure 3.5: An example of scaling and clustering of codes in the organisational culture and incentivisation themes



‘Explanation building’ for exploratory case studies involved pattern matching at a higher level of abstraction to build a plausible explanation about the phenomenon being studied through an iterative, comparative process (Yin 2003). This involved the ‘simple scaling’ of themes by adding sub-themes on the basis of conceptual relationships and conceptual clustering on the basis of related characteristics (Boyatzis 1998).

³¹ A qualitative code is simply a label which defines and aids identification of a theme (Boyatzis 1998). Each code is “anchored” (p. 42) in sub-samples of the sampled group which contains several to many interviewees referring to this theme.

Consistent with the interpretive methodology chosen for the research, these explanations were descriptive. Whilst some quantitative evaluation of themes was initially undertaken, they were excluded because they contributed little understanding or validity in the context of the study. This part of the process was undertaken manually and was highly iterative.

3.5.5. Limitations of the methodology

The strengths of case study research are its ability to explore phenomena in their natural setting to develop a full understanding of the complexity of the variables that are operating where there is an incomplete theoretical picture of what is going on (Voss, Tsikriktsis & Frohlich 2002; Yin 2003). However, the project methodology has inherent weaknesses which focus on validity and reliability. Yin (2003) describes the four most important of these as common to all qualitative inquiry and this is supported for convergent interviewing by Rao and Perry (2003). Because Yin's (2003) typology is one of the most frequently cited it has been used as the overall structure for planning the design for this research to ensure a high level of rigour:

- **Construct validity** refers to the logical fit of the questions, data and method (Richards & Morse 2007);
- **Internal validity** refers to whether or not a proposition makes sense and is credible to the participants as well as peers in a descriptive, interpretive or theoretical form (Miles & Huberman 1994);
- **External validity** bounding the domain to which generalisations can be made. Guba, E. G. and Lincoln (1989) call this a proposition's "transferability" (pp. 224, 241). This requires an adequate description of the context so that readers can make an assessment of the transferability of the findings or to make similar judgements possible in similar contexts (Koch 1994);
- **Reliability** establishes the extent to which the findings can be repeated achieving the same results. Guba, E. G. and Lincoln (1989) call this a proposition's "dependability" (p. 235) or "confirmability" (Koch 1994, p. 92). One of the most important ways of achieving this is by providing an 'audit trail' of the explicit theoretical, methodological and analytical decisions made during the research process which show how interpretations have been made.

Table 3.6 combines Yin's (2003) frequently cited typology with two large reviews of validity criteria. Onwuegbuzie, A and Leech (2007b), in an even more extensive review of qualitative validity literature developed the "Qualitative Legitimation Model" (p. 234) which identifies fourteen "threats to internal credibility" (pp. 235-7) and twelve "threats to external credibility" (pp. 237-8) which represent errors of logic. From this they developed a checklist for increasing legitimation, which is also incorporated into Column 2.

Whittemore, Chase and Mandle (2001) synthesise a decade of views regarding the criteria for validity and reliability and classify them into primary and secondary criteria. From these they develop a list of tactics for demonstrating validity; design consideration techniques, data generating techniques, analytic techniques and presentation techniques and these are presented in Column 3.

Heeding this advice, this researcher has synthesised these three views of tactics to achieve qualitative validity in Column 4 (shaded) of Table 3.6 employing the overall structure of Yin's (2003) typology. Where there appeared to be a duplication of tactics, the author compared the original description in each paper and, if confirmed, used a descriptor which reflected the synthesised meaning. Thus, Column 4 of Table 3.7 represents a composite list of tactics from leading researchers which was incorporated into the design, procedures and practices of this research to improve the validity and reliability of its findings.

Table 3.6: Combining research tactics³³ to improve validity and reliability in this research design

1. Yin (2003)	2. Onwuegbuzie, A & Leech, N (2007b) ³²	3. Whittemore, Chase & Mandle (2001)	4. Case study tactics adopted in this research design
Construct validity <ul style="list-style-type: none"> Use multiple sources of evidence Establish chain of evidence Peer review of draft report 	<ul style="list-style-type: none"> Prolonged engagement (scope) Persistent observation (depth) Triangulation Leaving an audit trail Member checking Weighting the evidence Checking for representativeness Clarifying researcher bias Making contrasts/comparisons Theoretical sampling Checking the meaning of outliers Using extreme cases Ruling out spurious relations Replicating a finding Referential adequacy Follow-up surprises Structural relationships Peer debriefing Rich & thick description Assessing rival explanations Negative case analysis Confirmatory data analyses Effect sizes 	Design consideration techniques <ul style="list-style-type: none"> Self-conscious design Sampling adequacy Employing triangulation Giving voice Data generating techniques <ul style="list-style-type: none"> Articulating data collection decisions Verbatim transcription 	Construct validity <ul style="list-style-type: none"> Used multiple sources of evidence Established chain of evidence using NVivo Peer review by expert panel Self-conscious design through reflexive memoing Sampling adequacy incorporated 'stratified purposeful sampling' Gave 'voice' by using actual quotations supporting interpretations Internal validity <ul style="list-style-type: none"> Pattern matching using NVivo Verbatim transcription – where possible used digital interview recording/transcription Addressed rival explanations by iteratively interrogating data & inference-making Used software-based logic models for relationship & cluster building Audited researcher's experience through memoing & reflexive journaling Validity checked interview data with participants & findings with managers (member checking) Recorded data collection decisions to provide audit trail Bracketed researcher's perspectives External validity <ul style="list-style-type: none"> Used replication logic in multiple case studies Articulated data analysis decisions by memoing Using computer programs – NVivo and Decision explorer Analysed outliers or disconfirming data Weighted the evidence (Onwuegbuzie, A & Leech, N 2007b) Theoretical sampling reflection on the data to determine whether more data was needed Ruling out spurious relations by the employment of internal & peer review Replicated findings across three case studies Referential adequacy by providing references that support findings Followed up theoretical surprises to confirm or disconfirm
External validity <ul style="list-style-type: none"> Use replication logic in multiple case studies 		Analytic techniques <ul style="list-style-type: none"> Articulating data analysis decisions Member checking Using computer programs Exploring rival explanations Analysing negative cases Memoing Reflexive journaling Bracketing 	
Reliability <ul style="list-style-type: none"> Use a case study protocol Develop a case study data base 		Presentation techniques <ul style="list-style-type: none"> Provide an audit trail Provide evidence of supporting interpretations Acknowledge researcher perspective Provide thick descriptions 	Reliability <ul style="list-style-type: none"> Used a case study protocol Developed a case study data base - used NVivo Audit of research process - used NVivo Demonstrated 'confirmability' or how interpretations have been made - used NVivo Provided evidence of supporting interpretations via referential adequacy

³² The tactics in bold, italicised font have been assessed as not duplicated by the other writers and have been included in Column 4.³³ Duplication of tactics between authors has been removed from Column 4.

3.5.6. Generalisability of the findings

Generalisation is the application of the results from a sample to a case or other situations beyond those studied (Collis & Hussey 2003). Generalisability is usually regarded as central to all forms of science and part of external validity. There are two critical perspectives on generalisation; firstly, a constructivist-interpretivist view that all phenomena are time and context specific and there is no generalisation, and secondly, a post-positivist one that it is impossible to inductively generalise (Mayring 2007). However, many hold a more pragmatic view (Eisenhardt 1989; Firestone 1993; Greene 1994; Janesick 1994; Mayring 2007; Miles & Huberman 1994; Whittemore, Chase & Mandle 2001; Yin 2003). Firestone (1993) states that there are three forms of generalisation:

1. Extrapolation from a sample to a population based on large samples and probability theory which is not generally appropriate for qualitative research;
2. Analytic generalisation where the theory is used to make predictions under conditions which limit its generalisability;
3. Case-to-case transfer requires the comparison of conditions facilitated by the investigators rich description and the employment of rigorous judgement of the material facts, appropriateness and the reason for the decision to generalise.

Yin (2003) refers to statistical generalisation as 'Level One Inference' and analytical generalisation as 'Level Two Inference'. Because cases are not 'sampling units' statistical generalisation is not appropriate and case study researchers should aim for Level Two Inference which occurs when two or more cases support the same theory.

Thus, cognisant with Yin's (2003) advice, this research has investigated three case studies to facilitate comparison for contrast and similarity. The design included contrasting case types, multiple sources of data, consideration of outliers and following up surprise results, all undertaken using NVivo 8 software that facilitates comprehensive linkage of data types and the analysis of apparent relationships. Thus, the findings of this research may have utility for Level Two Inference on a case-by-case basis where conditions are judged to have strong similarity.

3.5.7. Ethical considerations

Ethics and confidentiality in value chain management research are of paramount concern. Each chain is significantly different in the nature of relationships and the type and sensitivity of the information and communication flows. The typical asymmetry of power referred to earlier in Section 2.3 can produce many different forms of relationship and modes of operation. The values and attitudes of the personnel involved in each of the separate businesses means that operational behaviour and organisational culture are highly idiosyncratic. Hence, the interaction of value chains with research activities and the flow-on effects to firms and individuals have highly variable consequences.

Consequently, the ethics protocol employed in this research, as explained in Chapter 3 (Sections 3.5.3.5.3 and 4) was clearly specified and communicated in the engagement phase of implementation.

Ethical issues focused on informed consent, right to privacy and confidentiality, protection from harm, ensuring data accuracy and integrity, avoidance of deception, ownership of data and conclusions and the use and misuse of results (Hopf 2004; Miles & Huberman 1994; Punch, KF 1998; Punch, M 1994).

Of particular concern in agrifood chains was the asymmetry in capability referred to in Chapter 2.3. In this investigation, where there are many primary industry suppliers and only a small number of powerful processors or retailers there was a danger that full collaboration and openness on the part of a farmer with researchers may result in future discrimination or recrimination.

The research design and procedures complied with the Guidelines published by the University of Tasmania's Human Research Ethics Committee (Social Sciences Research: Southern Tasmania), a partner in the Human Research Ethics Committee (Tasmania) Network registered with the Australian Health Ethics Committee (AHEC).

The ethics and data collection and management protocols developed for this research project were the subject of separate submission and approval by the University of Tasmania's Social Science Human Research Ethics Committee (Ethics Approval No: H10341). These ethics protocols comply with the requirements of the University's policy and the relevant Tasmanian and Australian Government legislation.

The interview transcripts were approved for inclusion by all interviewees and qualitative thematic analysis was then undertaken using NVivo 8 computer software. The preliminary findings were finally validated with the chain partner companies in face-to-face meetings incorporating Powerpoint presentation, discussion and written report; then finally approved in writing for inclusion by the respective Chief Executive Officers.

3.5.8. Thesis layout and citation style

This thesis layout has used the Australian Government Publishing Style (AGPS) based on Snooks & Co. 2006, Style manual: for authors, editors and printers, 6th edn, Department of Finance and Administration, Commonwealth of Australia, Canberra, ACT.

The Endnote Style used for citations and references was the latest revision (26 August 2010) of that published by John East, University of Queensland Library, 18 April 2002, specifically integrating the AGPS style into the Harvard System.

3.5.9. Summary of the methodology

Chapters 1 and 2 have identified the lack of a theoretical base for agrifood co-innovation and posed a research question of how to incentivise employees, executive managers and firms to co-innovate in

agrifood chains. This Chapter has considered the complexity and nature of the research question taking into account the researcher's world-view, experience and skills as well as the appropriate philosophical, paradigmatic and methodological alternatives for an appropriate research design. This process developed a question driven constructivist-interpretivist paradigm for the research and a phenomenological strategy using Type 3 configuration for multiple case studies (Yin 2003) collecting multiple sources of data from semi-structured interviews using convergent interviewing techniques. It then analysed these data using qualitative content analysis, assisted by NVivo 8 software to manage data, link concepts, identify relationships and build descriptions and explanations of the phenomenon.

Potential weaknesses in the research design were identified and strategies implemented to increase the validity and reliability of the research outcomes. The design also considered ethical issues that might arise from the processes, particularly those associated with the power and capability asymmetries inherent in the agrifood industry and designed measures approved by the University of Tasmania and complying with the Australian National Health and Medical Research Council, the Australian Research Council and Universities Australia in the National Statement on Ethical Conduct in Human Research (2007).

The following three Chapters (4 – 6) will provide an analysis of the data generated using this methodology and discuss the within-case findings. It should be noted that the within-case findings develop conclusions about each particular case (light green coloured boxes in each case) and the phenomena or themes selected at the end of each case is later used for the cross-case comparison in Chapter 7 (Stake, Robert E. 2005).

The purpose of Chapter 7 is consistent with Stake's (2005) statement that: "Case studies are of value in refining theory, suggesting complexities for further investigation as well as helping to establish the limits of generalizability" (p.460), the aim of exploratory research.

Thus, Chapter 7 provides a cross-case discussion of the findings and conclusions employing "naturalistic generalization" (Stake, R.E. & Trumbull 1982) where "...[the] appreciation of and attention to context [act] as a natural limit to naturalistic generalizations" (Patton 2002, p. 583). To this end each case study provides rich descriptions (Weick 2007) of context and the case conclusions (light green coloured boxes in each case) are set in that context. The 'limitations' to generalisation have been clearly explained previously in Section 3.5.6 and are further discussed in the light of the 'implications' in Chapter 7.6.

Chapter 4: Analysis and findings – Case Study 1

4.1 Introduction

The goal of this research is to provide farmers and agrifood managers with an understanding of how to incentivise collaborative innovation in agrifood value chains. Value chains are complex human systems that need to be studied at multiple levels if we are to understand their dynamics (Chapter 2). However, most research has been undertaken from single disciplinary perspectives and whilst it is difficult, investigations encompassing multiple perspectives, such as has been conducted in this research, may bring additional insights into the dynamics of whole systems.

Several studies identified the importance of motivation within and between organisations to agrifood co-innovation and identified the lack of a theoretical base for the concept. Incentives are the expectation or benefit that enables or motivates a particular course of action. Incentives at the firm and individual levels and appear to play an important role in co-innovation which suggested a research question of: “How are employees, executives and firms incentivised to co-innovate in agrifood chains?” However, the literature gave rise to a number of subsidiary questions that required further research because there was an inadequate understanding of the dynamics of incentivisation in agrifood chains which appeared to have some distinct differences to value chains in other industries. Those subsidiary research questions (SRQ) were:

- **SRQ1:** *What are the facilitators of collaborative innovation in agrifood chains?*
- **SRQ2:** *What are the inhibitors of collaborative innovation in agrifood chains?*
- **SRQ3:** *How do agrifood firms incentivise operational staff to co-innovate?*
- **SRQ4:** *How are executive managers incentivised to co-innovate in agrifood firms?*
- **SRQ5:** *How does the form of governance in agrifood value chains influence the incentives employed across the chain?*
- **SRQ6:** *How does the asymmetry of power in agrifood value chains affect the nature of incentives employed?*
- **SRQ7:** *How is chain leadership exercised in agrifood chains?*
- **SRQ8:** *How does the form of relationship (governance) in an agrifood chain affect the types of contracts used to coordinate chain participants?*
- **SRQ9:** *What incentives are used to motivate firms in agrifood value chains?*
- **SRQ10:** *What are the motives that energise goal-oriented behaviour in agrifood value chains?*
- **SRQ11:** *To what extent do values, attitudes and norms of firms in agrifood chains influence the enactment of incentivised motives?*

Chapter 3 considered the complexity and nature of the research question taking into account the researcher's world-view, experience and skills as well as the alternative philosophical, paradigmatic and methodological alternatives for an appropriate research design. This process developed a question driven constructivist-interpretivist paradigm for the research and a phenomenological strategy using Yin's (2003) Type 3 configuration for multiple case studies. Data were collected from semi-structured interviewing techniques and other corporate and public sources. It then proposed to analyse these data using qualitative content and thematic analysis assisted by NVivo.

The purposes of this and the following chapters (Chapters 5 - 6) are to undertake an analysis of the data from the three case studies (within-case analysis) conducted for this research and then a cross-case analysis to compare and contrast these three cases (Chapter 7) using Yin's (2003) approach to identify common themes in terms of the theoretical findings in the chain literature. The case study chapters are arranged in a continuum representing the degree of value chain management occurring rather than chronological order in which they were conducted. This has been done to aid conceptual development and ease of comparison. As the context for incentivisation may influence their development and operation, each case study will be introduced by a summary of its strategic and operational context. At the close of this introductory section the current state of each chain will be summarised using the 'Co-innovation Roadmap' framework (Bonney et al. 2007) because, as explained earlier in Chapter 2, it provides a useful heuristic of the dynamics of a value chain system.

The case studies will consider the research questions in a different sequence to that in which they emerged from the extant literature so as to facilitate the logical presentation of the analysis:

- The intra-organisational conditions that influence relationships and incentives in agrifood value chains:
 - How firms within agrifood value chains are incentivised – SRQ9 and SRQ10;
 - How individuals are incentivised in agrifood chains – SRQ3;
 - How executives are incentivised - SRQ4;
 - How do values, attitudes and norms of firms in agrifood chains influence the enactment of incentivised motives – SRQ11;
- Inter-organisational conditions that influence relationships and incentives in agrifood value chains – SRQ1 and SRQ2;
- Chain governance conditions that influence relationships and incentives in agrifood value chains (SRQ8):
 - The use of contracts – SRQ8;
 - The use of power - SRQ6;
 - The role of chain leadership - SRQ7.

A flow chart with a black box indicating the current position within this sequence is provided at each of the major sections as a guide for the reader (see following page).

It should be noted that in order to protect confidentiality in the case study analyses all identifying names of individuals, functional sections, organisations, cities/towns, regions and country have been anonymised using codes, anonymous italicised identifiers (e.g. <name>) or fictional names in the case of the companies involved.

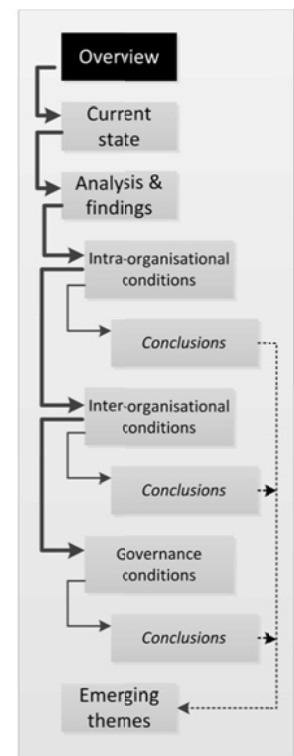
In each chapter, the analysis of the incentives and motivation that appeared to be operating at an individual level in the chain, are summarised in tables that should be read left to right which is consistent with the notion that incentives elicit motives to act. Please note that the typologies of incentives and motives found in or derived from the Literature Review and incorporated in the conceptual model (Figure 2.8) have been transposed as the headers for the relevant sections in this tabular analysis.

4.2 Case Study 1 – Heritage Co Fresh Pork Value Chain

In this case study the name of the largest company, the retailer, has been changed to 'Heritage Co' and the participating value chain is referred to as the 'Heritage Co Fresh Pork Value Chain'. It consists of a meat processor which has been called Processed Meats Ltd, a number of pig farmers and their input suppliers. The names of all participants have been changed to code numbers commencing with 'A' and the numbers randomised so that, for example, A1 is not the Chief Executive Officer. Figure 4.1 provides a map of the product, communication and relational flows for the chain.

4.2.1 Overview of the chain

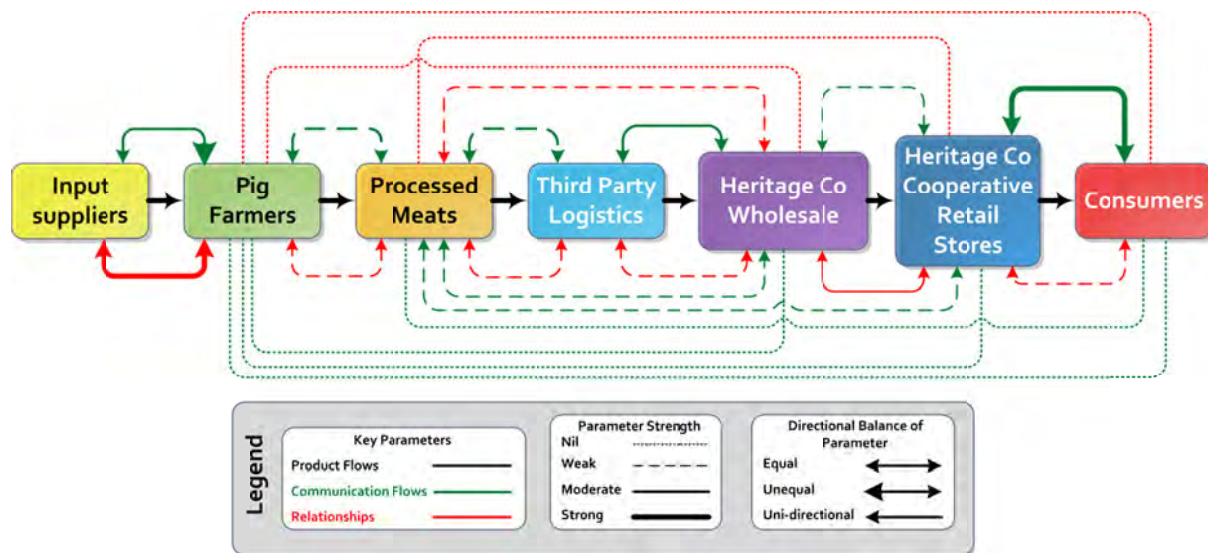
The region in which the focal chain was situated was comprised of three states³⁴. The region had a small grain industry and most pig feed had to be imported from distant states within the country and so its pig industry had been built on freight and production subsidies. When those were withdrawn, starting in 1992, the structural changes commenced and were complete by 1999 following which, the industry became unviable. Pig farmers largely persisted in a way of life believing that "things would get better" (A40) or that the national government would eventually help out with more subsidies. Thus, at the time the study commenced the pig production industry in this region was on the brink of collapse. However, nationally pig production has increased 27% since 1992 due to the growth of large-scale 'factory' pig production in other states with large grain industries and pig prices remained relatively steady through the 1980s



³⁴ This study only examines the stores in the three larger states of the four in which Heritage Co operated.

and 90s. However, in 2002 the national industry suffered a price drop of approximately 32% and there has been a slow decline of another 9% since that year. Consequently, pig production in the region in which the focal value chain was based had dropped from 1.7% of the national total in 2002 to 0.6% in 2009, pig numbers were down 42% and the number of pig farmers had dropped to 31% (180 producers). Between April and November 2009, when this study was being conducted, the number of pig farmers in that region dropped 25% (Minister of Industry 2009).

Figure 4.1 Map of the Heritage Co value chain



The only federally registered meat processing works in the tri-state region, Processed Meats Ltd, predominantly a processed meats operation, supplied several small chains with processed and fresh pork products as well as other fresh and processed meat products. Processed Meats Ltd process approximately 15,000 pigs per annum or 300 per week and regionally this was estimated to represent only 5 – 10% of the region's pork consumption. However, there were only four pig producers left who supply the focal supermarket chain (A39, A40). One producer, Porkinnotech who was younger and more innovative than most had a history of being pro-active in collaboration (he headed a consortium of producers), vertical integration (having attempted to establish his own regional meatworks), in NPD (Omega 3³⁵ and hormone-free fresh pork) and marketing (branding and marketing to major retailers). His operation employed leading-edge, disease-free production technology and he was professionally advised in his management, marketing strategies and operations (A36).

Pig prices and carcass type are determined by a major commodity derivatives exchange (CDE) which results in a production focus on the cheapest possible yield of protein by a single large class of pig equating to the 'baconer' in Australia (90-120 Kg)³⁶. Pork is considered the cheapest animal protein

³⁵ A nutraceutical pork product produced by feeding pigs a flax seed additive in their food.

³⁶ Australia and the UK have at least three classes of pig; the 'porker' (50-70 Kg), the 'backfatter' (70-90 Kg) and the 'baconer' (90-120⁺ Kg). Importantly, for this case study, smaller animals are more tender, flavoursome and juicy the meat but the efficiency in feed conversion occurs when they are grown out to higher weights.

by consumers, has negative ethnic and socio-economic associations and is highly substitutable. Taste and tenderness attributes are not considered by producers and processors because firstly, pork is regarded as a low priced protein source which requires efficient production techniques; secondly, it is industry practice to ‘pump’ pork with salt, fat and water to get taste and juiciness to make it marketable; and, thirdly, the production of fresh pork products does not appear to be based on an understanding of consumer value attributes for fresh pork. ‘Value adding’ to fresh pork is regarded as changing the consumer choice dynamic because it would increase the price of pork and risk substitution by beef or chicken (A36, A39, A40).

The meat processing company, Processed Meats Ltd, had been purchased in about September 2008 by a consortium of pig farmers in order to secure more of the margin and in an attempt to save the industry. The two principals were somewhat entrepreneurial but were still finding their future direction at the time the research was being conducted. Over 60% of Processed Meats Ltd’s business is with one of the largest retail competitors of Heritage Co which has their head office in a nearby town (*Major Heritage Co Competitor #1*), and one of Processed Meats Ltd’s senior managers has a strong social relationship with one of that competitor’s senior managers and these connections were later significant. The marketing budget of \$20,000 meant that the company neither purchased nor carried out systematic market research on existing or proposed new products. Sales were arranged week by week within existing relationships or, if the marketing manager had time, by ‘knocking on doors’ to sell the products from the scheduled raw material intake. There were no standing contracts or arrangements. There are other major retailers, the most important being (*Major Heritage Co Competitor #2*) which is multi-national firm obtaining its pork from outside the region (A39, A40).

Whilst fresh pork is about 25% of Processed Meat’s total turnover, this chain supplied only approximately 3.8% of the company’s turnover in partially broken down pig carcasses (primals³⁷) to Heritage Co, the smallest of the three supermarket chains in the region. The processing facility is not able to cut and package ‘retail ready’ products and is currently working at less than half its capacity because it is old and in need of modernisation. However, the cost of up-grading will be significant and incur an additional cost of approximately \$2 million for re-application for federal licensing following the upgrade. Most of their production is focused on approximately ninety processed pork products marketed largely through the major retailers and food service suppliers. Fresh pork is regarded as a ‘by-product’ of the production of processed products³⁸ (A39, A40).

³⁷ A pig carcass is initially broken down by the meat processor into the broad sections of the animal (e.g. ‘Ham’, ‘Picnic Shoulder’, ‘Loin’ etc) called ‘Primals’ from which the individual retail cuts are derived. This may be done for transport or storage purposes allowing for down-stream decision-making on the balance of cuts required from the primal.

³⁸ ‘By-products’ are parts of the carcass (e.g. heads, eyeballs, skin, hooves etc) that are not useful in the prime products yet overall profitability is closely linked to finding markets for the by-products.

The retailer, Heritage Co, either cut and packed the fresh pork into retail-ready consumer packs in one of two meat poorly managed and inefficient service centres or directly supplied to supermarkets that have their own in-house cutting facilities (A13).

The supermarket retail group, Heritage Co, has a business model³⁹ built around being a ‘Two Tier’ co-operative in food, agricultural supplies (including animal feed) and energy. This is comprised of Heritage Co Wholesale a cooperative wholesaler supplying a federation of co-operative retail stores using a number of business arrangements which adds significant complexity to the management and development of the business (A3, A4, A11). Across their one hundred and eight stores there are four types of business models:

1. Type 1 - Owned by Heritage Co after being acquired during a recent financial crisis and are now only advised by local boards (thirteen stores);
2. Preferred wholesaler and shared service provider to a retail outlet owned by a local community-based cooperative with (Type 2A) or without (Type 2B) a management agreement with Heritage Co (totalling seventy five stores);
3. Type 3 - Locally-owned, independent retail outlets where Heritage Co is only one of many wholesale suppliers (approximately twenty stores) (A3, A4, A11);

The cooperative was founded in 1927 on the values of self-help, self-responsibility, democracy, equality, equity and solidarity. They also have seven cooperative principles which act as guidelines to put their values into practice that include, importantly for this study, democratic member control, member economic participation and concern for community. They believe that their difference can be expressed in four ‘pillars’:

1. Promoting the growth of the <Regional Name>
2. A focus on member benefits
3. A focus on community
4. A co-operative business model (A3)

Within the four pillars, its commitment to stocking food with local provenance (16% of total products are regional) and social service “very much go to the heart of who we think we are” (Senior Executive A4). Because stores are committed to these more holistic goals they are willing to take a lower

³⁹ The business model concept is related to but separate from business strategy. It is generally understood as a conceptual tool that contains a set of elements and their relationships and allows the expression of how a specific firm’s business logic makes money through satisfying consumer and customer needs. The logic describes the value a company offers to one or several segments of consumers as well as their immediate customers and of the architecture of the firm and its network of partners for creating, marketing, and delivering this value and relationship capital to generate profitable and sustainable revenue streams. It is the conceptual link between strategy, business organisation and systems that shows how the pieces of a business concept fit together, and contains its translation into concrete things such as a business structure, business processes and infrastructure and systems (Casadesus-Masanell & Ricart 2007; Osterwalder 2004; Voelpel, Leibold & Tekie 2004).

margin, pay the producer more for local produce or even, in some circumstances take a loss on marketing a local product because they have a zero bottom line approach (A3, A4, A11).

These original values and principles still pervade the organisation's strategic and operational approaches and whilst they appear to be important to older customers and staff, recognition and commitment to them amongst younger generations appears to be declining and Senior Executive A4 acknowledged that whilst only a small proportion of the regional community shared their values any more, they were only able to maintain the local identity and regional food security from a smaller base of operations in distribution and retail by sacrificing profitability. He said:

...we don't ask them to pay more. We don't offer less but we don't ask them to pay more, and so our grocery basket is competitive... (but) we are not very profitable.

This complicated structure became somewhat more so when the 'organisation' suffered a serious financial crisis early this decade and was forced to close about a third of their stores (thirty-six in total). Consequently, they moved from the previous business model with a predominance of 'member only' services to a full competitive retail mode in order to survive. The Type 1 stores were taken over by Heritage Co to prevent their closure. In the Type 2A and 2B stores the central administration of the cooperative wholesaler has little strategic or operational leverage over how the local stores are run when compared with Type 1 stores and other major competing retailers (A3, A4, A11).

This transition has also left Heritage Co with a legacy of poor store positioning and low quality facilities. Prior to the financial crisis the predominant business model had been members only stores with low cost warehouse type fit-outs where positioning was not critical. The recent move to a more standard retail model competing with the larger retailers on the basis of price, convenience and quality ambience (shopping experience) has meant that many stores are poorly positioned and unable to compete on convenience and store ambience. Heritage Co Middle Manager A12 commented: "*<Heritage Co>* was never structured to be in the business of owning and operating stores..." so there may be some doubt about their corporate competence to be able to do so.

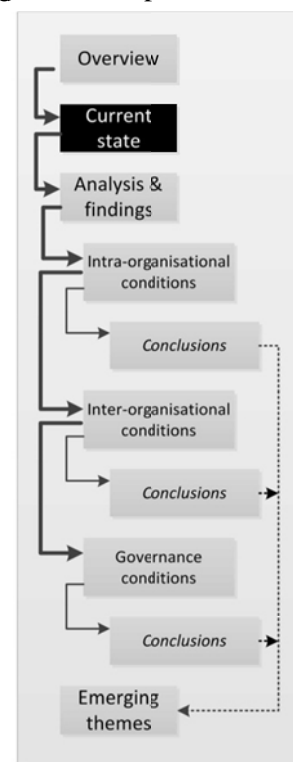
Heritage Co supplies a predominantly rural and maritime region of four states comprised of two main ethnic groups with about 30% stores in minority areas. It has a market share of around 10% which has not grown in the last seven years. Its shoppers and cooperative members are more likely to be in the older and minority ethnic groups. The ethnicity of the area supplied by stores is a factor in store profitability because the minority group is a stronger supporter of the 'co-op principles'; hence those stores in minority ethnic areas account for about 50% of total sales. They also have a tradition that focuses more on food which increases their willingness to accept new value-adding to pork (seasoning and marinades etc) and so, stores in minority ethnic areas have more value adding to fresh pork (A3, A4, A11).

Potentially, the agricultural supplies division can also supply feed to pig producers (amongst other types of primary producers) who then can potentially sell their produce back to the retailer who, in some instances, provides small incentives for them to do so, usually in the form of preferred supplier status rather than discounts (B4).

Heritage Co has an open, participative, caring, informal type of culture which they have been able to maintain during their financial troubles. Staff in the agricultural services division largely have science degrees as do the managers in the wholesale organisation, whilst retail staff tend to have lower formal education and this has been attributed as an underlying difference across the organisation that affects innovation capacity. Their staff performance management system is an annual two-way communication process between line managers and their team members based on fourteen core competencies including an evaluation of the technical duties or accountabilities, goals of the position, as well as an evaluation of the personal competencies. Staff of both Heritage Co – Wholesale and the retail stores have the opportunity to progress along a chosen career path supported by formal company development as well as informal mentoring/coaching arrangements to skill up the junior staff e.g. under-performing managers, cleaners learning meat-cutting skills. However, in both Heritage Co's head office as well as some stores which they control, staff do not appear to be put under performance pressure comparable to the retail competitors and there appears to be a lack of accountability for mediocre performance (B4, B5).

The regional market in which Heritage Co. operates is relatively low density, rural, and some communities are insular and ethnically fragmented.

Consumers appear to be highly price driven and, with the exception of the minority ethnic group, quite conservative in their consumption habits. Fresh pork is regarded as a cheap, mid-week source of protein that is not socially appropriate for special occasions (B4, B11). The market segment interested in new value-added pork may be approximately 10 – 20% of shoppers and these are not uniformly distributed across the region, particularly when specific cuts and attributes are considered. The importance of regional provenance is indistinguishable as a purchasing influence from national provenance and few in the higher income cohorts are willing to pay much more for either for local provenance or new value-added pork products. With high-priced value-added, fresh pork products cultural preferences appear to become influential in the buying decision and substitution occurs with other meats more socially valued for special occasions (e.g. beef, chicken). However, some shopper segments in some store areas appear to be interested in fresh pork with added healthy attributes such as Omega 3, organic or antibiotic-free (Clark et al. 2010).



Whilst Heritage Co's board and management are strongly committed to their foundation values, this is constitutionally, historically and structurally driven rather than being driven by a deep understanding of regional cultural values.

4.2.2 Current state of the Heritage Co Fresh Pork Value Chain

The current state of the chain is represented in Table 4.1 using the Co-innovation Roadmap (Bonney et al. 2007), identified in the Literature Review as providing a model of the critical elements required for value chain management to achieve co-innovation (Section 2.2)

The level of government intervention and the market reliance on a commodity derivative market price for pork are influential environmental factors in the current state of this chain, but fundamentally the chain participants' strategic choice to produce and market commodity pork to a regional community that places a low value on pork relative to other meats in an uncoordinated chain with unmanaged variability and a poor understanding of consumer value attributes for pork are the major contributors to the circumstances in which they find themselves.

Table 4.1: Summary of the current state of the Heritage Co Fresh Pork Value Chain

Roadmap Parameter	Case Study Current State – Heritage Co Fresh Pork Value Chain
1. Shared direction	
1.1. Shared vision and goals	<ul style="list-style-type: none"> Partner visions/goals not communicated or shared Vision and goals not aligned and incompatible Potential chain leader has negative goals (cost minimisation, not changing from tradition) – cost-defender strategy (Shields 2007)
1.2. Compatible cultures	<ul style="list-style-type: none"> Lack of trust, commitment, openness (rhetoric only, no action) Some willingness to share risks, costs & benefits (Heritage Co) Lack of consumer or market orientation Lack of collaborative orientation Lack of culture or mechanism for shared learning
1.3. Leadership	<ul style="list-style-type: none"> No chain leadership or coordination Heritage Co business model constrained strategic leadership Some attempts at industry & chain leadership by pig farmers
2. Collaboration architecture	
2.1. Collaborative performance management system	<ul style="list-style-type: none"> Nil
2.2. Information sharing	<ul style="list-style-type: none"> Basic, transactional information sharing No shared systems
2.3. Decision synchronisation	<ul style="list-style-type: none"> Nil
2.4. Incentive alignment	<ul style="list-style-type: none"> Not aligned, incompatible
2.5. Integrated value chain processes	<ul style="list-style-type: none"> Nil
2.6. Boundary spanning roles and boundary objects	<ul style="list-style-type: none"> Operational roles only No boundary objects
3. Relationships	
3.1. Trust	<ul style="list-style-type: none"> Little trust
3.2. Commitment	<ul style="list-style-type: none"> No commitment
3.3. Open communication	<ul style="list-style-type: none"> Mainly operational communication Transactional
3.4. Mutual benefits	<ul style="list-style-type: none"> Willingness by Heritage Co to consider sharing risks, costs & benefits
4. Continuous improvement and learning	<ul style="list-style-type: none"> Across the chain some individualised improvement efforts without coordination or consultation with chain partners Heritage Co logistics staff trained in Six Sigma and Continuous Improvement but does not appear organisation-wide or enculturated Constrained by a lack of funding
5. Innovation	
5.1. Process innovation	<ul style="list-style-type: none"> None in the fresh pork chain
5.2. Product innovation	<ul style="list-style-type: none"> Perception that fresh pork is a low-cost protein and not valued by consumers Perception that fresh pork has little potential for product innovation Examples of successful fresh pork product innovation (some retail stores) not investigated by Heritage Co Little capacity in the upstream chain for product innovation Retailer NPD constrained by lack of funding and strategic approach
5.3. Co-innovation	<ul style="list-style-type: none"> No evidence, but one pig producer seeking partners
6. Capacity building	
6.1. Resourcing to co-innovate	<ul style="list-style-type: none"> Nil
6.2. Ability to co-innovate	<ul style="list-style-type: none"> Low
6.3. Incentivation/Motivation to co-innovate	<ul style="list-style-type: none"> Not aligned Low compatibility Not a shared, balanced, broad-based incentive system

This 'chain' has few of the attributes of a chain and is operating close to the spot market extreme of the collaboration continuum identified in the Literature Review (Table 2.3). There is no chain leadership being demonstrated and hence no coordination of the chain because there is no shared direction, no trust, commitment or co-investment between any of the chain partners. Relationships are insufficiently developed to enable the sharing of information, knowledge and learning between the participant firms.

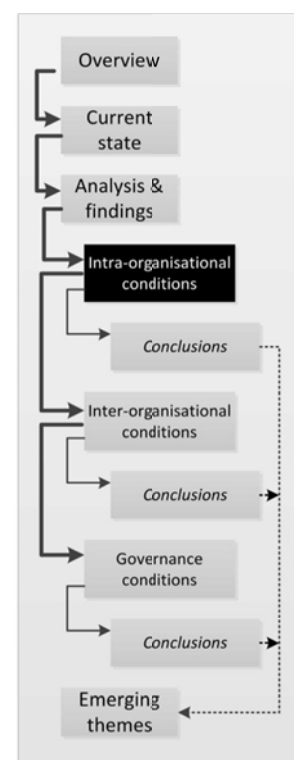
Heritage Co, the potential chain leader, focuses on being 'local' as their strategic difference yet this is poorly communicated to its cooperative members and the community at large. Further, Heritage Co, due to its confused strategy, financially constrained business posture, poor management information system and lack of consumer research, does not know whether this difference is valued by its shoppers.

There is also a perception amongst some potential suppliers and collaborators that Heritage Co lacks clarity about their image and positioning and consequently attempts to compete on equal terms with major multi-national retailers in a limited regional market with very constrained resources, capacity and an inappropriate business model that constrains their ability to drive strategy throughout the business.

The chain lacks a market focus and consequently has failed to create value in the eyes of the consumer for which they will pay a premium price. It appears that due to its business model and an inability to change that model, Heritage Co's strategic managers have adopted the mental model of a follower rather than attempt to differentiate themselves or their products to become a market leader as a niche retailer. It is widely acknowledged within the firm that it is not very profitable. They openly doubt that the cooperative principles have much relevance to their regional market in the twenty-first century but are intensely proud that they are maintaining them. This is the 'gorilla in the room' (Simons & Chabris 1999) that appears to be almost heretical for managers to challenge. There also appears to be little systematic sharing of collaborative learnings because Heritage Co have a number of high performing stores whose strategies do not appear to have been adequately investigated and the successful strategies shared across the organisation.

This has made Processed Meats Ltd and Porkinnotech reticent to commit to Heritage Co as a customer of 'first resort' and may affect other suppliers looking for retailers to launch their products, gain penetration and market share.

Processed Meats Ltd is not systematic or consumer-focused in its NPD and marketing. The producers appeared to have little capacity, either in motivation, skills, resources or finances, to undertake NPD.



The pig farmers have been too focused on producing pigs cheaply, even to the point of using low quality ‘waste’ food and poor quality semen hence producing poor quality pigs with highly variable growth and feed conversion rates. Some of the pig farmers appear to have problems with the quality, consistency and scheduling of their pig supply that was highlighted as an issue for the downstream participants and may present problems for the viability of the chain and the integrity of any innovative new products. Since the end of this research project, one of the two export meat processors⁴⁰ in the region has closed due to the inability to source sufficient pigs to sustain their processing plant leaving Processed Meats as the only regional facility with export registration. Hence, it appears that the regional industry is on the threshold of having a significant ‘critical mass’ problem that may threaten the future of the focal chain.

However, the focus of this analysis of the Heritage Co fresh pork chain is on one small but critical component of that current state map, the incentivisation of the individuals, executives and firms to co-innovate.

4.3 Analysis and findings for the incentivisation of the Heritage Co fresh pork value chain

This case study will analyse the data within the following broad structure:

- The intra-organisational conditions that influence relationships and incentives in agrifood value chains;
- Inter-organisational conditions that influence relationships and incentives in agrifood value chains;
- Chain governance conditions that also play an important role in the incentivisation of agrifood value chains.

4.3.1 Intra-organisational conditions that influence relationships and incentives

The intra-organisational conditions focus on incentives at the firm, operational staff and executive levels and the nature of the corporate values.

4.3.1.1 Firm level incentives and motives

This section addresses SRQs 9 and 10.

The Literature Review has established that there appear to be incentives and motives that are peculiar to the firm level (Section 2.12). It has also suggested that the characteristics of the incentives and motives may be different at the various stages of the chain dependent on the capacity to understand and cope with their environment. The following analysis will attempt to understand the firm level

⁴⁰ ‘Export’ between states and internationally.

incentives and motives operating in the Heritage Co – Processed Meats Fresh Pork Chain. Because of the possible similarities in Heritage Co Retail Stores and Wholesale they will be dealt with together in Table 4.2 whilst Processed Meats and the farm suppliers, because of they may be distinctly different from Heritage Co, will be considered separately in Table 4.3.

In the Heritage Co fresh pork value chain, there did not appear to be any shared vision or goals between the chain partners, their relationships were only transactional and no-one played a leadership or coordination role, hence the incentives and motives were idiosyncratic.

Table 4.2 shows that in the Heritage Co dyad the retail stores are largely motivated by economic incentives so that they can provide economic benefit to their member shoppers, whilst Heritage Co Wholesale has relatively balanced incentives across the three basic types; economic, normative and social. This appears to be cognisant with the earlier observation that both the company and many of its managers and employees are highly values oriented. However, it should be noted that there was no strategy for innovation or co-innovativeness, indeed, quite the contrary the company has adopted a follower position in the marketplace (Heritage Co Senior Executive A11) (Refer 4.3.1.3).

Consequently, there are no firm incentives for innovation or co-innovation.

The classification of the motives generated by the strategic dysfunctions in this firm is difficult as many are negative motives (highlighted by italicised font). To do so, they have been considered in the positive for classification according to Kogut's (1988) motivational frame. That is, for example, the motive "Lack of market/consumer orientation" becomes "High level of market/consumer orientation" for the purpose of classification and has been classed as affecting 'Market Hegemony'. So, in this case, Heritage Co's "Lack of market/consumer orientation" is regarded as affecting 'Market Hegemony'.

However, some of the incentives identified appear culturally derived rather than planned by management and have generated negative behaviours. These and their underlying motivations are clustered mainly in 'efficiency or 'risk management' categories which may reflect the conservative attitudes in the company. The strong focus on 'beating the competition', 'lowest cost' and discounting appeared to be cannibalising their margins. Somewhat incongruously, Senior Executive A11 said that they (Heritage Co) are "...not overly concerned about competitors".

However, during interviews Heritage Co's major rival in the region was mentioned fifty nine times by seven out of thirteen senior Heritage Co – Retail managers and one hundred and thirty six times by eleven out of twelve of the store managers interviewed. Further, Middle Manager A29 said that, despite A11's statement, he was actually very competitive but that the organisation's primary focus was on meeting price targets rather than "the real cost of getting to products to store..." Consequently, Heritage Co Senior Executive A4 said: "...our grocery basket is competitive...(but) we are not very profitable."

Table 4.2: Firm level incentivitation and motivation for integrated retailer/wholesaler (Heritage Co)

Firm Level Incentivation (Expectation or benefit that enables or motivates a particular course of action or behaviour)	Economic Incentives	Normative Incentives	Social Incentives	Motives Generated (Motivation is the process of activating or energizing, direction, intensity, and persistence of goal-oriented behaviour)	Market Hegemony	Efficiency	Org Learning	Build Capacity	Enhance Competencies	Risk Mgt
Heritage Co – Retail¹				Heritage Co – Retail						
• Survival of the store	✓			• Generating sufficient cash flow for “paying the bills”						✓
• Heritage Co –Retail seen “To have a zero bottom line every year”	✓			• Returning a dividend to members or member discounts		✓				
• Heritage Co –Retail visibility in providing social benefit for members			✓	• Support of social events/needs	✓	✓				
Heritage Co – Wholesale				Heritage Co – Wholesale						
• Beating the competition	✓			• <i>Lack of market/consumer orientation</i> • “...what price will the market bear?” or meeting price targets rather than cost plus margin • Reliance on a flyer-based marketing strategy • Achieving lowest prices – double national average discounting	✓	✓ ✓				
• Heritage Co –Wholesale seen to uphold co-operative values		✓	✓	• Maintenance of the founding values at all costs • Social audit of company’s activities	✓	✓				
• Maintaining the historical business model		✓	✓	• <i>Lack of profit-orientation</i> • <i>Confused strategic thinking and corporate strategy</i> • <i>Inability to drive strategy through the organisation</i>	✓ ✓	✓				
• Minimise risk	✓	✓		• Avoiding retail wars • <i>Unwillingness of managers to seek broadly-defined, organisation-wide innovation</i> • Limited NPJ/“Follower” approach	✓					✓
• Covenant agreements with the bank	✓			• Conservative, compliance outlook						✓
• Achieve lowest cost/cost avoidance	✓/✓			• <i>Tolerance of inefficient internal operational processes</i> • <i>Lack of volume-based incentives to stores</i> • <i>Lack of consumer value data/lack of analysis of existing data</i> • <i>Reliance on anecdotal evidence and conjecture about consumers</i>	✓	✓ ✓	✓			
• Achieving turnover	✓			• Price rather than profit and/or quality focus	✓	✓				
• Inability to re-invest or borrow for development		✓		• <i>Conservatism</i> • <i>Acceptance of lack of competitiveness</i>	✓					✓

Note: 1 – Heritage Co Retail is highly variable due to local policies enacted by their local community-based boards of management.

The maintenance of the historical business model appeared to produce confused strategy and a lack of ability to drive strategy through the organisation or invest in new businesses. Processed Meats Principal A39 said:

...what are they trying to compete with? What are they trying to sell? If they are trying to compete head-on with <Major Heritage Co Competitor #1> they've got a real problem...it's like the government says. You should have a good business model if you want government money.

Middle Manager A13 said: "...Heritage Co wears two hats; a wholesaler's one and a franchiser's one" and then went on to detail the conflicts of interest and functional confusion that occurs in the minds of both managers and customers because of that duality. Further, risk minimisation limited their willingness to do things differently in case it generated "a price war" (A2).

One of the most important manifestations of the constraining effect of the business model on strategy was Heritage Co's inability to establish a retail store⁴¹ in the largest and most wealthy population centre in the region, a city with nearly 300,000 people or 15% of the tri-state population. To do so required a substantial number of local residents to be willing to form a cooperative, invest their personal funds and collectively obtain a loan to build and operate a store.

Many interviewees spoke at length about the commitment amongst both Heritage Co – Wholesale and Retail staff to the 'Four Pillars' ethical values and cooperative principles. This was often a multi-generational commitment but, along with the strong historical legacy in the organisational culture, it appears to suppress any willingness to challenge the business model.

Perhaps as a consequence, Heritage Co has adopted a 'follower' posture and an overall conservative approach best encapsulated in Senior Executive A4's comment that:

...our system doesn't have the capacity or the desire to have huge profits and certainly what our members and what I want to do is have slow and sustained growth. That's the key to this.

This may be understandable given Heritage Co's legacy from their recent financial crisis of ten sovereign bank agreements regarding the remaining debts of some retail stores. These obligations are prominent in the managerial psyche and are monitored and reported monthly to the Board.

Looking upstream from the integrated wholesaler/retailer, Heritage Co, the findings and analysis in Table 4.3 considers the incentives and motivations of Processed Meats Ltd, the pig producers and the feed supplier to the chain, Heritage Co – Feeds. Because the chain governance was transactional, this table classifies the upstream supplier motives using the manufacturing classification proposed by

⁴¹ Although Heritage Co did provide wholesale supplies to two Type 3 independent stores in that city but they were not branded as Heritage Co cooperative stores.

Frankel and Whipple (1996) instead of those proposed by Gilliland (2003) for relational governance forms as used in the other case studies in this thesis.

The analysis now expands from the three basic types of incentives, economic, normative and social, to those indicated in Frankel and Whipple (1996) that might be employed by a manufacturing firm or the lead firm in a value chain:

- Sustainable competitive advantage
- Quality
- Lead time improvement
- Inventory reduction
- Increased customer involvement
- Supply/demand stability
- Exploit core competencies
- Technological access
- Market access
- Access to capital

It is immediately apparent that Table 4.3, in contrast to Table 4.2, the upstream firms in this chain were singularly motivated by economic incentives that are consistent with findings from the earlier analysis that both Processed Meats and the pig farmers were focused on relationships that could confer survival and/or new or improved market access.

The resulting motivated behaviour appears to be tightly focused on achieving their individual goals through their own individualistic strategies: developing a sustainable competitive advantage, generating supply and demand stability, exploiting their own core competencies and gaining market access. There appears to be little intention to undertake integrative, chain oriented activities aimed at increasing confidence between chain partners. This is consistent with broad governance theory (Gereffi & Frederick 2009; Grzeskowiak 2006; Williamson 1979, 2005) that market forms of governance with price-based incentives result in individualistic behaviour and opportunism. It also appears to indicate that the form of governance is an important determinant of the incentives employed in chains and the form of motivation elicited.

Table 4.3: Firm level incentivisation and motivation for processors and pig producers

Firm Level Incentivation (Expectation or benefit that enables or motivates a particular course of action or behaviour)	Economic incentives	Normative incentives	Social Incentives	Motives Generated (Motivation is the process of activating or energizing, direction, intensity, and persistence of goal-oriented behaviour)	Sustainable Competitive Advantage	Quality	Lead time improvement	Inventory reduction	Increased customer involvement	Supply/demand stability	Exploit core competency	Technological access	Market access	Access to capital
Processed Meats Ltd				Processed Meats Ltd										
• Short term survival of the company	✓			• Focus of marketing activity on this week's kill						✓			✓	
• Annual financial KPIs	✓			• Focus on processed pork • Focus on the major existing relationships							✓		✓	
• Growth in processed pork sales	✓			• Establishing relationships to broaden market potential • Protect existing major relationships	✓	✓				✓			✓	
• Access to high volume markets	✓			• Opportunistic behaviour • Protect existing major relationships	✓	✓				✓			✓	
• Seeking NPD resources	✓			• Seeking NPD partners	✓								✓	
Pig Producers				Pig Producers										
• Survival of the industry	✓		✓	• Seek initiatives to develop the fresh pork market • Absorb small losses to make it work	✓	✓				✓	✓		✓	
• Seeking NPD resources	✓			• Seeking NPD partners	✓					✓	✓		✓	
• Retention of local, Federally-licensed meatworks for their own businesses	✓			• Co-investment with local processing outlet						✓	✓		✓	
Heritage Co – Feeds				Heritage Co – Feeds										
• \$7.5 million turnover	✓			• Chain collaboration to re-build their pig feed market						✓	✓		✓	
• Market dominance	✓			• Lowest price	✓					✓	✓		✓	
• Survival - "Last man standing"	✓			• Lowest price	✓					✓	✓		✓	

Note: 1 – Because the chain governance was transactional, this table classifies the upstream supplier motives using the manufacturing classification proposed by Frankel and Whipple (1996) instead of those proposed by Gilliland (2003) in the conceptual model for relational governance forms suggested where the 'lead firm' incentivises more chain-oriented behaviour.

Despite down-playing the importance of the loss of 25% of their animal feed business in 2002 (\$7.5 million turnover) because of the sudden downturn in the pig industry, the Senior Executive responsible for Heritage Co Feed, A3, was intent on achieving market dominance through attrition saying “We want to be the last man standing...” He appeared confident that through their membership of a large national buyers group, Heritage Co were the cheapest in the market and could sustain lower returns than their competitors because “...This is all we do, we live here, we exist here, we’re here for a reason and will be here until the day were not here.” However, Field Service Agent A43 said: “...Heritage Co (use) lower quality local inputs mixed with some imported grains in an effort to cut costs...(they have) consistency problems in their feed blending as well, in the products I am aware of ...it is rare to get a similar mixture in two bags, even if they come from the same lot...” Thus, their strategy appeared to position them as the lowest cost, lowest quality producer in the region, a strategy appearing consistent with the cost focused approach in the wholesale/retail part of the business. Yet, this stands in contrast to the stated aim above of outlasting everyone else.

So, in summary, the major observations from this examination of the firm level incentives and motives of the Heritage Co – Processed Meats Fresh Pork Value Chain are, firstly, that Heritage Co’s cooperative values, expressed through constitutions at two levels, local store and wholesale levels, dominate the managerial psyche producing a deeply embedded cultural conservatism, and a lack of vision and internal willingness to challenge the legacy and also represent political⁴² and legal barriers to organisational change. Thus, there is little incentive to be innovative internally or to engage in co-innovation with chain partners.

Secondly, this inability to change appears to have driven a focus on organisational strategy with short-term, operational goals to survive rather than developing a more competitive business model and strategy to achieve a niche position within the regional marketplace.

Thirdly, Heritage Co’s broad-based economic, normative and social goals are the outcomes of that legacy and amount to an important misalignment of corporate intent with the more strongly economically focused suppliers whom they partnered in this chain. This has affected supplier trust in Heritage Co’s ability to compete through innovation or co-innovation and deliver the outcomes they need for their businesses so Heritage Co is not a ‘preferred partner’.

Finally, Heritage Co’s failure to demonstrate chain leadership is an integral part of the legacy issue that has compounded the lack of confidence. Therefore, this provides little strategic incentive for the chain partners to commit to and align with Heritage Co and so the internal incentives of each firm reflect their own idiosyncratic goals which are seriously misaligned across the chain.

⁴² Constitutional and/or structural change is, for this organisation, a ‘political’ problem in that members have to be convinced to democratically support proposed changes through political processes.

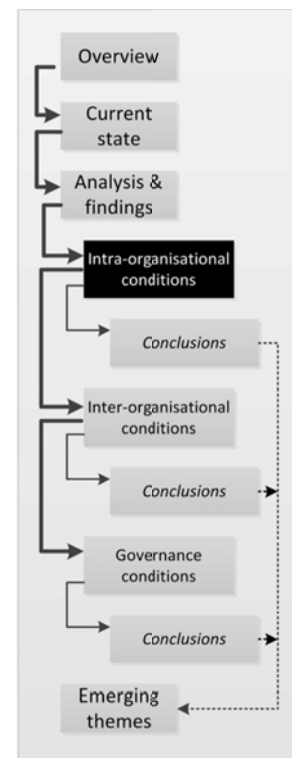
4.3.1.2 Incentivisation of operational staff

The review of literature occurring in Section 2.3 identified the possible importance of a multi-level approach to incentivising chains and the need to adopt balanced, multi-faceted strategies to the incentivisation of individual operational staff. This section addresses SRQ3 which focuses on how operational staff are incentivised.

Table 4.4 provides an analysis of both the incentives (extrinsic, social and intrinsic) and the motives generated firm by firm for the whole chain (based on Chapter 2, Figure 2 ‘model of human motivation’). The table should be read left to right which is consistent with the notion that incentives (on the left hand side) elicit motives to act (on the right hand side).

In this chain, the purposeful⁴³ management of incentivisation schemes appears to be largely confined to the integrated wholesaler/retailer Heritage Co and Processed Meats Ltd, but only in a limited manner. Heritage Co Wholesale incentivised both its senior executives and three layers of middle managers; in short, anyone who had ‘manager’ in their job title. In Heritage Co Retail bonuses were usually set by the local board at ten per cent of profit shared amongst the store manager, supervisors and staff at one third each. In both instances, whilst the system was broadly based on economic, social and intrinsic incentives, the extrinsic monetary bonuses were small by their industry standards, and there were emphases on social or intrinsic incentives. Further, incentive design was somewhat limited as there was no focus on innovation or co-innovation for all staff.

Heritage Co used the Hay System⁴⁴ of compensation with some modification by the CEO on an individual basis for special projects. When project outcomes have a clear organisational benefit their achievement is linked directly to an extrinsic, cash bonus reward. This cascades through the structure to line managers.



⁴³ There is a recurrent theme through this thesis of ‘purposeful design and/or management’. The word ‘purposeful’ has been used as distinct from ‘purposive’ as is often the case in qualitative research publications because, as explained at some length by Waring (1996), ‘purposeful’ has connotations of creative, subjective choice by individuals not constrained by prior experience, social conditioning. In the case of firms, this could be interpreted as strategic, goal-directed managerial behaviour where neither the goal nor the means of achieving it are pre-determined. Therefore, the attributes implicit in the term ‘purposeful’ are considered more appropriate to the highly creative, interactive processes involved in the management of value chain co-innovation.

⁴⁴ The Hay Job Grading Scheme was developed in the early 1950's by E. N. Hay and Associates. It is a scheme where the job characteristics are given a point score and then compared with a standard set of descriptors that can be applied between companies and even across industries. However, despite being widely used today, the system has been criticised for being vague, culturally biased, fundamentally unchanged since its design for the hierarchical organisations of the 1950s, more suited to senior management and claimed to be based on an invalid extrapolation of 1948 psychometric data (The New Unionism Network N.K.; Van Slidregt, Voskuil & Thierry 2001).

Table 4.4: Summary of the incentives and motives for operational staff

Individual Level Incentivation (Expectation or benefit that enables or motivates a particular course of action or behaviour)	Extrinsic Incentives	Social Incentives	Intrinsic Incentives	Motives Generated (Motivation is the process of activating or energizing, direction, intensity, and persistence of goal-oriented behaviour)	External Regulation	Interojection	Identification	Integration	Intrinsic
Heritage Co – Retail¹				Heritage Co – Retail					
• Performance bonuses (10% shared)	✓			• Specific designated behaviours	✓				
• “Family” work environment		✓	✓	• Consultative approach			✓	✓	✓
• Social outcomes KPIs	✓	✓		• Engagement in social benefit programs	✓	✓	✓		
• Private label recognition award	✓			• Inter-store competition on private label sales		✓			
• Personal reputation in regional social recognition/social networks	✓		✓	• Good management of staff		✓			✓
• Ability to exercise personalised approaches to store management	✓		✓	• Engagement in social benefit programs		✓			
				• Entrepreneurial behaviour		✓			✓
				• Flexible, locally relevant products					
Heritage Co – Wholesale				Heritage Co – Wholesale					
• Performance bonuses	✓			• Specific designated behaviours	✓				
• Social outcomes KPIs	✓	✓	✓	• Planning/enabling social benefit programs by retailers	✓	✓	✓		✓
• “Family” work environment		✓	✓	• Consultative approach			✓		✓
• The “process” of success			✓	• Collaborative approach to achieving KPIs					✓
• Personal reputation in regional social networks		✓		• Community benefiting behaviours			✓		
Processed Meats Ltd				Processed Meats Ltd					
• Performance bonuses linked to net profit	✓			• Profit-oriented behaviours for processed pork	✓				
• Individual superannuation	✓								
Pig Producers				Pig Producers					
• Business survival or industry exit	✓			• Efficiency and cost reduction	✓				
				• Search for alternative businesses	✓				
• Personal reputation in regional social networks		✓		• Collaborative and partnering behaviours			✓		
• Business growth and profitability	✓			• Innovation for new products	✓				
				• Market-oriented behaviours	✓				
				• Collaborative and partnering behaviour	✓				
Heritage Co – Feed				Heritage Co – Feed					
• Performance bonuses	✓			• Specific designated behaviours	✓				
• Other incentivisation data not provided									

Note: 1 - The approach to management of Heritage Co Retail stores is highly variable due to local policies developed by their local boards of management.

However, it was apparent from many interviews that incentivisation for Heritage Co managers and staff was much more than money because, in part, their salary structure is not very competitive by industry standards. It was apparent that there were important social incentives operating based on personal ‘identification’ or fully internalised ‘integrated’ identification with the goals and values of Heritage Co.

Store Manager A14 related how:

My son came home a couple of weeks ago and he said “do you know a lady called whoever” and I said yes. And he said “Dad, I go to school with her son and do you know what my friend said?” she said “my mum said that I have the best boss I’ve ever worked for” and she’s been here for a number of years.

The outcomes for Heritage Co appeared to be that individual staff and managers were energised to undertake the organisationally valued behaviours; those oriented towards creating a ‘family’ culture, local flexibility and entrepreneurship that enhanced Heritage Co’s image and engagement with specific designated or project-based behaviours.

At the retail store level the extent to which this occurred was highly variable because the approach was determined by the local board of management, but that flexibility was recognised and valued by many store managers.

Thus, it appears that the Heritage Co Wholesale – Retail dyad employs a more balanced (extrinsic, social and intrinsic incentives) and purposefully managed approach to individual incentivisation than the upstream end of the chain. The nature of the incentives reflected the high values orientation of the company, where values are embedded in the constitutional structure and history of the organisation, but also deeply held within its contemporary organisational culture and enacted and maintained through the performance management system. The level of managed recruitment and socialisation processes occurring within the company is evidence of explicit social incentivisation (identification and integration) to achieve a ‘fit’ of staff with the company ethos.

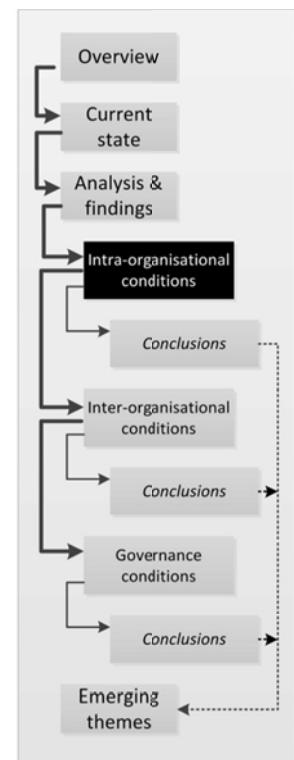
However, whilst the incentives system appeared to be aligned with Heritage Co’s values and goals and was quite effectively operationalised throughout the company, analysis in the following sections questions how well aligned they were with the values, goals and incentivisation strategies of the chain partners they had chosen for this fresh pork chain.

Upstream, the meat processor, pig producers and Heritage Co Feed company appear to be mainly employing explicit, extrinsic incentives developing pecuniary-based motives with an almost singular focus on short term profitability in order for the businesses to survive. There was little focus or understanding amongst Processed Meats owners or employees of the strategic drivers of their industry beyond the dominance of the large supermarkets as gateways for market access. The two Principals

A39 and A40 were highly focused on short term outcomes and their Senior Executive A38 said: “now we have \$3 million to pay off...That's in a sense the grey hair...So we have to grow sales to be profitable...” The effect of this in the meat processor was the development of a strong focus on processed pork instead of fresh pork because it is the most profitable product category. Processed Meats Principal A39 referred to fresh pork as a “by-product of processing pork” and this view was reiterated by his senior executive (A38) and middle managers (A31, A41). Because the manager’s bonuses were directly linked to company net profit and because processed pork was the most profitable, any focus on developing fresh pork products was regarded by them as likely to reduce company profit and therefore their personal bonuses. This constituted a significant misalignment of incentives because whilst the senior executives of the chain partners were discussing the development of new, innovative fresh pork products, the company critical to that objective were much more focused on profitability and increasing sales of processed pork.

In general, the pig farmers had been struggling since the early 1990s and in 2009 few could see how they were going to survive. They had little understanding of their strategic environment and the causes of their predicament blaming variously the government for not providing more subsidies, large-scale corporate pig production and the supermarkets as well as consumers for not recognising the uniqueness of their region’s pork. Consequently, they were largely focused on reducing costs in an attempt to survive or on finding alternative, non-agricultural businesses in order to successfully exit the industry (A27, A32, A33 and A40). However, some of the younger pig farmers (A34, A35 and A36) appeared to be quite market-oriented, innovative and collaborative with some also adopting new technology as a means of improving efficiency and enabling innovation. They were motivated by a belief that new markets and expansion were possible because fresh pork was undervalued by consumers, local provenance was important and that nutraceutical attributes would increase pork’s share of the protein market and confer competitive advantage over imported pork.

Thus, two observations can be made: firstly, that Heritage Co’s economic goals have strong competing social goals for employees which are entirely absent from its chain partners, and further, contrary to their expressed intention, Processed Meat’s employees were not focused to any extent on innovating in fresh pork products due to the strong monetary incentivisation of processed pork. As a result, the mismatch of vision and goals between the chain partners and their incentives results in a serious misalignment of individual behaviour with overall chain benefit as individual staff across the partners were energised to undertake the organisationally valued behaviours.



Secondly, in contrast, there is a higher degree of alignment of individual motivation within the Heritage Co Wholesale/Retail which is consistent with their shared formal goals and values. This dyad also has a balance between extrinsic, social and intrinsic incentives in a managed process across a broader range of types of incentives.

However, as noted earlier, this balance is confined to Heritage Co Retail and Wholesale as the incentive schemes of the upstream firms were focused entirely on economic extrinsic incentives.

4.3.1.3 Incentivisation of executive managers

This section addresses SRQ4 which arose from the review of literature occurring in Section 2.4. This established the importance of a separate consideration of senior executive and middle management incentivisation in addition to that of individual staff within a firm/chain. It identified that CEOs and the next level of ‘chief functional officers’ (for example, the chief operating officer [COO], chief financial officer [CFO] etc) have a major impact on the nature and direction of a firm through their influence on vision, culture and strategy.

This discussion does not include the individual managers of Heritage Co Retail stores or the Heritage Co Feed mills because they were all relatively low level managers and have been included in the previous discussion about individual incentivisation (Section 4.2.2.9).

At Heritage Co Wholesale, the corporate goals and objectives cascade down through three layers of management and they have an extrinsic incentive scheme of bonuses for all staff with the title of ‘manager’. The performance management system for Heritage Co Wholesale senior executives and middle managers emphasises equity, fairness and consultation and is loosely linked to a set of performance objectives, some corporate, divisional, departmental and positional. Whilst they are largely quantitative and associated with overall business performance, there are some that are qualitative and associated with cultural or social parameters. Incentives may be based on quantitative targets established and evaluated consultatively with the line manager. They are generally not directly linked to corporate, divisional or departmental EBITs.

The senior executives of Heritage Co – Wholesale have their bonuses set by the company board in concert with the three officers of the board, the Company Secretary, the Vice President of Finance and the Vice President of Human Resources. Insufficient evidence was obtained to be able to determine the degree of board independence in this process, however, this form of incentivisation is consistent with the ‘arms-length’ contracting approach advocated by agency theory to align executive behaviour with those of the shareholders and their representatives, the Board of Directors (Weisbach 2007).

The level of bonuses paid by Heritage Co Wholesale is well below that of their competitors being in the 58th percentile of the industry. Managers do not receive a bonus for the extra EBIT⁴⁴ they generate or costs they save Heritage Co e.g. Senior Executive A5 had saved the company three million dollars but only received a five thousand dollar annual bonus. This may be due to the conservative cost focus of the company and the orientation towards more social outcomes rather than innovation and profit.

In Heritage Co Wholesale, innovation parameters are not generally included in the incentive scheme which may reduce the focus on innovation. This may be associated with Senior Executive A11's views on the 'follower' posture of the company stating that: "...our competitors... will do more innovation than we will..." explaining, in what appeared to be an apology for their lack of innovativeness, that innovation was wasteful because it contributed little to growth in the medium term and it was difficult for Heritage Co to achieve the necessary economies of scale.

At executive level the performance management system also incorporated social incentives that appeared to be associated with some 'identification' and perhaps even 'integration' into the executive's personal goals and values. On occasion, this was associated with recognition by relevant reference groups in the community. These were widely regarded as being significant motivators by long standing and new managers alike. However, in common with some lower level managers and staff, many executives were intrinsically motivated by the alignment of the company and job characteristics with their own value system. Senior Executive A11 said:

...the other reason why I kind of fit well into this organization is that this whole process of consultation has always been a part of my demeanour... so, over and above the financial results which, you know, you measure yourself against, there's also the success of putting something out and watching it work.

Senior Executive A11 referred to the "process of success" involving extensive consultation with relatively "autonomous" but connected retail stores to achieve a goal.

Most executives interviewed had experience with Heritage Co's major retail competitors and appeared well aware of the strategic drivers of profitability however, their identification or integration with the corporate values and social oriented incentives appeared to over-ride any background understanding of business imperatives. Consequently, there appeared to be little inclination to fundamentally change the business model.

So, succinctly, Heritage Co's senior executives appeared to be incentivised by a range of incentive types and highly motivated and committed to the company's traditional values; some regulated or

⁴⁴ Earnings Before Interest and Tax, also called 'operating profit', an accounting measure of profitability.

managed, whilst others were more inherent in the corporate culture. This was in contrast to the approach at Processed Meats Ltd.

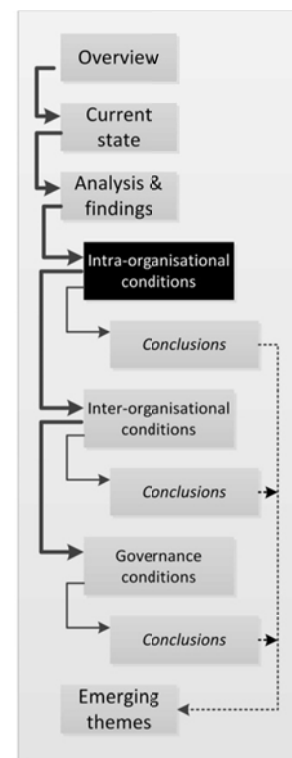
Processed Meat Ltd's management incentive system was based on a percentage of net profit of the company and plant efficiency negotiated annually with the owners. This had the effect of incentivising processed pork as it was more profitable, more marketable and was the majority of the plant output to its major customer. It meant that without specific incentives for fresh pork that could compete with the incentive associated with processed pork both in quantum and achievability, then Processed Meats Ltd's incentivisation scheme was significantly out of alignment with their espoused chain intention to develop innovative products in fresh pork from new partnerships for new and existing outlets.

In summary of the last two sections, 4.3.1.2 Individual Incentivation and 4.3.1.3 Executive Management Incentivation, it appears that within Heritage Co there is a dominant 'normative goal frame' involving sub-goals associated with behaving in socially acceptable ways (Lindenberg 2003a) (Section 2.3.5) which may have contributed to a cultural tolerance of low competitive performance (Middle Manager A2, Senior Executive A4), risk aversion and the lack of willingness to change. This is in contrast to the focus on 'gain goal-frame' in the upstream chain partners and is evidence of the incompatibility of organisational cultures across this chain.

4.3.1.4 The impact of values, attitudes and norms on motivation and incentivisation

This section addresses SRQ11. As indicated earlier, this chain operates at the market end of the governance continuum where there are discrete transactions and price is the main incentive mechanism.

Heritage Co appeared to be a values-driven organisation. At a strategic level this affected their conception of consumer value (cheap, narrower range of local products), their business model to deliver that value (cooperatively and locally-owned, 'no-frills' stores in low-cost sites), the development of organisational goals (cooperative values, low risk, lowest cost, lowest price) and their operational style (conservative, family oriented, consultative approach with stores and membership). Critically, these values were a legacy from the values of the regional community that existed at its foundation in 1927 and there was no objective understanding of how those might have changed or how the organisation should develop in order to align itself with the values of the twenty-first century regional community which it now serves. As Middle Manager A12 pointed out "If the community walked away from a Heritage Co (store), then the (store) ceases to exist eventually..." so



this is a critical issue⁴⁵. Belief in the importance of the cooperative values was particularly strong in Heritage Co Wholesale but despite a similar high level of commitment to those values amongst retail store managers some, like A17, did not believe there was a similar commitment in the community: “Honestly speaking I think 99% of the people, whether it’s staff and members, know anything about that at all. I don’t think it’s a factor at all.”

Fundamentally, the Heritage Co cultural attitudes were conservative and Senior Executive A11 explained the effect of that on the business:

Cities morph, are all constantly changing...That’s what happens, people move out of the city core, they move into the suburban area. That store that closed in October, probably should have closed 10 years ago. ..one of the hindrances to the co-op system is we hold on a little too much...But it’s a very traditional...very conservative mentality. A lot of these stores started agriculturally. A lot of the board members could be from the agricultural background. Agricultural background is a more conservative background... (that’s) significant for two reasons, one because of the way of thinking, and (b) because a lot of these stores that are old and tired today are part of those 15 to 20 (that are on the verge of closing), so now it’s a question like, we’ve got to do something with the business, OK, but I don’t have any money...

Whilst these characteristics might be largely attributable to the corporate heritage enshrined in its constitution, the high moral exemplar of their current CEO in setting the organisational norms may also have contributed. After the organisation’s experience with their former CEO who drove a strongly commercially oriented and ultimately disastrous change strategy, the current CEO was charged with returning to the foundation values and appears to have been highly successful in that task. Certainly Heritage Co Wholesale managers appeared strongly focused on Heritage Co values which they openly and frequently espoused. Senior Executive A4 described the company as:

...rather a large extended family. We refer to our own selves as schizophrenic, at times because we have so many different business units. We’re not all one big happy family. But despite that, we have found common ground over the years...

Senior Executive A4 also said that stocking food with local provenance and social service “...very much go to the heart of who we think we are...” and remarked: “...(Heritage Co) put a lot of work into community support...” and referred to how the firm conducts social audits of its community activities.

⁴⁵ Since this research was conducted two Heritage Co stores and one feed mill have closed due to consistent annual operating losses, but fundamentally because of insufficient patronage. A Board member of one of the stores opined: “It’s better than prolonging it ... we’ve known it was coming for a long time. We did everything we could (but) people in <Region> decided not to support a local-owned store.” (Local Newspaper, 14th January, 2010)

Middle Manager A11 described how they do this: “Heritage Co is all about establishing equity and living up to the values and principles they have to be equitable to everyone.” However, A4 went on to describe some of the strategic issues resulting from the conservatism and local ownership:

Making a (logistically) more efficient system would add a couple of million dollars to our bottom line in the very first year. Politically it would be enormous and has the potential to create a revolution in our extended family, because closures of local distribution centres would be taken personally by that area. That would be an attack on a particular group within the extended family, a branch of the family. They wouldn't take lightly to the loss jobs and the other changes...

Middle Manager A1 described internal management:

I guess I would say that we have very open, participative, informal type culture... I guess the last 15 years the organisation itself has gone through some substantial financial difficulties, and I think that the caring people oriented culture has made the difference in that it did not impact our turnover rate, because of that.

A1 outlined how Heritage Co recruits to “...fit our values and culture even more so than the technical...” and that they had found that whilst recruits from their competitors “...might have been quite successful in their organisation, they did not fit in ours.” However some recruits from the competitor retailers were motivated by the challenge of turning Heritage Co's fortunes around and the “process of success” involving extensive consultation with relatively “autonomous” but connected retail stores (Senior Executive A11). Others were motivated by Heritage Co's people management and cultural values (A23) and the operational flexibility:

My fear, and one of the reasons I left <Major Heritage Co Competitor #1> is that it was so structured that you really didn't need management to do it...Here, you have to actually think... (Store Manager A15)

So it appears that Heritage Co attracted people who were more values oriented, more independent, less driven by salary and bonuses and who could tolerate high levels of frustration with the constraints on the firm's operation and its many clearly recognised weaknesses.

Therefore, in this instance, it appears that perceived organisational values, attitudes and norms were important at an individual level but they also appear to have had an effect at a corporate level in several ways. Firstly, individuals felt compelled either because of a conscious or unconscious goal alignment to act in ethical or socially responsible ways and this was operationalised both corporately and at local store levels. For example, previously when Heritage Co could not obtain a reliable supply of local pork with certain nutraceutical specifications and had to source it from outside the region it withdrew the store branding regarding regional provenance. There were also several stores who had

initiated quite large social benefit programs such as a lottery which generated over \$1 million over five years for the local hospital and another that donated \$50,000 per year to local charity. Secondly, there appeared to be a high level of tolerance with the frustration caused by the systemic constraints in the organisation that was attributable to individual commitment to the corporate values. Thirdly, at a corporate level the Board and senior executives were steadfastly resisting the option of changing the historical business model. It appears that their previous recent experience with changing the values base was sufficiently traumatic that it motivated a return to the security of a time-tested value system.

Perhaps the conclusion is that, in agrifood chains, well enunciated corporate values, supported by policy, processes and culture appear to have an important effect on the strategic, structural and operational characteristics of an organisation.

The contrast with Processed Meats Ltd appears to be stark, although it needs to be recognised that this was a small company with new owners who were in the process of establishing a new approach whilst they struggled to survive. Perhaps understandably then, their values were economically oriented with little consideration of norms beyond those accepted within their industry. Their internal culture was basic, lacking concern for the ‘big five’ job characteristics⁴⁶ and intrinsic motivation factors (Hackman & Oldham 1976). Given the economic incentive structure and cultural emphasis on survival it is unsurprising that owners and managers appeared to be willing to engage in opportunistic and possibly unethical behaviour.

In summary, this sub-section on the role of values has highlighted how values, attitudes and norms can affect corporate behaviour through embedding in policies, processes and culture. It also has shown how the alignment of values across chain partners can affect the alignment of incentives; those with an effective social values orientation will incentivate and enculturate behaviours that achieve those social values whilst those with more critical economic concerns will incentivate economic outcomes. If innovation and co-innovation are not incorporated as enculturated values then executives and individuals will be unlikely to engage in those behaviours.

Motivational frames provide the overall approach to incentivation in an organisation and, in this instance, it appears that apparently positive individual organisational values, expressed through either a normative or gain goal-frame as identified in the previous section (4.3.1.3), can have a constraining or negative effect (respectively) on individual and firm behaviour.

The section also indicates that individual values affected organisational behaviour. This suggests that misalignment of values and any associated incentives along a value chain may result in misaligned behaviour; in this instance, divergent effort and conflicting ethics of behaviour.

⁴⁶ Job variety, identity, significance, autonomy and feedback.

Finally, this section also indicates that the smaller firms in the chain, the cooperative retail stores and pig farmers, had little understanding of the strategic drivers of their operating environment and were consequently not motivated to align their business models with that environment.

4.3.1.5 Conclusions for 4.3.1 Intra-organisational conditions that influence co-innovation

Overall, this section has analysed how the intra-organisational factors of firm, executive and employee level incentives and values have influenced co-innovation. However, there is a lack of a shared chain vision and strategy and no long term commitment in this chain. Thus, relationships are purely transactional, based on supplying a specific volume and quality of product at a specified price with no relationship beyond that transaction. Therefore, firms pursue their own idiosyncratic goals and construct individual executive and employee incentives to achieve those goals. There is little consideration of how to create value for the consumer or identifying and solving their shared problems or opportunities to improve the performance of the chain. Hence, firm incentives are not aligned. So Heritage Co incentivises regional social and normative goals and Processed Meats its short term economic goals which elicits those types of responses from their employees. This results in highly divergent firm and employee activity without any consideration of collaboration. The concept of internally linking firm strategies with employee incentives is not new (Gottschalg & Zollo 2007; Kaplan, RS & Norton 1996, 2004; Schein 1989). Some researchers have also advocated the alignment of strategy across the chain (Gattorna 1998; Hammer 2006) and others have suggested that incentives are an important component of aligned chain strategy (Cameron & Quinn 2006; Cohen, SA, Kulp & Randall 2007; Lee 2004; Narayanan & Raman 2004; Prendergast 1999; Schein 1990; Simatupang & Sridharan 2005, 2007; Söderlund 2007). However, the findings in this case study suggest that the degree of shared vision and strategy may influence the alignment of firm and employee incentives which appears to suggest an important extension of the notion of ‘strategic alignment’ in value chains.

In addition to misalignment of vision and incentives, the Normative/Hedonic and Gain/Hedonic motivational goal-frames may exert a further subtle negative effect on organisational behaviour. Lindenberg (2003b, 2008) who developed the theory of ‘goal-frames’, suggested that a balanced mix of both gain and normative goal-frames is essential to achieve the firm’s goals. According to his model, individuals will ‘self-regulate’ to modify the dominant goal-frame to avoid a threatening social influence, to find social support for or to find significant “others” (p. 678) who support their goal-frame. This may explain some of the ‘excusing’ behaviour observed by Heritage Co employees and the high level of tolerance of mediocre performance within their Normative/Hedonic frame. It may also explain why Processed Meats employees are selfishly gain-oriented; being confronted with the blunt instruments of either a bonus or job termination might be expected to focus their minds on the fairly narrow economic goals that had been set for them. Therefore, this case provides some evidence

for the notion that culture and incentivisation are linked in supporting business strategies to co-innovate. Söderlund's (2007) findings from two case studies provides support for this conclusion when he suggests that culture is an important component of motivating the actors to act in accordance with their shared strategy and that incentives provide the motivation for the execution of that strategy. He states: "The compatibility of the organizational cultures and the new culture that is formed in the collaboration can have significant effects on the collaboration" (pp. 44-5). He later notes in his findings that: "...that the organizations' own incentive systems should be aligned so that they support the collaboration..." (p. 76). A number of authors also identify the importance of incentives in influencing the development of culture (Chatman & Barsade 1995; Gerhart 2009; McLoughlin, Koch & Dickson 2001a). Indeed, in an empirical study of 1,150 Australian managers, Sarros, Cooper and Santora (2001a) concluded: "...the associations among the transformational leadership dimension of vision, organizational culture, and climate for organizational innovation suggest that the stronger these linkages, the greater the likelihood of innovative work practices occurring." So, it appears that there is some support for this finding that culture influences incentivisation and incentivisation influences culture.

Lindenberg (2003b, 2008) is also of the view that substantial social and institutional support is required for the successful implementation of goal-frames. Given that in both firms the prevailing authorities were supportive of the misconceived goal frames operating, then it is understandable that they were successful. In Heritage Co the institutional support was in the form of the company constitution and culture and in Processed Meats it was the explicit encouragement of the company's owners. Although the goal-frame design in both of these chain partners was misdirected, this case highlights the importance from an organisational culture perspective of having purposeful management of the motivational frame if co-innovative activities are to be culturally supported.

This section has also shown how important culture and values are in supporting strategy by providing a framework through which incentives operate to motivate the behaviour that will achieve strategy. Fundamentally, whatever is valued will be incentivised because it will contribute to the creation of consumer value. Accordingly, Heritage Co incentivised ethical and socially acceptable behaviour in a culture tolerating mediocre performance whilst in contrast Processed Meats focused on survival and incentivised profit in a culture of expediency. However, because of Processed Meats' simplistic approach with no behavioural boundaries, employees expediently leaked market research commissioned by Heritage Co to a larger competitor and used it to develop a new chain with that firm. So it appears that values, culture and incentives must be aligned with strategy. This is consistent with Schein's (2007, pp. 73-114) notion of culture enabling the essential survival-oriented processes that allow a group of employees to both internally integrate and develop external adaptive capacities. Thus, if either these are dysfunctional, not aligned with strategy or if the strategy is wrong, then as Meglino and Ravlin (2005) state: "...it is possible for an organization's culture to emphasize values

that are not appropriate for its survival...employees may interact in a highly efficient manner while the organization fails to survive” (p.357). This view is supported by Roberts (2003) who found that organisational cultural expectations define the alignment of goals and norms particularly in fostering creativity and innovation.

Thus, the analysis of values, attitudes and norms in this section leads to two conclusions: firstly, that Heritage Co’s value system is facilitating behaviour not focused on business survival because the firm’s strategy was not aligned with its environment and, secondly, where there is a lack of alignment of values in a value chain, dysfunctional behaviour can occur.

4.3.2 Inter-organisational conditions that influence relationships and incentives

This section addresses SRQ1. In this case study there was little evidence of the operation of the facilitators of co-innovation and their component variables identified earlier in the Literature Review (Section 2.7.1): relational competence, compatible co-innovative cultures, the architecture of collaboration or innovation competence for the chain under investigation. An overview of the analysis for this chain is presented in Table 4.5.

It should be noted that in the Heritage Co Retail-Wholesale dyad the nature of the formal relationship between individual stores and Heritage Co Wholesale determines the status of some of the ‘facilitator’ parameters i.e. where stores are legally independent (Type 3 store) or where the relationship is one of wholesaler only (Type 2A store), it follows that the flows of information and communication as well as operational interactions will be substantially different from where Heritage Co Wholesale is the legal owner of the store (Type 1 store).

4.3.2.1 Relational competence

In the Heritage Co fresh pork value chain relational competence appeared to be very poor overall as the main component variables of trust, commitment, dependence, open communication, equity and justice between chain partners were largely absent from the upstream end of the chain. Strategic level communication between the Heritage Co – Wholesaler and Processed Meats Ltd was non-existent and only basic transactional communication occurred between operational managers. Despite expressed goodwill, the senior management met each other for the first time at the commencement of this research process.

A Senior Executive of Processed Meats Ltd, A38, later commented at interview: “I don’t know what their needs are...” and he appeared to have little interest in finding out. Similarly, the farmers had not met the owners or managers of the Processed Meats facility or the senior executives of Heritage Co.

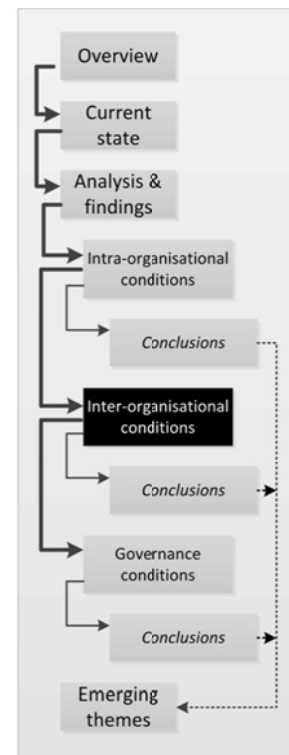


Table 4.5: An overview of the status of co-innovation facilitators in Case

Co-innovation Facilitators	Heritage Co Retail	Heritage Co Wholesale	Processed Meats Ltd	Pig Producers
Relational competence				
<i>Trust</i>	<ul style="list-style-type: none"> Mainly with Area Managers Variable towards Heritage W'sale 	<ul style="list-style-type: none"> Variable towards Heritage Retail Non-existent upstream 	<ul style="list-style-type: none"> Low upstream trust Low downstream trust 	<ul style="list-style-type: none"> Low downstream trust
<i>Interdependence</i>	<ul style="list-style-type: none"> Variable depending on type of r'ship with Heritage Wholesale 	<ul style="list-style-type: none"> No evidence 	<ul style="list-style-type: none"> No evidence 	<ul style="list-style-type: none"> No evidence
<i>Commitment</i>	<ul style="list-style-type: none"> Variable depending on type of r'ship with Heritage Wholesale 	<ul style="list-style-type: none"> None upstream 	<ul style="list-style-type: none"> Transactional only both upstream and downstream 	<ul style="list-style-type: none"> Transactional only
<i>Communication</i>	<ul style="list-style-type: none"> Transactional & short term supply-focused Limited shared learning 	<ul style="list-style-type: none"> Transactional & short term supply-focused No shared learning 	<ul style="list-style-type: none"> Transactional & short term supply-focused No shared learning 	<ul style="list-style-type: none"> Transactional & short term supply-focused No shared learning
<i>Exercise of power, equity & justice</i>	<ul style="list-style-type: none"> Some sharing of risk & benefit upstream 	<ul style="list-style-type: none"> No sharing of risk & benefit upstream 	<ul style="list-style-type: none"> No sharing of risk & benefit 	<ul style="list-style-type: none"> No sharing of risk & benefit
Compatible co-innovative culture				
<i>Management culture & leadership style</i>	<ul style="list-style-type: none"> Independent with mainly horizontal collaboration with other stores if at all 	<ul style="list-style-type: none"> Conservative, ethical, heritage-bound, culturally open, low adaptivity 	<ul style="list-style-type: none"> Conservative, little strategic thinking, closed & possibly lacking ethics 	<ul style="list-style-type: none"> Conservative, little strategic thinking, closed. Some notable exceptions.
<i>Market orientation (detection & fulfillment of consumer needs)</i>	<ul style="list-style-type: none"> Localised, poor analysis of data – cost defender orientation 	<ul style="list-style-type: none"> Poor consumer data collection and use 	<ul style="list-style-type: none"> No consumer data collection and use 	<ul style="list-style-type: none"> No consumer data collection and use; conjecture only
<i>Learning & knowledge management (KM)</i>	<ul style="list-style-type: none"> Variable, Localised learning only 	<ul style="list-style-type: none"> Poor organisational learning & KM processes and culture 	<ul style="list-style-type: none"> Lacking org. learning & KM processes and culture 	<ul style="list-style-type: none"> Lacking org. learning & KM processes and culture
Structure & process of co-innovation				
<i>Collaborative performance system (CPS)</i>	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
<i>Information sharing</i>	<ul style="list-style-type: none"> Limited upstream 	<ul style="list-style-type: none"> Limited downstream, none upstream 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
<i>Decision synchronisation</i>	<ul style="list-style-type: none"> Limited upstream 	<ul style="list-style-type: none"> Limited downstream 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
<i>Incentive alignment</i>	<ul style="list-style-type: none"> None upstream 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
<i>Integrated supply chain processes</i>	<ul style="list-style-type: none"> Limited upstream 	<ul style="list-style-type: none"> Limited downstream 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
<i>Shared vision & goals</i>	<ul style="list-style-type: none"> Variable depending on type of r'ship with Heritage Wholesale 	<ul style="list-style-type: none"> Variable depending on type of r'ship with Heritage Retail None upstream 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
<i>Boundary spanning roles & boundary objects</i>	<ul style="list-style-type: none"> Limited upstream 	<ul style="list-style-type: none"> Good Area Manager function with Heritage Retail None upstream 	<ul style="list-style-type: none"> Operational level only 	<ul style="list-style-type: none"> Operational level only
Innovation competence				
<i>Innovation leadership</i>	<ul style="list-style-type: none"> Localised, variable 	<ul style="list-style-type: none"> Follower mentality, limited NPD 	<ul style="list-style-type: none"> Follower, minimal NPD 	<ul style="list-style-type: none"> Someone else's responsibility
<i>Foresight & bounded rationality</i>	<ul style="list-style-type: none"> Dependent on local Board 	<ul style="list-style-type: none"> Short term focused, information constrained 	<ul style="list-style-type: none"> Short term focused, information constrained 	<ul style="list-style-type: none"> Short term focused, information constrained
<i>Innovation strategy</i>	<ul style="list-style-type: none"> Dependent on local Board 	<ul style="list-style-type: none"> Follower mentality, limited NPD 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Limited
<i>Innovative culture</i>	<ul style="list-style-type: none"> Localised, variable 	<ul style="list-style-type: none"> Limited largely to processes 	<ul style="list-style-type: none"> Minimal process improvement 	<ul style="list-style-type: none"> Generally poor re NPD
<i>Resource availability</i>	<ul style="list-style-type: none"> Dependent on local Board 	<ul style="list-style-type: none"> Limited by finances 	<ul style="list-style-type: none"> Limited 	<ul style="list-style-type: none"> Variable

The upstream chain partners had poor perceptions of Heritage Co's capacity to facilitate market access and their ability to drive strategy through their organisation, and consequently regarded them as a least preferred partner. One of Processed Meats' Principals A40 said:

... we have to go to where we think that there's a market... right now I think they're (Heritage Co) fourth on the list – third or fourth of our value that we have from the customers...

One of their Senior Executives A31 agreed but added that it was not only the potential volume of sales that comes with major national and multi-national retailers that was a critical concern but also Heritage Co's openness to innovation. This amounted to a lack of trust in Heritage Co to be able to perform its role in the relationship and deliver the outcomes needed by its partners.

In his comprehensive meta-analysis of trust Ebert (2007) found that the trust in the ability to perform is the fourth most important of forty two trust variables in inter-organisational relationships. It also indicated that the chain partners were aware of other external partnering options, and one of those, *<Major Heritage Co Competitor #1>*, was Processed Meats Ltd's largest customer with over 60% of their total turnover whilst the Heritage Co relationship represented only 3.8% of turnover. Despite Heritage Co's overwhelming capability dominance in this chain, it was relatively weak in the wider marketplace and so, in answer to a clarifying question about the future relationship with Heritage Co, Senior Manager A39 perhaps summed up the Processed Meats commitment to the chain: "...no, we sure can't (see an expanding future with Heritage Co)..." This low interdependence between the companies in this chain meant that shared investments and informal ties had not developed and so partner opportunism would incur little cost in terms of the future relationship or in actual 'switching costs'⁴⁷.

However, the relationships between Heritage Co Retail Stores and Wholesale were functional although variable due to the four different types of formal relationships existing within the cooperative model. During interviews, Heritage Co – Retail store managers used the concept of 'trust' most frequently to describe the relationship with their Area Manager or the cooperative wholesaler's 'head office'. Trust was not used by any interviewee upstream from Heritage Co to describe their relationships with partners.

Consequently, collaboration was non-existent in the upstream part of the chain and was only functional but patchy between Heritage Co wholesale and retail. This appears to be attributable to the low level of the component variables of relational competence: trust, inter-dependence, commitment and communication in the chain.

⁴⁷ 'Switching costs' are those associated with switching exchange partners and may include time, disruption to business, legal costs, loss of relationship-specific investments and the opportunity costs of future returns etc.

4.3.2.2 Co-innovation culture

The Literature Review in this thesis identified that the presence of compatible cultures across the firms in a chain appeared to be important to co-innovation (Section 2.7.2). In the Heritage Co case study, there was no evidence found of the existence of a shared culture across the chain because of the market-based, transactional nature of the relationships between the partners and lack of communication. Despite claims of goodwill toward other chain partners, there were few of the component variables of a co-innovative culture: management culture, leadership style, organisational learning and market orientation variables identified in the Literature Review in Section 2.7.2. This is perhaps best demonstrated by Store Manager A21 who ran a large, highly profitable, independent, consumer-oriented store that was value-adding fresh pork and widely recognised within Heritage Co senior management as being innovative. In answer to a question about whether Heritage Co had sent people to see how he had achieved such success that Manager said:

No, but...well they should...no...we see more people from the competition like <Major Heritage Co Competitor #1> and <Major Heritage Co Competitor #2> here and they check everything that we have and produce in the meat department...

In contrast, Middle Manager A13 demonstrated the prevailing cultural attitude in Heritage Co and his leadership style said:

If you're a pig farmer you're a pig farmer...It seems to me that the whole approach to pigs is generic...What else can you do with fresh pork?

Beyond leadership style, market orientation is also an important component of a co-innovative culture. This varied along the chain but generally was not founded in either intentional or behavioural market research and there was some scepticism of its usefulness as Senior Executive A11 said "...all consumers are liars..." by which he meant that intentional surveys were unreliable. Most of those interviewed based their opinions on conjecture or partially objective data and appeared to be comfortable with or accepting of that lack of knowledge and understanding. In Heritage Co – Wholesale there was a lack of systematic consumer research or analysis of the behavioural data of their retail store members and, indeed, the company had a serious lack of capacity to do so. This appeared to generate the reliance on anecdotal evidence and conjecture about consumers as exemplified by Middle Manager A7 who had a key marketing function and indicated the basis of their consumer understanding by saying:

It's what I've noticed from listening and looking, newspaper and magazines, hear on the radio, and all that...

However, there did appear to be a shared culture within Heritage Co Wholesale and Retail that, on one hand stood for integrity and social responsibility, but on the other was highly resilient because of

its tolerance of systemic constraints and commitment to the cooperative business model. However, whilst these characteristics have been required for the business to survive, such resilience has its down-side by producing conservatism and a resistance to change that can mean that the organisation fails to attempt changes that are possible and to see opportunities in the environment. The TPB (Fishbein & Ajzen 2010) appeared to provide an explanation of this; the norms and behavioural beliefs of individuals and groups in the company were conservative, risk-averse and defensive. The legacy norms from foundation were extremely strong and revered within the company and no-one appeared willing to challenge them. Further, this was reinforced by the stories of the previous CEO who had challenged the norms and taken the company to the brink of bankruptcy.

Processed Meats appeared to have a distinctly different culture. The firm was singularly profit oriented because of their recent change of ownership, the managers appeared be guarded and somewhat negative with some inter-personal tensions about strategy and process. Middle Manager A41 thought that there was resistance to change in management, poor communication and leadership and that performance management was not working. A41 said:

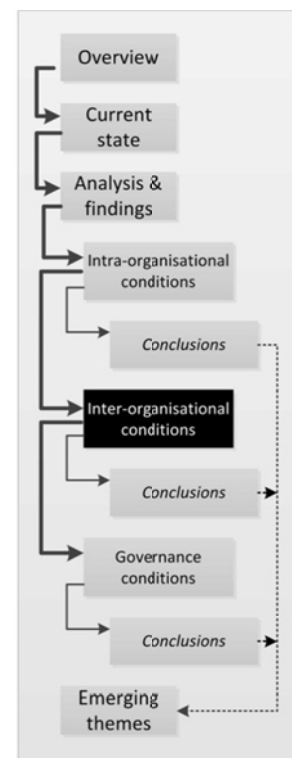
Wait a second! I didn't put down on my resume that I read minds. You cannot say you were hoping for this but at no point provide leadership or guidance or something like that. So yes it's (the performance management process) there, but the complete structure that supports that is not there.

There were strong themes of frustrations with the old facility and the high turnover of staff. It did not appear to be a 'people-oriented' culture and there appeared little commitment. A41 quipped: "...after a while you say "No, you know what, life's too short"..."

So, in summary, in this case study the lack of almost all of the compatible co-innovative cultural variables appeared to be associated with a lack of collaboration and co-innovation in the chain.

4.3.2.3 Co-innovation architecture

This chain exhibited only some of the enabling functions between organisations found in the extant literature (Section 2.7.3). Several, including collaborative performance management, information sharing, decision synchronisation, incentive alignment, integrated business processes, shared visions and goals, and boundary spanning roles and objects, did not exist in any form between the upstream firms. Hence, the ability of this chain to coordinate, learn from shared experiences and adapt to their environment appeared to be limited.



Cohen and Levinthal (1990), Thorpe et al (2005) and Jansen (2005) identify the importance of communication at both an individual and an organisational level to absorptive capacity, organisational learning and innovation. However, whilst within the Heritage Co Wholesale/Retail face-to-face communication appeared generally adequate, flows of data and information for decision-making and management were weak and fractured because systems were incompatible (e.g. incompatible formats across the wholesale/retail levels) or non-existent and so there was only a limited capacity to measure critical performance parameters such as category performance and product ‘shrinkage’⁴⁸.

Exemplifying the problem, Middle Manager A13 said:

Trying to be polite and diplomatic, we have a problem with our IT section. We have requested the IT section to update the <unit name> invoice system and to connect it with our records. They did not consider our request as a priority and till now the <unit name> invoice “system” is manual ...We are all frustrated because of the system.

Middle Manager A29, who had previously worked for Heritage Co in the 1990s said he believed they were still using the software systems from that period and that they were now far more inefficient than at that time. He cited an example where he had just received an email cancelling a two year old order for a system upgrade because of a lack of resources.

Combined with the absence of information sharing across the chain this situation appeared to not only be a potentially serious constraint on the ability of Heritage Co to manage their organisation but also to coordinate and develop the chain.

Therefore, in this case, the absence of the co-innovation architecture (strategic structure and processes) reduced the capacity of the partner firms to communicate, coordinate activities, collaborate to solve shared challenges and adapt to their environment.

4.3.2.4 Co-innovation competence

In this chain almost all the variables associated with innovation competence were lacking (Section 2.7.4). Innovation leadership was found to be largely absent at the firm level because Heritage Co had adopted a ‘follower’ posture vis a vis its competitors. A11 said:

Private labels for us are pretty much a follower category than a leader category. That’s probably a very distinct difference between the way <Major Heritage Co Competitor #2> goes about it and between the way we will.

Confirming this approach, Store Manager A16, who had been with Heritage Co about a year, said: “I find Heritage Co is a little slow to respond to trends...they’re always a little bit behind ...” attributing

⁴⁸ Product ‘shrinkage’ in value chains is a performance measure which incorporates waste through spoilage, weight loss through evaporation, and also loss or damage and theft or fraud. Its effects on the inventory include inaccurate item counts and non-availability for sale.

this to the lack of resources. However he did concede that Heritage Co is “willing to listen” and is “member driven”.

Heritage Co appeared to believe that attempting to become an innovative market leader, adopting a more aggressive posture or adopting new strategies would draw even more aggressive or punitive responses from their major competitors which they would not be able to counter and consequently might lose the market share they currently have. A2 said:

We couldn't survive a price war and trying to pull people (sic) – a price war is only going to put us right over the bank, and they would go to war and if we started it they'd finish it, and we probably wouldn't be left...

It also appeared that Heritage Co did not value innovative activities as it was regarded as a wasteful exercise by Senior Executive A11 and in any event the company did not have the resources to compete on the basis of innovation. This approach appeared to produce a cost-constrained mindset amongst managers which meant that the strategic thinking and entrepreneurial activity necessary for NPD foresight by their middle management were limited.

In particular, neither the chain nor consumers appeared to value pork which was a barrier to thinking creatively about adding value or ‘growing the pie’ by focusing on delivering the attributes that consumers’ value. The meat processors regard fresh pork as a by-product of producing processed pork and therefore they have to find profitable markets to dispose of it. The wholesaler/retailers regard it as a category with no potential for innovation and as a product to discount 80% of the time to increase footfall⁴⁹ whilst consumers regard it as a low quality protein for cheap, mid-week eating by the family rather than a meat for entertaining or premium meals. Middle Manager A10 said: “Pork is not an innovation driven category... Innovations are limited to organic and omega 3 (sic)”. Middle Manager A13 concurred saying: “...I think any kind of innovation on the pork side is going to come from the processed side” and suggested that because the “barriers to entry are so low”, any innovation would soon be copied by competitors.⁵⁰ Middle Manager A13 was also sceptical about any potential with fresh pork to break the marketing paradigm associated with the commodity derivatives exchange (CDE) and produce value added, more tender, juicy pork by producing and marketing either different weight grades or different breeds.

⁴⁹ ‘Footfall’ is the number of potential customers who enter and walk around a store. In some instances a store will have one or several items on discount and possibly below cost to attract shoppers who may then browse and buy other goods.

⁵⁰ ‘Barriers to entry’ are requisites for a firm to enter a given market that may present a ‘barrier’ to be overcome (Sullivan & Sheffrin 2003). Barriers may include resources, customer base, technical capability, threshold finance, government regulatory approval and many others. In this instance, innovations such as Omega 3 are introduced through pig feed additives and therefore competitive parity can be achieved within the pig growth life cycle of four months. Hence the barrier to entry is simply obtaining the additive and so is regarded as being a minimal barrier.

This means that chain participants are reluctant to invest in innovation or even to show leadership, simply because fresh pork is not important and there are more profitable chains on which to focus. Heritage Co Middle Manager A13 described branding innovations with beef and fresh pork which perhaps epitomised the effect of this attitude. The beef innovation required eighteen months lead time, negotiation with farmers and co-investment whilst the fresh pork initiative involved a ‘stick-on’ provenance label with no research or consultation at all. Not surprisingly, the pork innovation failed due to insufficient supply.

Processed Meats Ltd has no innovation strategy or consumer research function, appearing instead to be focused on expanding the markets for the ninety products that they have and on incremental innovation associated with extensions and additions to product lines.

Innovation amongst pig producers appear to be focused on efficiency and cost reduction as they seek to survive the cost-price pressure. An example being one of the larger producers (A40) that had substituted waste products for some feed components and low quality semen which appeared to introduce higher levels of variability in genetics, finishing times and feed conversion rates. However, there was one exception, A36 of Porkinnotech, who demonstrated entrepreneurial foresight in his production techniques and technology, new product development and marketing strategies. He also demonstrated his approach by his standing engagement of a regional pig academic/consultant to obtain technical advice. Interestingly, despite his entrepreneurial and professional approach, this did not extend to understanding consumer value regarding pork and he was basing his NPD on anecdotal evidence only.

4.3.2.5 Conclusions regarding 4.3.2 Inter-organisational conditions that influence co-innovation

At the inter-organisational level, the Heritage Co-Processed Meats Ltd value chain was characterised by an almost complete lack of the four facilitators of co-innovation identified in the Literature Review (Section 2.7): relational competence, cultural compatibility, innovation competence and the structures and processes for co-innovation. In this chain, there were no shared vision or goals between the chain partners, their relationships were only transactional and no-one played a leadership or coordinating role, so the chain partners were incentivised to pursue their idiosyncratic goals. Heritage Co’s lack of competitiveness and misaligned normative goal-frame has reduced supplier trust so Heritage Co is not a ‘preferred partner’. The key issues behind this lack of trust were their inability to resource innovation and deliver sufficient market access, that is, their ability to perform. The importance of these issues in chain relationships is highlighted by Ebert’s (2007) extensive meta-analysis of trust which found that ‘performance’ was the fourth most important of 42 trust parameters in organisation-to-organisation relationships (partnership/collaboration, commitment and cooperation respectively

being the top three). As such, trust appears to be critical in chain relationships for co-innovation to occur.

Whilst Heritage Co demonstrates some relational competence between the wholesale and retail dyad, the constitutional variability inherent in the cooperative business model for retail stores and the lack of communication and control undermines the coherency of its strategies and ability to grow and compete. However, the lack of relational competence further upstream (trust, inter-dependence, commitment and communication) in this chain means that there is no basis for the stable exchange relationships that are necessary for collaboration and co-innovation to occur. Such characteristics are the direct opposite of Marshall et al's (2006) early findings of the positive outcomes of relational competence. Thus, consistent with Blomqvist and Levy (2006), the relational competence between these firms was inhibiting co-innovation.

The Literature Review also suggested that compatible culture was a critical pre-cursor in collaboration (Balthazard & Cooke 2004; Baxter 2005; Blomqvist & Seppanen 2003) and sustained innovation and performance (Ahmed 1998; Dombrowski et al. 2007; Ismail & Adbdmajid 2007; McCosh et al. 1998; van der Panne, van der Beers & Kleinknecht 2003). However, in this chain, the analysis demonstrates that almost all of these cultural variables were absent. Firm behaviour was idiosyncratic, opportunistic and focused on self-interest. The management cultures were defensive (a cost-defender after Shields 2007), risk-averse and cost focused rather than profit-focused and appeared to be unable to learn from their own experiences. Incongruously, whilst the chain participants regarded leadership in fresh pork as the role of someone else in the chain, none of the chain partners was willing to give much credence to or follow any of Heritage Co's tentative marketing initiatives in fresh pork due to perceptions of their weaknesses. Hence, with almost all of the parameters of cultural compatibility being dysfunctional and co-innovation being non-existent, it is concluded that the lack of cultural alignment is associated with the lack of collaboration and co-innovation in the chain.

One of the most important inhibiting features of this chain was the lack of alignment of the necessary co-innovation architecture (strategic structure and processes), namely:

1. The lack of an ICT system constrains chain member's ability to communicate, plan, execute, control, replenish and monitor performance. Without these capacities any form of coordination, change and innovation will be very difficult (Simatupang & Sridharan 2004, 2007);
2. A lack of boundary spanning necessary to develop the trust and communication means that the firms lack the critical link between their organisational architecture and the external environment which will seriously constrain their ability for organisational learning and adaptation (Hazy, Tivnan & Schwandt 2003) and meeting customer/consumer needs (Zhang, Vonderembse & Lim 2006);

3. The process of developing shared strategy is an important component of the co-innovation architecture (Simatupang & Sridharan 2007). The complete absence of any communication on this resulted in the previously noted lack of alignment in strategy and was critical to the eventual opportunism demonstrated in the relationship. This supports the proposition by Fawcett and Magnan (2001) that: "...different value structures make collaboration difficult as each firm may struggle with valuing strategic directions and goals that are different from their own" and "...supply chain partners are likely to become frustrated..." (p.38).

The absence of these components of the structure and processes of co-innovation inhibit the capacity of the partner firms to communicate, coordinate activities, collaborate to solve shared challenges and adapt to their environment, presenting fundamental operational constraints for the chain.

Finally, the chain lacked co-innovation competence because Heritage Co, the firm with the most potential to lead the chain's co-innovative activity, was effectively constrained by its lack of resources and inability to change its business model. Thus, they had accepted they could not provide leadership in innovation so adopted a market follower position vis a vis their competitors and a transactional chain leadership approach emphasising cost with their suppliers. So without innovation strategy, leadership, culture or resources it is difficult for a lead firm to be competent in co-innovation.

In conclusion, it appears that the four facilitators of co-innovation identified in the Literature Review (Section 2.7) are almost entirely absent in this chain. This is consistent with the assessment that it lies at the market end of the governance continuum where there are discrete relationships and little coordination.

However, two new inhibiting factors that do not appear in the 'inhibitors' literature (Table 2.1) emerged from this case study:

1. The absence of a chain strategy and the consequent lack of alignment between the business models of the partners in the chain inhibit co-innovation;
2. The lack of alignment of motivational cultures or goal-frames across the chain inhibits co-innovation.

Therefore, this section, in aggregate, has suggested that the lack of the facilitators between firms makes the development of co-innovation very difficult, thus indicating their importance as chain conditions. Further, two new important inhibitors have emerged that need to be considered in the cross-case analysis.

4.3.3 Chain governance conditions that influence relationships and incentives

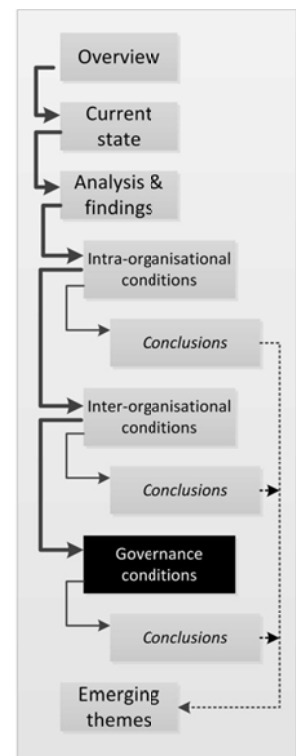
This section addresses SRQ5.

In terms of the model of governance mechanisms explicated in Table 2.3, based on Gereffi, Humphrey and Sturgeon's (2005) typology, the Heritage Co-Processed Meats Ltd fresh pork chain appears to be very close to a pure market exchange situation so there is little coordination. There are no contracts or schedules of supply between the parties so exchanges are transaction driven, each one discrete to the next, with little commitment and formality. According to the Gereffi, Humphrey and Sturgeon's (2005) model, price and volume of demand act as the sole incentives (called 'outcome-based' incentives). They are the market 'feedback' mechanism conveying all the information necessary to coordinate the exchange and for the exchange partners to make efficient decisions (Arrow 1974). They also relieve the exchange partners of the need to consider environmental information (Williamson 1975) and solve the problem of goal misalignment because each partner is rewarded only for their direct contribution to the exchange (Ouchi 1979).

However, the Heritage Co dyad was different than that predicted by the model. The business model is determined by the cooperative's constitution and does not appear to be aligned with the strategies needed to survive in the agrifood retail environment. Changing the business model has to be achieved by constitutional change, essentially a political process. In this instance, the cooperative constitution may be analogous with the founder's vision. The rigid constitutional framework originally established to govern its implementation has removed the firm's strategic flexibility to adapt its strategy, structure, policies and processes to cope with its changing environment. This inability to re-align that business model represents a fundamental constraint on its ability to re-align with its environment and manage its performance.

Further, due to the strong values-based historical legacy the incentives were mixed economic, normative and social incentives. Several of these were assessed as being negative in the effect that they had on the organisation. For example, the commitment to 'beating the competition' elicited motivation to set prices that cannibalised margins, drove price-based competition with the major retailers on their own ground and resulted in much higher than the national average discounting of fresh pork.

This developed a dynamic tension between firm incentives in the chain. The upstream chain partners were seeking mainly NPD resources to achieve their strategic goal of accessing new markets for their pork products within short time frames. So, Heritage Co's mixed economic, normative and social



incentives appeared to be seriously out of alignment with the singularly economic goals of Processed Meats and the pig farmers.

Therefore, this case appears to demonstrate that whilst the form of governance generally determines the form of the incentives used, it may be moderated by strongly embedded influences such as legally mandated structures and values found in company constitutions.

4.3.3.1 The use of contracts across the chain

This section addresses SRQ8.

In the market exchanges in this chain, there are no contracts or schedules of supply between the parties so exchanges are transaction driven, each one separate to the next, with the degree of commitment and formality extending only to the next phone call which might announce "...sorry, we don't want your product..." (Processed Meats Principal A39). Middle Manager A31 agreed saying:

No, it's all basically word of mouth. There's no, like I said, like we have some lines we've been doing for years that we could lose tomorrow if, you know, God forbid; but there is no written contracts...

However, as Macneil (1978) suggests, personal relationships based on legal or normative expectations of performance did develop a limited trust and low level expectation of future consideration.

Similarly, the Processed Meats' process of hawking meat products around all the retail stores in the region also built up regular contacts and social familiarity that subtly created an expectation of future sales. However, theoretically, Macneil's (1973) 'discrete' form of exchange still prevails; separate transactions occurring via social interaction and the operation of norms⁵¹ to achieve reasonable reciprocity (bargaining) between the parties but where each party will seek to maximise self-interest. The parties should have perfect knowledge of the conditions of the exchange⁵² and an entirely predictable future for the relationship because there are no commitments beyond the current exchange.

Tuusjärvi and Pietiläinen (2009) suggest that where a power asymmetry, a misalignment of interests/objectives or a low relational competence exists between the partners to the exchange then the development of the exchange norms is more difficult and therefore that opportunism and unpredictability may be intensified. The opportunistic behaviour exhibited by Processed Meats at the end of the project appears consistent with these propositions. Whilst a power/capability asymmetry

⁵¹ Macneil (1973) postulates that the 'discrete norms' guiding this mode of operation emphasise planning, monitoring and keeping promises in order to suppress opportunism and increase predictability without regard for new insights or innovative approaches.

⁵² In this instance, in principal-agency theory terms, knowledge is perfect because there are no agents acting on behalf of the principal which therefore has no agent-based barrier to perfect knowledge of the conditions of the exchange.

existed within the Heritage Co chain in this instance, ultimately it was the Processed Meats owners' (A39 and A40) concern about the power of their biggest customer, <Major Heritage Co Competitor #1>, to determine the future success of their business that was the most influential factor in their partnering decision-making. The misalignment of goals appeared to be an equally important driver; Heritage Co's goals focused on regional markets, emphasising provenance and community benefit whereas Processed Meats goals were survival, growth into larger markets and profitability for the owners. In addition, the low relational competence identified earlier in this chain appears to have constrained the development of more relationally oriented norms that might otherwise have acted to reduce opportunistic tendencies. Similarly, the mode of the exchange, the relatively small size of the pig producers and their concern for the future meant that they were highly opportunistic, seeking outlets for small numbers of pigs wherever they could find them.

Therefore it appears that the form of contracting employed in the discrete exchanges that characterise the Heritage Co chain were influenced by the form of governance which is consistent with that proposed by theory in Section 2.8 and the conceptual model.

4.3.3.2 The use of power across the chain

This section addresses SRQ6.

It appears that an asymmetry of power and capability exists between Heritage Co and the upstream chain partners in terms of financial, knowledge, human resource capacity and ability to access markets. Heritage Co has more than a half a billion dollar turnover and employs hundreds of staff whilst Processed Meats and the pig farmers have little capacity to engage in the NPD process alone. Both firms were looking for a partner to undertake the process and were well aware of Heritage Co's weaknesses in this regard compared to their larger national retail competitors operating in the region and so had strong incentives to seek other NPD partners. This combined with:

- i. The relative size of Processed Meats commitment to <Major Heritage Co Competitor #1> with whom they had over 60% of their business compared to Heritage Co (less than 5% of turnover);
- ii. The existence of alternative channels to market and low switching costs which occurred because of the low level of trust, commitment, norm development and relationship-specific investments.
- iii. The lack of communication and misalignment of goals appeared crucial to the lack of understanding between the chain partners;
- iv. The pig farmers were also subject to significant pressure to achieve access to new markets because they were rapidly running out of suitable meat processors (one having closed recently and another closing in March 2010 just after the completion of this project).

These factors created a strategic incentive for Processed Meats in particular as well as the pig farmers to act opportunistically with Heritage Co competitors rather than to develop the relationship in focus.

So, in this case study, it appears that the asymmetry of power and capability that might have been used to influence or coerce the smaller chain participants was negated by their perception of significant Heritage Co weaknesses, the existence of an even more powerful competitor with better market access and the low switching costs. That is, the chain partners had better opportunities at little cost if they exited the current relationship and so opportunistic behaviour to pursue their idiosyncratic goals was a very real option.

Therefore, it appears that the effects of asymmetry may be overcome by factors in the operating environment that result in the development of strategic incentives that overcome or negate the chain incentives and opportunism may result.

4.3.3.3 The role of chain leadership

This section addresses SRQ7.

Succinctly, the chain currently operates in a mode closely resembling a spot market where there is no chain leadership being exercised and no recognised category captain or chain leader coordinating the development of the fresh pork category. Activities to achieve market access, seek and use information, develop innovative new products etc were proceeding on an individual basis without communication between the chain partners.

The chain participants in the Heritage Co chain regarded leadership in fresh pork as the role of someone else in the chain. The wholesaler/retailer regarded it as the brand owner's role and for private label products they preferred to be a 'follower' of the major retailers. Processed Meats Ltd was not interested in chain leadership and only marginally interested in fresh pork as a means of disposing of the middle of the pig from where the fresh pork cuts are taken; and the pig producers had so little capacity that they believed that someone else, usually the retailer or the government, should undertake the task.

Consequently, behaviour was idiosyncratic, opportunistic, self-interested and there was no credible effort to demonstrate leadership. This appears to be consistent with the assumptions of Transaction Cost Economics for autonomous, self-directed and opportunistic behaviour (Heide 1994; Noordewier, John & Nevin 1990; Parkhe 1993; Williamson 1975, 1979, 1981) and with Principal-Agent Theory (Eisenhardt 1989; Hornibrook 2007). It also appears consistent with Resource Dependence Theory's (Albers, S. 2005; Boyd 1990; Pfeffer & Salancik 2003) predictions of bounded rationality, risk aversion, goal incongruence and self-interested behaviour. Thus, the form of governance determined the nature of the leadership operating in the chain.

4.3.3.4 Conclusions regarding 4.3.3 Chain governance conditions that influences co-innovation

Chain governance conditions encompass contracting, power and chain leadership. As this chain exhibits almost purely transactional relationships, it is characterised by discrete exchange, transactional information-sharing and communication, no explicit coordination and collaboration, and price-based incentives. So, it appeared that the form of governance determined the form of contracting employed in these discrete exchanges and the types of incentives used which was consistent with that proposed by the theoretical governance model outlined in the Literature Review (Table 2.3).

However, the Heritage Co dyad was different than that predicted by the governance model because its inability to re-align the mandated business model represents a fundamental constraint on autonomous adaptation to its environment, management of its performance and response to the competitive needs of its suppliers. As these are amongst the basic tenets in Beer's (1981) concept of a viable system, they may have consequences for the firm's sustainability into the future.

The Literature Review (Section 2.12.3) discusses the role of lead firms in coordinating and managing incentives in agrifood chains so, in this instance, where there is considerable asymmetry between Heritage Co and the upstream suppliers, the function of planning and executing a value creating strategy by designing an appropriate business model belonged to Heritage Co. However, they had adopted a 'follower' position in the marketplace so, using Albers, Sacha, Gehring and Heurmann's (2003) typology, 'lower prices' was what they aimed to deliver to consumers but they then failed to develop a "physically efficient" (p. 106) value chain business model and, by adopting a near market form of governance defaulted to a "unilaterally governed" (p. 109) value chain. To put it simply, they opted to compete on price and then failed to install an efficiency-based chain business model to deliver that strategy.

Hence, there was a dynamic tension between Heritage Co's business model with mixed economic, normative and social incentives to achieve its more socially responsible goals and its suppliers' business model focused on economic incentives and motivation to survive (Section 4.3.1). Thus, because of their different business logic for the delivery of value, their partners lacked confidence in Heritage Co and did not view them as a preferred partner. This acted as a negative incentive that motivated them to look for a strategic partner with a more compatible business model to meet their needs. This finding is broadly consistent with Crosno and Dahlstrom's (2008) meta-analysis of twenty-three years of opportunism literature which found a negative relationship between resource dependency and opportunism; thus, as in this case, low dependency, high opportunism. Such a critical role for business models is not often identified by experts, but what was observed in this chain was also consistent with Robert Ogulin's (1998) suggestion that one of the emerging capabilities for modern supply chains is that partner firms will restructure their business models to align with the

structures and processes of their chain. This was later supported by Gattorna (1990) who advocated that the internal culture plays a critical role in the delivery of value propositions and that the internal firm structure (both critical components of the business model concept) to do this has to be aligned with the chain. In this instance, both Processed Meats and the pig farmers were not willing to align with a model that they had no confidence in and so they switched to a competitor. Thus, if the business models of chain partners are not aligned with vision, strategy, culture and incentives, then the chain is likely to be dysfunctional because its ability to co-innovate to deliver value will be impaired.

Heritage Co's fresh pork chain was also characterised by a considerable power/capability asymmetry between itself and the upstream partners. However, the market power that this often confers was overcome by the presence of even larger national retailers with more appropriate business models, better market access and more resources for innovation. The incentive that this provided along with low switching costs resulted in Processed Meats and the most innovative pig farmer opportunistically switching chains. So, it appears that a lack of shared strategy, misaligned or inadequate chain level incentives to commit to a chain and low switching costs can mediate chain power relationships and result in opportunistic behaviour by chain partners.

The final component of governance is chain leadership and followership. In this chain, Heritage Co had a greater capacity to lead the chain when compared to their upstream partners. However, Heritage Co was also constrained by their business model, sovereign commitments to banks for the earlier financial disaster and a low investment capacity. Hence, they had little interest in taking responsibility for chain leadership; indeed, all the chain partners regarded leadership as always being someone else's problem. Consequently, they were competing primarily on price and so had adopted a minimalist transactional chain leadership approach, described by Defee (2007), with short-term, transactional relationships focused on price where members concentrated on pursuing their own strategic aims. On the other hand, chain partners for the relational reasons previously explained, demonstrated all the characteristics of transactional followers: they lacked commitment, independent mindset, critical thinking ability, a desire to collaborate and assume responsibility for aspects of the chain. So it is concluded that, whilst there are some innovative individuals (e.g. Store Manager A21), Heritage Co lacks the innovation competence to effectively lead a co-innovative chain which is an integral part of the legacy issue that has led to the suppliers' lack of confidence.

It also appears that some of the concerns the chain partners held about each other contributed to the nature of chain governance cognisant with Roucan-Kane and Boehlje (2009). Processed Meats and the pig producers had important 'capability' and 'market uncertainty' concerns about Heritage Co whilst the retailer had a concern (not acted on) about the leakage of market information which was ultimately confirmed.

So it appears that the lack of leadership and appropriate followership can be important inhibitors to the governance of agrifood chains per se and therefore fundamentally limits co-innovation. This provides some evidence to support Defee's (2007) inference that transactional follower characteristics are not conducive to the development of innovation or co-innovation.

In summary, these conclusions suggest that in transactional forms of governance, where there are misaligned incentives, poor leadership and followership, and the most powerful partner is itself relatively weak in the marketplace, then opportunism and switching behaviours may occur and the chain environment does not support co-innovation.

4.4 Themes emerging in this case study

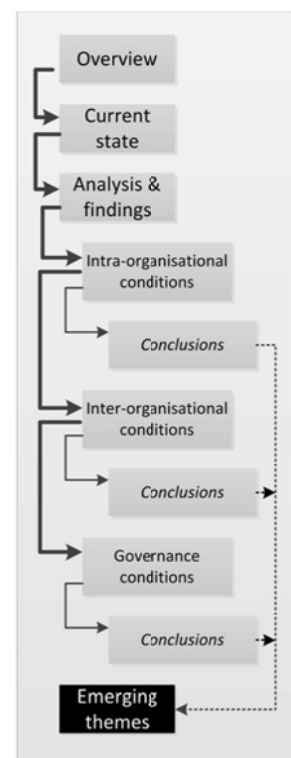
As described in Chapter 3: Methodology, this analysis has employed a hybrid, data-driven approach to coding and the conceptual clustering of emergent themes has identified the potential “themes that differentiate” (Boyatzis 1998, p. 44) in this case study and these are described in the following:

Theme 1: The lack of strategic alignment across the chain inhibits co-innovation

The complete absence of a shared chain vision and strategy means that each firm pursues their own goals. Consequently, each firm incentivises their own staff to achieve those idiosyncratic goals and so they are little more than a group of businesses who will undertake discrete exchanges when it suits them; that is, they exhibit many of the attributes of market-based governance. Therefore, the lack of alignment of vision and strategy across the chain inhibits the development of aligned incentives and cultures to facilitate the conceived creation of consumer, customer and shareholder value. Further, without such alignment across the chain then it will be difficult for the partners to be co-innovative.

Theme 2: The lack of a shared business model (mental model) as to how value is created for consumers, customers and shareholders constrains co-innovation

In this chain there is no shared business model or common mental model as to how to create and deliver value to consumers, customers and shareholders, and indeed, the lack of market orientation by the individual firms referred to in Section 4.3.2.2 and also 4.7, means that value creation is dysfunctional per se. This is largely due to Heritage Co's failure to discuss its strategy to create value in fresh pork with its chain partners and develop a business model to execute that strategy. Regardless of whether it was a niche value strategy or a low price strategy, co-innovation was likely to have been



necessary to deliver that value to consumers. However, beyond that, it was Heritage Co's failure to offer sufficient incentives to the firms in the chain that meant they were vulnerable to a competitor offering far more substantial incentives, in this instance national market access for fresh and processed pork products.

Theme 3: Defensive, risk averse, self-interested cultures will not create incentives for co-innovation

If culture is strongly linked to the incentivisation/motivation of creativity and innovation, and compatible culture between chain partners is a pre-cursor to co-innovation, then individual, market cost-defender orientation (Shields 2007) risk averse, self-interested cultures are unlikely to facilitate co-innovative behaviours. This is so because incentivisation, whether explicit or tacit, will be defensive and focused on safeguarding the firm's and/or an individual's interests. Thus, because creativity and innovation are inherently risky and collaboration increases vulnerability to loss (McLoughlin, Koch & Dickson 2001b; Vangen & Huxham 2003) it is likely that little co-innovation will occur.

Theme 4: The absence of any of the co-innovation facilitators inhibits co-innovation

This analysis suggested that deficiencies in one or more of the four 'co-innovation facilitators', relational competence, compatible cultures, the co-innovation architecture and co-innovation competence inhibited co-innovation. In this chain one or more of these conditions were often absent or deficient from several or all of the stages of the chain. The analysis appeared to show that the degree of:

- Relational competence, particularly trust and communication, determines whether partners are willing to commit to the risky business of collaborating to innovate;
- Partner cultural compatibility will determine the level of cultural harmony and chain innovativeness;
- Cross-chain development of systems and processes, such as an effective ICT system, boundary spanning facilitating communication or joint development of strategy providing focused direction, will determine the effectiveness of not only such key functions as communication, forecasting, planning, decision-making, replenishment, but also the co-innovation that creates value;
- Co-innovation competence providing the leadership, foresight, co-innovation strategy, purposeful cultural management and resourcing will determine the degree of co-innovative activity.

Theme 5: Power alone is insufficient to manage a chain

This case study appears to have shown that chains exist in a competitive marketplace where there are often alternative market outlets for the suppliers and that asymmetric power alone is insufficient to

maintain value chain relationships. Thus, value chains cannot be considered in isolation from the chain's operational environment. In this instance, there were few incentives for suppliers to stay with Heritage Co and little trust in their leadership, ability to be innovative or competitiveness vis a vis others in the marketplace, and hence the suppliers were looking for better market access with higher profit and growth potential.

Theme 6: A shared, purposefully designed and managed incentive system aligned across the chain, firm and individual levels is necessary to be co-innovative

In this chain the firm incentives across the chain were not aligned for two reasons:

1. The lack of alignment of vision and strategy as a foundation for coordinating the chain;
2. The lack of a purposeful, shared approach by the chain partners to the design and management of a chain incentive system to execute that vision and strategy.

Without unity of purpose each firm had their own firm level incentives derived from their own goals and incentivated their own staff in an uncoordinated way; hence, from a chain perspective, there was a lack of alignment of individual incentives in each of the partner firms. This means that there was little motivation for employees to communicate and collaborate with other firms in the chain to solve the problems and exploit the opportunities that would improve chain performance. Therefore, it appears that a shared, purposefully designed and managed incentive system aligned across the chain, firm and individual levels is necessary to achieve chain strategy per se, and in particular, co-innovation.

Theme 7: Different types of incentives need to be used to achieve complex firm and individual behaviours

All the firms in this chain except Heritage Co Wholesale were trying to motivate limited economic outcomes and consequently were using quite 'one dimensional' economic incentives, namely monetary rewards. Heritage Co Wholesale, because of its constitutionally mandated goals, had more complex incentivators such as the behavioural norms mandated by the national and international cooperative associations of which they were members⁵³ and the social goals specified in their constitution. The situation was similar with the incentivation of individual behaviour within each firm. Heritage Co Wholesale was the only one to use multiple types of incentives with staff, extrinsic, social and intrinsic. This appeared to be driven by the types of behaviours required by each firm to achieve their goals; Heritage Co Retail Stores targeted store profits to maximise returns to members, Processed Meats and the pig farmers were also profit focused, whilst Heritage Co Wholesale had more complex behaviours required to achieve their wider range of goals. Therefore, it appears that more complex strategies and their goals requires a more broadly based approach to incentivating firms and individuals using multiple forms of incentives.

⁵³ <Country's Name> Co-operative Association (XCA) and the International Co-operative Alliance (ICA)

Theme 8: The behaviour of firms and individuals can be mediated by strong organisational values

The influence of organisational values on firm and individual behaviour was evident in this chain. Heritage Co's mandated values not only influenced goal setting and operations but also human resource management per se, particularly incentives, culture and individual behaviour. On the other hand, the values of the owners of Processed Meats, as expressed through strategies and incentives, strongly influenced their managerial behaviour. But in both instances, it was the tacit incentives generated by the management of explicit incentives and culture, and the interaction between the two through the goal-framing effects previously discussed, that were equally as influential in the behaviour that resulted. From this it appears that the behaviour of firms and individuals can be mediated by strong organisational values.

In summing up then, this case study comprises an interesting contrast to those following because it demonstrates the characteristics of a market form of governance. The findings and themes appear to have a high level of construct validity due to the high level of methodological appropriateness and adequacy (Earley & Singh 1995; Tsui, Nifadkar & Ou 2007; Van der Stede 2009) employed in the design and field procedures. However, in addition it also highlights the effects of a number of dysfunctional aspects of organisational and chain governance. In the Chapter 5, a specifications contract or modular form of governance is investigated and provides contrast between this chain and a relational hybrid form in Chapter 6.

Chapter 5: Analysis and findings – Case Study 2

5.1 Introduction

Chapter 5 reports the analysis of the second of three case studies conducted as part of exploratory research to understand how employees, executives and firms are incentivised to co-innovate in agrifood chains. Three case studies were purposively selected in Australia and North America to provide a range of chain governance types, management regimes and products. The first case study in Chapter 4 analysed a fresh pork value chain operating with a market form of governance and mixed normative/hedonic and gain/hedonic motivational goal-frames that resulted in highly individualistic behaviour by the firms in the chain, a focus on transactional exchanges and seriously misaligned inter-organisational goals and incentives. The third case study in Chapter 6 investigated a highly co-innovative processed lettuce value chain focused on delivering a wide range of value-added, plain label salad products to a major supermarket retailer with a national market. Despite a major asymmetry of power and capacity between the chain partners, the chain seemed to demonstrate a strongly relational and collaborative form of governance with a high degree of strategic alignment and a normative-gain motivational frame.

This chapter analyses a frozen vegetable value chain that juxtaposes the previous two where a large diversified multi-national processor with well-developed corporate values supplies a large, very transactionally-focused retailer with a family of branded and plain label frozen vegetables grown by a large number of small commodity vegetable growers. The subsidiary research questions (SRQ) investigated were:

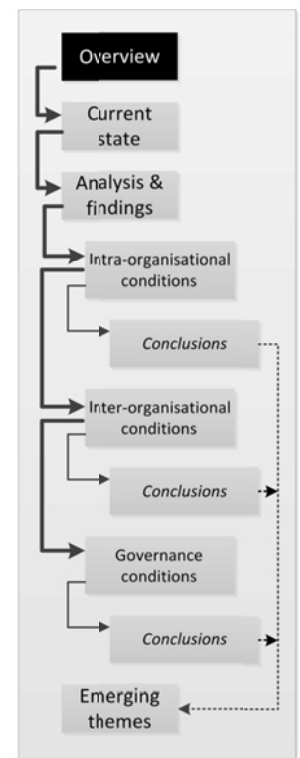
- **SRQ 1:** *What are the facilitators of collaborative innovation in agrifood chains?*
- **SRQ 2:** *What are the inhibitors of collaborative innovation in agrifood chains?*
- **SRQ3:** *How do agrifood firms incentivise operational staff to co-innovate?*
- **SRQ4:** *How are executive managers incentivised to co-innovate in agrifood firms?*
- **SRQ5:** *How does the form of governance in agrifood value chains influence the incentives employed across the chain?*
- **SRQ6:** *How does the asymmetry of power in agrifood value chains affect the nature of incentives employed?*
- **SRQ7:** *How is chain leadership exercised in agrifood chains?*
- **SRQ8:** *How does the form of relationship (governance) in an agrifood chain affect the types of contracts used to coordinate chain participants?*
- **SRQ9:** *What incentives are used to motivate firms in agrifood value chains?*

- **SRQ10:** *What are the motives that energise goal-oriented behaviour in agrifood value chains?*
- **SRQ11:** *To what extent do values, attitudes and norms of firms in agrifood chains influence the enactment of incentivised motives?*

These questions form the basis for the presentation of an analysis of the data collected from this chain. However, they will be considered in a slightly different sequence to that in which they emerged from the extant literature so as to facilitate the logical presentation of the analysis:

- The intra-organisational conditions that facilitate or inhibit the formation and continuance of chain relationships in agrifood chains:
 - How firms within agrifood value chains are incentivised – SRQ9 and SRQ10;
 - How individuals are incentivised in agrifood chains – SRQ3;
 - How executives are incentivised - SRQ4;
 - How do values, attitudes and norms of firms in agrifood chains influence the enactment of incentivised motives – SRQ11.
- Inter-organisational conditions – SRQ1 and SRQ2;
- Chain governance conditions that influence relationships and incentives in agrifood value chains (SRQ8):
 - The use of contracts – SRQ8;
 - The use of power - SRQ6;
 - The role of chain leadership - SRQ7.

A flow chart with a black box indicating the current position within this sequence is provided at each of the major sections as a guide for the reader.



In compliance with the confidentiality agreements signed with the participants and, as in the other reported cases, the identifying details have been anonymised. Hence the value chain is called the “Battel -Decloid Frozen Vegetable Value Chain” using two fictional company identifiers.

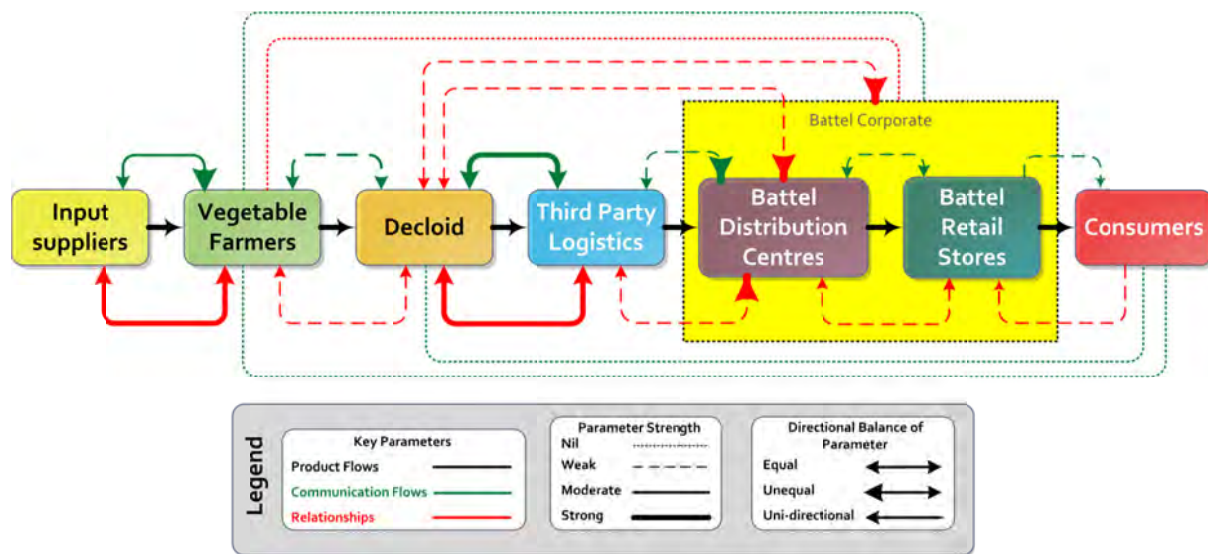
5.2 Case Study 2 – Battel-Decloid Frozen Vegetable Value Chain

In this case study the largest company, the retailer, is ‘Battel’ and the processor supplier is ‘Decloid’, which is supplied by over two hundred vegetable growers. The names of all interviewees have been changed to code numbers commencing with ‘C’ and the numbers randomised so that, for example, C1 is not a Chief Executive Officer. Figure 5.1 provides a map of the product, communication and relational flows for the chain.

5.2.1 Overview of the chain

Battel is a large diversified national retailer which includes a food and beverage group with over 700 retail food outlets marketing over \$2.5 billion in fresh produce and meat annually, 85% sourced from the host country (Battel Document C89). In merchandising it employs a ‘good, better, best’ strategy for its private labels but is continuing to support the many branded products on the shelves (Battel C41; Decloid C27, C22, C58). The chain under investigation supplied both branded products and private labelled products including a provenance-based brand (Decloid C60).

Figure 5.1 Map of the Battel-Decloid value chain



At the time of this investigation, Battel had been through a several years of internal management problems, the management culture had legacy attitudes regards ethics and openness and there had been a history of a staff turnover in excess of 25% p.a. (Battel C41). During the course of research the company was being taken over which added another dimension to the problems⁵⁴. Those of importance to this study appeared to be the lack of strategy and a structural inability to drive strategy from a national to a state and local level (Battel C41 and Senior Executive C68; Decloid Senior Executive C59). At the time, Battel was also facing strong competition from new international entrants into the marketplace and was tightly focused on winning back their customers and market share. This may have contributed to the strong statements about company strategy from Battel’s C43 (a focus group interview with four managers): “...The only strategy which really matters is price strategy...” However others, both within Battel and Decloid, one of their most important processed vegetable suppliers, believed Battel had a clear strategy for their provenance-based frozen vegetables to differentiate itself (Battel C41; Decloid C27).

⁵⁴One issue being that during the research two major restructures occurred with many executives being made redundant each time.

Some were under no illusions that Battel was “aggressively experimenting” (C68) with strategy in an attempt to find one that worked regardless of the effect that their short term approach and erratic decision-making was having on suppliers (Battel Senior Executive C68; Decloid Senior Executive C59).

Decloid is a large, privately-owned, diversified multi-national food processor that owns a number of high profile brands and produces both branded and plain label products chilled, frozen, dried or in cans. But the competitive landscape for Decloid is complex as the national market is an opportunistic dumping ground for international surpluses and their prime national competitor is fresh vegetables (Decloid Senior Executive C59). It had strategies to achieve its vision of being a highly innovative, \$1.5 billion company and has had a five year average growth rate of 7% per annum⁵⁵. As a family-owned company it was founded on strong family values⁵⁶ which appear to have been retained and well enculturated at an operational level.

Battel takes 40% of Decloid’s production and appears to be more brand-oriented than some of their competitors. Because they have the same buyer for both branded and private label products, Decloid believe that there is a tacit agreement that “...supplying private label ensures the retailer’s support for branded products...” (Decloid C27). Relationships and communication between Decloid and the retailer Battel were claimed to be good (Decloid Senior Executive C60) however, this research identified a number of important strategic and operational miscommunications, in one instance affecting the viability of a major new branding strategy (Decloid C29; Battel C67).

Decloid acts as the focal firm in the chain and processes 28% of the peas, beans, carrots, broccoli, cauliflower and onions grown in the focal region, the remainder going to other processors and the fresh market. The Decloid factory relevant to this chain directly employs about 100 permanent staff, with several hundred additional casual staff employed over the harvest season. This factory processes over 50,000 tonnes of vegetables and also creates employment for agricultural contractors of planting, harvesting and cartage. The factory produces seven vegetable-centric ranges with forty plus SKUs⁵⁷ of blended vegetables for Battel and its other outlets (Decloid Document C88).

Decloid is supplied by two hundred and forty vegetable growers (Decloid Document C62) in an industry of about 450 producers who largely operate small farms of around 100 – 200 hectares and produce for two large processors and several smaller processors. The industry is dominated by commodity production and due to price fluctuations, topography and socio-cultural reasons tends to be mixed farmers producing both animal and crop products. Sixty three per cent of farms have a turnover of less than \$150,000 and 67% do not employ anyone other than the owner/operator and for

⁵⁵ Excluding mergers and takeovers.

⁵⁶ Refer to Section 5.3.1.4 for more details.

⁵⁷ SKU is a common acronym for ‘Stock Keeping Units’.

the majority, most of the disposable family income is earned off-farm. Much of the technical expertise and specialised labour is now supplied by consultants and contractors, so in many respects the owner/operators now undertake less specialised farm work and are more oriented to contractor management. However, formal business skills are low as only 5% have a university degree and 25% have vocational qualifications which are not necessarily in agriculture (C87 Government Document).

Decloid field officers reported a wide variation in grower capability and managerial attention to crops and believe that these factors can affect farm productivity up to 50% (Decloid C20; Farmer Association C65). Many vegetable growers have up to eight or more commodities being produced on their property and are reliant on recommendations from consultant agronomists: “If agronomists didn’t look at the crops, they wouldn’t get sprayed...” Decloid C20 said. Decloid have many years of individual grower performance data but don’t use these for preferential contracting. To compensate for the expected variation in final yields, Decloid frequently contract for more than they need, which results in waste if the vegetable growers have a good season (Decloid C12, C15, C17, C20). So overall, there is a high degree of potentially controllable variability in the chain’s raw material production which introduces important inefficiencies into harvesting and processing. Further, there is “...currently not a coherent Decloid strategy to build collaboration with suppliers...” (Decloid C17).

A large proportion of growers are members of a ‘farmer’s association’ which is now primarily a political lobby group seeking government support and favourable legislation. However the association does retain a traditional function of negotiating with commodity processors through ‘commodity committees’ formed by grower volunteers. These are effectively a collective bargaining system which has historically had adversarial price-based negotiations with processors (Decloid C59, Farmer Association C64). Thus, the chain operates in a political environment which can become the subject of high levels of media attention that may impinge on the company’s decision-making. This situation has resulted in ‘one size fits all’ supply contracts for growers that may be up to 300 kilometres apart covering very different businesses and operating conditions (Decloid Document C63; Grower C38) and which cause Decloid to select generic crop varieties for the whole region rather than selecting those suited to local environments (Grower C35).

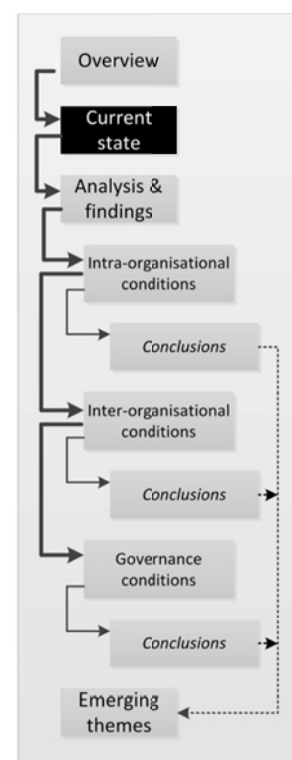
Vegetable growers have little experience with fresh market production and have developed dependency on the processor for functions such as seed supply, determining the timing of major operations and harvesting/transport (Decloid C10, C20; Growers C34, C35, C36). Some Decloid staff (C20, C21) believed that the company “...goes out of its way to look after growers...” (C21) by absorbing cost variations of seed, being flexible with the payments system, organising and paying for harvesting, and crop harvesting bypass compensation etc. This appears to have arisen partly because the field officers, who generally are part of the local community, tend to protect the vegetable growers

from negative change occurring in the wider business world and experience social pressure from the community (Decloid C17; Farmer Association C65).

Despite this apparent benevolence, growers have developed a relational pattern of opportunism and regularly change from one processor to another and/or between commodities so there is little certainty or stability in the production base or development of focused expertise (Decloid C17; Farmer Association C65; Consulting Agronomist C56). C56 said: “Growers don’t realise that they are part of a larger supply chain. They jump out of a commitment to Decloid at the 11th hour and don’t realise the impact...”

For the last fifty years, the region’s vegetable growers have coped with the cost-price squeeze through the implementation of new technology, the slow aggregation of farms into larger productive units or disaggregation into ‘lifestyle’ farms. However, this and the recent loss of several major buyers have highlighted the structural challenges facing the industry. The industry has also aged faster than the general population and many owner/operators are in their mid-fifties and wanting to retire rather than change their practices.

A major government-commissioned independent research report (Industry Document C101) found that frozen vegetables on the whole are purchased routinely and without much thought and consumers generally have low knowledge levels with respect to origin, seasonality or varieties and also overstate their willingness to pay a premium price for provenance. So the scope for adding value to frozen vegetables is limited and accordingly, the efficiency of the material flow from the raw material producer to the consumer is a key component of the chain’s sustainability and competitiveness. In this chain, it appears that most of the value-adding opportunities that are available occur in the processing stage and involve flavour enhancements, convenience and packaging.



5.2.2 Current state of the Battel-Decloid Frozen Vegetable Value Chain

The current state of the chain is represented in Table 5.1 analysed using the structure of the Co-innovation Roadmap (Bonney et al. 2007), identified in the Literature Review as providing a model of the critical elements required for managing co-innovation in value chains (Section 2.2).

It does not appear that any of the chain partners share long term corporate vision or strategic plans which may be due to the prevailing lack of trust and opportunism within the chain. There also appears to be a lack of consistent retail strategy coming from Battel which may be accounted for by the high turnover of managers and buyers (Battel C41, Senior Executive C68; Decloid C59.).

Table 5.1: Summary of the current state of the Battel-Decloid Frozen Vegetable Value Chain

Roadmap Parameter	Assessment
1. Shared direction	
1.1. Shared vision and goals	<ul style="list-style-type: none"> Lack of retail strategy or ability to drive strategy through levels. Low sharing of vision and strategy; broad annual production plans & competitive environment conditions by growers-processor & category planning being introduced by retailer.
1.2. Compatible cultures	<ul style="list-style-type: none"> Low compatibility of cultures across chain – lack of compatibility b/n moderately values-based culture at Decloid and profit/survival culture at Battel .
1.3. Leadership	<ul style="list-style-type: none"> Chain leadership by Decloid but little followership from growers.
2. Collaboration architecture	
2.1. Collaborative performance management system	<ul style="list-style-type: none"> Between growers-processor transactional feedback on contracted quality parameters; processor-retailer introducing supplier plans, and monthly assessment of suppliers' performance scorecards.
2.2. Information sharing	<ul style="list-style-type: none"> Between growers-processor is transactional feedback, broad annual production plans & competitive environment conditions; processor-retailer limited but some category, financial and loyalty card analysis is proposed. Adequate with stores.
2.3. Decision synchronisation	<ul style="list-style-type: none"> Low level – pro-active production/supply information Decloid to Battel ; but little pro-activity in reverse (short lead times, chaotic).
2.4. Incentive alignment	<ul style="list-style-type: none"> Largely transactional price-based incentives aligned with contracted quality parameters; price & complex brand-private label trade-offs between processor-retailer.
2.5. Integrated value chain processes	<ul style="list-style-type: none"> Some integration of on-farm services provided by processor (e.g. harvesting, cartage); poor downstream integration, inc. to stores.
2.6. Boundary spanning roles and boundary objects	<ul style="list-style-type: none"> Adequate development, but characterised by lack of trust, openness & clear communications. Silos in Battel head office but good to Battel stores.
3. Relationships	
3.1. Trust	<ul style="list-style-type: none"> Little trust at corporate level but adequate at grower-field service level and b/n some middle managers Decloid-Battel.
3.2. Commitment	<ul style="list-style-type: none"> Opportunistic relationship b/n processor-growers; moderate b/n processor-retailer but under challenge by some at Battel.
3.3. Open communication	<ul style="list-style-type: none"> Lack of openness & clear communications.
3.4. Mutual benefits	<ul style="list-style-type: none"> Little sharing of risk, cost & benefit. Volume & national market access benefits only.
4. Continuous improvement and learning	<ul style="list-style-type: none"> Low level b/n growers-processor due to lack of trust; moderate within Decloid ; low between processor-retailer.
5. Innovation	
5.1. Process innovation	<ul style="list-style-type: none"> Low to moderate across chain; good b/n processor-3PL⁵.
5.2. Product innovation	<ul style="list-style-type: none"> High level of NPD; consumer research base could be improved.
5.3. Co-innovation	<ul style="list-style-type: none"> One example only b/n growers-processor (Broccoli project).
6. Capacity building	
6.1. Resourcing to co-innovate	<ul style="list-style-type: none"> Local management only – current initiative locally based outside of formal innovation system.
6.2. Ability to co-innovate	<ul style="list-style-type: none"> Low ability b/n growers-processor; low ability b/n processor-retailer.
6.3. Incentivation/Motivation to co-innovate	<ul style="list-style-type: none"> Co-innovation - low incentives across the chain. Internal innovation - low individual incentive but moderate team-based incentives within Decloid ; mainly extrinsic incentives within Battel.

⁵ 3PL is industry jargon for third party logistics providers.

Battel are introducing “...a Supplier Plan, which will contribute to developing an individualised monthly scorecard against which the supplier it will be assessed...” (Battel C40, C44). This is not a collaborative strategic planning process but rather requiring “supplier partners”⁵⁹ (C44) to nominate their own supply capability and performance parameters and as such is an example of the considerable monopsonistic power held by the firm. On the other hand, Decloid shares both annual production plans and their interpretation of the strategic competitive environment with its growers (Decloid C17, C20). Few growers have strategic plans that they have discussed with Decloid management.

Culturally, there appears to be little in common between the chain partners. Decloid’s two hundred or so suppliers are highly diverse and have been selected on physical resource availability and perceptions of their capability rather than cultural characteristics. Decloid is a family-owned company that still retains some of the original family values in concert with a strong profit-orientation but does not have strong cultural management or values incentivisation mechanisms as part of its company practices. On the other hand, Battel is highly price and profit-driven to reverse its fortunes. Internal conditions, including cultural management, appear to be in disarray and some of the individual attitudes may be regarded as exploitative and unethical by others in the chain. Battel expects product leadership to come from their suppliers so Decloid have the onus for innovation to create value for the consumer and margin for the retailer. Cognisant with that, Battel are returning to a ‘reverse auction’⁶⁰ strategy for efficient supply.

Decloid make intermittent attempts to provide leadership for the chain through a heavy emphasis on process efficiency, NPD innovation and an innovative field service function for the vegetable growers. However, they communicate poorly with suppliers and there is little recognition of these efforts. Such attempts fail to achieve large scale change in the chain.

There are few compatible structures and processes operating between the chain partners so the architecture of collaboration (shared systems and processes) barely exists. There is no shared performance management system (PMS) across the chain and a new system between Battel and Decloid is malfunctioning causing major problems and increased costs for the supplier (Battel C43; Decloid C13). The lack of trust is pervasive at all levels and constrains the development of the architecture of collaboration. The conditions within Battel also contribute to the difficulties in the chain through a lack of pro-activity, inconsistent approaches and poor decisions.

The lack of trust between Decloid and their suppliers is based on occasional poor behaviour by both parties; Decloid frustration with growers or simply having to pass on poorly made decisions arising from Battel, and the grower culture of low commitment, lack of interdependence and price

⁵⁹ Battel Mart use the term ‘supplier partners’ for ‘preferred suppliers.’

⁶⁰ A ‘reverse auction’ is where a group of suppliers compete against each other to win a bid to supply goods or services with clearly defined specifications (Beall et al. 2003).

opportunism. Battel also does not completely trust Decloid, largely because they also supply Battel's main competitor. Hence, there is little sharing of strategically important information. In such a chain culture there is little willingness to collaborate to improve the chain or adopt a whole-of-chain outlook.

Decloid, as the chain leader, have a relatively narrow definition of 'innovation' and this constrains the way it is implemented. Decloid Senior ExecutiveC26 said "...innovation is one of our objectives...you know, how we want to be recognised..." yet went on to describe how innovation was "...generally defined as about food..." and how difficult it was for staff outside of the Sales, Supply Chain and Manufacturing divisions to participate in the incentive scheme. Consequently, Decloid has a strong emphasis on process and NPD innovation at the expense of other forms of innovation. It also appears that there may be insufficient understanding of the primary attributes of consumer value for frozen vegetables. There is however, much more focus on process innovation in field servicing. Little co-innovation is occurring with only one example in broccoli; and this was an example of an initiative that arose outside of the formal innovation management system.

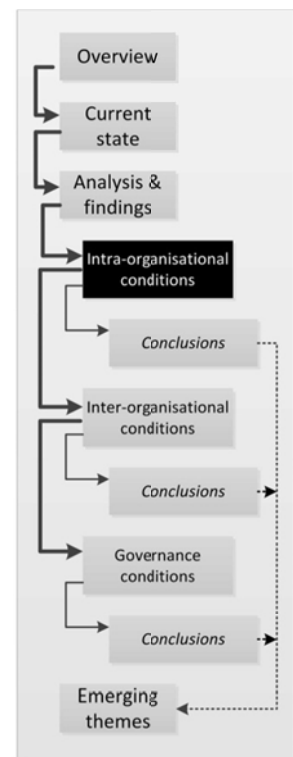
The lack of a collaborative architecture in the chain per se appeared to be an important contributor to the low capacity to broadly co-innovate, but within Decloid, the incentive system focused on new product innovation by four sales staff largely to the exclusion of others, failed to address broader forms of innovation and, due to a focus on team-based incentivisation, failed to address individual incentivisation.

In summary, the chain appeared to be characterised by uncontrolled variation in many stages of material flows⁶¹, a poor architecture for collaboration and performance, and distrustful relationships resulting in a lack of commitment, antagonistic relationships and opportunism.

5.3 Analysis and findings for the incentivisation of co-innovation in the Battel-Decloid Frozen Vegetable Value Chain

This case study will analyse the data within the following broad structure:

- The intra-organisational conditions that facilitate or inhibit the formation and continuance of chain relationships in agrifood chains;
- Inter-organisational conditions that influence relationships and incentives in agrifood value chains;



⁶¹ For example on-farm crop production, harvesting, processing, WIP storage, distribution centres.

- Chain governance conditions that also play an important role in the Incentivisation of agrifood value chains.

5.3.1 Intra-organisational conditions that influence co-innovation

The intra-organisational conditions that influence co-innovation are the incentives at the firm, operational staff and executive levels as well as the nature of the corporate values. The following sections will provide an analysis of how each of these operate.

5.3.1.1 Firm level incentives and motives

The Literature Review has established that there appear to be incentives and motives that are peculiar to the firm level (Section 2.12). It has also suggested that the characteristics of the incentives and motives may be different at the various stages of the chain dependent on the capacity to understand and cope with their environment (Section 2.12.2). The following analysis will address SRQs 9 and 10 and attempt to understand the firm level incentives and motives operating in the Battel-Decloid Frozen Vegetable Value Chain.

As indicated earlier, Battel was being out-competed in the marketplace and was searching for the right combination of strategies to give them a competitive advantage that would restore their profitability and market share and drive new growth (Decloid C58, Battel C68). Increasingly, as a prominent listed company, their profit and share price were public issues in the media putting enormous pressure on senior management. This resulted in a short term outlook on quarterly performance producing rapid changes in strategy and tactics that were affecting chain partners. Thus, achieving short run profit performance, growing their share of the existing market and increasing penetration, basket share and repeat business to grow the market were Battel's major incentives (Battel Document C89). It appears that Battel's imperatives to reverse its poor performance have driven the development of a largely economically focused chain incentivisation system. This suggests that the incentives of the most powerful firm may be a very important influence in the design of firm incentivisation systems (Table 5.2).

In addition to Battel's profit incentive, other incentives such as cost reduction, innovation to create value for changing consumer perceptions, strategic differentiation from their major competitors and the reduction of supply risk were important. These motivated a wide range of actions outlined in Table 5.2 which focused on the exercise of market power, efficiency and risk management. In particular, according to the four managers in C43, this meant getting their basic logistics right by ensuring that current problems with forecasting and stock-outs were rectified as well as focusing on all aspects of product leadership (innovation), product quality, introducing a new computerised collaborative planning for replenishment and store formats (Battel Document C89).

Table 5.2: Firm level incentivisation and motivation for Battel in the Battel-Decloid Frozen Vegetables Value Chain

Firm Level Incentivation (Expectation or benefit that enables or motivates a particular course of action or behaviour)	Economic Incentives	Normative Incentives	Social Incentives	Motives Generated (Motivation is the process of activating or energizing, direction, intensity, and persistence of goal-oriented behaviour)	Market Hegemony	Efficiency	Org Learning	Build Capacity	Enhance Competencies	Risk Mgt
Battel				Battel						
<ul style="list-style-type: none"> Profit generation 	√			<ul style="list-style-type: none"> Increasing range efficiency <ul style="list-style-type: none"> Increasing product margins Private label strategy plus one lead brand in each category Low tolerance of under-performing products Short term outlook 	√	√ √ √				
<ul style="list-style-type: none"> Cost reduction 	√			<ul style="list-style-type: none"> Improved buying - reverse auctions Increase efficiency New ordering system International sourcing 		√ √ √ √				√
<ul style="list-style-type: none"> Maintain/grow market share 	√			<ul style="list-style-type: none"> Rapidly changing strategies Product leadership - emphasis on NPD innovation Grow the private label segments Product quality Aggressive marketing to increase market penetration, basket share & repeat buying 	√ √	√ √ √ √			√	
<ul style="list-style-type: none"> Value creation to align with changing consumer conceptions 	√			<ul style="list-style-type: none"> Emphasis on NPD innovation New store formats 	√ √				√	
<ul style="list-style-type: none"> Strategic differentiation 	√			<ul style="list-style-type: none"> Emphasis on 'exclusivity' Iconic or leading brands Provenance-based private labels 'Good-Better-Best' private label segmentation 	√ √ √ √	√				√
<ul style="list-style-type: none"> Reduce supply risk 	√			<ul style="list-style-type: none"> Annual supplier planning Supplier performance scorecard & prioritisation of relationships Increased product investment by suppliers e.g. consumer research Insistence on supplier contingency planning 		√ √ √ √				√ √ √ √

Battel's search for advantage focuses on prioritising its supplier performance with the best being regarded as 'partners' on the basis of:

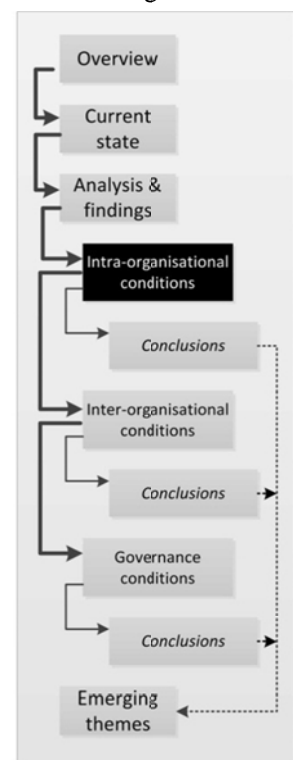
- Achieving lowest procurement prices;
- Differentiation through innovation;
- Gaining exclusivity of products (Battel C41; Decloid Senior Executive C58);
- Managing supply risk by requiring all suppliers to submit a Supplier Plan (Battel C41);
- Managing supplier performance through an individualised monthly scorecard (Battel C41, C43, C44).

So in addition to its economic incentives, Battel is also focusing strongly on innovation to increase ‘product range efficiency’⁶² rather than range diversity (Decloid C11) with a low tolerance for under-performing products or inefficiencies such as stock-outs. This has led to a rationalisation of the multiple brands stocked to a private label and a single independent brand for each line of products (Battel C41, C43, Decloid C58).

Striving to establish product leadership (Battel C41) has resulted in increased pressure on suppliers to raise the intensity of marketing and discount their brands on the shelves. The problem for suppliers like Decloid, is that when this marketing effort and discounting is seen by retailer competitors then they too expect the same effort from Decloid. Thus Battel’s strategy forces down prices in all market outlets for suppliers (Decloid Senior Executive C58). However, Battel appeared to be offering little incentive for such a commitment to considerable long term investment by suppliers. Decloid are regarded as a “good” supplier (and possibly a ‘strategic partner’) yet they only have two year supply contracts, the minimum possible for production planning purposes showing little reciprocal commitment from Battel (Battel C41, C43). Further, Battel’s on-going problems with its new ordering system bring inefficiencies for Decloid and demonstrate little ability to monitor and analyse performance.

So in summary, Battel appears to be highly driven by economic efficiency, market power and risk management incentives which are perhaps understandable given their poor market competitiveness at the time of this research. This appears to have resulted in strong foci on improving their market positioning through efficiencies to achieve low price supremacy as well as innovation, exclusivity and three levels of private label segmentation to differentiate their products. This has effectively focused the whole chain on innovating for efficiency and reduced prices rather than innovation to create value for which consumers will pay a higher price.

A summary of the incentivisation/motivation for the processor, Decloid, is shown in Table 5.3. Decloid, a large, values-oriented family-owned multi-national company, was motivated by a long term commitment to a region but still had to stay competitive in the face of three key issues: (1) a major competitor incorporating cheap imports in their products, (2) consumer perceptions that ‘fresh was better’ and (3) the short-run profit focus of Battel who were the outlet for 40% of their output (Decloid Senior Executive C60).



⁶² ‘Product range efficiency’ means reducing the number of products on the shelf but increasing the overall profit margin generated by the category

Table 5.3: Firm level incentivisation and motivation for Decloid in the Battel-Decloid Frozen Vegetables Value Chain

Firm Level Incentivisation (Expectation or benefit that enables or motivates a particular course of action or behaviour)	Motives Generated (Motivation is the process of activating or energizing, direction, intensity, and persistence of goal-oriented behaviour)			Vegetables Value Chain									
	Economic Incentives	Normative Incentives	Social Incentives	Sust Comp Advantage	Quality	Lead time improvement	Inventory reduction	Inc. cust. involvement	Supply/demand stability	Exploit core competency	Technological access	Market access	Leverage capital
Decloid	Decloid	Decloid	Decloid	Decloid	Decloid	Decloid	Decloid	Decloid	Decloid	Decloid	Decloid	Decloid	Decloid
<ul style="list-style-type: none"> Profit Build company 'Return on Investment' 	✓			<ul style="list-style-type: none"> Efficiency, particularly in private label Retain/build margin in own brands NPD innovation Preferred supplier status with Battel 	✓	✓	✓		✓	✓		✓	✓
<ul style="list-style-type: none"> Growth in turnover 	✓			<ul style="list-style-type: none"> Acquisitions to grow non-retail categories Maintain or grow their own iconic brands 					✓	✓		✓	✓
<ul style="list-style-type: none"> Manage risk 	✓			<ul style="list-style-type: none"> Diversification of categories Diversification of supply sources Preferred supplier status Manage & develop supply chain 	✓	✓	✓		✓	✓		✓	✓
<ul style="list-style-type: none"> Market leadership 	✓			<ul style="list-style-type: none"> Differentiate the last brand standing Retain provenance-based supply NPD innovation Operate by corporate values 	✓	✓	✓		✓	✓		✓	✓
<ul style="list-style-type: none"> Grow the pie 	✓			<ul style="list-style-type: none"> Value creation to align with changing consumer needs Integration of strategic & commercial marketing teams NPD innovation 		✓			✓	✓		✓	✓
<ul style="list-style-type: none"> Value creation to align with changing consumer conceptions 	✓			<ul style="list-style-type: none"> NPD innovation Price management Organisational learning Good sales strategies Good marketing strategies 		✓				✓		✓	✓
<ul style="list-style-type: none"> Team-based approaches 	✓			<ul style="list-style-type: none"> Innovation 	✓	✓	✓		✓	✓		✓	✓
<ul style="list-style-type: none"> Strategic differentiation 	✓			<ul style="list-style-type: none"> Iconic or leading brands Provenance-based private labels Provenance-based brands 	✓					✓		✓	✓
<ul style="list-style-type: none"> Support for <State> & rural community 			✓	<ul style="list-style-type: none"> Persistence in adversity Community engagement 								✓	
<ul style="list-style-type: none"> Performance against corporate values 		✓	✓	<ul style="list-style-type: none"> OH&S Staff retention/preferred employer status Collaborative, innovative culture 	✓					✓		✓	✓

As a privately-owned company Decloid has a strong emphasis on profitability and growth but, in contrast to Battel, has a longer term outlook (Decloid C27). At the top line Decloid has been growing on a weighted average over the last five years of around 7% (excluding growth through mergers and takeovers) and the total turnover has approximately doubled in the last eight years, however, now return on invested capital is their priority (Decloid C58). However, Decloid Executive Manager C58 also stated that margins and profits have been low. This may be due to competition from imports, the aggressive imposition of the Battel's private label strategies on suppliers to achieve their price strategy and Decloid's vulnerability because of its commitment to its brands allowing Battel to leverage their merchandising against the price of private label products (Decloid C27). Decloid C16 said:

<Private Label Provenance brand's> contribution/tonne is very low, so it is the lowest priority for crop. The gap between [the] <Private Label> contribution and <Decloid's Brand> is enormous. <Private Label> volume is growing at the expense of <Decloid's Brand> and we are currently selling more into products we're getting less for.

Notwithstanding this, Decloid executives believe there is a "...strategic alignment between two firms..." (Decloid C27). It was not clear whether this was a genuine view that there was strategic and cultural alignment based on the strategic discussions identified earlier or optimism because of Decloid's reliance on Battel. However, perhaps Decloid Senior Executive C58 provided an insight when he said: "Well I think it comes down to - the incentive for us is that they're going to be 38-40 % of the market. So if we don't play there you just take that - it's just gone." Later, C58 said:

So it is a bumpy ride with them but I'm saying to my team, what options do we have?... it tells me their priority is to keep experimenting until they find something that works. You as a supplier, if you want to deal with us, this is the - you just deal with that inconvenience...Well that's why we have to diversify...

This suggests that Decloid's strategies are to accept low margins on a volume market in order to block out their competitors whilst seeking value-added profits in growing its non-retail markets, particularly in food service. However, the recent refocus from turnover growth to ROI, referred to above in this section, suggests that they have now reached a targeted size and are entering a consolidation phase.

Managing risk is also a priority driver for Decloid because Battel has little tolerance for stock-outs (Decloid C59), despite Decloid being one of their best suppliers (Battel C43). Surprisingly, knowing this Decloid has not applied the same stringent performance standards on their own suppliers (Decloid C16) even though the company has the historical data and capability to stratify their growers on performance (Decloid C15; C20). Further, apparently the company had been searching for contingent supply sources to mitigate climatic and biological risk but had failed to achieve this when climatic

factors caused the severe shortages which resulted in Battel re-evaluating their relationship (C41). However, given these two failures, this incentive either lacks effectiveness or the company's ability to manage risk must be questioned.

Being seen as innovative market leaders and having preferred supplier status with Battel are important to Decloid. In strategic terms, the company definition of innovation mainly focuses on NPD generating a low rate of innovation comparable to industry benchmarks (Decloid C11); but this is hardly cognisant with being an innovative market leader. The explanation for this apparent contradiction may lie both in the scope of the definition and in the way in which innovation is operationalised:

1. Innovation is regarded as largely being NPD;
2. The ideation process is effectively restricted to the four members of the sales team which acts as a negative incentive for other staff to engage in innovation;
3. The lack of purposefully managed, broad-based incentives to innovate;
4. The lack of alignment of incentives so that they do not 'crowd out' or compete;
5. The lack of time and money resources to innovate;

The highly project management oriented Stage Gate System used to manage innovation (Section 5.3.1.2 has a more detailed explanation of these points). As a family company Decloid have always placed importance on operationalising their family-based values which has resulted in their long term commitment and re-investment to a local region (Decloid C59). Their main competitor, a global company, could not sustain such a strategy due to the high cost structure of Australian vegetable growing, and left the country for a lower cost environment losing their opportunity to supply Battel's private label provenance brand. Now Decloid's long term strategic differentiation on provenance has meant that they are the "...last man standing..." (Decloid C60). It remains to be seen whether it can be leveraged to advantage both in supplier management and in the marketplace. Internally, the development of an egalitarian, team-based, open culture appears to have been very successful becoming a 'preferred employer' in its industry (C59). Thus, living out its corporate values has been an important incentivator for Decloid both in external relationships and for internal management (Refer Section 5.3.1.4 for a discussion of the impact of values).

So, in summary, it appears that Decloid's vision, strategies and incentives focus on being a market leader in innovation and branded, value-added products which amount to a fundamental misalignment with Battel. Battel imposes supplier KPIs largely focused on price, DIFOT and NPD innovation using its coercive power. Due to their willingness to buy frozen vegetables from low price international sources and their low commitment to suppliers, they are able to exert considerable price leverage. Decloid is particularly vulnerable to this leverage due to their commitment to their own brands so

Battel leverage this to achieve very low private label prices. In the next section, it will be seen that Battel's low-cost, autocratic approach then flows on to the farm suppliers.

The incentivisation for the farm businesses in the chain is largely economic (Table 5.4). Decloid uses a 'one-size-fits-all' contract that attempts to reward better quality raw materials from its farm suppliers using an objective price-quality based monetary incentive system, the Yield Incentive Scheme, a fair scheme only penalising a few very poor growers. However, operationalising that egalitarian value, whilst perhaps broadly popular, has failed to provide sufficient incentive to differentiate high performing suppliers.

Table 5.4: Vegetable growers incentivisation and motivation in the Battel-Decloid Frozen Vegetable Value Chain

Firm Level Incentivisation (Expectation or benefit that enables or motivates a particular course of action or behaviour)	Economic incentives	Normative incentives	Social Incentives	Motives Generated (Motivation is the process of activating or energizing, direction, intensity, and persistence of goal-oriented behaviour)	Goal Attainment	Integration	Pattern Maintenance	Adaptability
Vegetable Growers				Vegetable Growers				
<ul style="list-style-type: none"> Yield incentive scheme – core requirements 	√			<ul style="list-style-type: none"> Meet tonnage target Meet quality parameters Meet maturity parameters 	√ √ √		√ √ √	
<ul style="list-style-type: none"> Yield incentive scheme – 25% additional yield component to install a centre pivot irrigation scheme 	√			<ul style="list-style-type: none"> Expand and increase efficiency 	√		√	√
<ul style="list-style-type: none"> Yield incentive scheme: 5 – 7% yield growth incentive 	√			<ul style="list-style-type: none"> Expand and increase efficiency Reduce risk of under-producing 	√ √		√ √	
<ul style="list-style-type: none"> Yield incentive scheme: Two-tier pricing system for peas and beans 	√			<ul style="list-style-type: none"> Back their ability to grow an above-average yield crop 	√		√	
<ul style="list-style-type: none"> Yield incentive scheme – Conditional price premium 	√			<ul style="list-style-type: none"> Quality Assurance certification 	√		√	
<ul style="list-style-type: none"> Longer term contracts 	√			<ul style="list-style-type: none"> Commitment 	√		√	
<ul style="list-style-type: none"> Customised contracts for larger growers 	√			<ul style="list-style-type: none"> Expansion Preferred supplier status Alignment with processor needs Commitment 	√ √ √ √	√ √	√ √ √	√ √
<ul style="list-style-type: none"> Supplier development program 			√	<ul style="list-style-type: none"> Improve efficiency & effectiveness Changed practices Collaborative action 	√ √ √	√ √	√ √ √	√ √ √
<ul style="list-style-type: none"> <i>Production support</i> 	√		√	<ul style="list-style-type: none"> <i>Skill degradation</i> <i>Dependence</i> <i>Sense of entitlement</i> 			√ √ √	
<ul style="list-style-type: none"> <i>Price reductions</i> 	√			<ul style="list-style-type: none"> <i>Look for alternative enterprises</i> <i>Search for alternative buyers</i> 	√ √			
<ul style="list-style-type: none"> <i>Short term changes in strategy</i> 	√			<ul style="list-style-type: none"> <i>Confusion</i> <i>Imputation of dishonesty or exploitation</i> 	√	√	√ √	√

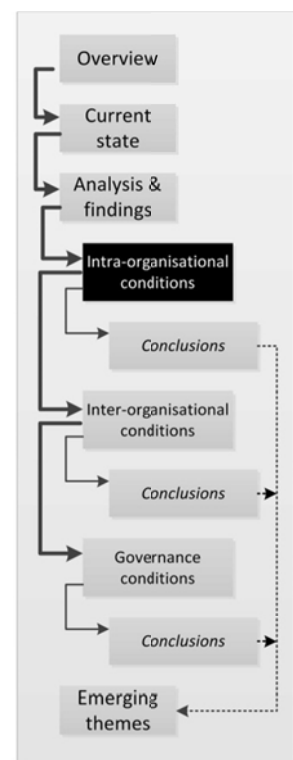
Note: That incentives/motives in italic font are negative incentives/motives or instances of possible 'crowding out'.

There are also economic non-monetary incentives being provided through extensive field services providing advice, longer term contracts and other business support (e.g. pre-payments for crops, seed supply, contractor arrangements). However, historical experience indicates that such support soon becomes regarded as an ‘entitlement’ rather than an incentive by the growers, generates dependence and may be responsible for some degradation of their business skills and lack of understanding of global business changes. More importantly however, they have also failed to generate the structural change in the industry to achieve scale, strategic change in farm businesses, a collaborative culture, or co-innovation (Decloid Senior Managers C9, C12, C59, C60; Farmer Organisation C64, C65). These attempts at non-monetary incentivisation have become regarded by Decloid as a failure and further reinforced the company’s negative perceptions of this type of incentive (Decloid Senior Managers C9,

C12, C17, C20). The ‘boom and bust’ cycle of prices has incentivised vegetable growers to look for alternative enterprises to improve profits and the erratic changes in strategy, often driven by Battel, have caused confusion amongst growers and led to imputations of dishonesty or exploitation. Decloid has compounded this with a top-down approach and often poor communication. This short term profit approach and opportunistic behaviour, tolerated by Decloid, had become embedded in the farming culture (Consultant C56, Growers C66, C31, Decloid Senior Managers C9, C12, C17, C20).

However, some vegetable growers appear to be trying to position themselves to become ‘preferred suppliers through relationship-specific investments in ‘drought-proofing’ by constructing large water storages (Decloid C58). For their part, Decloid was attempting to develop a more positive relationship with some of its larger suppliers through annual strategic planning meetings, removing minor contractual issues that aggravated suppliers, offering longer term contracts and customised contracts for larger growers organising a supplier development program for those identified with the capacity or desire to become strategic suppliers⁶³.

The preceding discussion shows that Decloid has compromised its corporate values by using Battel’s autocratic, price-based approach to incentivisation for its vegetable growers which has failed to effectively incentivise them to change, collaborate or co-innovate. Decloid’s confusion about the chain’s strategy and conflicted corporate values have evolved into a paternalistic approach to managing grower relationships and poor strategic or operational communication. The growers’ lack of



⁶³ An approach to collaborative exchange that attempts to manage interdependence by building trust, open communication, minimising conflict, coordinates work and plans for the future in order to leverage partner strengths. It involves the careful selection of partners for long term relationships to ensure strategic fit, co-investment in the relationship and systematic relationship management (Spekman 1988).

understanding of global changes in the agrifood industry and frustration about their relationships with Decloid have generated a lack of trust, antagonism, opportunistic behaviour and political militancy that has increased supply risk rather than reduced it. Thus, both Decloid and the growers have contributed to the decline of the competitiveness of their industry and resisted the changes necessary to develop a more sustainable value chain.

From this it can be concluded that, firstly, Battel's approach to governance and product sourcing drives an antagonistic, opportunistic culture across the whole chain in spite of Decloid's values-driven foundation and long-term approach to business relationships. Secondly, it appears that an emphasis on economic incentives is inadequate to incentivise complex partner behaviours required for structural change in an industry, strategic change in businesses or co-innovation in value chains. Finally, incentives that lack carefully designed customised application to the circumstances of partner firms may be ineffective in achieving the desired change in behaviour.

5.3.1.2 Incentivisation of operational staff

The Literature Review suggested there is a need for a mix of both extrinsic and intrinsic incentivisation to achieve the desired performance and how a level of individualisation of incentives may be necessary to achieve internal innovation and inter-organisational co-innovation (Section 2.10). This section addresses SRQ3 which asks: "How do agrifood firms incentivise operational staff to co-innovate?" A summary of what has been found in this case study is provided in Table 5.5.

Battel managers and staff appeared to be working in a highly pressurised environment where there was little tolerance of under-performance. Decloid Senior Executive C59 said: "...they are absolutely under the pump to get it performing..." As indicated earlier, there was a high turnover of managers at all levels, decisions had a short-term, profit-focus and were often conflicting between functions. This appeared to affect the whole chain:

...when you've got people making contradictory decisions at different management levels it means they don't have a clear plan. Which hurts their business but it hurts us as well. Because it means we either incur unnecessary cost or we can't deliver to the standard that we would normally expect. So we don't get the best outcome and neither do they (Decloid Senior Executive C59).

Table 5.5: Summary of individual level incentivisation and motives

Individual Level Incentivation (Expectation or benefit that enables or motivates a particular course of action or behaviour)	Motives Generated (Motivation is the process of activating or energizing, direction, intensity, and persistence of goal-oriented behaviour)				Intrinsic Incentives				Extrinsic Incentives				Regulation				Introjection				Identification				Integration				Intrinsic			
	Motives Generated				Intrinsic Incentives				Extrinsic Incentives				Regulation				Introjection				Identification				Integration				Intrinsic			
Battel	Battel																															
• Individual bonuses based on economic & efficiency/effectiveness KPIs after hurdle rate for corporate performance achieved	• Specific designated economic and business development behaviours								✓				✓																			
• Termination or transfer for under-performance	• Short termism, multiple strategies • Rapid decision-making								✓				✓																			
Decloid	Decloid																															
• Annual team bonuses after company EBIT hurdle rate achieved, shared as an individual bonus	• Specific designated economic and business development behaviours assoc with diversification, NPD and efficiency								✓				✓				✓				✓											
• Managing Director's Award	• Commitment to the company • Development of corporate culture • 'Crowded out' by the extrinsic reward scheme												✓								✓				✓				✓			
• Team-based culture	• Working together; non-competitive behaviour																✓				✓											
• Organisational culture	• Commitment to the company																✓				✓				✓				✓			
• Employee relationships	• Communication & openness																✓				✓				✓				✓			
• Personal challenge	• High work performance																✓				✓				✓				✓			
• Professional development	• Adaptability, high work performance																✓				✓				✓				✓			
• Field Officers – budgeted tonnage & scheduled delivery dates	• Effective coordination of raw material production								✓				✓																			
• Field Officers – affirmation by growers & community**	• Alignment with growers, subverting of company interests																								✓				✓			
• Plant managers – efficiency	• Waste reduction, achieve DIFOT • Avoid the disruption caused by innovative activity, thus no innovation								✓				✓																			
• Extra individual work involved in non-NPD innovation not covered by extrinsic incentive scheme	• Non-participation in innovation								✓				✓																			
Growers	Growers																															
• Provide a good lifestyle for their self or family	• Persistence in the face of economic adversity				✓				✓																				✓			
• Supply chain development	• Reputational peer esteem accruing from participation				✓				✓												✓				✓				✓			
• Be regarded by their peers as 'good farmers',	• Yield competitiveness				✓				✓								✓ [#]				✓				✓				✓			
• Stewardship of the land	• Membership of Landcare groups; investment in cons				✓				✓								✓				✓				✓				✓			

Note: ** = Note that incentives/motives in italic font are negative incentives/motives or instances of possible 'crowding out'.

= Recognition awards for yield productivity are made by the processor

Unfortunately, little information regarding individual incentivisation in Battel was made available to this researcher. However, it appeared that bonuses were available on individuals meeting their KPIs if the overall business meets a hurdle rate of performance focused on achieving specific, designated economic and business development behaviours. There are also negative or punitive incentives so that if the hurdle rates are not achieved then individuals are moved onto other jobs or out of the business (Battel Senior Executive C68). As the hurdle rates had not been met for several years this means that at the time of this research, Battel employee incentivisation was focused on negative incentives. Such negative incentives may generate employee motivation to employ a short term outlook and engage in rapid, poorly communicated and uncoordinated decision-making in a search for strategies to raise profits sufficiently to enable individuals to retain their jobs and meet the hurdle rates to achieve a monetary bonus. There appears to be little intention to invest in the development of its staff nor to develop an organisation which learns from its experiences.

Decloid, on the other hand, has a highly developed and recently revised incentive system for their staff. The company strategic plan cascades down to a section or team level who discuss the strategies and KPIs and are aware that they have to implement the IPP (Individual Performance Program) seriously if they are to participate in any incentive scheme (Decloid C17). The approach to incentivisation was perhaps summed up by Decloid Senior Executive C26 who said:

When you're incentivising somebody, you really need to avoid those qualitative measures because they are very subjective extremely hard to measure. However, anything that is worth measuring can be measured, so what is the component that would reflect a very good relationship with somebody? Any system that is developed must be simple, quantifiable and easily verified.

It is this mental model that appears to pervade the firm's approach to incentivisation. At the time of this research a new Incentive System was being rolled out. It was a system that had been fundamentally revised by the international parent company prior to approval and was more conservative and objective than that proposed by the Australian subsidiary. Seventy five per cent of the Incentive System was focused on activities to:

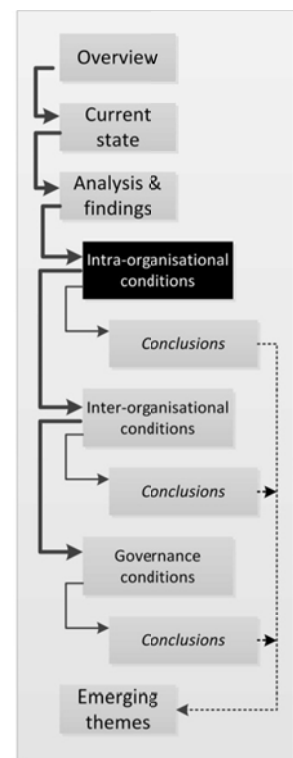
- Company Return on Investment (ROI);
- Reduce inventory;
- Increase NPD Innovation.

In keeping with the company's egalitarian approach, the annual bonuses were team-based after a company EBIT hurdle rate was achieved, reduced to an individual bonus as determined by 'job

family'⁶⁴, employment level and performance rating. The quantum of each individual bonus was negotiated between supervisor and employee at 5%, a 7.5%, 12.5% or a 15%. The intent of this was to increase employee obligation and opportunities for those employees who were significant contributors (Decloid Senior Executive C26, Manager C57). The new Incentive System is part of a performance management system which involves negotiated performance and development KPIs between managers and their direct reports. Decloid C26 indicated that locking the Incentive System to employment level gives individuals incentive to climb the scale and thereby receive greater incentive payments. However, he conceded that “Incentivising non-sales people is extremely difficult...”

Decloid also has a formal individualised, introjected or recognition incentive called the ‘Managing Director’s Award’ (MDA) for individuals who had achieved exceptional job performance or applied the corporate values to achieve something of excellence for the company. It was not explicitly associated with a monetary or promotional reward, although its recipients were highly regarded across the company. However, Decloid C21, a recent recipient, said: “...it’s a sign I should spend more time with my family...” and C26 indicated that the company lost many of the MDA recipients within a year or so of the award. Certainly, C21 appeared somewhat disgruntled with the bonus system because whilst he “... [has] an individual performance plan, but it doesn’t mean much because there’s no performance bonus. It just gets divided up between staff, but not related to individual performance...” Whilst this was the only explicit negative statement about the Incentive System in general, several managers made it clear that they believed the system and other related processes did not support innovation.

Whilst innovation by the company comprised 10% of the bonus pool, innovation is not regarded as an individual responsibility and is only specifically incentivised where staff have a formal innovation function and then the focus is NPD (Decloid Middle Managers C11, C24). Despite a number of middle managers being concerned about the state of innovation in the company (Decloid C11, C24) innovation, risk-taking or autonomous adaptation that benefits the chain is not incentivised internally or upstream with vegetable growers or downstream with 3PL providers (Decloid Senior Managers C17, C20). Decloid C24, believed that if Decloid fails to innovate Battel will go to other suppliers and commission their own NPD. C24 also gave a specific example of how the incentive system has some important misalignments. He said:



⁶⁴ A job function-based categorisation.

Plant Managers are not incentivised to innovate; if they implement an innovation and DIFOT or other measures suffer, they get badly burned. Plant managers want things to stay just the way they are and they will improve efficiencies with what they've got.

Further, individual bonuses were narrowly focused on a few jobs with an easily quantifiable individual impact on company turnover (e.g. Sales). The system was ineffective in motivating specific individual behaviours within teams because of the limiting of the targets to easily measured, objective parameters and the inability to link individual behaviour to results or to identify 'freeloaders within teams. It also failed to identify hard targets for motivating service sections within the company (e.g. Human Resource Management). Further, there were some key misalignments, indeed clashes, with strategy and values.

The incentive system does not specifically target non-NPD innovation and there was no reward for submitting innovative ideas. However, the originator was usually co-opted on to a project development team, which provides "enjoyment" but "means more work" so may actually discourage people from submitting ideas (Decloid C14). So innovation is almost entirely carried out by Sales & Marketing (Decloid C11, C17, C20, C24, C26). Decloid Senior Executive C26 said: "Innovation in a food company is generally defined as about food..." With that definition, he believes it is difficult to engage those outside of Sales & Marketing because they are too busy with their own jobs to innovate which may be indicative of the general commitment to the value of 'innovativeness'.

The formal innovation process is managed by the Stage-Gate System[®] which appears to be more of a project management system than an ideation process. It is very difficult to get an Idea Generation Brief (IGB) into the system unless you're from Sales & Marketing because staff have little knowledge of what the strategic marketing priorities are for the near future and in any event over 90% of IGBs are "killed" (C24) either because they are too risky, there are insufficient resources or there are already too many IGBs in the system. The effect on individuals who unsuccessfully submit IGBs is that they will probably never raise another idea (Decloid C24). Resourcing appears to constrain innovation in anything other than NPD (Decloid C16, C18, C21) and there appears to be little scope for innovation on-farm except for improving efficiency and effectiveness (Decloid C17, C20).

Field officers have a performance bonus in their contract which focuses effort on getting growers as close to their budgeted tonnage and scheduled delivery dates as possible. Over-tonnage and under-tonnage both impact performance bonuses (Decloid C20), although Field Officer C19 claimed this was not a personal incentive for delivering tonnage and to schedule. This may have been due to other incentivators:

...how they feel in their relationship with growers and they still feel pride in that and seeing the system all work so that everyone's happy. The motivation to do that is largely

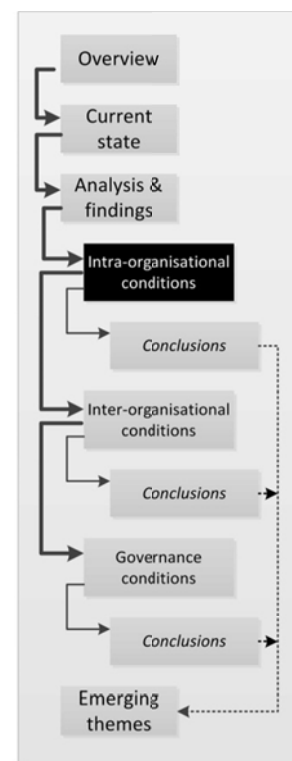
very personal, and it's not money or reward....it's about feeling good in that relationship....and being trusted and respected. You don't incentivise that...money doesn't do it (Decloid C17).

Table 5.5 indicates that there appear to be a number of negative incentives or incentives that 'crowd out' (Frey & Jegen 2000, 2001). In the first example, Decloid field officers are formally extrinsically incentivated to achieve their delivery tonnage by the targeted dates. However, there is a competing social or intrinsic incentive to act in ways that receive the approval of farmers with whom they share social networks (indicative of individual values) and provide them with the personal affirmation they may need. Hence, some may not act in the best interests of the company or even in their own interest in terms of receiving extrinsic rewards and this became apparent during interviews where several field officers appeared to be subverting the company's interests to help their vegetable growers. This is indicative of a values misalignment amongst Decloid staff with potentially important implications for the implementation of company strategy.

In the second example, plant managers are extrinsically incentivised for DIFOT and plant efficiency which can be disrupted by innovation. The lure of monetary reward appears to compete with the culturally and group-based intrinsic and social rewards of innovation and so innovation is avoided in order to maximise their monetary reward.

In the final example, it was identified that the lack of an individual monetary reward as opposed to a team-based monetary reward may act as a negative or disincentive for some to engage in innovative activity so there is a lack of balance between team and individual incentivitation.

When considering the incentivitation of growers it appears that most of the explicit incentives are contract-based and therefore classed as operating at a 'firm level'. However, there appears to be one instance where an incentive offered by Decloid operates at both the individual level and the firm level and that is with the company's 'supply chain development' program. Apart from improved strategic business skills and technical support, this program provides individuals with incentives including longer-term contracts, preferred supplier status, support for financing, full fee scholarships for 25% of attending growers and recognition that may win peer esteem. The remainder of the individual incentives for vegetable growers are focused on 'lifestyle', peer group reputation as a farmer and the sense of 'good stewardship of the land'. The strong regional cultural orientation and idiosyncratic base for these incentives may provide an insight into why it has been so difficult for Decloid to introduce strategic change into its supplier base.



In summary then, at the individual level in this chain, multiple forms of incentives appear to be operating. However, these systems are partly misaligned with corporate vision, strategy and espoused values across the chain. Within Battel incentives appear to be largely extrinsically focused incentives with some strong negative incentives that motivate highly short-term, economically focused behaviour. On the other hand, Decloid has a more balanced approach using multiple forms of incentives generating a wider range of types of motivation but there is still a major emphasis on extrinsic monetary rewards for some and some internal misalignment with the company's innovation strategy. At the grower level, most explicit incentives operate through the contracting system at the family farm business level and for individuals emphasise personal social and intrinsic incentives that are perhaps culturally-based and difficult to change.

This section has focussed broadly on the incentivisation of individuals, but the Literature Review suggests that executive managers have an important influence over both corporate and individual behaviour, so the nature of their incentivisation may also be important to the operation of value chains (Section 2.11). Hence, the next section will seek to understand how executives in this chain were incentivated.

5.3.1.3 The incentivisation of executive managers

The executive managers of the businesses in a value chain play a critical role in influencing corporate behaviour generally and co-innovation in particular. In the Battel-Decloid Frozen Vegetable Value Chain there appeared to be little purposeful alignment between the incentive systems employed by the chain partners.

Battel's strategy appears to cascade down to business unit and individual executive KPIs. As noted earlier, Battel are tightly focused on winning back their customers and market share. Their strategies to achieve this appear to include competing on price and quality (Battel C21, C41, C43), distribution efficiency (Battel C43) corporate differentiation (Battel C41, C43), providing one iconic brand and private label segmentation and livening up a dull, low engagement category with exclusive, innovative products. However, as stated succinctly by the four Battel managers in C43 the: "...only strategy which really matters is price strategy..." This apparently simplistic comment suggests that the company's poor competitive performance is driving a strong focus on extrinsic incentives for individuals to achieve high efficiency-price performance. Battel General Manager C68 outlined how executives are incentivised by:

- a) Base remuneration;
- b) A short term incentive plan focusing on scorecard KPIs such as increasing sales and reducing shrinkage;

- c) A long term incentivisation plan focusing on the next annual budget cycle, a number of strategic goals with success hurdles such as ‘earning per share’ (EPS)⁶⁵;

The incentives themselves are essentially extrinsic with cash and share options maturing over 3 – 5 years. Executives also faced the possibility of losing their employment and this occurred on several occasions during this project with quite large numbers of middle managers and senior executives losing their jobs at short notice. This appears to incentivise the short term emphasis on increasing profit through greater efficiency, higher margins, lower product prices and innovation to increase footfall.

Because of this focus, these efficiency-price imperatives cascade down to Decloid driving their performance parameters and flowing on to price pressures on vegetable growers. Decloid aims to grow market share and turnover through aligning itself with trends in consumer’s interest in health and convenience (Decloid C28). The aim in the frozen vegetable category is to maintain market share because it’s not regarded as a high growth opportunity (Decloid C11), and so the channel into Battel is driven by price for the private label products and focuses innovation on Decloid’s own brands (Decloid Senior Executive C30, Managers C27, C9). Consequently Decloid is also seeking to manage risk through developing contingency supply to reduce climate risk and develop counter-seasonal production (Decloid C6, C60), share the costs of innovation (Decloid C28), and develop long term relationships (Decloid C27). Despite its need to develop contingencies, the company has committed to basing its operations mainly in one regional area (Decloid Senior Executive C60).

Perhaps because of somewhat more focused strategies for its vegetable products and its commitment to more holistic human values⁶⁶, the Decloid executives appear to be more broadly incentivated with extrinsic, social and intrinsic incentives⁶⁷. All executives including the CEO are on the same system as the rest of the firm except that ‘bottom line’ of their area of strategic responsibility is incorporated into KPIs and the quantum of bonuses is much larger. Senior executives appeared to be highly motivated by their salary and bonus packages but also claimed to not be exclusively ‘money-oriented’. Decloid Senior Executive C60 said:

So if it fails, I fail...to be honest with you I’m not all that money driven but when the money is that big and you’re getting close to retirement like me you start to think, well,

⁶⁵ EPS is that portion of company profit allocated to each outstanding share of common stock. Earnings per share is regarded by many as one of the most important indicators of a company’s profitability (Investopedia ULC 2010).

⁶⁶ Refer Section 5.3.1.4 for a more detailed explanation of corporate values.

⁶⁷ Decloid Foods provided high level access to information about their incentivisation system and data were collected on executive incentivisation from six of seven Executive General Managers who comprise the Board of Management. They also provided candid personal insights into their motivation and, in order to protect this trust, the analysis is necessarily somewhat circumspect.

better in my bank than theirs. If I can deliver the bottom line that helps pay for it then why not.

He was also energised by the challenges:

I've gone out and bought three businesses in the last twelve months or eighteen months, so that gets me up in the morning because there's just so much happening and so many things to do. I've enjoyed it.

So, it appears that the extrinsic incentives play an important role in focusing and concentrating executive effort on the strategic goals but their work is also intrinsically motivating. So there also appears to be a number of social and intrinsic incentives that are important to them. Decloid Senior Executive C59 appears to be incentivised by his identification with the company's approach: "It's refreshing to work with a company that's investing in growing rather than one that's slowly contracting." He also found the corporate culture intrinsically motivating:

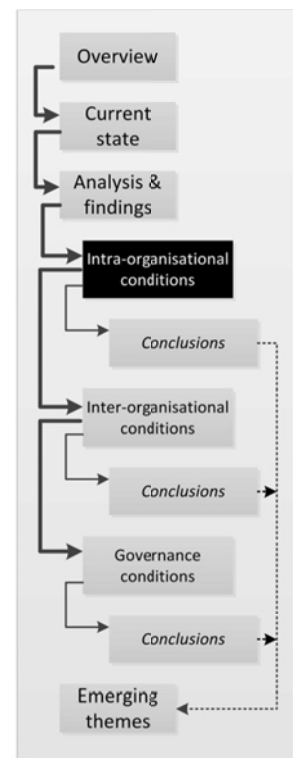
What that [organisational transparency] does is it cuts out 90% of the politics. Because it's actually an open organisation and it's truly shared goals. Most companies where there's silos and there are secrets, there's a lot of unproductive horseplay behind the scenes. That's what I call politics...So if there is any of that stuff goes on [here] it's not tolerated. People quickly understand no one's interested ...

Senior Executive C60 was also incentivised intrinsically by:

I've always loved business and I love this place because it's just got so many, it's so multi-faceted...I enjoy – I'm a pretty open manager so I really get in amongst everybody and I enjoy that sort of a vibe. To be able to stand up in front of the people here for the last two or three years and tell them how successful we've been and we've written a profit above any other time and they've got a big bonus coming, it's just such a buzz.

Therefore, the six senior executives of Decloid claimed that whilst extrinsic rewards were certainly important, they were not the only incentives for their commitment to their work and the company. So Decloid's purposefully designed and managed incentive system appeared to be effective in providing broad-based (extrinsic, social, intrinsic) motivation for its executives.

The general alignment of Decloid executive incentives suggests that the performance imperatives of the most powerful firm may be a very important influence in the motivation of design of incentivisation



systems in the other chain partner firms as well as the executives and individual levels within them. Battel's imperatives to reverse its declining market share, profit and share market poor performance through the performance imperatives placed on its suppliers may also have a direct influence on the design of executive incentives employed in supplier companies. However, in the case of Decloid, the strength of the supplier's own values and culture means that executive incentives are more broadly based in social and intrinsic incentives to achieve social and normative goals than just simply meeting Battel's demands. However, more than that, Decloid executives also appear to have wider economic incentives to achieve important strategic business goals not associated with Battel, providing further evidence of the strategic misalignment between the two and the effect on incentives.

5.3.1.4 The impact of values, attitudes and norms on motivation and incentivisation

This section addresses SRQ11.

There appeared to be marked differences in the values and attitudes of the personnel across the chain partners which may have affected how each approached doing business with their partners. Many of Battel's senior managers came from large UK retailers and others had careers in Australian retailing which led to the development of two factions about strategy within Battel; the UK executives supporting global sourcing and the Australian supporting local sourcing. Decloid managers similarly had a processing background but their field service staff were generally from the vegetable growing region reflecting the cultural attitudes of the local community⁶⁸. On the other hand, the two hundred and forty vegetable growers were highly diverse but generally appeared to be very independent, conservative and defensive of their culture and lifestyle.

Battel have a goal of being "...a shop they [consumers] trust, delivering quality, service and value". They claim that they give primacy to consumer value, supporting each other, pride and constant improvement (Battel Document C89). However, their commitment to such customer focus must be in question because consumer research is very inadequately resourced, the information is not readily available even to internal staff because the data is difficult to access⁶⁹ and they have a policy of not sharing it with suppliers. They expect suppliers to undertake their own market research (Battel Middle Manager C44; Senior Executive C67) and provide little validation or monitoring of that research. For example, Battel's Private Label <Provenance Brand>, a major national strategy sustained over several years was proposed by Battel to Decloid and when Decloid came back agreeing to the concept, Battel assumed that they had done the necessary market research. In reality, Decloid C29 said:

⁶⁸ They were often small, part-time farmers in addition to their company role.

⁶⁹ The data is in an old programming language and requires special routines to be coded to obtain any analysis. Because there are few resources allocated to the task and there are many categories to be analysed, the consumer loyalty card data is under-utilised (Battel Senior Executive C67, Senior Manager C68).

There is an important gap in our understanding of the Battel's private label strategy for frozen veg. During our meetings we did not explore how Battel came to identify and adopt the strategy of branding private label frozen veg as "<Country> Grown".

Therefore, if a strategy with a multi-billion dollar turnover is based on assumptions by both parties, the commitment of both to understanding consumers and open communication must be questioned.

Battel had, over recent years, employed a large number of middle and senior managers from the U.K. which appears to have resulted in the development of ideological factions within the company regarding strategy and operational approach. This may have combined with the communication problems and organisational siloing to produce the confusion noted elsewhere in this case study within middle management and amongst those with whom they interacted at Decloid about strategy (Battel C41). The extent of this siloing and confusion appeared to indicate little commitment to their corporate value of 'supporting each other, pride and constant improvement'.

Battel appeared to be more competitor-focused than consumer-focused because they were losing 10-20% market share to a new multi-national competitor (Decloid Brand Manager C27, Decloid Senior Executive C58). As result, "...The only strategy which really matters is price strategy...I don't know what the merchants have told you, but we're hurtling down the international sourcing path... Consumers don't give a damn about [provenance]..." (Battel C41, C43; Decloid C27, C22, C58). This may be due to the view expressed by Battel Middle Manager C41 that: "...for Australian consumers the catalogue is like a drug..." and "...they cherry pick offers between supermarkets..." having "...much less store loyalty than the UK". Decloid Senior Executive C58 agreed saying: "...it's absolutely empirical..."

Battel's values also claim to "...support each other to get things done..." but the company doesn't support processors with consumer data and they don't have a "...relationship, visibility, dialogue with growers on processed vegetables...We regard it as something the suppliers deal with..." (Battel C41). Battel C41 may have summed up the conflicting approaches to corporate values when he opined that: "...to improve the relationship [we] need more clarity on each other's needs..." But perhaps the prevailing culture is one of siloing between marketing and merchandising (Battel C44) and deliberate disinformation or the manipulation of information to suppliers as advocated by Battel Senior Executive C67.

Neither does it support Decloid with open communication and long term certainty in its relationship. A recent meeting between strategic managers of both companies "...re-affirmed our love for each other..." where both sides agreed the relationship "...ticks all boxes for preferred supplier status..." (Decloid C17). However, given earlier evidence that Battel are secretive, even manipulative, about

information and strategy, short term in their relational outlook, and inwardly confused about their relationship with Decloid, the integrity of such undertakings must be questioned.

Thus, the published Battel values on its website do not appear to have been well operationalised possibly because there appears to be conflict between public values and the ‘real values’ driven by their incentive system and espoused by senior managers that emphasise short-termism, secrecy and expediency to achieve low prices and improved profit.

In contrast to Battel, Decloid is a private company with its historical roots in a farming family which prominently displays and refers to its corporate values for its employees, suppliers and consumers⁷⁰. However, there was no evidence that the corporate values influenced their choice of strategic partners or decision-making although it was inferred that the company’s commitment to the region <state> in which suppliers were based was a values-based decision. At an operational level Decloid’s values appear to be applied more consistently, but with expedience when it comes to the tough decisions. The firm is strongly team-based, seeking the best for the company as a whole without cannibalistic business unit competition and “...work very hard within the company to try and live by them [values] ...” (Decloid C59). However, it appears that whilst those values are moderately well demonstrated in corporate and individual behaviour, at times some of their actions cause their chain partners to question their commitment to those values. This may be due to the incentivisation of corporate values being mainly limited to the social incentive of the Managing Director’s Award and culture.

Decloid’s commitment to egalitarianism and belief in the impracticality of managing incentivisation for anything other than objective performance meant that they failed to effectively incentivise innovation or co-innovation. This occurred because of (a) their use of team-based extrinsic incentives rather than a mix of extrinsic, social and intrinsic incentives for both teams and individuals, and, (b) their belief that incentivising anything other than objectively measurable outputs was too difficult. However, whilst these conditions certainly constrained the manner in which Decloid approached innovation and co-innovation, the major problem with the chain’s innovativeness was the lack of alignment of the incentive systems used by each of the partner firms.

The company has, as two of its core values, leadership and integrity. However, as discussed in Section 5.3.3.3, Decloid’s leadership of the chain appears confused and its inconsistent messages combine with poor communication to influence grower’s perceptions of the company’s integrity, thereby contributing to the lack of trust, resentment and resistance. Decloid C17 said: “We have squeezed the life-blood out of the relationship to constrain prices and still maintain supply.” The inference

⁷⁰ To protect the anonymity of the company a comprehensive list will not be provided, however they include innovativeness, leadership, honesty, transparency integrity, proper conduct, ethical behaviour, respect, flexibility and excellence, and encompass staff, suppliers, customers and consumers.

underlying that statement and the conversation was of exasperation at trying to reconcile the ruthless pursuit of a lowest price strategy to satisfy Battel's demands and the welfare of the farm suppliers.

Yet, senior executives interviewed repeatedly expressed both a personal and company commitment to the production region that appeared to be a form of paternalism (Decloid C9, C12, C17, C20, C58, C59, C60). This may account for a one way communication style focused on 'telling' the vegetable growers what to do (Decloid C12; Grower C37, C31) Some were of the view that the relationship fostered unhealthy grower dependence because they ultimately failed to develop a full understanding of the changes occurring in the wider business and economic world and also failed to develop the modern management skills required to cope (Decloid C12, C17, C20).

This apparent paternalism may have led to confusion within Decloid regarding their role in the chain. Fundamentally this chain is driven by price and efficiency (Decloid C15, C20, C30; Grower C31, C33, C35; Consultant C56), producing 'functional products' in a chain resembling Fisher's (1997) category of 'efficient chain' in response to Battel's needs. Thus, operationalising Decloid's company values of regional commitment and relational management would be difficult in such a chain and has resulted in the company compromising its values.

Many people interviewed for this case study repeatedly referred to "growers" as if they were a homogeneous group; yet it appeared that growers were a highly heterogeneous group coming from different ethnic and experiential backgrounds with very diverse values, skills, education and productive capacity. This may have contributed to the company's acceptance of the notion that a one-size-fits-all contract was adequate to achieve the performance they required.

Historically, there has been a real 'us and them' attitude between the processors and the growers that has led to suspicion, distrust, opportunism and even deceit. Consultant C56 believes that the grower 'us and them' attitude has been fostered because of the confrontational approach to growers taken by the processor companies in the past. Notwithstanding some growers recognising their interdependence (Growers C2, C31, C34, C35, C38), the prevailing attitude across the diversity of growers appears to be that "...growers see themselves as Decloid's customers..." (Decloid C12) thus demonstrating their lack of understanding of their role in the chain and marketing dynamics.

Further, as indicated previously, Decloid regard themselves as an innovative company yet their definition of 'innovation' is narrow and consequently their implementation is constrained. Other constraining influences have been (a) their use of team-based extrinsic incentives rather than a mix of extrinsic, social and intrinsic incentives for both teams and individuals, and, (b) their belief that incentivising anything other than objectively measurable outputs was too difficult.

Decloid claim to value risk-takers amongst their growers (Decloid C20) yet they incentivise efficiency and compliance with product specifications and not risk-taking (Decloid C24). They provide only minimal, informal support for any on-farm losses that occur from undertaking trials on the company's behalf (Decloid C20), despite knowing that the high level of farmer equity has led to their risk-averse outlook (Decloid C17).

However, whilst these conditions certainly constrained the manner in which Decloid approached innovation and co-innovation, the major problem with the chain's innovativeness was the lack of alignment of the incentive systems used by each of the partner firms.

Thus, it appears that due to a confused approach to implementing their values of leadership, integrity and innovation combined with poor communication may have led to Decloid developing a chain mismatched to their value system. Decloid's emphasise on ethics, openness, commitment and long-term relationships are not matched in their partnership with Battel. Their value of commitment to suppliers has evolved into unhelpful paternalism and the subjugation of their values to comply with Battel's demands for cheaper products. Finally, their value of innovativeness is not implemented internally nor demonstrated in the management of their supply relationships with fundamentally conservative farmers.

In conclusion then, this chain lacks alignment and effective operationalisation of the espoused values of the chain partners. Decloid appears to be mismatched in their partnership with Battel who are going through a period of fundamental redefinition. The inconsistency in approach that results appears to compromise Decloid's strategic intent to be values-driven and innovative. Because their 250 suppliers are not purposefully selected for their alignment of vision, values and productive capacity (Decloid C12, C17, C20) this presents an important barrier to Decloid's ability to develop a unified chain culture based on shared values, not to mention its management of supply uncertainty, product quality and the chain's adaptability. Many suppliers are small, non-specialised, highly politicised, occasional vegetable growers and whatever strategy or action Decloid want to adopt will find a large number of vegetable growers who do not understand the market imperatives or have little capacity or willingness to align their action with the needs of the chain (Consultant C56). These factors combine with the lack of trust and commitment and supplier culture mentioned in earlier sections to result in transactional followership lacking in responsiveness and, on occasion, resistance and political militancy.

5.3.1.5 Conclusions regarding the intra-organisational conditions that influence co-innovation

Overall, this section on intra-organisational factors affecting co-innovation has shown that the firms in this chain are lacking in alignment of many of the key value chain management variables such as vision and strategy, value systems, organisational culture and as a result, incentivisation at all levels lacks alignment.

The level of innovativeness in the chain was regarded as being equivalent to the industry benchmark (Decloid Senior Executive B59). It appears that the mental models of governance held by senior managers in Battel is constraining innovation by creating an adversarial and opportunistic chain culture with little trust or commitment.

Battel is under competitive stress and is experimenting with a range of strategies to improve their position thus creating a lack of coherent long term strategy, but primarily is competing on price. No evidence was provided by Battel of a strategic goal of innovativeness, although there was a tactical imperative from some managers for 'innovative products' from suppliers. Battel's managers had little commitment to suppliers and were willing to buy frozen vegetables from low priced international sources to achieve their price-based private label strategy. This amounted to an opportunistic exercise of coercive power (Belaya & Hanf 2009) to force prices down which exploits Decloid's commitment to its own brands. Hence, Battel's lack of coherent strategy acts as a disincentive for Decloid and the vegetable growers to fully commit to Battel.

Achieving aligned chain strategy is widely accepted as a critically important process for chain coordination (Gattorna 1998, 2009; Hammer 2006) because of the effects on internal culture and attitudes, and engaging in collaboration is necessary to achieve continuous innovation (Soosay, Hyland & Ferrer 2008). Blomqvist and Levy (2006) regard long term commitment as the cornerstone of collaboration whilst Crosno and Dahlstrom's (2008) work on opportunism suggests that in an atmosphere of uncertainty, a lack of co-investment, heavy-handed monitoring, poor communication, a lack of norm-based behaviour and overall satisfaction with the relationship, firms will act opportunistically. Battel has exploited the threat of its own opportunism as part of its coercive use of market power, consequently Decloid has responded to manage this risk and achieve its own vision by diversifying into other processed vegetable products, acquiring brands and businesses with which to market them. Thus, the growers have become antagonistic to both companies and exercised their own form of coercive power when there are vegetable shortages and opportunistically sought out alternative enterprises or outlets or opted to leave the industry.

Further, Decloid's mental models of innovation and incentivisation also appear to be limiting chain development and co-innovativeness because mental models are important to understanding

complexity (Richmond & Peterson 1997), the shared understanding of goals (Robertson 2006) and how to change organisations (Meyer 2007). So, despite Decloid's espoused core strategic focus on innovation, their narrow definition of 'innovation' and belief that incentivising anything more than objectively measurable performance limits innovation to an internal NPD function engaging few people and its incentivisation to objectively measurable sales growth and company ROI. This not only constrains innovation within the company but also means that there is no explicit strategy of co-innovation across the chain because it is not part of the strategy and is not incentivised. Consequently, the only two examples of co-innovation identified had both arisen informally outside the Stage Gate® innovation management system. Thus, if the lead firm has flawed conceptions of innovation and incentivisation, its execution of an 'innovation strategy' through the incentivisation system will limit the results.

The links between innovativeness and firm performance are well established (Adner & Kapoor 2010; Fortuin & Omta 2009; Ross & Westgren 2009; Vincent, Bharadwaj & Challagalla 2005) and Vincent, Bharadwaj and Challagalla (2005) have specifically identified the importance of the definition of 'innovation' on operational behaviour and the mediating role of 'innovation' on firm performance. Others, such as Gottschalg and Zollo (2007), Simatupang and Sridharan (2007) and Soosay, Hyland and Ferrer (2008) have proposed that incentivisation as a pre-cursor of collaboration and innovation. Therefore, the findings above suggest that there is a link between the strategic conception of innovation and co-innovation, strategy execution and the firm incentivisation of the behaviours that achieve it.

Battel's approach to incentivising its senior executives and managers was largely extrinsic, employing both monetary and negative or punitive incentives. This meant that they strongly focused on the economic performance targets of the company, translating this into similar economic performance by suppliers such as Decloid. Due to the misalignment of strategy between the two companies, they are pursuing different directions for development; Battel market share based on price and Decloid into diversification to exploit their brands and achieve their value-adding goals. Thus, Battel managers impose DIFOT supply requisites on Decloid using mainly economic incentives to achieve their own incentivised KPIs. This is translated by Decloid into their own strategy which reflects both Battel's requisites and their own broader goals which then become the KPIs for Decloid executives and employees. These, due to the more values-oriented mental model operating in Decloid are more broadly based, employing extrinsic, social and intrinsic incentives. Many authors have concluded that incentives are an important component of aligned chain strategy (Cameron & Quinn 2006; Cohen, Kulp & Randall 2007; Lee 2004; Narayanan & Raman 2004; Prendergast 1999; Schein 1990; Simatupang & Sridharan 2005, 2007; Söderlund 2007). Critically for this research though, Söderlund (2007) proposes that incentives must be aligned across the individual, firm and chain levels to achieve the alignment of behaviour with chain collaboration goals. Bolton and Dwyer (2003) claim that: "One

of the most common reasons [for failure] is that organizations lack alignment between the value proposition and the work and beliefs of individual employees of the organization...” (p. 603). This is supported by Eisenberg’s (1999) findings. So, the misalignment in strategy found in this research has generated divergent streams of incentives resulting in diverging effort across the value chain.

Apart from the economic incentivisation associated with their farm businesses, the individual farmers expressed a broad-based social and intrinsic incentivisation and hence, they too were motivated to look outside the chain to achieve their aims. They are not incentivised to be innovative within their businesses or to be co-innovative. In any event, it is claimed they lack strategic thinking capacity (chain-wide and external market understanding), the business capability or the skills to be highly innovative which Decloid believe is constraining chain development (Section 5.3.3.3). Craighead, Hult and Ketchen Jr (2009) have concluded that chain fit between innovation strategy, partner firm’s knowledge development capacity and intellectual capital influences their return-on-assets and overall financial performance. Further, Chroneer and Mirijamdotter (2009) found in two studies that whole chain systems knowledge was essential for product development and Taylor (2005) found that a lack of chain-wide understanding is common in the agrifood industry. Therefore, the findings support the viable systems notion of nested systems with a differential capability to monitor and adapt to the external environment (Beer 1981, 1984). In this instance, this asymmetric capacity may be affecting the growers’ understanding of global market imperatives and the need to change.

Finally, the processor, Decloid, appears to be strategically and culturally mismatched with its retailer, Battel and their growers with respect to their business value systems. Battel has positive public corporate goals that do not appear to match their more expedient operational values. Decloid on the other hand have espoused innovation, business ethics and social values cognisant with their farm family owners but whilst these are well enculturated and generally practiced internally by staff, they do not appear to affect strategic decision-making and are compromised by Battel’s operational goals. Upstream, the farmers have strong conservative and lifestyle values that are resistant to change and not aligned with the innovative vision of Decloid. A compatible culture has been shown to be a critical pre-cursor in both collaboration (Balthazard & Cooke 2004; Baxter 2005; Blomqvist & Seppanen 2003) and sustained innovation and performance (Ahmed 1998; Dombrowski et al. 2007; Ismail & Adbdmajid 2007; McCosh et al. 1998; van der Panne, van der Beers & Kleinknecht 2003). Thus, this finding of a cultural mismatch may be a constraining factor for both collaboration and co-innovation in this chain due to firstly, a lack of recognition of the need to adapt to the changing environment and, secondly, the mental models of acceptable norms of business behaviour.

5.3.2 Inter-organisational conditions that influence co-innovation

This section addresses SRQ1 and is summarised in Table 5.6. The Literature Review identified four groups of factors that facilitate development of the collaborative behaviour required for co-innovation between firms in a supply chain. These groups were: relational competence, cultural compatibility, collaborative architecture and innovation competence. The following sections analyse the Battel - Decloid Frozen Vegetables Value Chain case study to assess the presence of these factors in the chain.

5.3.2.1 Relational competence

By definition, relational competence is fundamental to collaborative innovation. In this chain, the lack of trust is a critical issue between all the major partners because without it, few will engage in co-innovative activity. Whilst few vegetable growers have a problem with their local field officer (Growers C31, C34, C35) the suspicion seems to be directed at the company management. However, Decloid C12 believed “...it appears to be more a feeling vulnerable within a normal business relationship [sic] ...” Consultant C 56 called it “...a real ‘us and them’ attitude between the processors and the growers...” Growers appear to have a tendency to blame Decloid for many of the problems without understanding the nature of the industry or the environment whilst Decloid don’t trust the farmer’s capability or commitment (Decloid C10).

Some managers in Decloid believe that ...“Growers see themselves as Decloid’s customers...” (C12, C17) and that “...Decloid should obtain and share higher price for products...” (C25). However, another said “...We have squeezed the life-blood out of the relationship to constrain prices and still maintain supply” (C17). Some field officers also appear to have lost sight of their role and micro-manage crops, often siding with the vegetable growers against the company (C17).

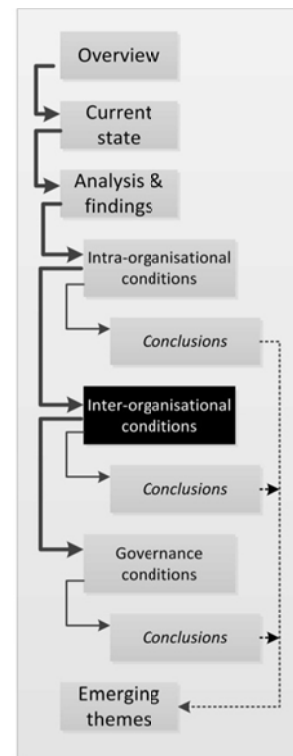


Table 5.6: An overview of the status of co-innovation facilitators in Case Study 2: Battel-Decloid Frozen Vegetable Value Chain

Co-innovation Facilitators	Battel	Decloid	Vegetable Growers
Relational competence			
<i>Trust</i>	<ul style="list-style-type: none"> Low trust of Decloid due to supply of major competitor High trust of DIFOT⁷¹ 	<ul style="list-style-type: none"> Moderate trust of Battel Minimal trust of growers 	<ul style="list-style-type: none"> High trust of local field officer Low trust of Decloid corporate
<i>Interdependence</i>	<ul style="list-style-type: none"> Low except for supply of provenance brand 	<ul style="list-style-type: none"> Need Battel's considerable market share 	<ul style="list-style-type: none"> Perception of low interdependence due to high equity and ageing farmers
<i>Commitment</i>	<ul style="list-style-type: none"> Low to moderate commitment for provenance brand Otherwise short term tolerance 	<ul style="list-style-type: none"> High due to Battel's considerable market share High commitment to growers because of values & strategy 	<ul style="list-style-type: none"> Low because perceive they have "alternatives"
<i>Communication</i>	<ul style="list-style-type: none"> Strategic comms poor Operational comms good Manipulative information 	<ul style="list-style-type: none"> To Battel strategic comms poor; operational comms good To growers poor to moderate 	<ul style="list-style-type: none"> Decloid corporate poor – moderate (collective bargaining approach) – FO level good
<i>Exercise of power, equity & justice</i>	<ul style="list-style-type: none"> Buyer dominance with transparent supply-side contestation⁷² Low equity & justice 	<ul style="list-style-type: none"> Variable but buyer dominance 	<ul style="list-style-type: none"> Generally little power but have recently adopted direct political action more frequently
Compatible co-innovative culture			
<i>Management culture & leadership style</i>	<ul style="list-style-type: none"> Profit-oriented, autocratic, siloed 	<ul style="list-style-type: none"> Egalitarian, team oriented, some siloing 	<ul style="list-style-type: none"> Independent, conservative, defensive
<i>Market orientation (detection & fulfilment of consumer needs)</i>	<ul style="list-style-type: none"> Shareholder & market oriented Analysed market orientation (Shields 2007) 	<ul style="list-style-type: none"> Market-orientation adequate Adequate consumer understanding 	<ul style="list-style-type: none"> Supply-oriented Little consumer or customer understanding
<i>Learning & knowledge management (KM)</i>	<ul style="list-style-type: none"> Low; lacks systematic org learning & KM 	<ul style="list-style-type: none"> Adequate; lacks systematic org learning & KM; some failures to act on knowledge 	<ul style="list-style-type: none"> Social learners Not systematic or pro-active Lack formal education/skills
Structure and process of co-innovation			
<i>Collaborative performance system (CPS)</i>	<ul style="list-style-type: none"> Basic reporting only Lacks connectivity Ordering system problematic Lack of regular reviews 	<ul style="list-style-type: none"> Internal good Good to 3rd Party Logistics Problematic to Battel Distribution Centres (DC) Paper-based to growers 	<ul style="list-style-type: none"> Paper-based or verbal with Decloid
<i>Information sharing</i>	<ul style="list-style-type: none"> Poor at strategic level 	<ul style="list-style-type: none"> Poor at strategic level Good at operational level 	<ul style="list-style-type: none"> Poor to adequate at operational & general environmental level
<i>Decision synchronisation</i>	<ul style="list-style-type: none"> Poor 	<ul style="list-style-type: none"> Internal good Good to 3PL Problematic to Battel DCs Paper-based to growers 	<ul style="list-style-type: none"> Paper-based or verbal with Decloid
<i>Incentive alignment</i>	<ul style="list-style-type: none"> Largely price-based as per contract specifications N.K. for individuals 	<ul style="list-style-type: none"> Largely price-based as per contract specifications Largely extrinsic for individuals 	<ul style="list-style-type: none"> Largely price-based as per contract specifications Largely extrinsic for individuals
<i>Integrated supply chain processes</i>	<ul style="list-style-type: none"> No cross docking, all pick and pack. No integration of DC to back-of-store; Back-of-store to front-of-store 	<ul style="list-style-type: none"> Decloid to 3PL integrated No integration of factory-gate to DC 	<ul style="list-style-type: none"> Processes as directed by FO Few relationship-specific investments
<i>Shared vision & goals</i>	<ul style="list-style-type: none"> Category planning only 	<ul style="list-style-type: none"> Operational goals only 	<ul style="list-style-type: none"> None
<i>Boundary spanning roles & boundary objects</i>	<ul style="list-style-type: none"> Good at strategic and operational levels with Decloid 	<ul style="list-style-type: none"> Good at strategic and operational levels with Battel & growers 	<ul style="list-style-type: none"> Good at strategic and operational levels with Decloid
Innovation competence			
<i>Innovation leadership</i>	<ul style="list-style-type: none"> Poor 	<ul style="list-style-type: none"> Good in NPD; narrow definition Historically effective w Growers but now poor effectiveness 	<ul style="list-style-type: none"> Poor followership; low auto adaptation; adequate coordinated adaptation
<i>Foresight & bounded rationality</i>	<ul style="list-style-type: none"> Poor foresight; poor system for bounded rationality 	<ul style="list-style-type: none"> Adequate; some failures at operational level 	<ul style="list-style-type: none"> Poor
<i>Innovation strategy</i>	<ul style="list-style-type: none"> Poor 	<ul style="list-style-type: none"> Narrow definition Good in NPD 	<ul style="list-style-type: none"> Poor
<i>Innovative culture</i>	<ul style="list-style-type: none"> Poor, risk averse 	<ul style="list-style-type: none"> Limited 	<ul style="list-style-type: none"> Poor
<i>Resource availability</i>	<ul style="list-style-type: none"> Poor 	<ul style="list-style-type: none"> Focused 	<ul style="list-style-type: none"> Poor
<i>Requisite complexity</i>	<ul style="list-style-type: none"> Adequate 	<ul style="list-style-type: none"> Adequate 	<ul style="list-style-type: none"> Poor

⁷¹ DIFOT is an industry performance acronym referring to 'delivered in full, on time' to the customer.⁷² Cox et al. (2002, p. 62)

There appear to be mixed views at a corporate level in Decloid about the status of their chain relationships. Many believe the relationship with Battel has never been stronger (Decloid C17, C24, C27, C60) but another has little confidence in Battel's performance as a partner: "Battel indicate a greater level of interest than they deliver...buyers keep changing and promises are not met..." (Decloid C11). On the other hand, Battel don't trust Decloid to keep strategic information confidential because they also supply one their major competitors and there appears to be low tolerance of any performance problems Decloid might experience (Battel C41, C67). However, there is some recognition of Decloid's effort in getting their provenance brand established and that no other supplier could have achieved that – tantamount to recognition of some interdependence (Battel C41).

Generally though, interdependence across this chain is low with little recognition by one party of the necessity of the other parties for their own success and little trust that other parties will not act out of self-interest. However, that may be changing (Consulting Agronomist C56, Decloid C17), particularly within Decloid (C59, C60) as they recognise the significance of the Battel provenance brand to their business.

Commitment is also low, particularly at the grower end of the chain, as opportunism is part of the grower culture, traditionally moving between crops and processors as they maximise returns by following the cycle of commodity prices. Grower C39 said: "...greatest thing as farmers is choice..." This is in spite of an explicit strategic commitment by Decloid to the region as their source of vegetable raw materials based on both a confluence of company assets and regional resources as well as the company's family values (Decloid C59, C60). The Decloid-Battel commitments on the other hand are largely economic; Battel being a very large market for Decloid and Decloid being the only one of their suppliers who could deliver the raw materials with the required provenance (Battel C41, C43, C44).

Communication across the chain was variable. Strategic communication was poor to non-existent as mentioned previously. In interviews, many of Battel's managers used strong language similar to that typified as "managerialist"⁷³ by Butcher and Atkinson (1992, p. 558) or "macho-management"⁷⁴ language by Blyton and Turnbull (2003, p. 257). Battel C67 said "...we'll tell them what we want them to know...whether it's in the data or not..." advocating the deliberate manipulation of data and information to suppliers. There was also some evidence that growers had, as part of annual 'collective bargaining' over supply contracts had also manipulated data provided to Decloid (Farmer Organisation C64, C65). However, operational communication, particularly by boundary spanners was generally quite good, although between Decloid-Growers it was variable depending on the agri-

⁷³ Characterised by an emphasis on command and control, superimposed logic, order and structure on a chaotic social process with implications of guaranteed effectiveness and coordination (Keenoy & Anthony 1992).

⁷⁴ Characterised as toughness, contempt for negotiation, management by confrontation and coerced compliance (Jayawardena & Seneviratne 2003).

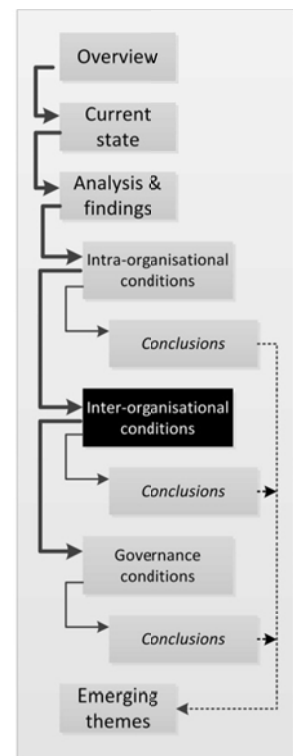
political environment at the time. There were also miscommunications about range strategies (Decloid C22; Battel C41) and a critical misunderstanding regarding the supporting evidence and rationale for a major new <Regional Provenance> strategy potentially worth billions of dollars turnover (Decloid C29; Battel C67).

Using Cox et al's (2002, p. 62) classification of supply chain power, this chain exhibits 'Buyer dominance with transparent supply-side contestation' where because there are few buyers in a competitive commodity-based market, supplier behaviour is relatively transparent to the buyer. This situation applies to both the growers and to Decloid. This creates a situation where Battel can and does exercise considerable coercive power (Lindblom & Olkkonen 2006, p. 486 citing French and Raven (1959)). This in turn vicariously provides the chain leader Decloid, with considerable coercive power which they generally try to exercise with equity and justice within the guidelines of their corporate values.

In summary, the chain exhibited little trust and commitment and there is little acknowledgement of any interdependence. Communication was poor at most levels, particularly regarding strategy and there was evidence of manipulation and miscommunication. Because of their market power Battel regularly resorted to the exercise of coercive power to achieve its needs. Firstly without a market orientation it is less likely that the chain will pro-actively detect market signals and even if they do, without trust, long-term commitment and good communication it will be less likely that they will commit to collaborating to adapt through innovation.

5.3.2.2 Co-innovative culture

The Literature Review suggested that a co-innovative management culture, market oriented and managing learning and knowledge across the chain may be critical for co-innovation to occur (Section 2.7.2). In this chain there appears to be little compatibility between the partner's cultures. The management culture and leadership style of Battel is price and profit-oriented (Battel C43) with a cost-defender orientation (Shields 2007), autocratic (Battel C41, C43) secretive (Battel C67) and siloed (Battel C44). In contrast, at Decloid the culture had an 'analysers' market orientation (Shields 2007) so had the potential to be either innovative 'prospectors' or 'cost defenders'. Senior executives were very accessible, the CEO had given his telephone number to growers with an invitation to contact him if they couldn't resolve issues and it appeared that internally the company values of respect, proper conduct and ethical behaviour (Battel Document C89). The organisational climate was egalitarian, open and team-oriented and the corporate values were quite well enculturated although they appeared to not affect corporate decision-making and were applied expediently in operations. However, as this latter point implies the level of employee engagement



with the culture was somewhat superficial. Employees appeared sceptical of the incentive system referring to torts under the old regime (Decloid C21, C24, C26) and doubts about the team-based approach. Field staff appeared to have more allegiance to the farmers than to their employer (Decloid C10, C15, C17, C19). In such a chain culture there was little transfer of strategic information, shared problem-solving or consideration of collaborating over the long term to create value. It appeared that the 'real' culture rather than the 'official' culture was not as supportive as the senior management suggested. Thus, the effect on commitment and willingness to take risks by being innovative were not supported by the culture suggesting that both individual and group behavioural normative beliefs were inconsistent across the functional divisions and between levels in the company inhibiting the operationalisation of the company strategy to be innovative. Thus, the TPB model (Fishbein & Ajzen 2010) appears to provide an explanation for the failure of the company to fully operationalise its values and strategies.

The conservative supplier base that frequently exercise their options to move to producing alternative commodities and processors if they don't like the price or contract conditions appear to be more pragmatic transactional than transformational followers. This opportunistic behaviour is a form of resistance to change and does not appear to fit with the moderately transformational stance of Decloid. Decloid C17 believes that the grower's capability for identifying opportunities for innovation and knowing how to exploit them is very low. Decloid C21 agrees saying that only the best growers seem to attend agronomy seminars and innovation gradually filters down to others through social networks rather than because Decloid recommended it. This cultural conservatism combines with the lack of trust and a poor understanding of business to present major barriers to co-innovation.

The degree of market orientation also appears to vary along the chain. Battel is a 'cost defender' (Shields 2007) apparently collecting a large amount of data that they do not fully analyse and exploit (Battel C44, C67). Market research information is confidential and even the discussions with the researcher relevant to market orientation was restricted, so no inferences could be drawn regarding Battel's status in this regard apart from them being highly competitive and share price-oriented. Battel regard market research as being the supplier's responsibility and provide only restricted data to some suppliers to answer specific questions (Battel C44, C67). Decloid appeared to be an 'analyser' market orientation (Shields 2007), purchasing large amounts of 'supermarket till data' and conducting extensive product testing with consumer panels. Generally, it appears that growers have little understanding of changes occurring in their operating environment and little market understanding or orientation to adapting to meet consumers/customer needs. When unfavourable market changes occur the prevailing response of growers is that if they wait long enough they will become favourable again. Decloid reinforces this by cushioning growers from the need for structural change.

The degree to which learning and knowledge management occurs between and within the chain partners is again variable. Battel C44's comment about the siloed nature of the firm, combined with the previous evidence of conflicting strategies and opinions within Battel, may indicate that the firm has a low degree of organisational learning and knowledge management. Decloid on the other hand was a team-based environment and there was evidence of good sharing of learning across the firm although at times there was tension in relationships resulting in poor understanding of performance data collection (C15, C20) and poor communication with growers (Decloid C17, C21, C25; Consultant C56). Growers on the other hand were social learners at an individual level, generally not systematic or pro-active in learning activities or sharing their learning with others in the chain. Therefore, the acquisition, sharing, codifying and transfer of information across the chain will be difficult.

In conclusion, the partners in this chain appeared to have a low level of cultural compatibility and, combined with the low relational competence, collaboration is difficult because of their markedly different approaches and thus unlikely to occur to any extent.

5.3.2.3 Co-innovation architecture

Theoretically, a co-innovation architecture provides an integrated framework of processes and functions for supply chain management that enables chain members to undertake collaborative co-innovation between members of the chain.

A collaborative performance system (CPS) is essentially a set of objectives and metrics, established collaboratively, by which to evaluate the performance of chain members. The vegetable growers KPIs are the contracted crop specifications, mainly focused on delivered weight, quality and deductions for waste (Growers C37, C38, C39; Decloid Documents C90-99). In broad terms Battel provide Decloid with KPIs based on sales, profit, margin, waste and DIFOT requirements in supply schedule specifications (Battel C41). The 3PL provider's KPI's are "fairly basic", for example on-time performance, pallets per km etc., and set for each DC⁷⁵. Most of this information is developed from the drivers run-sheets which are entered then entered into the Battel system (C5). Thus, KPIs for the chain are essentially Battel's performance specifications transferred down the chain with little consultation or collaborative development. Whilst the cascading of Battel product specifications down to raw material production specifications is a form of alignment, it is neither collaborative nor available 'real-time', on-line. Neither does it provide real-time performance monitoring for chain partners.

⁷⁵ A 'DC' is industry jargon for a Distribution Centre or a warehouse, often with refrigeration or air conditioning, which stores products waiting to be redistributed to retailers, to wholesalers, or directly to consumers. A distribution centre is a principal part of the order fulfilment process and are usually regarded as being demand driven (Burch & Lawrence 2005).

Information sharing enables the effective capture, sharing and analysis of data for strategic direction, demand, inventory, replenishment, cost and performance data for decision-making. There was no evidence provided by any chain partner of the sharing of strategic plans, however, some operational planning occurred as necessary for crop production scheduling and logistics planning between the Decloid and Battel Distribution Centres (DCs). The most open information sharing appears to occur between Decloid and the growers (Decloid C15, C19, C20) with performance data faxed or posted within thirty minutes of crop receipt and the growers are happy with this process (Growers C37, C38, C39). Most appear to be satisfied with what they get (Growers C34, C35, C38, C39) but “...some growers don’t know their costs, so can’t use the information meaningfully...” (Decloid C19). Data on real-time factory raw material intake is available to Decloid however it appears that the Decloid field service section does not fully use the grower performance data provided from the factory (Decloid C15) and do not use it to discriminate between growers or select ‘preferred suppliers’ (Decloid C20). Replenishment is not vendor managed so Decloid only ship on orders (C27) and the current Battel ordering system is highly problematic (Battel C41, C43, C44; Decloid C13). Within Decloid, all internal KPIs are visible and shared across company; weekly, monthly and period reviews of the operational effects of forecasts of sales projections and promotions on manufacturing and past performance (C13).

Battel admits that their ordering system is creating major problems for the processor and the DCs (Battel C41, C43, C44). In broad terms Battel provide Decloid with KPI data for sales per category and per segment for their own products updated every financial period as well as average category profitability but not benchmarking against their competitors (Battel C41). This is emailed and not available in on-line. DIFOT performance is not normally communicated unless there has been a consistent under-performance because: “...[its] not part of manufacturers’ vocabulary...” (Battel C41). Yet, the relevant Decloid managers, Senior Executive C59, C13 and C24 referred to the term or concept several times during interviews. Battel Senior Manager C67 perhaps summed up their attitude to information-sharing by stating: “...we’ll tell them what we want them to know regardless of the data...”

The sharing of consumer data is very constrained by circumstances and deliberate policy. Battel C41 said: “We haven’t maximised the use of [loyalty card] data... [we] just don’t have the resources...” In any event, Battel has a policy of not providing that loyalty card data to suppliers, so Decloid get ‘till data’ from AC Nielsen and Aztec⁷⁶ with a two week time lag.

Decision synchronisation involves the sharing of planning and other information that enables the chain partners with the knowledge to solve the problems of execution; hence, it is about the granting

⁷⁶ Global providers of retail scan data or ‘till’ data which is the data collected at supermarket cash registers as consumer purchases are scanned.

of decision rights, monitoring and control. It appears from the foregoing paragraphs in this section that in this chain only the basic data necessary for decision synchronisation was provided by Battel. This occurs because of the lack of trusting relationships as well as obstructive internal policies and poor business systems between the partners.

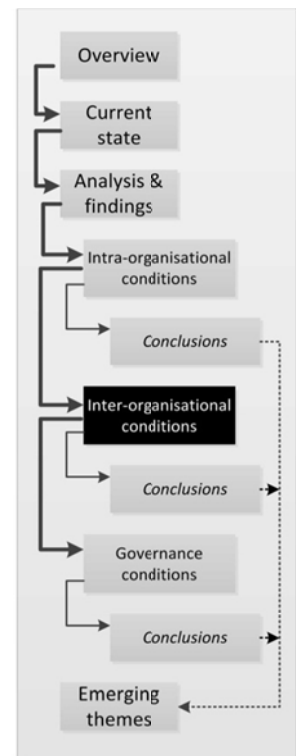
Supply chain business processes appear to be only basic, lacking the capability for real-time integration of replenishment and performance reporting. These appear to be working most effectively between Decloid and the 3PL provider where there is a high degree of transparency. They also appear to be working adequately between the growers and Decloid. However, there is no cross docking⁷⁷ at Battel's DCs; all loads are "...pick and pack...no integration of factory-gate to DC; DC to back-of-store; Back-of-store to front-of-store..." (Battel C43, C46). Further, the internal monitoring system is only able to track waste by category, not SKU, and wastage data is not automatically provided to suppliers, so a satisfactory category performance could mask a poorly performing line and neither Battel nor Decloid would be made aware of the problem (Battel C42). On the other hand store inventory and replenishment system works well (Battel C42, C43, C45, C46).

There also appears to be little sharing of vision and goals between partners, largely because of the lack of trust and commitment. Operational planning is being done more effectively because there appears to be effective operational boundary spanning roles and boundary objects.

In conclusion, the chain is very constrained by the inadequacies of its ICT systems; at most stages in the chain they either don't exist or they are not operating effectively. Thus the sharing of forecasting, procurement and performance information is poor and constraining co-innovation because strategic direction and performance problems are not apparent and there is little ability to coordinate or monitor inputs or outputs.

5.3.2.4 Innovation competence

As outlined in the Literature Review, 'innovation competence' in value chains appears to involve the exercise of innovation leadership having the requisite innovation strategy, culture and sufficient complexity and resources across the chain partners to undertake collaborative innovation (Section 2.7.4). However, as the review highlighted, the 'fit' between 'innovation leadership' and 'innovation



⁷⁷ Cross docking refers to a process of moving and mixing loads between shipping conveyances where supplier's trucks, arriving at a cross dock warehouse, are broken down and packaged into mixed loads on trucks bound for a retailer.

followership’ and specifically transformational forms of those constructs leads to more effective innovation and customer/consumer focus.

In this case study, most of the opportunities for innovating to create consumer value occur at the processing stage of the chain although there are opportunities for others to innovate for efficiency for everyone (Industry Report C86). The processor, Decloid, has a narrow definition of ‘innovation’ as being “...about food...” (Decloid Senior Executive C26) even though the firm considers innovation to be its core strategy. So Decloid’s primary focus for innovation is NPD (Decloid C11) with some process innovation associated with the agricultural R&D program (Decloid C10, C17, C20, C25), the introduction of new products for processing (Decloid C15, C18) and in systems/logistics innovation with 3PL providers. They use the Stage Gate Process[®], a project management system, to investigate about twenty five new product ideas a year with about six being implemented. Of these, only one will be a true innovation with the remainder being ‘line extensions’. In the last three years, about 50% of the innovative new products launched have failed to meet performance expectations (Decloid C11). Evidence has been provided of how systems, processes and culture all focus innovation on just four people in the Decloid Sales team of some two thousand total staff has been detailed in Sections 5.2.2 Current State, 5.3.1.1 Firm Incentivation and 5.3.1.2 Individual Incentivation. The explicit incentivisation of NPD and Sales with no general staff KPI for any other form of innovation across the company supports the notion of the constraining effect of the company definition. Indeed, there is internal mid-level management disappointment with the rate of innovation and recognition that the company does not have a risk-taking culture, particularly if it threatens assured supply or cost efficiency (Decloid C11, C14, C17, C20, C24).

The sections referred to in the previous paragraph also highlight how Battel mainly incentivises Decloid to innovate for cost reduction because the imperatives to innovate exclusive new products for their private labels (Section 5.3.1.3) are nullified by Battel’s lack of commitment to Decloid, the low margins in private label and Decloid’s own strategy of developing its brands. This highlights how the alignment of strategy along the chain is necessary to achieve both unity of purpose as well as aligned incentives.

Overall, it appears that the value chain is more transactionally-oriented (efficiency) rather than transformationally-oriented (innovation) after Defee (2007). Because the frozen food category is a low-engagement, conservative category there is little scope for rapid and frequent NPD innovation (Industry Document C101). This combines with the retailer’s strategies of emphasising product performance (i.e. margin), range efficiency and focus on private label products (Battel C41) to direct the chain focus onto price rather than innovation. Further, vegetable growers generally do not have a strategic or forward-thinking view about the industry and have little knowledge or skills with respect to new forms of business management, new crops or varieties (Decloid C9, C12, C17, C20;

Consultant Agronomist C56). Section ‘5.3.2.2 Co-innovative culture’ previously identified that growers’ cultural conservatism, often manifesting itself in opportunistic behaviour, combines with the lack of trust and a poor understanding of business to present major barriers to co-innovation. Consequently, the chain leadership provided by Decloid, chain culture and resource allocation is largely focused on efficiency and price. Thus, it could be concluded that whilst Decloid frequently attempts to lead chain innovation, particularly in NPD and process improvement, it is frustrated by its own implementation and the nature of its followers, and so the ‘innovation competence’ of the chain is low.

5.3.2.5 Conclusions for 5.3.2 Inter-organisational conditions that influence co-innovation

Overall, this section on inter-organisational factors affecting co-innovation has shown that there are few inter-organisational conditions that facilitate relationships and co-innovation incentives in this chain which may account, in part, for the lack of co-innovation occurring in the chain.

Firstly, the low relational competence of the chain partners appears to be inhibiting relationships management and co-innovation in this chain. The chain is characterised by a lack of trust, barely acknowledged inter-dependence, poor communication, minimal commitment and the arbitrary use of coercive power. This negatively affects openness and communication on strategic issues meaning that the chain partners lack a unified understanding of the chain’s strategic direction and the firm behaviour required to achieve those goals. In the absence of strategic understanding, the short term needs of the most powerful partner prevail or are imposed across the chain. The lack of an agreed chain strategy accommodating the needs of all partner firms means that firms engage in minimal compliance with the mandated requirements of the retailer and revert to their own individualistic strategic goals and incentivise their managers and employees accordingly. This constrains the development of relationship-specific investments and co-innovation because partners don’t understand the strategic direction, don’t trust each other, fail to adopt a whole-of-chain outlook and exhibit occasional antagonistic and opportunistic behaviour which further inhibits co-innovativeness. Marshall et al (2006) suggested that considerable waste is generated when this competence is absent. Whilst there are few agrifood studies relevant to this finding, a number of studies show that in heavy manufacturing industries there are very positive effects on innovativeness, efficiency and economic performance from the presence of relational competence (Lorenzoni & Lipparini 1999; Paulraj, Lado & Chen 2008; Ritter & Gemunden 2003). Further, Lefaix-Durand et al (2005) in their theoretical model, postulated that relational competence is associated with the creation of value when present and the destruction of value when absent. So, this supports the findings of the effects of low relational competence on co-innovativeness in the agrifood context.

Secondly, Battel's short-term, autocratic, opportunistic approach to business tends to dominate the chain culture through its exercise of coercive power which inhibits the development of long-term, co-innovative relationships. Battel was quite willing to look overseas for spot market frozen vegetables and Decloid was often willing to cancel contracts with its suppliers if an over-supply situation existed. Decloid's relationship with its suppliers appears to always have an element of tension between their socially responsible corporate values and the autocratic, top-down economic approaches frequently required to meet the demands of Battel's changing strategies to improve their market competitiveness. However, this is moderated by supply variability which results in a shifting locus of power between the chain actors and a level of expediency in Decloid's commitment to its corporate values. Hence, the chain tends to cycle from vegetable shortage, with benevolent relations and generosity, to surplus associated with acrimonious relations, contractual cutbacks and price squeezes. This is likely to have negative effects on trust, conflict resolution and performance satisfaction (Belaya & Hanf 2009; Hobley & Batt 2010; Lindgreen, Palmer & Trienekens 2005). However, the farm suppliers, through the price-based contracts used to govern relationships between them and processor, appear more vulnerable to the economic and coercive incentives driven by Battel. Because of their conservatism, risk aversion, scale inability and low skills they are resistant to change and few see processing vegetable production as a sustainable long-term future. As a result, they have low commitment to the chain and are constantly looking for opportunities for alternative products or outlets. The lack of cultural fit between Battel, Decloid and its growers means that there may be important barriers to collaboration and co-innovation such as management style, decision-making and governance processes (Lavie, Haunschild & Khanna 2011). Therefore, the chain lacks the trusting, long term, collaborative relationships necessary for co-innovation and so Decloid appears to be culturally mismatched to achieve their vision of innovation leadership.

Thirdly, there are some factors in the co-innovation architecture (strategic structure and processes) of co-innovation that are currently inhibiting co-innovation. ICT connectivity is poor across the whole chain (e.g. performance reporting to farmers) there are unused repositories of data (e.g. farm supplier performance data) and at the downstream end there are widely acknowledged problems with forecasting and replenishment affecting efficiency. Consequently, information sharing for decision-making is poor and there was no evidence identified of purposeful, systematic inter-organisational learning. Without this facility it is difficult for partners to systematically improve the chain and identify where value for the customers and consumers can be created (Simatupang & Sridharan 2007). Perhaps equally as important, the individual motivational goal frame (Lindenberg & Foss 2011) operating is misaligned across the chain reflecting the incompatibility of values and mental models as well as the 'unmanaged variability' in key management factors in the chain. Upstream, the gain-normative frame operates but has been moderated for the farm suppliers by the cultural comfort they experience (high farm equity, strong cultural reinforcement). Within Decloid the gain-normative goal

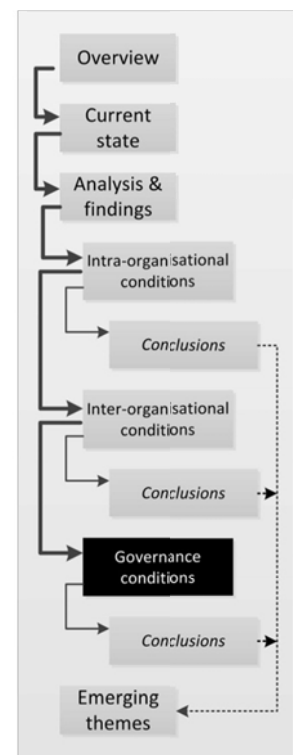
frame operates as a profit-orientation within a normative framework. However, because Decloid uses price-based formal contract incentives and, as noted earlier, does so in an inconsistent manner, they have limited ability to purposefully manage the incentivisation of complex, co-innovative behaviours from its vegetable suppliers. Downstream in Battel Mart, the misalignment of values becomes more evident in the gain-hedonic goal frame with profit orientation supported by hedonic goals (short term personal benefit associated with monetary bonus or job loss) of individuals. Battel's managers are more narrowly-focused on short term profit-oriented behaviours regardless of the effect on the long term or on relationships. This is consistent with the propositions by Lindenberg and Foss (2011) about how the management of organisational motivational frames is essential to adaptive (creative, innovative) behaviour, thus providing support for these findings in an agrifood context. So overall, ICT is fundamentally limiting efficiency, communication and learning whilst the misalignment of motivational frames drives very different behavioural styles by operatives that appear incompatible across the chain.

Finally, 'innovation competence' is rated as poor. Despite Decloid's narrow definition of innovation limiting the scope of how it was operationalised within the company, it had achieved the industry benchmark level of NPD innovation. However operationally, its innovation leadership of farm suppliers lacks a long term strategy, adequate resourcing and a chain culture to facilitate co-innovation. Consequently, in such a climate, there are few examples of co-innovation; the Decloid-Grower-Agronomist broccoli project and Decloid-3PL provider being the only two small examples identified.

5.3.3 Chain governance conditions that influence co-innovation

This section addresses SRQ5. In terms of the model of governance mechanisms explicated in Table 2.3, the Battel-Decloid Frozen Vegetables Value Chain appears to be operating in a 'modular' form of governance. The Literature Review identified a governance theory which suggested that the form of governance influences many aspects of chain relationships. This includes aspects relevant to this thesis including incentives, 'autonomous adaptation' (innovation) and 'cooperative adaptation' (co-innovation). It also suggested that there was a need for the use of a broad range of 'levers' for the hybrid forms of governance and that whilst cooperation can occur through the use of authority, chain coordination requires broader and deeper behavioural management.

In this chain, commodity vegetables are frequently processed as components of pre-prepared, flavour-enhanced mixes packaged for convenience; in short,



they are ‘components’ of the final product. The processor has a large pool of growers (over four hundred and fifty) from which to choose suppliers, with current contracts with some two hundred and forty. As the growers have alternative outlets for their produce or enterprises in which to engage and the informational interactions required for vegetable production are relatively simple, a form of governance towards the ‘market’ end of the governance continuum is possible. However, because in this instance the raw material suppliers have a somewhat lower level of competence, there is a greater reliance on coordination by Decloid’s field officers and advice from consulting agronomists, and so a ‘modular’ form of governance exists. Despite the apparent dependence of growers on Decloid (C9, C17, C59), the cost of switching is low and the company and grower culture has adapted to a form of opportunism that has become culturally acceptable, despite its negative effects on the security of supply and efficiency for Decloid (C9, C12, C17, C20) and therefore, ultimately on chain competitiveness.

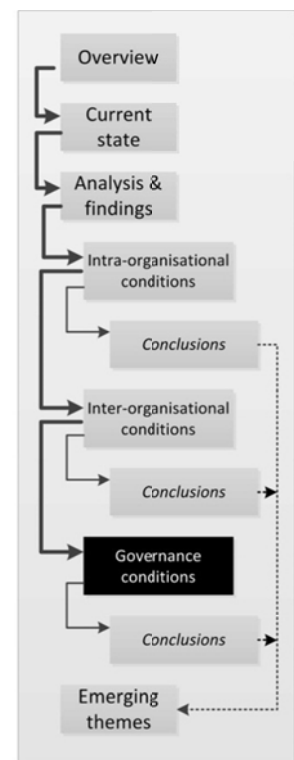
As indicated in the overview of this case study, Battel was facing strong competition from new international entrants into the marketplace as well as existing competitors and was losing market share. Whilst this research did not have access to corporate strategy documents, it was apparent from public documents and media commentary that getting customers back in the stores and increasing their basket size were the priorities; hence price competitiveness, product leadership (innovation), security of supply and differentiating their offer (format) were their key foci (Battel C41, C43). Battel C41 and C43 made it clear that whilst Decloid generally had a good performance history, if they could not provide these attributes then the “...relationship may not be as visible as we thought it was...” and there were “...lots of questions being asked about relationship...” and Battel had other suppliers “...knocking on our door...” (C41). It appeared from this that despite their good track record, the current supply and competitive environment was straining the relationship and there would be little loyalty.

Battel uses a modular form of governance with economic incentives to motivate Decloid to focus on price, exclusivity of products, innovation in packaging and products, the security of provenance product supply and DIFOT (Battel C41). But Decloid attempts to trade off the lower prices on plain label products in order to gain concessions on price and merchandising of their branded products (Decloid C16, C27). However, C41 claimed that no formal concessions were made: “...each product has to stand on its own two feet...” but he would keep it “...in back of my mind...” and “...might be more lenient on the timeframe for deleting lines because of [the] <*Battel Provenance Brand*> relationship...” Whilst Decloid have two year contracts with Battel, this does not represent an incentive but more a recognition of the long lead times required for seasonal vegetable production. Decloid now propose their own supply plan which is incorporated into a supplier “scorecard” (Battel C44), the process is still essentially an imposition of the retailer’s performance criteria on the processor which then cascades back up the chain.

For growers the contracts focus on the production of a specific volume with specific prices correlated with a quality scale relevant to the vegetable in focus (e.g. for peas it is a maturity index) and bonuses for minimising the amount of defective product or foreign material (e.g. weeds) and for being quality assured (Growers C37, C38, C39; Decloid Documents C90-99). There are few behavioural incentives used and whilst there is some negotiation of contract specifications and incentives, essentially the process is a top-down exercise of buyer power. Grower C31 said: "...[the] contract system means farmers do what they're told..."

In summary then, this chain appears consistent with a form of modular governance where performance feedback occurs largely through a price-based mechanism, where supply risk includes the classic agency problems⁷⁸, where the incentives based on quantitative objectives are set through a top-down process and where innovation in anything other than efficiency and effectiveness is difficult to incentivise. Coercive power is exercised with little consultation and chain relationships at a strategic level appear to be basic, arms-length and contractual with annualised formal communications. The manner in which Battel's priorities link directly to growers through Decloid's performance objectives supports the notion that the form of governance broadly determines many aspects of the chain's exchange relationships.

At an operational level, relationships are more pragmatic in that whilst governed by formal contracts, there is a good, practical level of communication, although for the retailer, this could hardly be said to be open and transparent. In this triad, the parties recognise and rely on these good operational relationships to adequately facilitate their working relationships. However, Decloid's reliance on formal contracts with objective, price-based and punitive incentives reinforces the arm-length relationships, lack of trust, commitment, communication and minimal co-innovation. For this reason, the use of contracts across the chain should be examined a little more closely.



5.3.3.1 The use of contracts across the chain

This section addresses SRQ 8 and continues this section's investigation of the conditions of governance that influence co-innovation. Earlier, it has been explained in broad terms that the chain appears to be managed by a modular form of governance where performance feedback occurs largely through a price-based mechanism, where innovation in anything other than efficiency and

⁷⁸ The 'classic problems' of Principal-Agency Theory are information asymmetry, opportunism and moral hazard (Eisenhardt 1989; Shapiro 2005).

effectiveness is difficult and where the incentives are objective and performance-oriented set through a top-down process.

Between Battel and Decloid the dominant form of contracting is two year, formal contracts. The coordination process employs forecasting of orders, objective economic (margin) and DIFOT (logistics) based performance metrics, regular ‘range reviews’ with under-performing product deletions (efficiency), waste and consumer complaints (quality assurance) monitoring and the planning of product promotions (discount strategy). Decloid are provided with a rolling ten week forecast on all SKUs based on scan data, past sales and planned promotions for the suppliers’ own products from DC to store, but: “...suppliers should not expect Battel to forecast orders. Suppliers need to know their own category/product thoroughly...” (Battel C43).

Battel require Decloid to propose their own supply plan which is incorporated into a supplier “scorecard” (Battel C44) which is monitored daily for the ten worst performing suppliers and usually forms part of range reviews (Battel C40). This ‘management by exception’ means that problems only get elevated with manufacturers if they appear on worst list (Battel C41). Whilst there is no standard assessment framework used by Battel they give approximately 60% weighting to product performance; 40% to supplier performance and seek one new, exclusive product for each range. Only major problems are communicated to the supplier because Battel’s systems would not automatically pick up minor or fragmented problems (Battel C42).

Whilst Battel C41 claims that he does not take into account Decloid’s good performance in supplying their private label <Provenance Brand> (also recognised by Battel C40, C43) when making decisions about Decloid’s own brands he did concede that in ranging decisions on branded products he might be more lenient on the timeframe for deleting lines because of that relationship. Similarly, the Battel C43 group provided details of the informal concessions provided to Decloid because of their own implementation problems with the new distribution centre replenishment system. However, there is a reluctance to acknowledge that relational contracting is used to complement the complexities of formal contracting.

Decloid’s aim is “...delivery on time, in full at right quality...” (Decloid C17) and so the growers’ contracts are focused on price, product specifications and DIFOT performance (Decloid Document C90). Whilst there is some negotiation of these, essentially the process is a top-down exercise of buyer power; Decloid Senior Manager C20 said: “...80% of contracts are simply presented to the growers...[there is] very little room for manoeuvre...” Grower C31 opined: “...[the] contract system means farmers do what they’re told...” Essentially there is only one contract negotiated with the <Farmer’s Association> for farm suppliers regardless of their region, growing environment or business circumstances (C20).

The bonus structure focuses on achieving the contract tonnage and quality which, depending on the vegetable, may include size, colour, maturity and lack of contaminants such as weeds, stones or pests, although other incentives included are the support services (e.g. pre-payments for crops, seed supply) which are written into contracts. However, Decloid's negotiated obligations to support growers by arranging seed etc soon become regarded by growers as a 'right' rather than an incentive, increasing dependence and decreasing grower skill levels (Decloid C20). Decloid are trialling multi-year contracts but there is a belief by some field staff that most vegetable growers don't want to have their opportunism constrained by contracts; a view supported by Grower C39: "...[the] greatest thing as farmers is choice..."

Few examples of relational contracting appeared to be operating between the growers and Decloid, so the dominant means of coordination is through formal contracting. However, the 'one size fits all' approach to contracting occurs because of the large number of farm suppliers, their militancy and lack of negotiation skills. This results in Decloid's inability to customise contracts to individual farm business goals and circumstances and sets the performance bar at the minimum necessary standard.

Thus, the formal contracting process is still essentially an imposition of the retailer's performance criteria on the processor under conditions of limited information, but there appears to be a greater reliance on relational contracting than between Decloid its farm suppliers due to the scale and complexity of their operational relationships.

Notwithstanding this, the chain remains one where the relatively arms-length relationships resulting from the lack of trust and commitment identified in earlier sections fosters reliance on the blunt instruments of formal contracts, price-based incentives and punitive/negative rewards to coordinate chain activities rather than through autonomous or collaborative adaptation and relational contracting. The lack of reliance on relational contracting to cope with supply exchanges in a complex business environment and the nature of the product are the basis for classing this chain governance as 'modular'.

However, the last two sections have also highlighted the importance of the manner in which power is used in this chain for governance and incentives.

5.3.3.2 The use of power across the chain

This section addresses SRQ 6 and continues this section's investigation of the conditions of governance that influence co-innovation. In the Battel -Decloid Frozen Vegetable Value Chain there appears to be a considerable asymmetry of power and capability. As explained in the overview at the commencement of this case study, Battel is a \$XX billion⁷⁹ public company whilst the processor, Decloid is also a \$X billion private company. The vegetable growers are generally owner/operator

⁷⁹ Anonymised to protect the identity of the chain

family businesses with few employees and a turnover of \$150,000 - \$2 million (Government Report C87). However, the partners in this chain have had sixty years to develop patterns of behaviour to deal with any perceived imbalance in power. The dynamics of the relationship is complicated by climatic variation, international dumping and the presence of alternative processors offering contracts for other commodities. When vegetables are in short supply due to climatic variation then the power hegemonic is with the growers; but when there are alternative sources of supply at the same price the retailer and processor have the upper hand. Decloid C17 said:

Decloid have put a lot of emphasis on being f***** miserable and then just when some farmers were getting close to realising they needed to get out we buy them off with a big price rise...

This suggests an adversarial, opportunistic relationship and it was indeed described in this manner by Consultant C56:

Historically, there has been a real 'us and them' attitude between the processors and the growers. This is beginning to change as the processors are realising that it is a joint process. However, the growers have not recognised this...

Growers have developed negative behaviours such as collective bargaining and militancy which appeared to be the first response to the need for change within the chain. It is this adversarial mindset and periodic sense of powerlessness that appears to have been behind the development of the 'collective bargaining' approach of the growers to dealing with the conditions of supply to Decloid. With the recent loss of multinational buyers of a related product, the growers became militant about all the vegetable chains, including those into Decloid and Battel, refusing to sign contracts or plant crops and launched overt political action. This achieved small price improvements for the growers but at the time the research was being conducted, there was much dissatisfaction and some older vegetable growers were leaving the industry. Decloid Senior Manager C9 commented: "Cartel bargaining is not healthy for the industry because it keeps poor performers in the industry by achieving a higher price..." Such behaviour is exacerbated by the large number of small scale suppliers⁸⁰ that Decloid has to contract to achieve its targeted volume of supply which prevents Decloid from taking an individual, tailored approach to designing incentives for each individual supplier.

Yet, some growers took a different view. Grower C34 opined that "...the processor not the enemy; we're an industry. Battel are the enemy...Supermarkets are really ruthless... But we don't have the resources to take on retailers..."

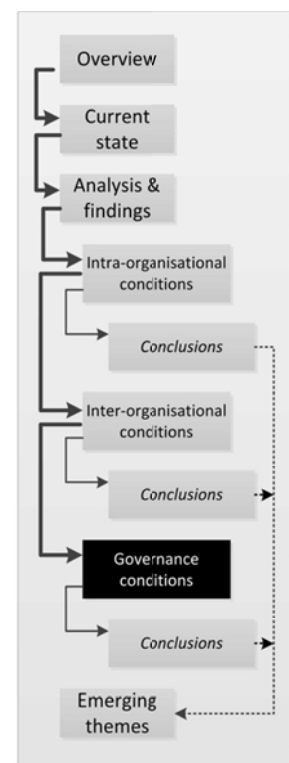
⁸⁰ A similar volume of vegetable supply in New Zealand typically engages 10% of the number of growers in this chain.

So in this dyad, the power imbalance appears to have generated a reliance on objective, price-based incentives in formal contracts and the employment of unilateral, top-down action by Battel and Decloid to coercively achieve their goals. Consequently, there was little autonomous adaptation (innovation) in the chain and only one example of collaborative adaptation (co-innovation) found by this research.

The lack of trust produced by these behaviours appears to have led to the occasional manipulation of information by both parties (Farmer Association C64) further obscuring their mutual understanding. Thus, suspicion and resistance to change rather than adaptive mindsets appeared to be the dominant response by growers.

Similarly, in the Battel-Decloid dyad, even though it appeared that Decloid was regarded as a strategic supplier, Battel were reviewing their relationship because of Decloid's perceived lack of contingency planning for climatic risk (Battel C41). C43, the group of inventory managers, stated: "...[we] don't know what the merchants have told you, but we're hurtling down the international sourcing path..." which would have meant the dumping of the provenance brand, effectively a major change to the Battel-Decloid relationship. At an operational level within Battel, there appeared to be little understanding of Decloid's supply problems or loyalty to them on the basis of past performance. Whilst there had been a lot of discussion between the mid-level boundary-spanners about solving the problems, the bluntness of the description given to the researcher had apparently not been delivered clearly to Decloid. Strategic level meetings had apparently recently: "...re-affirmed our love for each other [sic]..." and both sides agreed the relationship "...ticks all boxes for preferred supplier status..." (Decloid C17). Because this issue was raised without specific questioning by seven Battel managers across three corporate functions (C40, 41, 43) it appears to indicate a high level of dissatisfaction with Decloid's performance that could have had serious consequences for their relationship but had not been dealt with in an open and constructive manner. Thus, it may have been an example of the previously described strategic confusion in Battel and the lack of trust and openness in inter-organisational communications in this strategic relationship.

In conclusion, Battel is more inclined to use its market power as a first resort to influence Decloid's behaviour. Decloid and the farm suppliers do so when the need arises and as demand variation shifts the power hegemonic to one of the parties. This results in fluctuating costs of production and potential supply volume for the processor and a 'feast or famine' situation for farm incomes. This approach plus the previously mentioned secrecy and expediency in Battel does not facilitate co-innovation



between them. Further, the inconsistent behaviour between Decloid and their growers is also destructive of their relationship and is not conducive to co-innovative behaviour. So, it appears that the exercise of coercive power between the chain partners does not promote co-innovative approaches to solving their problems or challenges.

As some of these characteristics relate to corporate leadership and it was highlighted earlier that a ‘transformational’ leadership style has bottom-line performance outcomes for overall firm output, production quality and financial performance, an analysis of chain leadership is appropriate and is undertaken in the next section.

5.3.3.3 The role of chain leadership

This section addresses SRQ 7 and continues this sections investigation of the conditions of governance that influence co-innovation. The Literature Review has shown that ‘transformational value chain leadership’ is a relational function that exerts influence over other chain participants to be aligned with and committed to the leader’s vision for the chain and results in, amongst other outcomes, collaborativeness, creativity and innovation (Section 2.7.4).

In the Battel-Decloid chain, Decloid appears to be the chain leader. Battel C41 indicated that they don’t have a relationship with growers and regard it as a function for the suppliers. However, whilst Decloid had been showing chain leadership for many years they have failed to adequately communicate either the global changes over the last two decades or the company’s positive action to ameliorate the effects on growers (Decloid Senior Managers C12, C17). Decloid appears to have varied between almost no performance management (when supply is short) to contingent reward behaviour⁸¹ and management-by-exception⁸² for the lowest performing suppliers (Decloid C9, C12, C17, C20), periodically adopting either coercive or relational strategies to gain grower compliance with the chain’s strategic direction.

Currently Decloid does not have a coherent strategy to build collaboration with suppliers, and key staff feel all avenues have been exhausted (Decloid C17). Decloid C17, a senior manager of the grower interface, believes that Decloid has lost credibility through twenty years of leveraging their good relationships with growers to achieve raw material price reductions and the company is now, due to the vegetable growers’ ageing profile and comfortable equity situation, somewhat irrelevant to their futures. C17 believes that, from a long term strategic view, the growers have failed to change with the global trading environment largely due to their narrow worldview, lack of capacity and reliance on the “union” (farmer’s association) and so the industry in the region is struggling to

⁸¹ Identification of performance required for reward (Defee, 2007); in this case, management by contract specifications.

⁸² Monitoring performance and only taking action when the follower fails to achieve standards (Defee, 2007).

compete in the global marketplace. Consequently, C17 says the company is not prepared to continue to facilitating the structural change required in the industry:

...we've been burned by the growers' reactions too many times but we will support third parties [several consultants named] who take up the challenge...

Growers appear to have a range of reactions to Decloid's strategies; Growers C31 and 34 had a moderate level of commitment and respected the company and its field officers whilst others (C36, C37, C38, C39) were somewhat dismissive of field officer advice and saw the relationship with the company purely as one based on price. C33 said: "...we were here before Decloid and we'll be here after they're gone..."

Whilst many of the attributes of 'transformational leadership' (Defee 2007) have been exhibited at some stages over the years (e.g. Decloid's supplier development program) it appears that this has not been done as part of a broader, systematic cultural change program and, in some instances, has been undermined by tactical changes imposed by Battel (through Decloid) or sudden changes in the competitive environment. The lack of success of many different strategies employed over several decades has led to frustration on the part of Decloid field service staff⁸³ and, at best, confusion amongst growers about the relationship and at worst, resentment and hostility. Neither party appears willing to move on and 'forgive and forget' their collective history.

However, this inconsistent approach to leadership by Decloid has been compounded by a lack of appropriate 'transformational followership' by the chain's farm suppliers. Of the five dimensions of followership identified by Defee (2007) that distinguish 'transformational' from 'transactional' followership, the farm suppliers appear to be weak on all five parameters and therefore more transactionally oriented. Growers lack an 'independent mindset', the 'critical thinking' about improving chain activities and do not pro-actively seek out superior performance unless it's tied to monetary bonuses, simply reacting to specific direction by the chain leader (Decloid C9, C10, C12, C17, C20). Decloid Senior Manager C12 said: "Growers see themselves as Decloid's customers..." and "...hate quality specifications [because they] would all prefer to be paid the same..." Grower C12 also opined: "...[the] contract systems means farmers do what they're told..." a comment supported by Grower C32. Decloid's response to this passivity is to provide the direct supervision and other business support (e.g. bulk input purchasing, arranging contractors) which confuses their exchange roles. The farm suppliers generally lack a collaborative approach unless there are immediate rewards and few perceive they have a relationship with Decloid corporately (Decloid C10, C17, C21). Finally, the chain's farm suppliers appear to lack a commitment to the chain's interests as a whole as

⁸³ Most of the Decloid field officers and their managers are over 45 years of age and have been with the company in this role for twenty or more years.

evidenced by the high level of enculturated opportunism which suggests little consideration of the chain's interests.

The most serious outcomes of these behaviours appear to have been the deep cultural effects on the nature of the industry. Decloid Senior Manager C9 described their suppliers as: “A collective of independent opportunists...with no strategic thinking...” and as a result, in his view there were now “...Not enough entrepreneurial growers to drive business, and [they are] not increasing in number.” Further though, as identified by Defee (2007, pp. 56-60), the passivity and low capability of suppliers may also cause Decloid to fall back into transactional leadership focusing on efficiency and compliance management of quality rather than behaviour that would facilitate co-innovation to create consumer and customer value.

5.3.3.4 Conclusions for 5.3.3 Chain governance conditions that influence co-innovation

Overall, this section on chain governance conditions affecting co-innovation has shown that a form of modular governance operates where there is a reliance on formal contract specifications and minimal use of relational contracting. It appears that the choice of the form of governance by the retailer determines the manner in which the chain is coordinated and the incentives that are used.

The reliance on top-down, formal contracting and the use of objective, price-quality and punitive incentives to coordinate chain activities contributes to poor relationships and a feeling of powerlessness amongst growers. This generates opportunistic supply behaviour and antagonistic responses that fail to incentivise co-innovation, long term perspectives or whole-of-chain orientation which perpetuates the dysfunctional behaviour. Thus the contract specifications approach to governance is congruent with Roucan-Kane and Boehlje's (2009) suggested factors in the choice of governance and reinforces each parties concerns about uncertainty, leakage of information etc.

The regular use of coercive market power by the retailer and the opportunistic use of power by the upstream partners when the need arises, and as demand variation shifts the power hegemonic to one of the parties, are destructive of chain relationships and inhibit collaborative adaptation (Section 5.3.2.1). Cox et al (2002) found in a range of mainly manufacturing studies that buyer or supplier dominance rarely persists for long which is consistent with this finding. Pol and Visscher (2010) have identified that in circumstance where innovation threatens a power hegemonic then that firm may resist that innovation because it reduces their flexibility. This may be the case here because Battel does not trust Decloid with information because of perceptions they lack climate risk management strategies and in addition, they are also a major supplier to Battel's largest competitor. On the other hand, the vegetable growers do not trust either Decloid or Battel, but particularly the latter, and so staunchly resist change.

Further, Hobley and Batt (2010) have found that power asymmetry will have a negative association with trust, conflict resolution, performance satisfaction and earlier, Lindgreen, Palmer and Trienekens (2005) found it destructive of trust. Thus, it appears that the exercise of power and occasional threats to use power both by the retailer/processor and the vegetable growers has been a major contributor to this finding.

Instead of Decloid using consistent strategic chain leadership to develop grower capacity and independence, their transactional, paternalistic approach to relationship management has combined with the growers' cultural conservatism and low level of business competence to generate a dependence which inhibits innovation and co-innovation. Decloid's frustration with their resistance to change has, in part, led to their propensity to use coercive power and the manipulation of reward power (Belaya & Hanf 2009). This has led to an antagonistic relationship with growers and their adoption of a passive transactional followership (Defee 2007). The existence of low switching costs, alternative markets and commodities for growers and the tolerance of the culture of opportunism by Decloid, increases supply uncertainty and decreases efficiency and therefore, ultimately reduces chain competitiveness. These findings are supported by Matopoulos et al's (2007) research in Greek agrifood case studies that power asymmetry facilitated the development of dependence which affected benefit-sharing and ultimately trust, noting that dependence adds to the complexities of supply which may reduce collaboration. However, there were some contrary findings by Matopoulos et al (2007) regarding positive effects for small businesses that do not appear to be borne out in this case. Further, there was research from other industries such as Ferrer et al (2010) that suggest the effect of the power-dependence phenomena may be situationally specific or at least industry specific.

Thus, Battel's approach to governance has had deep cultural effects on the Decloid and the vegetable growers, degrading their capacity for value creation and innovation. This finding adds support to Belaya and Hanf's (2009) theoretical model which, in part, hypothesises the destructive effects of the combination of coercive and reward power on relationships and its linkage to opportunism.

5.4 Themes emerging in this case study

The preceding analysis has identified that the Battel – Decloid frozen vegetable value chain is operating with a modular form of governance exhibiting low relational competence, a lack of cultural alignment, few of the aligned structures and processes of co-innovation and low co-innovativeness. This section will draw together themes about the intra-organisational, inter-organisational and governance conditions that affect how the chain was incentivised and the resulting level of co-innovation.

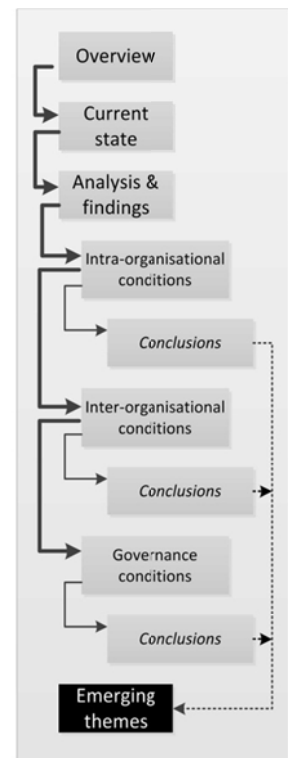
As described in Chapter 3 Research Methodology, this analysis has employed a hybrid, data-driven approach to coding conceptually clustered emergent themes identifying the potential “themes that differentiate” (Boyatzis 1998, p. 44). These are described in the following:

Theme 1: Mental models influence governance, incentivisation and innovation

The mental models of the managers of the firms in this chain appear to drive the way they do business, their approach to innovation and the manner in which they incentivise their staff. Battel’s managers use ‘managerialist’ or ‘macho-management’ forms of language (refer Sections 5.3.2.1 and 5.3.1.4) which, as concluded by Butcher and Atkinson (1992, p. 565) “...language provides and maintains the mindsets that define the concept of organisation.” Battel’s autocratic approach and use of strong monetary and punitive rewards thus appears cognisant with a mental model of macho-management. This is in contrast to the more measured, egalitarian forms of words used within Decloid interviews which are cognisant with their corporate values. These include “...respect for all fellow employees...proper conduct and ethical behaviour...integrity...” This egalitarianism also drives the design of Decloid’s incentive system and as a result, all their extrinsic rewards are team-based and their social incentives are focused on performance and culture maintenance.

In another example, Decloid has a strategic goal of being an industry leader in innovation yet limits its conception to new products rather than the broader focus on new processes, new sources of raw materials, new markets or new forms of governance. Consequently, it incentivates new product innovation alone, has business processes that effectively engage only four of its two thousand staff in innovation and has no mechanism for effectively managing other forms of innovation. This appears to be recognised by some such as Senior Executive C26 and Senior Manager C17 who indicated that the focus on food innovation makes it difficult to engage other staff in the process.

Vegetable growers believe that the low prices for their commodities are a strategy by the supermarkets to take a greater share of the profit for themselves and that if the consumers only knew where their vegetables were grown, they would be willing to pay significantly higher prices. Consequently, they persist in resisting change because they believe that climatic cycles will eventually give them the power to drive prices higher. They also persist in attempts at provenance branding despite very little research to support their belief that consumers will pay more for their region’s vegetables (Industry Marketing Plan C85).



So it appears that mental models are a powerful influence in behaviour, can affect the way people and firms do business and may affect a firm's approach to innovation. In this instance, the mental models of Battel strongly influenced the mode of operation of the whole chain.

Theme 2: Without a shared vision chain partners will be driven by their own motivators to pursue their own vision

In this chain there was no shared understanding of vision and strategy and so each firm pursued its own interests by focusing their employee incentive systems on their own goals thus eliciting very different behaviours. In Table 5.2 Battel wants to compete on price through a three tier (good, better, best) private label strategy using innovation only to reduce price and increase footfall. Consequently, it incentivates its buyers by using monetary and punitive incentives to achieve profit targets by delivering low price, quality products to consumers (Table 5.5). This elicits an expedient, transactional approach to procurement with price as its main focus - "...The only strategy which really matters is price strategy..." (C43 - four Battel managers).

On the other hand, it can be seen in Table 5.3 that Decloid wants to be an innovative brand owner creating value-added processed vegetable products. In order to gain positioning for their brands in Battel, Decloid have to accept very low margins on the private label products, which are the majority of their output. So, to achieve their own aims for their brands and profit, they maintain their private label business with Battel and pursue mergers and acquisitions of companies and brands that will allow them to achieve their own vision for innovation and value-adding.....and profit. Consequently, they focus their internal incentive system for executives on increasing turnover thus encouraging acquisitions and for teams/individuals they incentivise innovating new products for their own brands rather than other forms of innovation (Table 5.5).

In Tables 5.4 and 5.5 it can be seen that vegetable growers have more diverse motivations, including maintaining their lifestyle and conforming to peer group norms. These drive farmers to resist and outlast Decloid's change imperatives because "...we were here before Decloid and we'll be here after they're gone..." (C33).

Theme 3: The mental models about incentives in the most powerful firm are a very important influence in the design of firm incentivisation systems

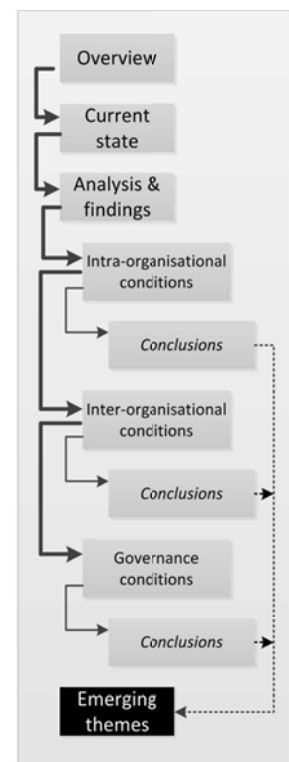
Notwithstanding the pursuit of individual goals in the absence of shared vision, by virtue of the market power of Battel, their approach to business will be a major influence on the incentivisation at a firm level across the chain. In the previous section for Battel the emphasis for procurement based on price is apparent. Yet, despite their more values-oriented, longer term approach to business and their broad-based approach to internal incentivisation (Table 5.3), Decloid have designed a largely economic-oriented incentivisation system for growers and rely on a formal, objective price/quality based contract as the means of implementation (Table 5.4). At times, particularly when there was

over-production, Decloid Senior Manager C17 said this was used to “... squeeze[d] the life-blood out of the relationship to constrain prices and still maintain supply...” about which he had misgivings. Hendrikse (2003) highlights the impact of chain partner’s cognitive capabilities and perceptions of complexity and risk on the choice of governance, so it appears that not only the performance imperatives, but to some extent the attitudes of Battel were adopted by Decloid in spite of their values system.

Theme 4: If incentive systems are not aligned with other business processes they will be less effective

In this chain, incentive systems often appeared to be constrained by other business processes or systems. For example, Battel managers did not have a uniform understanding of corporate strategy and consequently were developing in slightly different directions; some like Battel C43 thought “...we’re hurtling down the international sourcing path..... Consumers don’t give a damn about [provenance]...” whilst others like Battel C41 believed they had a clear strategy to differentiate with their provenance-based frozen vegetables. In another instance, whilst lowest price and efficiency were the prime motivators, Battel acknowledged that their implementation of a major new computer procurement system had been in trouble for some time and was causing them and suppliers to sustain higher costs. Such strategic inconsistencies and structural impediments confuse and frustrate and may result in the observed high turnover of staff (Battel Middle Manager C41 and Senior Executive C68).

Similarly, in Decloid, most of those awarded the Managing Director’s Award, a social incentive for high performance, had left the company within “...a year or so...” (Senior Executive C26) because there was no recognition by the promotional or employment process that these outstanding people were worth retaining in the business. In another instance, a factory manager’s incentives were directly opposed to innovation (C24). In a final example, the most significant co-innovative activity, the broccoli project, occurred outside the innovation system and was not sanctioned by senior management. Thus it appears that unless the incentive system is aligned with other business processes it will be less effective.



Theme 5: ‘One dimensional’ incentive strategies may be inadequate to motivate co-innovative behaviour

If we characterise the three types of firm incentives and three types of individual incentives identified in the literature as ‘dimensions’ of each level of incentivisation, then the analysis in Tables 5.3, 5.4 and 5.5 indicates that firm incentives in this chain are predominantly ‘one dimensional’; in this instance,

based on economic incentives. Further, close examination of employee incentives in Table 5.5 shows that the situation is actually more ‘one dimensional’ than it appears with the large firms mainly relying on extrinsic incentives for their employees. According to the comments of Managing Director’s Award winner C21, Senior Manager C17, Plant Manager C24 and Senior Executive C26 found in Section 5.3.1.2, the incentive system is constraining innovation because it lacks diversity and the flexibility to provide individualised incentives. From this, it appears that mixes of different types of incentives may be necessary to cater for the strategic differences between companies and motivational differences between people as well as situational complexities. For example, Decloid has around three hundred very widely geographically dispersed and also very socio-economically diverse growers and yet use a ‘one size fits all’ supply contract with economic incentives because of the growers’ use of a collective bargaining approach to contract negotiations. Yet, a grower three kilometres from their processing plant and another three hundred kilometres away are subject to very different supply conditions. Similarly, a young, highly geared grower has very different needs than a near-retirement aged grower with 100% equity in his farm. In both instances, the motivators may be quite different which are not accommodated by a single contract.

Theme 6: The lack of alignment of strategy, culture and values across the chain reduces co-innovation

The analysis in Section 5.3.2.2 demonstrated that there appears to be little compatibility between the partner’s cultures. The management culture and leadership style of Battel is price and profit-oriented, autocratic, secretive and siloed whilst, in contrast, the Decloid culture was egalitarian, open and team-oriented with the company values of respect, proper conduct and ethical behaviour were well enculturated and practiced. The farm suppliers on the other hand were conservative, change-averse and had developed an antagonistic and opportunistic culture. It was concluded that Decloid was misaligned with its partners in this chain regarding culture (refer Tables 5.1 and 5.6). Section 5.2.2 concluded that: “In such a chain culture there is little willingness to collaborate to improve the chain or adopt a whole-of-chain outlook.” As collaboration, by definition, is an integral part of co-innovation then this lack of alignment will be constraining.

Theme 7: Transactional chain leadership and followership appears to constrain co-innovation

As outlined in Chapter 2, ‘transformational’ leadership and followership is associated with the stimulation of creativity and innovation in value chains, whilst ‘transactional’ leadership and followership is associated with a compliance and efficiency focus. Section 5.3.3.3 concludes that Decloid demonstrates a mix of transformational and transactional leadership behaviour that confuses suppliers. In particular, their tactical use of contingent reward and management-by-exception in response to Battel’s demands on the chain leads to distrust, lack of commitment and ultimately to opportunism. On the other hand, the vegetable growers in this chain lack the independence, critical

thinking and desire to be collaborative and innovative in the chain's interests that are the hallmarks of transformational followers and so can be regarded as transactional followers. Decloid Senior Manager C9 now doubts that there are sufficient "...entrepreneurial growers to drive [the] business..." and this was also the conclusion of independent consultants running the supplier development program (Decloid Senior Manager C17). Therefore, it appears that the transactional leadership/followership nature of this chain is constraining the development of co-innovation.

Theme 8: The absence of the conditions that facilitate co-innovation will inhibit its operation

The key intra-organisational, inter-organisational and governance conditions analysed in Sections 5.3.1 – 5.3.3 demonstrates that where they are absent then collaboration, innovation and co-innovation will be low. In particular, in this chain, the motivational frames were not aligned between firms and as a result, businesses and people worked for different goals and had different ways of working. The inter-organisational structures and processes of co-innovation were also critically absent or poor in the Battel-Decloid value chain. For example the management efficiency of logistics, information-sharing, coordination of decision-making and monitoring of performance for co-innovation and benefit-sharing were all severely constrained due to the incompatibility, dysfunction or non-existence of partner ICT systems. Similarly, the chain's lack of co-innovation competence and modular form of governance using formal contracts and the regular application of opportunistic, coercive power also appeared to contribute to antagonistic relationships and inhibit co-innovation.

In summary, this chapter has provided an interesting juxtaposition with the first two case studies which identified chains that were operating more at the extremes of the governance spectrum. Chapter 4 operating more like a spot market with highly individualistic behaviour by the firms in the chain, a focus on transactional exchanges and a motivational regime was a normative-gain frame exhibiting highly individualistic behaviour by the firms in the chain, a focus on transactional exchanges and seriously misaligned inter-organisational goals and incentives.

The case study in Chapter 6 was a more relational chain which appeared to show a highly co-innovative processed lettuce value chain focused on delivering a wide range of value-added, plain label salad products to a major supermarket retailer to a national market. Despite a major asymmetry of power and capacity between the chain partners the chain seemed to be demonstrate a strongly relational and collaborative form of governance with a high degree of strategic alignment.

Chapter 6, following, is a study of a relational hybrid value chain exhibiting a high level of co-innovation and so enables a comparison of chains with governance forms from market to hybrid forms.

Chapter 6: Analysis and findings – Case Study 3

6.1 Introduction

Chapter 6 reports the analysis of the third of three case studies conducted as part of exploratory research to understand how employees, executives and firms are incentivised to co-innovate in agrifood chains. Three case studies were purposively selected in Australia and North America to provide a range of chain governance types, management regimes and products. The first case study in Chapter 4 analysed a fresh pork value chain operating with a market form of governance that resulted in highly individualistic behaviour by the firms in the chain, a focus on transactional exchanges and seriously misaligned inter-organisational goals and incentives. Chapter 5 analysed a frozen vegetable value chain where a large diversified multi-national processor with well-developed corporate values supplies a large, very transactionally-focused retailer with a family of branded and plain label frozen vegetables grown by a large number of small commodity vegetable growers.

This chapter analyses a processed lettuce chain with a more traditional business model where data were collected from semi-structured interviewing techniques as well as other corporate and public sources. The subsidiary research questions (SRQ) investigated were:

- **SRQ1:** *What are the facilitators of collaborative innovation in agrifood chains?*
- **SRQ2:** *What are the inhibitors of collaborative innovation in agrifood chains?*
- **SRQ3:** *How do agrifood firms incentivise individuals to co-innovate?*
- **SRQ4:** *How are senior executives incentivised to co-innovate in agrifood firms?*
- **SRQ5:** *How does the form of governance in agrifood value chains influence the incentives employed across the chain?*
- **SRQ6:** *How does the power asymmetry in agrifood value chains affect the nature of incentives employed?*
- **SRQ7:** *How is chain leadership exercised in agrifood chains?*
- **SRQ8:** *How do inter-organisational relationships in an agrifood chain affect the types of contracts used to coordinate chain participants?*
- **SRQ9:** *What incentives are used to motivate firms in agrifood value chains?*
- **SRQ10:** *What are the motives used to motivate firms in agrifood value chains?*
- **SRQ11:** *To what extent do values, attitudes and norms of firms in agrifood chains influence the enactment of incentivised motives?*

These questions form the basis for the presentation of an analysis of the data collected from this chain. However, they will be considered in a slightly different sequence to that in which they emerged from the extant literature so as to facilitate the logical presentation of the analysis:

- The intra-organisational conditions that facilitate or inhibit the formation and continuance of chain relationships in agrifood chains:
 - How firms within agrifood value chains are incentivised – SRQ9 and SRQ10;
 - How individuals are incentivised in agrifood chains – SRQ3;
 - How executives are incentivised - SRQ4;
 - How do values, attitudes and norms of firms in agrifood chains influence the enactment of incentivised motives – SRQ11.
- Inter-organisational conditions – SRQ1 and SRQ2;
- Chain governance conditions that influence relationships and incentives in agrifood value chains (SRQ8):
 - The use of contracts – SRQ8;
 - The use of power - SRQ6;
 - The role of chain leadership - SRQ7.

A flow chart with a block box indicating the current position within this sequence is provided at each of the major sections as a guide for the reader.

In this analysis, the identifying details have been anonymised in compliance with the confidentiality agreements signed with the participants. Hence the value chain is referred to as the “Greenfresh Ltd-SaladCorp Processed Lettuce Value Chain” using two fictional company identifiers.

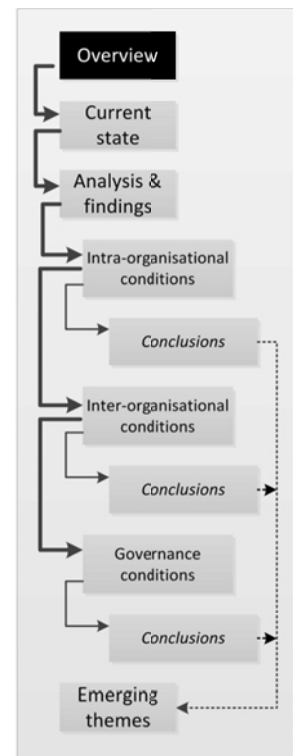
6.2 Case Study 3 – Greenfresh-SaladCorp Processed Lettuce Value Chain

In this case study the largest company, the retailer, is ‘Greenfresh Ltd’ and the processor supplier is ‘SaladCorp’, which is supplied by about twenty four farmers. The names of all interviewees have been changed to code numbers commencing with ‘B’ and the numbers randomised so that, for example, B1 is not a Chief Executive Officer. Figure 6.1 provides a map of the product, communication and relational flows for the chain.

6.2.1 Overview of the chain

SaladCorp has grown in less than twenty five years from a single-location family farm enterprise with a stall in a large regional fresh vegetable market to one with three corporate subsidiary companies, approximately one thousand employees and a national supply capability through three large processing facilities. Throughout that period they have achieved consistent double digit revenue growth, sometimes as high as 20% per annum. Their vision is:

... to change the way Australians eat and to do that while adding business value for all stakeholders throughout the supply chain and ultimately for the consumer (Senior

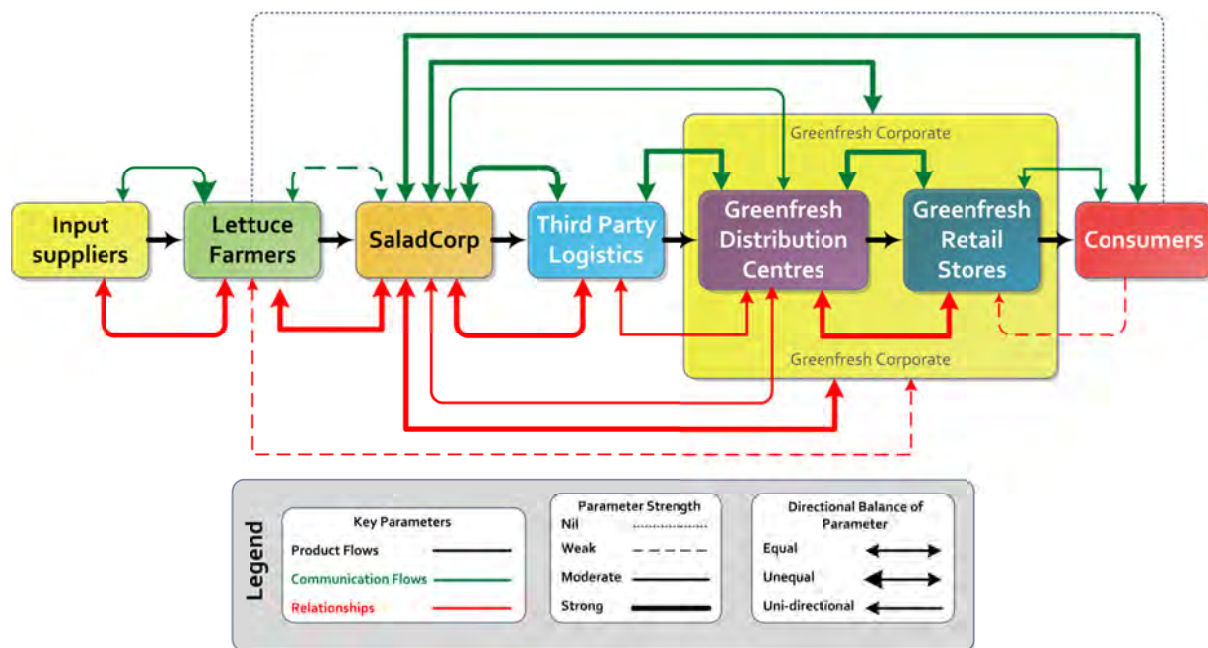


Executive B13);

with a 'BHAG'⁸⁴ of: "...three million food experiences every day..." (B9, B11, B12, B13, B14), to achieve:

...500 million (turnover) by doing what we do very well and continue to innovate, get closer to our partners as we call them, that's Greenfresh, Galacticon⁸⁵, <Competitor #3>, <Competitor #4>, those sort of people and do more in the wholesale (Board Member B8).

Figure 6.1 Map of the Greenfresh-SaladCorp value chain



SaladCorp supplies over one hundred and twenty fresh and value-added, plain label products to Greenfresh Ltd which is a very large international retailer of food and grocery, liquor, petrol, general merchandise and consumer electronics across several countries with over one thousand supermarkets turning over more than forty billion dollars a year and employing about 120,000 people.

Greenfresh' strategic plans for both the firm and the fresh produce category were not available due to confidentiality restrictions but some of the company's public documents provide an indication of their general direction. Their highest priorities appear to be the sourcing of private label products and managing climate change, water use and drought risks (Document B34). However, according to Greenfresh Business Manager B20, at an operational level, a category manager focuses on sales profit

⁸⁴ An acronym for a 'Big Hairy Audacious Goal' referred to frequently by five of the senior executives during interview. A BHAG is "is clear and compelling, serves as unifying focal point of effort, and acts as a clear catalyst for team spirit. It has a clear finish line, so the organisation can know when it has achieved the goal; people like to shoot for finish lines" (Collins & Porras 1996, p. 73).

⁸⁵ Another major corporate national retailer.

which is achieved by customer growth through satisfied customers; “their sense of enjoyment and discovery in the store”. He was adamant that category management was “...not about price... It's value for money, value for money for the customer...quality, service and value.”

SaladCorp has a strong, innovation-based, long term relationship with Greenfresh and their processed lettuce products are the focus of this investigation. Greenfresh regards SaladCorp as a “...strategic vendor who are capable to work with us to get to the end goal...” and provide “...quality, service and value...” with a long term perspective (Greenfresh Business Manager B20). Greenfresh has around 450 fresh produce suppliers however, only five or six of these are strategic relationships because only a small number of such relationships can be effectively managed and many suppliers are not a good strategic fit or lack the interest or capability. B20 said SaladCorp: “...bring a lot to the table, more than what other companies do...they bring innovation, excitement, passion and a bit of a ‘can do’ sort of attitude... I think one of the important things, or what makes things work, is having the right people in the retail side as well as the supply world.” SaladCorp act as the ‘category captain’ and are the focal firm in this chain, playing a coordinating and integrating role up and down stream.

SaladCorp also supply Galacticon Ltd with a more limited, commodity-based or non-exclusive range of products which comprises about thirty per cent of their output as well as other independents and catering outlets. Galacticon Ltd is Greenfresh’ main competitor.

SaladCorp aim to be market leaders in many aspects of their business including innovativeness, quality and food safety. SaladCorp’s definition of innovation includes products, process, markets and raw material sources. Their Founder, B11, has historically been the catalyst for innovation and growth. B11’s vision, values and creativity have been the basis for the development of a co-innovative culture but the innovation process is now subject to more systematic management including formal horizon scanning and a ‘Stage-Gate Process’⁸⁶ and is now deeply entrenched in the culture of the firm through individual ‘performance management plans’ (PMP) and extrinsic and intrinsic incentives. The alignment of vision and strategy and good relationships that exists across the chain appears to provide the basis for the co-innovation that occurs.

In the last three to five years SaladCorp B11 has pursued a goal of ‘corporatising’ the family company by bringing senior executives with significant global corporate and financial skills into the company and forming a ‘board of management’ with senior banking, finance and corporate business experience. They were carefully chosen by B11 to ensure they were people that not only had the business skills but also the values and integrity matching those of the family. This has resulted in corporatisation “...without losing our innovation and our [family values driven] business model...”

⁸⁶ The Stage-Gate Process[®] is a widely used proprietary product innovation process developed by Dr. Robert G. Cooper (1984, 1994; 1986) which provides a conceptual and operational roadmap employing management decision gates for moving new product development projects from idea to launch.

and “...getting that day-to-day predictability into the business...” because “...banks like predictability and they don’t like surprises. We’ve managed to have great relationships with our banks...because we treat them well. (Board Member B8). SaladCorp’s internal governance is already regarded by its bankers as “public company standard” (SaladCorp Founder B11).

The family culture of being ethically driven, forward-looking, socially responsible, open and entrepreneurial seems to have permeated the company and so it appears to be a highly values driven company. The company has adapted Character First^{® 87}, a US-developed human resource management (HRM) system for the development of integrity-based organisational culture, recruitment and management practices. This focuses on recruiting people with psychological and value profiles that ‘fit’ the firm then developing them to undertake the functions required within the business. The phrase referred to by several managers was “We hire for character and train for skill...” (SaladCorp B5, B10, B11, B12).

One of SaladCorp’s critical success factors appears to be their strong whole-of-chain focus in managing value creation; for upstream and downstream partners as well as consumer value. In short, SaladCorp believe that to enhance their returns and sustainability they need to manage the performance of their own products through the chain to the marketplace.

SaladCorp have about twenty four lettuce growers and a range of condiments manufacturers supplying this chain who appeared to fall into three broad groups. Firstly, long-term suppliers who had a substantial proportion of their business with SaladCorp and were more thoroughly integrated; secondly, a group who were less integrated but who were focused on improving their performance to increase the proportion of business done with SaladCorp; and finally, a group who appeared to be short-term suppliers to make up for shortfalls in supply resulting from climatic events or other supply problems.

SaladCorp’s long term suppliers appeared to not only have strongly aligned business goals but also very similar attitudes to doing business: innovative, market-oriented, committed, communicative and values-oriented. They had committed large proportions of their business to SaladCorp (one as high as 70%) and appear motivated by the sustained growth over a long period even though margins were low. They have committed to the relationship through the good times and bad partly because they believe that on balance, the overall outcome will be very positive but also because of a high level of trust in SaladCorp’s Founder. It appears that where growers are aligned in their vision, values and attitudes with SaladCorp and are willing to grow then SaladCorp will support their business

⁸⁷ Character First[®] is a proprietary human resource management (HRM) system based on 49 values that describe good character and the attitudes people need to improve relationships and make ethical choices. The vocabulary introduced and processes employed help colleagues challenge and applaud each another for good character-based behaviour. Refer <http://www.characterfirst.com/>

development with advice, training and supply schedules.

Throughout the chain, there is a strong reliance on relational contracting, however all suppliers receive a once-only supply agreement at commencement focused on the quantity and quality of supply and the coercive incentives (price downgrades and rejection) that will be incurred for sub-standard raw materials. The progression of relationships is based on the building of trust through conforming to performance requirements over time, the sharing of vision, goals and approach to business, the supplier's willingness to develop their business in line with Greenfresh and SaladCorp's needs, their general approach to business (particularly ethicality).

So, in summary, this chain appears to have many characteristics of agrifood supply chains; small, dispersed raw material suppliers producing undifferentiated products, a much larger diversified processor supplying a very large corporate retailer ranked in the top twenty five in the world. However, there appear to be some characteristics that are different, particularly those pertaining to relationships, so in order to further orient readers before a deeper analysis to answer the research questions, the next section will review the current status of the chain.

6.2.2 Current state of the Greenfresh-SaladCorp Processed Lettuce Value Chain

The current state of the chain as represented in Table 6.1 has been analysed using the structure of the Co-innovation Roadmap (Bonney et al. 2007) because this provides a useful model of the critical elements required for managing co-innovation in value chains.

This chain exhibits high levels of many of those elements producing a high level of co-innovation but without the explicit co-investment in shared resources and formal sharing of risk, costs and benefits suggested by the Co-innovation Roadmap. In a theoretical sense, this is a 'limited' form of co-innovation, none-the-less it appears to be effective for this chain and whether or not it is a more pragmatic form of co-innovation developed to cope with the inherent variability and unique characteristics of agrifood chains will be discussed in the cross-case analysis in Chapter Seven.

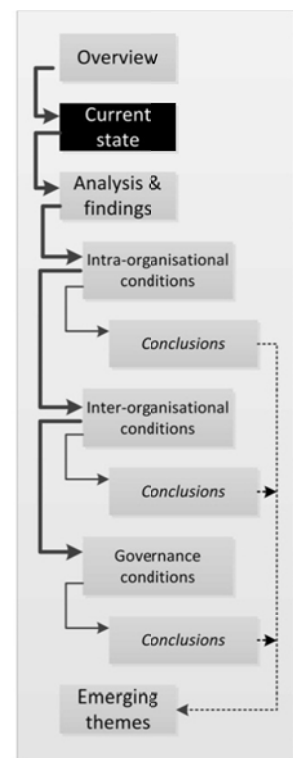


Table 6.1: Summary of the current state of the Greenfresh-SaladCorp Processed Lettuce Value Chain

Roadmap Parameter	Assessment
1. Shared direction	
1.1. Shared vision and goals	<ul style="list-style-type: none"> Annual, very high quality communication & agreement between (b/n) Greenfresh & SaladCorp Annual, high quality communication & agreement b/n SaladCorp & its long term strategic lettuce growers Communication basic b/n SaladCorp & its short term lettuce growers where relationships are developmental Communication basic b/n SaladCorp & other lettuce growers transactional only
1.2. Compatible cultures	<ul style="list-style-type: none"> Highly aligned values, ethics & attitudes where there are long term relationships & a level of integration has occurred Where there is little alignment relationships are largely transactional
1.3. Leadership	<ul style="list-style-type: none"> SaladCorp demonstrates a high level of whole-of-chain leadership
2. Collaboration architecture	
2.1. Collaborative performance management system	<ul style="list-style-type: none"> Between SaladCorp & Greenfresh systems are adequate only Between SaladCorp & long term growers systems are adequate & developmental. With short term growers are basic only.
2.2. Information sharing	<ul style="list-style-type: none"> The stronger & longer the relationship, the more information is shared, but essentially this is only at an adequate level. Transactional relationships share only transactional information.
2.3. Decision synchronisation	<ul style="list-style-type: none"> Limited
2.4. Incentive alignment	<ul style="list-style-type: none"> Adequate but serendipitously aligned incentives where there are long term relationships...no explicitly managed alignment
2.5. Integrated value chain processes	<ul style="list-style-type: none"> Aligned processes where there are long term relationships & a level of integration has occurred With short term growers basic exchange processes only
2.6. Boundary spanning roles and boundary objects	<ul style="list-style-type: none"> Multi-level roles & highly quality, multi-level interaction where there are long term relationships & a level of integration has occurred With short term growers relationships are largely transactional
3. Relationships	
3.1. Trust	<ul style="list-style-type: none"> Very high in long term relationships, but under stress; developmental or basic exchange level trust in short term relationships
3.2. Commitment	<ul style="list-style-type: none"> Very high in long term relationships; developmental or basic exchange level commitment in short term relationships
3.3. Open communication	<ul style="list-style-type: none"> Very high in long term relationships; developmental or basic exchange level communication in short term relationships. In long term relationships some concern it is decreasing.
3.4. Mutual benefits	<ul style="list-style-type: none"> Indirect but substantial in longer term relationships
4. Continuous improvement and learning	<ul style="list-style-type: none"> High in long term relationships but under threat; developmental or basic exchange level learning in short term relationships
5. Innovation	
5.1. Process innovation	<ul style="list-style-type: none"> Very high
5.2. Product innovation	<ul style="list-style-type: none"> Very high, but requires more systematic approach
5.3. Co-innovation	<ul style="list-style-type: none"> High but without co-investment; responsibility of specific partner
6. Capacity building	
6.1. Resourcing to co-innovate	<ul style="list-style-type: none"> Basic; responsibility of specific chain partner
6.2. Ability to co-innovate	<ul style="list-style-type: none"> Very high
6.3. Incentivation/Motivation to co-innovate	<ul style="list-style-type: none"> Very high extrinsic and intrinsic incentives for individuals Very high indirect or relational contracting incentives

The long term partnerships in this chain appeared to be based on shared vision and goals, compatible cultures and effective chain leadership. This may be an outcome of the relational and values-based approach of the two largest chain partners Greenfresh and SaladCorp, the processing firm. This appears to be largely derived from the personalities of the two key people, the former Greenfresh Business Manager of ten years B20 and the Founder of SaladCorp, B11. As B20 pointed out: “It is a very personal thing...one of the most important things is having the right people in, I suppose, the right positions...”

The SaladCorp Founder B11 has now developed a large company that still reflects his highly relational, values-based, profit-oriented approach to business. His (and the company’s) deepest relationships are with those who share this approach. He shares the Greenfresh Category Manager’s views about selecting the ‘right people’ and accordingly SaladCorp takes a cautious, quite long-term approach to developing business relationships and selecting his company’s key managers and executives.

The development of compatible structures and processes (the collaborative architecture) is one of two areas where most improvement can be gained in this chain and is the area most reliant on information and communication technology (ICT). Notwithstanding this potential, it faces difficulties because improvement involves developing a sufficient level of trust to enable deeper and more extensive levels of information and data sharing. The issue of interfacing information systems with Greenfresh is also a particularly difficult issue because SaladCorp is only one of perhaps five hundred strategic vendors out of Greenfresh’s possible 50,000 suppliers⁸⁸ across all categories with whom they potentially need to interface with external information systems. This may explain why SaladCorp Manager B1 commented that despite several promises over some years, Greenfresh had made little headway in improving the compatibility of their systems. Hence, we see that the compatibility of performance management systems, information sharing and decision synchronisation is patchy and only assessed as adequate at best.

Whilst many of the parameters in the ‘compatible structures and processes’ section of the Roadmap appear problematic, boundary-spanning roles and boundary objects (contracts, supply agreements and other arrangements) are very highly developed which may, in part, explain the very high state of relational development. Boundary spanning appears to be multi-level with high quality strategic and operational interactions and high levels of trust developed between individuals. At a strategic level, personal links to the SaladCorp Founder B11 appear to be still important to the upstream partner’s trust and commitment, despite his and other manager’s efforts to broaden linkages to new managers. Indeed, all but one supplier lamented their now more distant relationship with him.

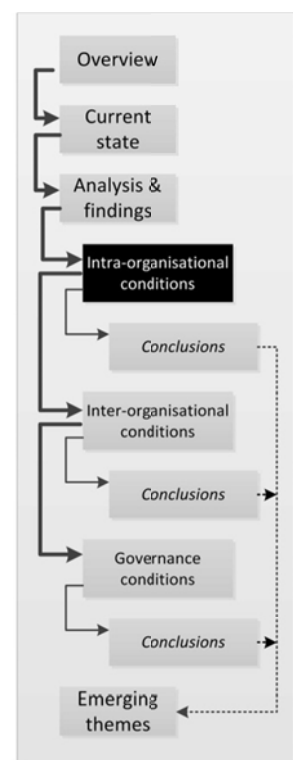
⁸⁸ This statement is based on extrapolating the ratio from Greenfresh B20’s comment that in the fresh produce category there are only five strategic vendor relationships amongst 450 suppliers.

In this chain, continuous improvement and shared organisational learning have been a high priority, but due to the changing nature of communication and relationships as SaladCorp corporatises, that may be under threat. Communication has been a critical element in past growth in the chain, therefore it is important that it is formalised through the installation of systems and processes to underpin future chain relationships and continued growth.

The chain's capacity to co-innovate through its competencies and incentivisation has been rated very highly and SaladCorp drives this through its own recruitment, selection of strategic chain partners and training. SaladCorp's Character First®-based strategy to 'recruit on character, train for skill' (B10, B11, B13, B18) appears to be critical to its innovation strategy and culture.

SaladCorp's employment of multiple types of incentives across multiple levels that are closely focused on business and individual performance, innovation, and relational management may, in part, explain the consistent, long term high levels of growth in product range and market share. The alignment of incentives across the chain appears to have evolved serendipitously from the deepening of relationships and subsequent alignment rather than through implementation of a collaboratively developed whole-of-chain strategy. Greenfresh, SaladCorp and their long term suppliers have a strong emphasis on informal, relationally-based firm incentives contingent on performance and alignment. Incentivation of individuals is strongly focused on extrinsic, social and intrinsic incentives with selection for intrinsic motivation, supported by strong organisational culture management. Further, their organisational learning strategy to train and mentor its staff through the best available professional development and personal development by rotation around various jobs within the organisation as well as assist the professional development of suppliers appears to strongly support Saladcorp's flexibility and co-innovativeness. A number of mid-level managers (B3, B4, B6, B9, B13, B14, B18 and B19) referred to how much the challenge of learning new roles in the company had contributed to their capacity and motivation.

In summary, this value chain appears to have achieved rapid growth through collaborative innovation between firms in an asymmetrical power relationship and to have done so with open communication and good relationships that is uncharacteristic of many agrifood chains in Australia. This appears to have occurred by design rather than by chance. The Literature Review in Chapter 2 found incentivisation appears to play an important role in motivating co-innovation in value chains, so the remainder of this chapter will present an analysis of more detailed data to understand how incentivisation occurs in this value chain.



6.3 Analysis and findings for the incentivisation of the Greenfresh-SaladCorp

Processed Lettuce Value Chain

The theoretical model (Figure 2.8) suggests that both intra and inter-organisational factors as well as chain governance factors may be important in the incentivisation of agrifood value chains. Therefore, this case study will analyse the data within the following broad structure:

- The intra-organisational conditions that facilitate or inhibit the formation and continuance of chain relationships in agrifood chains;
- Inter-organisational conditions that influence relationships and incentives in agrifood value chains;
- The influence of chain governance conditions on the incentivisation of agrifood value chains.

6.3.1 Intra-organisational conditions

The intra-organisational conditions focus on incentives at the firm, operational staff and executive levels and the nature of the corporate values.

6.3.1.1 Firm level incentives and motives

This section addresses SRQs 9 and 10. The Literature Review in Chapter 2 has established that there are incentives and motives that are peculiar to the firm level. It has also suggested that the characteristics of the incentives and motives may be different at the various stages of the chain dependent on the capacity to understand and cope with their environment. The following analysis will attempt to understand the firm level incentives and motives operating in the Greenfresh-SaladCorp Processed Lettuce Value Chain. Because the Literature Review identified that there may be differences in the nature of the incentives operating at each stage in the chain (Section 2.5.2) this analysis will deal with each stage separately. The incentives employed in strategic partnerships seem to be a broadly-based mix of extrinsic and social incentives necessary to sustain a more relational form of contracting where some partner expectations and intentions are not made explicit.

The incentives operating in Greenfresh are analysed separately and summarised in Table 6.2. The results show some similarities and differences to other stages of the chain. Greenfresh Business Manager B20 explained that sales profit and growth are the core drivers for their company and that to achieve this “...new products that you're selling, products, in-store demonstrations and bringing something exciting and new to the customer all the time...” are required.

Table 6.2: Summary of the firm level incentivisation and motivation for Greenfresh in the Greenfresh-SaladCorp Processed Lettuce Chain

Firm Level Incentivation (Expectation or benefit that enables or motivates a particular course of action or behaviour)	Economic Incentives	Normative Incentives	Social Incentives	Motives Generated (Motivation is the process of activating or energizing, direction, intensity, and persistence of goal-oriented behaviour)	Market Hegemony	Efficiency	Org Learning	Build Capacity	Enhance Competencies	Risk Mgt
Greenfresh				Greenfresh						
• Profit	√			• Shareholder dividends		√				
• Share price	√			• Shareholder equity benefit		√				
• Growing the pie	√			• Increasing the size of the market share • Private label strategy	√ √	√				
• Corporate social responsibility			√	• Sustainable environment goals - climate change, water etc	√					√
• Work with the right people			√	• Building trust • Co-innovation for new products, lower prices & increased efficiency • Consistency of supply					√ √	√
• Managing risk and uncertainty...	√			• Competitive advantage through more sustainable, consistent product flow and reduced losses etc • Sustainable environment goals • Sharing risks, costs & benefits	√					√ √ √
• Market	√			• Competitive advantage through increasing market share	√	√				

To become a ‘strategic vendor’ to Greenfresh those “...wholesalers, brokers, direct growers...” must excel at delivering “...quality, service and value...” (B20). Because most wholesalers “...are just sitting on the market stand, you come along, you buy and that's it. There's nothing to it. They're just clicking and ticking it along the way...” (B20).

However, most growers “...are just growers, grow the best product, give us the quality and move on but not innovative, not trying something new, not giving things a go...” (B20) so Greenfresh have selected five or six from 450 suppliers who are “strategic vendors...capable to work with us to get to the end goal” (B20) of whom SaladCorp is one. They are “...in line with what our goals are, obviously customer-centric, innovative, come along with marketing plan, just the right fit I suppose but also succession planning, too...” (B20). This provides an insight into what Greenfresh requires of its suppliers if they are to deliver value to Greenfresh and become ‘preferred suppliers’. Stated simply, if suppliers want ‘preferred vendor’ status with Greenfresh they need to deliver more than the basic consumer value necessary to be in business and be aligned with Greenfresh’s strategic goals.

When the incentives and associated motives are analysed for the retailer Greenfresh, it shows that the identified incentives are explicitly managed and that they are mainly economic in nature, perhaps reflecting the profit, share price and shareholder benefit focus of a large public company. However, Greenfresh also appears to be incentivised by some corporate social responsibility drivers and seem to be moving rapidly towards a strong emphasis in this area. The incentive to ‘work with the right people’, so frequently expressed during the interview with B20, appears to be an internal organisational normative incentive or perhaps a personal norm of the Greenfresh business manager

responsible for the fresh produce category. As explained in the later sections on individual incentivisation, the motivations elicited by this incentive are focused on building trusting relationships based on the ability of partners to deliver DIFFOT⁸⁹ through collaborative innovation. Thus, as Greenfresh B20 indicated: "...It's not about price...It's value for money, value for money for the customer obviously..." achieved through working with people selected primarily on a subjective judgment about individuals. B20 said:

...you can't measure gut feel but it's a bit of gut feel, too, and gut feel to the point of you know when you've got a supplier that you know you can work with...they're not putting up roadblocks and they're not suckers to the point that they're going to roll over, going to go broke...hungry for information, hungry for just facts and figures as well but also hungry about what's the customer wanting or thinking...

Table 6.3 analyses motives according to the possible retail framework in the model (Figure 2.7).

⁸⁹ Note that the industry term DIFOT is an acronym for 'Deliver in full, on time', however, SaladCorp define their term as 'Delivered in full, fresh and on time' or DIFFOT.

Table 6.3: Types of the firm level incentivitation and motivation for SaladCorp in the Greenfresh-SaladCorp Processed Lettuce Chain

Firm Level Incentivitation (Expectation or benefit that enables or motivates a particular course of action or behaviour)	Economic incentives	Normative incentives	Social Incentives	Motives Generated (Motivation is the process of activating or energizing, direction, intensity, and persistence of goal-oriented behaviour)	Sust Comp Advantage	Quality	Lead time improvement	Supply/demand stability	Exploit core competency	Market access	Leverage capital
SaladCorp				SaladCorp							
<ul style="list-style-type: none"> Growing the pie 	√			<ul style="list-style-type: none"> Understand the customer Increasing the size of the market share Growing the business into a national/international business Supplier management Sharing benefit with partners 	√	√		√	√	√	√
<ul style="list-style-type: none"> Living out corporate values 		√		<ul style="list-style-type: none"> Internal culture management Management external relationships 	√				√		
<ul style="list-style-type: none"> Working with the right people 			√	<ul style="list-style-type: none"> Building trust Co-innovation for new products, lower prices & increased efficiency 	√	√		√	√		√
<ul style="list-style-type: none"> Managing risk and uncertainty... 	√			<ul style="list-style-type: none"> Controlling product flow through chain Competitive advantage through more sustainable, consistent product flow and reduced losses etc. Sharing risks, costs & benefits 	√	√		√			
<ul style="list-style-type: none"> Market leadership & industry leadership 	√		√	<ul style="list-style-type: none"> Assumption of category captaincy Competitive advantage through efficiency & responsiveness Standard setting for the industry (e.g. food safety) 	√	√		√	√		
<ul style="list-style-type: none"> Preferred supplier 	√			<ul style="list-style-type: none"> Improved access to markets, information & support for growth 						√	
<ul style="list-style-type: none"> Inter-company arrangements 	√			<ul style="list-style-type: none"> Enabling innovation through arrangements sharing benefit 	√				√		√
<ul style="list-style-type: none"> Family & industry social incentives 		√	√	<ul style="list-style-type: none"> Involve family members if they 'fit' Assist development of staff Share benefit with chain partners (creating value) Provide a benchmark example for other industry members 		√		√	√		√
<ul style="list-style-type: none"> Performance challenges 	√			<ul style="list-style-type: none"> Relationship specific investment Specific goal-oriented behaviour Attaining preferred supplier 	√	√					
<ul style="list-style-type: none"> Avoiding negative incentives 	√			<ul style="list-style-type: none"> Focus on product specifications 		√					

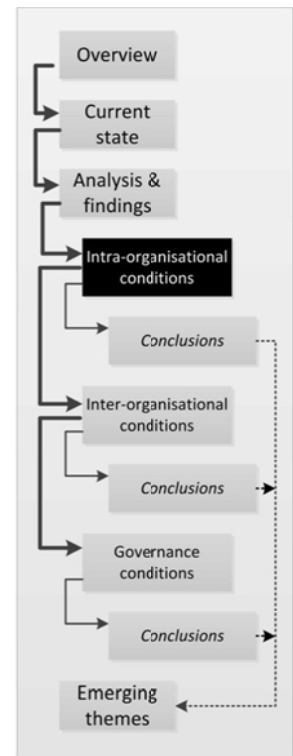
Note: 1: Three 'motivation' columns have been removed because they were unused to facilitate fitting the table to the page. They were inventory reduction, increased customer involvement and technological access.

Table 6.3 shows that most reflect a highly competitive approach emphasising market power, a desire to manage risk, economic efficiency and developing the competencies that deliver sustainable, consistent product flows. SaladCorp has a very similar set of purposefully managed incentives but with some interesting differences. Firstly, Table 6.3 shows that there is a balance of economic, normative and social incentives that motivate the company. Interviews with three of the family members working as executives in the company as well as a Board Member and several other senior executives who know the family well indicates that the incentivisation for the family is much more than the economic benefit they might gain. SaladCorp Board Member B8 said:

I think the wonderful part about <The Founder> is...it hasn't been just about the money... it's about leaving a legacy... But there's something a bit more esoteric than that...that's the base and that's been well articulated...

Some of those incentives included:

- Conducting a family-oriented, ethical, innovative, growing and sustainable (profitable) agrifood business (B3, B5, B8, B11, B12);
- Creating a multi-generational, family-owned company through the effective engagement and training of younger family members in the business and its values (B3, B8, B11, B12);
- Developing younger company managers to become highly adaptable, multi-skilled agrifood executives (B11, B12);
- Developing family-oriented, ethical, innovative, growing and sustainable agrifood suppliers (B11, B12);
- Setting the benchmark standards for the industry – industry leadership (B3, B8, B11, B12).



Thus, as a family-owned company, SaladCorp have a balance of economic, normative and integrated social incentives derived from the family's values⁹⁰ that are well articulated in their internal and external relationships (Document B8)⁹¹.

Whilst several of SaladCorp's incentives were held in common with Greenfresh, SaladCorp appeared to have a stronger and more explicit whole-of-chain focus. For example the phrase 'growing the pie' was used unprompted by Grower B2 and SaladCorp Executive B3. Importantly though, the concept

⁹⁰ The Founder eschews his role in influencing the company's values: "...See, those values at SaladCorp today are not my values; the team put that together. And so our people said that these are what's important. I didn't write those down..." but there is little doubt amongst those interviewed as to his fundamental influence in their formation.

⁹¹ Document B8 is the 'family constitution', a detailed formal document that is purposefully managed within the family. For example, the family has regular formal meetings to discuss its directions and progress chaired by a family member who is not a company employee.

was referred to without the use of the phrase by Greenfresh B20; SaladCorp executives and managers B4, B5, B6, B11, B12, B13; and Growers B2, B7, B15, B17. This appears to indicate a strongly held whole-of-chain incentive to grow the whole chain's business. Similarly, other whole-of-chain incentives were:

- Working with the right people (Greenfresh B20; SaladCorp B4, B5, B14, B4, B8, B16; Grower B17)
- Managing risk and uncertainty (Greenfresh B20; SaladCorp B5, B11, B14, B16; Growers B2, B17)

Other groupings also appeared to exist:

- Market leadership was held in common by the retailer and the processor (Greenfresh B20; SaladCorp B4, B8, B11, B14, B18, B19)
- Preferred supplier was held by SaladCorp and the Growers (SaladCorp B12, B14, B16; Growers B2, B7); and,
- Inter-company arrangements appeared to be a minor incentive held by all (Greenfresh B20; SaladCorp B5, B16; Growers B2, B17)

Finally, the motivated behaviours associated with the incentives in Table 6.3 were able to be classified into the theoretical groups for a chain lead firm found in the theoretical model⁹². In broad terms, many of these behaviours were focused on achieving a sustainable competitive advantage, product quality, supply and demand stability and exploiting core competencies.

So, in summary, SaladCorp has a similar highly managed approach to its incentivisation with a strong economic focus and an almost equally strong social focus. SaladCorp B3's phrase to describe this balance was: "It's hard to be green when you're in the red." Further, the company has a strong whole-of-chain focus sharing many of these incentives with other members of the chain.

Finally, the analysis of the farm suppliers' incentivisation appears in Table 6.4.

⁹² Note that the motives 'lead time improvement', 'inventory reduction', 'increasing customer involvement' and 'technological access' appeared to have less relevance in this agrifood context and so were omitted from the table to save space.

Table 6.4: Types of the Supplier incentivisation and motivation for the Greenfresh-SaladCorp Processed Lettuce Chain

Firm Level Incentivation (Expectation or benefit that enables or motivates a particular course of action or behaviour)	Economic incentives	Normative incentives	Social Incentives	Motives Generated (Motivation is the process of activating or energizing, direction, intensity, and persistence of goal-oriented behaviour)	Goal Attainment	Integration	Pattern Maintenance	Adaptability
Growers				Growers				
• Growing the pie	√			• Increasing the size of the market share	√			
• Living out corporate values		√		• Internal culture management • Reciprocity			√ √	
• Preferred supplier	√			• Improved access to markets, information & support for growth • Market stability • Autonomous/coordinated innovation	√ √			√
• Inter-company arrangements	√			• Enabling co-innovation through arrangements sharing benefit		√		√
• Volume of product shifted	√			• Improved gross profit	√			
• Sustainable production			√	• Environmentally sustainable practices • Socially sustainable practices • Aim of providing legacy for children	√ √ √		√ √	
• Performance challenges	√			• Relationship specific investment • Specific goal-oriented behaviour	√	√		
• Avoiding negative incentives	√			• Focus on delivering product specifications	√			

The farm businesses appeared to be motivated by both economic and social incentives and, in keeping with the rest of this chain these are explicitly managed within each firm. They also share some incentives with their downstream partners: ‘growing the pie’ and ‘managing risk and uncertainty’ with the whole chain and ‘becoming preferred suppliers’ and ‘inter-company arrangements’ that facilitate supply performance with their chain leader, SaladCorp. Some farm suppliers in this chain appeared to have a good understanding of the whole-chain concept of ‘growing the pie’:

Innovation has for us, hasn’t just benefited us. Every time we do innovation it's been spread across the whole grower base. At times you look at it and you say well geez I did all that work and I'm just helping everyone. But if the pie grows, my pie grows... (B2). However, some of them also appear to have an additional incentive to achieve a higher ‘volume of product shifted’ which addresses a common farm sector problem of economies of scale.

As can be seen from Table 6.4, these incentives generate a majority of goal oriented motives but also some motivation for other positive chain supplier behaviour as well.

So, in summary, in the Greenfresh-SaladCorp Processed Lettuce Value Chain management is influenced by a long term outlook that incorporates a balance of economic, normative and social

goals. This produces a balance of economic, normative and social incentives that are important to motivating goal-oriented behaviour to achieve strategic inter-organisational and intra-organisational goals. The SaladCorp board and management are of the view that the balance must be based on sound economic performance otherwise the longevity of the company and its ability to implement its broader social goals may be compromised.

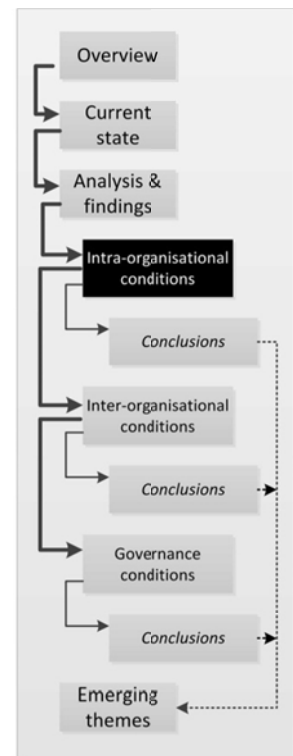
Greenfresh's business model, particularly with regard to price, efficiency and quality, drive the whole value chain and incentives are an important means to achieve conformance to its requirements. The incentives of each supplier appear to be aligned with the:

- Consumer value attributes,
- Customer's performance requisites (usually the essential but non-value adding and waste-reducing attributes created at the stage of supply being examined e.g. efficiency variables)
- The chain-oriented behaviour required by the lead firm;
- Idiosyncratic strategic aims of the buyer.

There are strong 'linking' incentives shared between the chain that have been purposefully⁹³ designed and implemented by Greenfresh and SaladCorp. However, they have not been explicitly developed in collaboration with chain partners and SaladCorp acknowledged in the data validation process that there would be advantages for collaboration if they were to do so. Thus it appears that 'purposeful' design and management of chain incentive and value systems is important to successful chain governance.

SaladCorp's ethics and values were frequently referred to without questioning during interviews by even those suppliers who were somewhat critical of SaladCorp's policies. Thus, it appears to be a very important factor in the firm's relationships. The values-orientation of potential partners is very important to SaladCorp in their decisions to form alliances or develop strategic relationships, as well as to their approach to governance and management of the chain culture. The role of values is analysed in Section 6.3.1.4.

The nature of operational behaviour is the aggregate of the behaviour of individual employees, so the next section will provide an analysis of the incentivisation of operational staff in this chain.



⁹³ There is a recurrent theme through this thesis of 'purposeful design and/or management'. The word 'purposeful' has been used as distinct from 'purposive' as is often the case in qualitative research publications because, as explained at some length by Waring (1996), 'purposeful' has connotations of creative, subjective choice not constrained by prior experience, social conditioning for individuals. In the case of firms, the connotations are of strategic, goal-directed managerial behaviour where neither the goal nor the means of achieving it are pre-determined. These attributes are more appropriate to the highly creative, interactive process involve in the management of co-innovation in value chains.

6.3.1.2 Incentivisation of operational staff

The previous section outlined how Greenfresh provides the drive for the chain's performance through its retail strategy, which is essentially the creation of sales profit and growth through consumer-focused innovation. Within the fresh produce category, SaladCorp has its own strategies to deliver what Greenfresh wants in terms of innovative new products and supplier performance (DIFFOT). To avoid the classic agency problems⁹⁴ and focus everyone on the production tasks, SaladCorp incentivises both its internal staff and its upstream suppliers to perform in a way that enables them to deliver Greenfresh's products in a manner that exceeds specifications. Apart from the economic benefit of doing so, one of SaladCorp's motives for doing this as effectively as possible is to become a 'preferred supplier' or, to use Greenfresh's term, a 'strategic vendor'.

Incentives are one of the most effective means of controlling agents and so the incentivisation of individuals within chain partners is a strategic issue along with the incentivisation of firms themselves. This section addresses SRQ3 which focuses on the incentivisation of individuals; the following Section 6.3.1.2 considers executive managers in agrifood value chains.

Table 6.5 provides a summary analysis of both the individual incentives (extrinsic, social and intrinsic) and the motives generated firm by firm for the whole chain (based on Figure 2.4: 'A model of human motivation'). The table should be read left to right which is consistent with the notion that incentives (on the left hand side) elicit the motivation to act (on the right hand side).

In this chain, the downstream partners, Greenfresh and SaladCorp are both large corporate firms compared to the upstream farm suppliers who only have approximately 10 – 20 permanent employees. As indicated earlier, SaladCorp is the firm which most directly influences chain practices, acting as Greenfresh's agent to ensure the consistency and quality of supply they require, so can be regarded as the 'lead firm' in the chain. It appears it is SaladCorp's values driven relational approach to business that, as well as their choice of strategic suppliers (Spekman 1988), management processes and corporate behaviour, has most strongly influenced the culture of their chain partners. Importantly, this does not appear to have resulted through an explicit chain level decision for cultural design but through a subtle process of institutional isomorphism.

⁹⁴ Essentially the 'classic problems' of Principal-Agency Theory are information asymmetry, opportunism and moral hazard (Eisenhardt 1989; Shapiro 2005).

Table 6.5: Types of incentivisation and motives of operational staff

Individual Level Incentivisation (Expectation or benefit that enables or motivates a particular course of action or behaviour)	Extrinsic Incentives	Social Incentives	Intrinsic Incentives	Motives Generated (Motivation is the process of activating or energizing, directing, intensifying, and persistence of goal-oriented behaviour)	External Regulation	Introspection	Identification	Integration	Intrinsic
Greenfresh				Greenfresh					
• Individual bonuses based on 4 – 5 economic and efficiency/effectiveness KPIs after hurdle rate for corporate performance achieved	✓			• Specific designated economic and business development behaviours	✓				
• Share Options	✓			• Specific designated economic and business development behaviours	✓				
• Professional development		✓	✓	• Personal performance, career enhancement					✓
• Organisational culture, workplace design & amenities		✓	✓	• Commitment to the company			✓	✓	✓
SaladCorp				SaladCorp					
• Quarterly assessment for individual bonuses after company EBIT hurdle rate achieved	✓	✓		• Specific designated economic and business development behaviours	✓	✓	✓		
• Factory staff election of individualised or flat rate bonus (at their request)	✓			• Specific designated processing job performance behaviours	✓	✓			
• Recognition/feedback of behaviour enacting the corporate values		✓	✓	• Focus on specific cost, quality, safety and service behaviours	✓	✓	✓	✓	
• "Family first" policy & organisational values		✓	✓	• Commitment to the company			✓	✓	✓
• Organisational culture		✓	✓	• Commitment to the company			✓	✓	✓
• Employee relationships		✓	✓	• Communication & openness			✓	✓	✓
• Personal challenge			✓	• High work performance			✓	✓	✓
• Professional development			✓	• Adaptability, high work performance			✓	✓	✓
• The latest technological gadgets e.g. smart phones etc	✓	✓	✓	• Communication			✓	✓	✓
Farm Suppliers				Farm Suppliers					
• Cash & in-kind bonuses for all permanents and casuals	✓			• Specific designated economic and business development behaviours	✓				
• Recognition of good performance within the permanent teams		✓		• Commitment to the company			✓	✓	✓
• Year round casual work	✓			• Commitment to the company			✓	✓	✓
• Organisational culture			✓	• High level performance			✓	✓	
• Employee relationships			✓	• Reduced conflict			✓	✓	
• Way of life			✓	• Persistence in adversity					✓
• Sense of stewardship of the land			✓	• Long term thinking					✓

Greenfresh B20 explained that, whilst he, other category managers and buyers had “only four or five KPIs”, a range of extrinsic, social and intrinsic incentives were used by the company to focus them on achieving its strategic aims regarding sales growth and profits. KPIs appeared strongly focused on economic performance or project development and had cash bonuses after the company achieved a hurdle rate of performance. However, some aspects of a category manager’s performance, such as “supplier relationships” were regarded as “a bit hard to measure...because it's intangible” (Greenfresh B20). Such performance variables were subjectively assessed by a direct superior “based on feedback that he hears from suppliers”. There were also other more socially and intrinsically oriented incentives for Greenfresh employees. Professional development paid for by the company appeared to have strong social and intrinsic effects. Other incentives included the organisational culture, negotiated individual employee arrangements and the workplace design which included many employee amenities making it a “good place to work” (B20).

Thus, in summary, whilst there was evidence of a multi-faceted approach to incentivisation by Greenfresh, there was no evidence provided of the influence of intrinsic incentives or their linkage to corporate values. It appears that the emphasis in the company is on a managed approach to extrinsic and social incentives with some management of intrinsic incentives to facilitate commitment to the company.

Critically, however, because of the effective multi-level communication occurring between the firms, SaladCorp was very aware of the performance parameters desired by its strategic customer. These informed the design of the performance KPIs for SaladCorp corporately and its managers individually resulting in a high degree of alignment of individual incentives between Greenfresh and SaladCorp.

The investigation of SaladCorp provided ample evidence of internal human resource management being regarded as a strategic tool to achieve the firm’s strategic goals. This involved the alignment of multiple forms of individual incentivisation with its strategies, values, policies and procedures to deliver its strategic goals. In B14’s view:

I guess the main incentive is the bonus, the money, for the majority of the people. But I think the other area is buying into the company – and I don’t mean from a monetary sense, but buying into where the company is going and the long-term sort of direction of the company. And from a personal point of view that’s what I bought into. I can see this company – the growth is unbelievable and for me, I want to be involved in where it’s going to go.

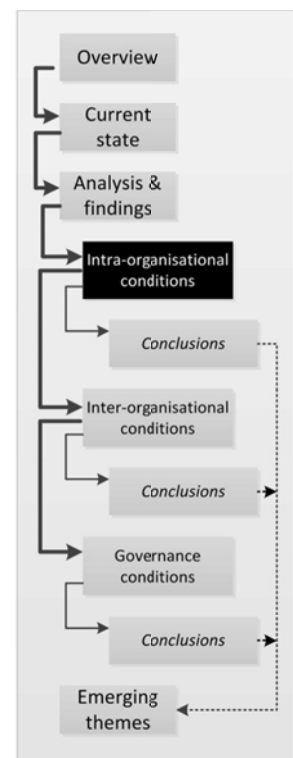
The overall SaladCorp strategy for its incentivisation system is: “...multiple levels of incentives within our organisational structures. Our philosophy and our value is to have reward and recognition linked

to business values...” (B10) and it incorporates both economic as well as more relationally and culturally oriented goals.

All management staff or about 25% of workforce (approximately 150 people) have a bonus opportunity within three levels:

- The 20 per cent bonus opportunity is for roles defined as game-breaking positions; roles that drive risk management, financial gain or manage significant IP or organisation-wide processes;
- The 10 per cent bonus opportunity sits at a people management level, recognising the importance of people management in being able to drive performance and manage culture;
- Five per cent is about any team member who contributes to the team and the way in which we measure their performance outcome is across and aligned with our strategy and our values (SaladCorp B10).

The KPIs focus on three areas: firstly, the role specific KPIs incorporating the outputs of the Blue Ocean® strategic planning process; secondly, sustainability KPIs (environment, business model and practices) and community goals that are incorporated in everybody’s performance and development plan and; thirdly, either the contribution to the team through their upholding of the company values or being a good team member or if they’re a people manager defined aspects of the people management process. Importantly, B10 identified that KPIs dealing with the effectiveness of relational supply chain management are included in the role-specific component of individual contracts. The links between strategy and what is needed to achieve in a 90 day cycle feeds directly into the appraisal process; measured and reviewed within that month of planning and reset. The role specific is worth 60 per cent of their score, community and sustainability’s worth 20 per cent and people or team is worth 20 per cent. In order for the bonus to be released the firm has to achieve a certain percentage above budgeted EBIT targets and then the individual performance score determines the size of the bonus. Shared services are also involved in the bonus scheme even though it is difficult to calculate the bottom-line contribution. Senior Manager B10 said “So our performance appraisal documentation process and how KPIs are written and where those KPIs are focused is all driven from strategy.”



Social and intrinsic incentivitation is formally managed through the Character First® program of 49 character qualities and uses a number of tools to assist its enculturation. These include a magazine, a monthly DVD where a manager will talk about the character quality for the month, a review process

at multiple levels and the celebration of each individual's contribution to the corporate values on the anniversary of employment by (B10).

Fourteen of those interviewed appeared to be strongly intrinsically motivated. Some, like B4 and B12 were explicit in claiming to be "...not overly financially motivated..." (B4). The analysis identified intrinsic incentives such as the inspiration of the Founder, encouragement and opportunity to grow and undertake new challenges, organisational culture and conditions, identification with the company values (particularly the notion of 'look after yourself first, then your family, then your job'). However, other more business-oriented values were mentioned such as the approach to supplier management and the ethical approach to business, the small family company environment.

Some staff had personal stories to tell about how the company had extended great generosity and support to them during times of personal need (SaladCorp B6, B9, B14). One, who came from a family business that had been sold said: "...I think you buy into it – I mean in a way I actually feel like this is my family company" (B14) thus providing evidence of at least 'integrated extrinsic' and possibly 'intrinsic' motivation.

Generally, the food processing industry employs a large proportion of casual staff due to its seasonality and so it is unusual to find a processor including casual labour in an incentive scheme. In SaladCorp at the factory floor, a joint consultative committee with employees determines the incentive scheme. After trialing a performance bonus similar to the managerial scheme, employees in different states have opted for a flat, across-the-board bonus approach (B10).

It appears that for many growers, the personal connection with someone whom they knew and trusted is an important incentive for their relational and tangible investments (B2, B7, B17). All growers interviewed provided unsolicited comments regarding how they perceived their relationship with SaladCorp was changing as the company corporatised and those most concerned were those with the greatest stake (i.e. the highest proportion of business with SaladCorp). Their major concern was the reduced quality and quantity of communication, particularly with senior SaladCorp managers, and this was attributed to the pressure of work on managers and, in some cases, new managers lacking an understanding of farming.

The main incentive for growers is finding a growing market for their produce to enable their own growth, and all those interviewed recognised that this was a major reason to supply SaladCorp. Other incentives included sustained profit-making and avoiding the negative or coercive incentives in SaladCorp's schedule of supply (SaladCorp B5). However, SaladCorp Senior Executive B11 outlined the company's commitment to "creating value" through other types of incentives:

...if the grower is a good grower, you know, he might be deficient as a businessman, then

we'll prop him up as a businessman. Where he might be deficient in capital, then we'll prop him up in capital...

Grower B2 referred several times during interview to his reasons for his commitment to SaladCorp. The SaladCorp Founder's support of him during his severe business problems over six years ago was the fundamental reason:

...our business here is 90% SaladCorp...we've had many choices to divert our products elsewhere and create new markets with other people...but we have not done that because obviously this is a whole two way street. At the end of the day, he did some things for us...he put trust in us to give it a go. We think we've probably repaid that in the way we've supported their business...

But there were other important motivators for him such as respect for SaladCorp Founder's integrity and innovativeness. There were similar incentives for another strategic supplier, Grower B7, but not to the same degree. Even one of the smaller suppliers, B17 said:

I think <The Founder's> a good person by nature. He's fair and he also is very shrewd and he knows. Obviously he was the first one I think, one of the early people to start bagging lettuce...They're all very passionate about what they do. They've got a lot of good ideas and I just like that very family orientated way they do it but also it's a good business.

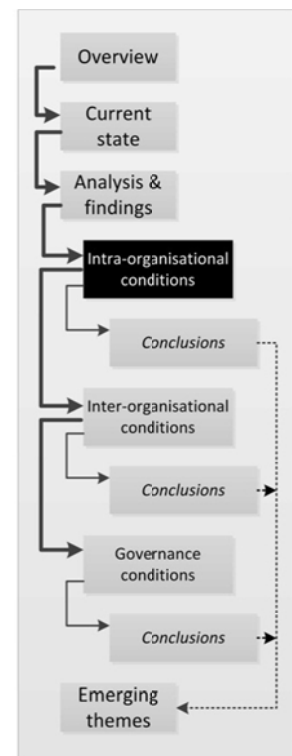
However, such incentivisation is not formalised or even implicit in the development of a supply relationship, but the potential for it to occur emerges over time as a result of the business and relational exchanges that occur and the development of trust along with the mutual recognition of the desirable attributes in the other party.

Interestingly, two of the growers interviewed described very similar approaches to the management of their own staff as was observed within SaladCorp (Growers B2, B7). Whether this was as a result of selecting the suppliers aligned with its internal management practices or because suppliers copied SaladCorp's approach to people management is not known, but the evidence of mixed extrinsic and intrinsic incentivisation was striking. Grower B2, referring to his own staff, said: "Again, it's a family...So I don't think we do anything special but we just treat it as though they're one of our own if you know what I mean?" The Operations Manager B21 of another strategic supplier, Grower B7, described a business of about twenty permanent staff where people are motivated by a highly relational form of management and staff are given respect, responsibility, autonomy and reward and give loyalty in return. As a result the firm had established a "...discretionary trust with part of the

profit...we put into that trust and then share it with the management team which we think would be a good thing.”

Thus, in conclusion, Greenfresh provides the basic framework for performance of suppliers like SaladCorp through the product and supply specifications contained in their supply agreements. These form the basis of the supply agreements for SaladCorp’s lettuce suppliers and internally for their manager performance through their individual KPIs. Likewise, for the growers, the supply agreements with Saladcorp are the basis for their internal KPIs. However, both firm and individual behaviour is far more complicated than can be specified in formal documents so it appears to be the highly effective leadership shown by SaladCorp that creates the inter and intra-organisational conditions that facilitate the alignment of strategic and operational behaviour. This purposeful supplier relationship management is an explicit strategy by SaladCorp to achieve ‘strategic vendor’ status by ensuring that Greenfresh get unexpected value from the relationship.

The high level of trust and communication shown in this chain was critical to the development of partner commitment and to the alignment of the performance KPIs and incentives. Apart from the role of the Founder, which will be discussed in Section 6.3.1.4, the key to this throughout the chain’s history had been the effective boundary-spanning between the chain partners, across multiple levels from strategic to operational. Internally, it was the lead firm’s approach to people management and incentivitation appeared to influence manager’s confidence to make autonomous decisions with external partners and the manner in which upstream firms also approached their own people management.



Both Greenfresh and SaladCorp regard internal human resource management as a strategic function to achieve the firm’s goals. Strategy links directly into culture, recruitment, performance management and an individualised purposefully designed and managed staff incentive system. This involves the alignment of multiple forms of individual incentivitation with its strategies, values, policies and procedures to deliver its strategic goals. In both firms the more important the contribution by an employee the more effort is made to tailor an incentivitation package to ensure that their skills are retained in the business. Never-the-less, 25% of the workforce has an individualised incentive package and the remainder share in a general company monetary bonus and to varying degrees, support from the company that could be regarded as intrinsic incentivitation to encourage company commitment.

However, SaladCorp in particular, has implemented a highly effective, multi-level incentivisation system using a range of extrinsic, social and intrinsic types of incentives that delivers the operational staff behaviour required to achieve its strategic internal and external goals. There was strong evidence of the social and intrinsic incentives supporting extrinsic incentives to achieve corporate strategy. SaladCorp staff KPIs broadly focus on three areas:

1. Business (environmental, business model and economic) and community goals;
2. Company values;
3. Team member and people management.

Intrinsic incentivisation is formally managed through the corporate cultural management program (Character First[®]), and is very effective due to its linkage to extrinsic and social incentives and the manner in which it is purposefully managed through its human resource management systems and processes.

It appears that for many growers, the personal connection with the SaladCorp Founder whom they personally knew and trusted is an important intrinsic incentive. This is becoming a threat that may destabilise long standing relationships as the company corporatises and relationships become more institutionalised and distant. Notwithstanding the importance of this intrinsic motivation, the main grower incentives are extrinsic in nature and involve finding a growing market for their produce, sustained profit-making and avoiding the negative or coercive incentives in the exchange contract.

However, we also know from the extant literature (Section 2.4) that executive level managers in companies in a chain exert an important influence on the development of co-innovation in value chains. The following section will analyse the data in the Greenfresh-SaladCorp Lettuce Value Chain in an attempt to understand that phenomenon.

6.3.1.3 Incentivisation of executive managers

Executive managers are a critical factor in the incentivisation of the desired behaviours in a chain. It has already been explained in the previous section how the participants in the main triad of the chain, Greenfresh, SaladCorp and their strategic suppliers, appeared to be well aligned in the design of their incentivisation systems. This section analyses the interview data seeking to understand how the senior executives in this chain were incentivised and identify any important differences.

In Greenfresh the incentives of the executives are aligned with the overall corporate strategy through the KPIs as they are broken down to the executive level. Greenfresh B20 described how after a corporate hurdle rate of performance is achieved bonuses based on performance against four or five KPIs can be assessed. These incorporate both quantitative and qualitative measures of the category's performance which relate to profit and sales but also quality and more relational measures relating to the Greenfresh team and the management of subordinates or suppliers. The bonus or extrinsic

incentivation may be in the form of cash, salary increases, promotion or share options. Social incentives relate to recognition amongst Greenfresh staff and intrinsic incentives include personal challenge approaches, professional development and formal training courses paid for by the company. Thus, there is little difference between senior executives and middle managers apart from the scale of extrinsic incentives and the inclusion of share options.

In SaladCorp the incentivisation described in the previous section for salaried staff and middle managers applies plus the additional extrinsic incentive of:

...a longer term thing we call the business ownership plan...a rolling five year term...and we've probably got in excess of 30 people in that scheme...based on what's the value and the units in that – it's like a share ownership scheme but because it's privately owned we can't issue shares...so we call it the business ownership plan...to incentivise people to look at the business value and see how we contribute to improving it... it's based on EBIT [so] you can't give out money that doesn't exist...(SaladCorp B5).

According to B13 the daily DIFFOT performance broken down to each business unit/sub-unit is the critical performance incentive, and ultimately:

...it's a culture and then it's about breaking the element down into how do individuals affect DIFFOT, how do different departments affect DIFFOT and then ultimately people's bonuses are linked to that...So every morning I get an email, not just me, but a number of us get an email that says for every site this was our DIFFOT performance for yesterday. So at about 8:13, I think it is, in the morning, it comes out and we know our performance for yesterday.

However, the SaladCorp senior executives were also energised by social and intrinsic incentives. For B12, a new senior corporate manager brought in to head the corporatisation of the company, his incentives were beyond his salary:

... why do I do it? I live in a state where I want to live. I've been offered better jobs and bigger jobs in others while I've been here and I've just said, look I've got a lifestyle. I love living where I live. I can de-stress on the weekends. I love working with young people. It keeps you young, the bastards test me everyday...it's a privilege to work in a company that grows double digit figures every year. It's a privilege...(but) <The Founder's> passion for the business is what keeps me in it. .. the most satisfaction I get is in the promotion of the team. My happiest days at work are giving somebody a pay rise and telling them they're doing a great job and saying how well they've developed.

They've come to the table to learn and they have actually grabbed that opportunity. ...[but]As much as having to make the numbers and do the things and build the team and all that stuff...I said to <The Founder>, you've got a new idea and I haven't even started thinking about the one that you told me last week.

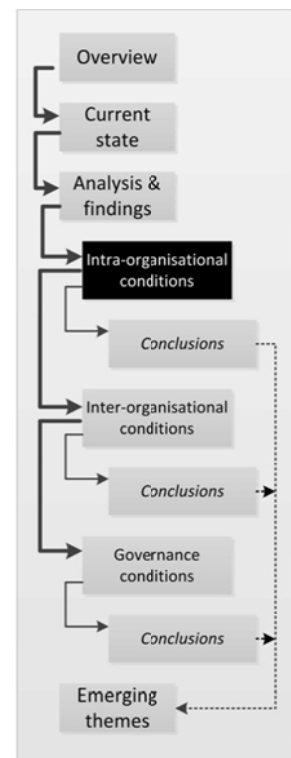
In essence then, his prime intrinsic incentives are focused on his relationship with the Founder but also leading a learning environment, being challenged and having a balanced life.

For the SaladCorp Founder B11 and Group Marketing Manager B3 (a member of the founding family), their incentivisation was more than the monetary reward, but also about using the business as a training ground for the next generation of the family thus, putting into practice the family maxim described by B11 as "...us[ing] my business as a training ground for my kids, and as a training ground for all the other young people in the business, then what more could I ask for." B3 went on to add: "...making rural and regional Australia...a really sustainable, fabulous, extraordinary, living, viable, vibrant place to live and breathe" and "...if we were putting products...in the mouths of kids particularly that change their health and their well-being, then that's an extraordinary place to be as well."

Finally, the farm suppliers had a common extrinsic incentive associated with achieving a sustainable profit however, they were also more strongly relationship oriented (Grower B2). All the farmers interviewed also had their own lifestyle and 'land stewardship' ("passing it on to my kids" [B2]) incentives that were key drivers of their persistence in farming despite all the problems that they sometimes faced.

In summary, it appears that in this chain delivering consumer and customer value is a fundamental part of firm KPIs and cascades through the chain driving and aligning the firm incentives and the performance of managers. Incentivation for executives is focused strongly on extrinsic incentives linked to company economic performance however social and intrinsic incentivisation are still very important motivators, particularly for SaladCorp executives. This may be attributable to SaladCorp's incentive system differing markedly from Greenfresh in two respects:

1. SaladCorp executives are also very effectively incentivised with respect to broader business goals focusing on sustainability and corporate values and people management, particularly culture;
2. The recruitment of SaladCorp executives is very thorough and has a strong emphasis on compatibility with the firm's values-driven, innovative culture by selecting those motivated by social and intrinsic incentives.



Succinctly then, SaladCorp uses a broader incentives strategy linked to recruitment practices and cultural development strategies.

However, in this chain it was apparent that values, attitudes and norms also played a role in influencing how people behaved both internally and externally with chain partners. Therefore, the next section will analyse how they affected motivation and incentivisation.

6.3.1.4 The impact of values, attitudes and norms play on motivation and incentivisation

This section addresses SRQ11.

Although Greenfresh did not explicitly speak of corporate or individual values, Senior Manager B20 referred repeatedly to the necessity of having the “right people” in place on both the retail and the supply sides, implying that such people were trustworthy, innovative and had “passion and a bit of a can do sort of attitude”. In his view “you can't measure gut feel but it's a bit of gut feel, too, and gut feel to the point of you know when you've got a supplier that you know you can work with.” Greenfresh B20 described how the retail procurement function is very idiosyncratic in terms of the underpinning attitudes and values. He gave several examples of where changes in personnel in a category had significantly affected sales and stated several times that it was “...really the connection, the relationship...” and “...having the right people in the retail side as well as the supply world.” As he described his own approach he implicitly provided insights into those attitudes and values that he regarded as being essential: the most important factor for him was a “people orientation”, that is a relational approach. However, he went on to describe attributes of passionate, innovative, loyal, long term oriented (relationships), value-oriented, intuitive, collaborative, open and experimental yet cautious. These were the attributes he saw in Greenfresh’s strategic vendors and SaladCorp in particular. From his perspective, if he had not held the buyer’s position for so long then the nature of the strategic suppliers would have been very different. If this were the case, then it appears that the approach to procurement plays an important role in determining the nature of the supply chain.

SaladCorp Senior Executive B11 provided some insight into the role of values and norms in his company when he said: “...if you’ve got a big call to make, if you can go back to your values...”

SaladCorp Factory Manager B4, a middle manager, demonstrated the level to which this operational reliance on values was enculturated when he said:

One of the things with the business is, regularly, if you’re struggling with decision, go back to the values. Is it character first, is it family first, is it – go back to that value. If you can’t find an answer in there, we’re stuck anyway, you’re going to need some help. But basically try and go back to those core values.

Similarly, from an internal perspective, SaladCorp Senior Manager B10 summed up the company's management of values, attitudes and norms when she said "Our philosophy and our value is to have reward and recognition linked to business values." The values system (Document B33) is built into every manager's key performance index (KPIs) and incentive system.

The Character First[®] program is fundamental in achieving internal alignment of values across the business, providing a structure to incentivise individual and corporate behaviour and ensuring that new recruits 'fit' the organisation's values (B10). Almost all SaladCorp interviewees asked the researcher if he was aware of the system and explained its importance to the company. There are 49 values and every SaladCorp job description has in its first section the five values that apply to that job (SaladCorp Senior Executive B11). Each month there are team meetings at all levels of the organisation which, in part, incorporate a reporting session on how individuals are achieving progress in implementing the values.

Character First[®] appears to provide a mix of extrinsic (introjected) and social (identification and integration) incentives and introduces processes that result in the corporate values being a central focus for everyone in the organisation. All of the SaladCorp employees who were interviewed for this research were adamant that it was an excellent work environment and identified personally very strongly with the corporate values. Several had either refused higher salary job offers (e.g. B6, B9, B12 and B14) because of the organisational values and culture or had left (usually due to personal circumstances) and returned because of those values. This is supported by Senior Manager B10's statement that "We're achieving [employee turnover] currently consistently below two per cent and when we benchmark ourselves against large food manufacturing businesses they're experiencing between 12 and 18 per cent."

Several interviewees referred to the 'family first' value held by the company and became quite emotional when speaking of what the company had done for them in this regard. This was perhaps best summed up by Manager B9 who told of the support she received during a year of traumatic family events and concluded:

...I think if you asked anyone whether they get support in that area of family they would say totally, totally!...I can't fault them and that's the biggest, one of the biggest drivers why I stay here because what you put in you get back in other areas. But also support and coaching...as long as you're what they call an 'A' player they're willing to invest in you because you give back to the business....they're willing to give you a chance in whatever interests you. So they invest in people...

So it appears that the support provided to staff in areas such as their personal family life and personal development leads to an enhanced effort for and commitment to the company and its aims. However,

the focus on values appears to have wider effects on the business culture, particularly with regard to openness and communication (SaladCorp B14), and extends to the formation of strategic relationships. A prime example of this was SaladCorp's costly withdrawal from a strategic relationship on the basis of their partner not operationalising their stated values (SaladCorp B10, B11). According to B10 "...There was a lot of discussion on whether or not we could get them to live their values. There was never a discussion on whether or not we'd compromise ours."

At the upstream end of the chain, the SaladCorp suppliers' comments (Growers B2, B7, B15, B17) generally supported B11 and B10's claims about the role of values in the company but most had operational issues to be resolved. B17 summed up the views: "...I think they're very ethical. They're very business orientated as well..."

In summing up the role of values, attitudes and norms in incentivised behaviour, the management of the chain is the responsibility of SaladCorp however, they appeared to find a category manager with a compatible approach in Greenfresh B20. So SaladCorp has directly linked values to their incentivisation system, and, in concert with the incentive system and recruitment, they have a strong 'aligning' influence on behaviour and provide a philosophical framework through which the business strategies are implemented, business relationships are formed or exited, and a reference point for resolving decision-making dilemmas. By incorporating them into the firm's business processes, the values system provides an operational benchmark by which corporate and individual behaviour are constantly evaluated. Hence, SaladCorp's values are a particularly strong influence on internal culture and behaviour, and consequently, on external behaviour and relationship management.

SaladCorp select suppliers on the basis of performance, vision and values compatibility. Thus, their strategic suppliers are most closely aligned and so have highly compatible values and are similarly committed to ethical business practice. The degree of alignment of these factors determines how their relationship develops over time. Whilst this process of partner selection and engagement is purposefully managed within SaladCorp, it is not made explicit with suppliers or used as the basis for long term relationship planning between them. The strategic suppliers have tacitly understood the process but if the criteria for relationship development were made explicit, management and development of supply relationships would be more efficient and effective by the removal of uncertainty and enabling incorporation into explicit long term planning.

6.3.1.5 Conclusions for 6.3.1 Intra-organisational conditions that influence co-innovation

In the Greenfresh-SaladCorp value chain it appeared that, at the intra-organisational level, there were three major conclusions regarding the critical facilitators of chain innovativeness.

Firstly, there was an alignment of mental models adopted by the managers of the strategic chain partners regarding innovation, relationship management and integrity. Mental models are necessary to simplify complex issues (Richmond & Peterson 1997), represent the common understanding of the shared goals and the activities necessary to achieve them (Robertson 2006) and dynamically adjust to the changing environment (Meyer 2007). In this case, they included the beliefs by managers and staff about behavioural issues (e.g. accountability, performance, communication, experimentation), the prevailing organisational norms (e.g. integrity, openness, relationships, risk aversion) and control beliefs (e.g. delegated authority, tolerance of error, extrinsic incentives, sanctions, social norms and peer attitudes) that influenced their willingness to be innovative as well as to act in corporately and socially acceptable ways. An example (Section 6.3.3.3) was how a broad-based mental model of innovation prevailed amongst managers which drove broad-based internal innovation and external co-innovation at all stages of the chain. Perhaps the influence of mental models is nowhere more evident than in the strongly relational approach to supplier management where challenging and supportive behaviours by the retailer and processor fostered autonomous and collaborative innovation. This conclusion about the role of mental models in co-innovation is supported by Osterwalder (2004) who suggests that business models are abstract representations of the mental models in people's heads of "...ways of creating, setting, and delivering value and facilitating relationships with customers, suppliers, and partners..." (p. 37). Similarly, Gattorna, Ogulin and Reynolds (2003) argue that such models involve the alignment of markets, strategy, culture and leadership both at the chain and firm levels which enhances the execution of strategy and delivery of value.

Secondly, the alignment of internal practices with strategic intent was critical to the implementation of the mental models. The purposeful, integrated design and management of business processes (vision, strategy, values, recruitment, performance management and organisational development) was one of the outstanding features of this chain, particularly for SaladCorp, and resulted in the very deep enculturation of relational and performance values in individual behaviour. Bolton and Dwyer (2003) advocate the use of an "integrated behaviour change model" (p. 609). They state: "One of the most common reasons [for failure] is that organizations lack alignment between the value proposition and the work and beliefs of individual employees of the organization..." (p. 603). Whilst the parameters they identify are slightly different to those above, there is sufficient cognisance to suggest that this work provides explicit support however, the finding in this case provides a more systemic and specific insight into the nature of chain alignment.

Thirdly, the use of broad-based incentives, that is, a range of extrinsic, social and intrinsic types of incentives aligned with strategy and culture to facilitate the individual behaviour necessary for co-innovation to occur, was common amongst the strategic partners in the chain. This approach, evident within SaladCorp and its strategic suppliers, had developed high levels of alignment between corporate strategy and values, attitudes and norms as well as a deep emotional commitment to the employing company. This meant that recruits into the firm had to ‘fit’ or have a degree of conscious or full identification with the strategies, goals and values of the firm. Thus, the notion of ‘organisational fit’ was a fundamental principle to people management functions and the incentive system in particular. If people did not ‘fit’ with vision and values then they were unlikely to be employed and if they were not motivated to commit and perform then they were unlikely to survive very long within the company. Consequently, there were many long term employees, motivation and commitment was high and there was a very low turnover of staff compared to industry standards. Gilliland’s (2003) findings of the diversity of incentives types (5 major categories, 16 subcategories, 170 unique incentives) used to achieve channel goals supports this finding. Further support is provided by Rizzotti’s (2011) laboratory experiment with 160 graduate students where he found what he called “incentive congruity” (pp. 13 - 15) was positively associated with managerial effort allocation in a multi-tasking situation and that a multi-dimensional incentive system combined with a well communicated performance management system out-performed single-dimension incentive systems.

However, some conditions operating were potential intra-organisational barriers to co-innovation. The main one identified was the stable culture amongst the chain’s strategic partners, earlier identified as an important strength. The existence of this as a barrier was confirmed during the validation of findings with the lead firm’s executive management. Succinctly, the rapid growth of the chain over a long period has resulted in an unusual stability in the personnel involved. The senior buyer at Greenfresh had managed the SaladCorp account for over ten years when the average tenure was usually less than eighteen months. At SaladCorp, rapid growth has combined with recruitment and culture management strategies to produce a very low turnover of staff by industry standards. Likewise, SaladCorp’s approach to supplier management has meant the development of long term, stable relationships with several large growers whose businesses have grown with the chain and now represent a large proportion of the supply base. SaladCorp’s current size and strategy of corporatisation also mean that operational control is being systematised to reduce variation in both firm and individual performance to reduce cost and improve DIFFOT performance. All these conditions have been conducive to growth and innovativeness in SaladCorp and its suppliers over the last two decades, but there are several potential problems that Greenfresh and SaladCorp are actively working to counteract. Firstly, the development of a deeply embedded culture which can result in a resistance to change that might be associated with a critical loss of innovativeness. Secondly, cultural

conservatism and the potential loss of corporate knowledge due to the proportion of managers in a similar age demographic. Thirdly, the lack of cognitive dissonance within the management group resulting from the success of recruitment policies in achieving ‘organisational fit’ producing a high level of homogeneity of managerial personalities, attitudes and values. This may produce a lack of innovativeness or an unwillingness to think outside the current paradigm. Fourthly, their dependence on ‘key people in key places’ may result in vulnerability to personnel changes.

Such problems are commonly referred to as ‘organisational inertia’ (Burch & Lawrence 2005) but perhaps in this case might be more correctly described as ‘value chain inertia’ because it may affect the whole of the upper end of the chain due to the small size of the businesses involved and the relational base of their engagement in the chain. Lam (2004) believes that for inertia to be overcome and technological innovation to continue then organisational innovation may be a pre-requisite and that internal firm conditions such as values, interests, learning and power relationships also affect innovation. Pennings and Wezel in a major review of the concepts of organisational inertia and change highlight the importance of employee mobility between organisations as a means of overcoming inertia. This supports the identification of the points in the previous paragraph as potential barriers to innovation in the future.

6.3.2 Inter-organisational conditions

This section addresses SRQ1 and is summarised in Table 6.6. The Literature Review identified four groups of conditions that appear to facilitate development of the collaborative behaviour required for co-innovation between firms in a supply chain. These groups were: relational competence, cultural compatibility, co-innovation architecture (strategic structure and processes) and innovation competence. These may moderate the strength of the relationship between incentivisation and co-innovation.

The following sections analyse the Greenfresh-SaladCorp Processed Lettuce Value Chain case study to assess the presence of these factors in the chain.

6.3.2.1 Relational competence

The construct called ‘relational competence’ in the Literature Review (Section 2.7.1) is comprised of the ability to facilitate the development of trust, interdependence, commitment, communication and the equitable and just use of power. The Greenfresh-SaladCorp Processed Lettuce Value Chain demonstrated a high level of relational competence amongst the key chain partners.

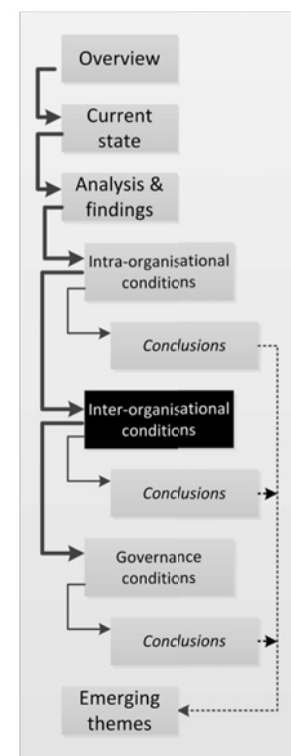


Table 6.6: An overview of the status of co-innovation facilitators in Case Study 3: Greenfresh-SaladCorp Processed Lettuce Value Chain

Co-innovation Facilitators	Greenfresh	SaladCorp	Lettuce Growers
Relational competence			
<i>Trust</i>	<ul style="list-style-type: none"> Very high to SaladCorp 	<ul style="list-style-type: none"> Very high to Greenfresh Very high to long term (LT) growers; variable to short term (ST) growers 	<ul style="list-style-type: none"> Very high to SaladCorp for LT growers Variable (low to basic) for ST growers
<i>Interdependence</i>	<ul style="list-style-type: none"> High to SaladCorp 	<ul style="list-style-type: none"> Very high to Greenfresh Very high to LT growers 	<ul style="list-style-type: none"> Variable depending on proportion of business
<i>Commitment</i>	<ul style="list-style-type: none"> High to SaladCorp 	<ul style="list-style-type: none"> Very high to Greenfresh Very high to LT growers 	<ul style="list-style-type: none"> Variable depending on proportion of business
<i>Communication</i>	<ul style="list-style-type: none"> High to SaladCorp 	<ul style="list-style-type: none"> Very high to Greenfresh High-Satisfactory to LT growers 	<ul style="list-style-type: none"> Variable to SaladCorp Some concern expressed by LT growers
<i>Exercise of power, equity & justice</i>	<ul style="list-style-type: none"> The most powerful partner; requisites implemented by SaladCorp 	<ul style="list-style-type: none"> SaladCorp has referent power 	<ul style="list-style-type: none"> LT growers – high equity & justice ST growers – transactional only
Compatible co-innovative culture			
<i>Management culture & leadership style</i>	<ul style="list-style-type: none"> Highly relational, challenging, innovation-oriented, performance oriented 	<ul style="list-style-type: none"> Very highly values-based, relational, challenging, innovation-oriented, performance oriented 	<ul style="list-style-type: none"> Variable dependent on relationship Style aligned w SaladCorp where r'ships older
<i>Market orientation (detection & fulfillment of consumer needs)</i>	<ul style="list-style-type: none"> Highly market & consumer oriented A prospector orientation (Shields 2007) 	<ul style="list-style-type: none"> Highly market, customer & consumer oriented 	<ul style="list-style-type: none"> Variable dependent on relationship Older r'ships highly customer oriented
<i>Learning & knowledge mgt (KM)</i>	<ul style="list-style-type: none"> Learning & knowledge shared at satisfactory level 	<ul style="list-style-type: none"> Learning & knowledge shared at satisfactory level 	<ul style="list-style-type: none"> Variable dependent on length relationship
Architecture of co-innovation			
<i>Collaborative performance system (CPS)</i>	<ul style="list-style-type: none"> Adequate communication of DIFFOT & other data – not integrated 	<ul style="list-style-type: none"> Adequate communication of DIFFOT & other data – not integrated 	<ul style="list-style-type: none"> Adequate communication of data – not integrated
<i>Information sharing</i>	<ul style="list-style-type: none"> Adequate information sharing 	<ul style="list-style-type: none"> Adequate information sharing 	<ul style="list-style-type: none"> Variable dependent on relationship Adequate information sharing
<i>Decision synchronisation</i>	<ul style="list-style-type: none"> High level of synchronisation w SaladCorp 	<ul style="list-style-type: none"> High level of synch w strategic suppliers Basic synch with other suppliers 	<ul style="list-style-type: none"> Basic synch with input suppliers e.g. seed
<i>Incentive alignment</i>	<ul style="list-style-type: none"> Not explicitly managed; occurs serendipitously through business & cultural processes 	<ul style="list-style-type: none"> Not explicitly managed; occurs serendipitously through business & cultural processes 	<ul style="list-style-type: none"> Not explicitly managed; occurs serendipitously through business & cultural processes
<i>Integrated supply chain processes</i>	<ul style="list-style-type: none"> Operational integration as required 	<ul style="list-style-type: none"> Operational integration as required 	<ul style="list-style-type: none"> Operational integration as required
<i>Shared vision & goals</i>	<ul style="list-style-type: none"> Very high level of alignment upstream 	<ul style="list-style-type: none"> Very high level of alignment downstream Upstream dependent on relationship 	<ul style="list-style-type: none"> Variable dependent on relationship
<i>Boundary spanning roles & boundary objects</i>	<ul style="list-style-type: none"> Very high level of boundary spanning 	<ul style="list-style-type: none"> Very high level of boundary spanning 	<ul style="list-style-type: none"> Variable dependent on relationship
Innovation competence			
<i>Innovation leadership</i>	<ul style="list-style-type: none"> Prod innovation outsourced, challenger role 	<ul style="list-style-type: none"> High level chain innovation leadership 	<ul style="list-style-type: none"> Variable dependent on relationship Followers of chain innovation; internally innovative
<i>Foresight & bounded rationality</i>	<ul style="list-style-type: none"> Applied to merchandising Outsourced to SaladCorp for products 	<ul style="list-style-type: none"> Moderate level of chain oriented foresight & knowledge gathering 	<ul style="list-style-type: none"> Moderate level of internal foresight & knowledge gathering
<i>Innovation strategy</i>	<ul style="list-style-type: none"> Prod innovation outsourced, challenger role 	<ul style="list-style-type: none"> High level of innovation strategy 	<ul style="list-style-type: none"> Internal innovation strategy variable
<i>Innovative culture</i>	<ul style="list-style-type: none"> Moderately innovative culture 	<ul style="list-style-type: none"> Highly innovative culture 	<ul style="list-style-type: none"> Variable innovative culture
<i>Resource availability</i>	<ul style="list-style-type: none"> Moderate resource availability 	<ul style="list-style-type: none"> Efficient resource availability 	<ul style="list-style-type: none"> Variable resource availability
<i>Requisite complexity</i>	<ul style="list-style-type: none"> High level 	<ul style="list-style-type: none"> Adequate level 	<ul style="list-style-type: none"> Variable level; usually reliant on chain partners

Greenfresh Business Manager B20 indicated his strong belief that category management was “a people business” and described how it was the alignment of vision and strategy, a hunger for information, innovative ideas and delivery of “quality, service and value for the consumer” that distinguished the five or six strategic vendors from the average supplier.

He also described how, with these strategic vendors, Greenfresh placed a high priority on strategic and operational communication and may provide support for innovation through merchandising and recompense their R&D costs through pricing or exclusivity arrangements. In doing so, he demonstrated commitment and trustworthiness to long term relationships and the indirect co-investments they had made in the product.

Similarly, SaladCorp Manager B14 thought trust was the basis of the marketing process and described his approach to developing trust with Greenfresh as being pro-active about deleting poor performing products; both he and B11 claimed that Greenfresh had not had to delete one of their products in sixteen years. In that way SaladCorp effectively played a key role in assisting Greenfresh manage their own margins. The essence of SaladCorp’s relationship management approach with customers and suppliers was explained by Manager B16: “...people who are willing to meet Greenfresh’s standard are generally people who have an understanding of partnership, loyalty, as well as quality. For managing the farm suppliers B16 stated that: “...we want our suppliers to be in it for the long haul...” Whereas SaladCorp B10 explained the notion of relationship based on ‘values’ and ‘value’ a little differently: “We have a value around our supply aspect and having relationships that deliver business value for all stakeholders”. SaladCorp B10 also placed a high priority on both strategic and operational communications with suppliers. She attributed these behavioural emphases to strategic management explicitly linking it to the company values and the recruitment of the right people.

In addition, similar to Greenfresh, SaladCorp B11 described how if a supplier was good at growing crops but not so competent at associated functions like business management, that they would support him with training and good advisors. However, both Greenfresh B20 and SaladCorp B13 both emphasised that these are not formal commitments but informal and situationally driven.

From the grower’s perspective, Grower B2 had great respect for <The Founder> because he had trusted and supported them in tough times and they had later reciprocated. This identified the experimental and reciprocal nature of the trust in this chain. Grower B7 had similar trust-building experiences with SaladCorp and alluded to the essential factor of time in developing trust and the critical aspect of ‘trustworthy performance’, the second most important in Ebert’s (2007) list of forty two trust variables, hinting at the fragility of trust, even in long-term relationships.

Such interdependence appears to grow with longevity, the proportion of a grower’s business with SaladCorp, their approach to business and the amount and significance of relationship-specific

investments made in equipment or processes. It also appeared that only a small minority of Greenfresh or SaladCorp's relationships become 'preferred suppliers'. However, the underlying motive for growers appeared to be generating sustainable profits through accessing larger markets, acquiring market information, adding value to their raw materials, gaining assistance with innovation and technology and coping with uncertainty.

In some instances chain partners had installed expensive relationship-specific equipment to meet the needs of their immediate customer and ultimately the consumer. For example, SaladCorp installed sophisticated equipment to remove foreign bodies contaminating lettuce, innovated to develop new dressings for wet salads or reduce hail blemishes (Grower B2) or conducted independent R&D on new lettuce varieties (Grower B7). However, the motivation to achieve this may also be interlinked with the other components of relational competence (e.g. personal relationships).

In agrifood value chain relationships the locus of power and how it is used is an important determinant of collaboration and innovation. Greenfresh's market dominance and national access generates significant market power that can be applied to processors and suppliers of large-scale commoditised fresh value-added food products. Whilst there were many idiosyncratic needs amongst Greenfresh's chain partners, a common factor was the need for sustainable, long term, growth and they were dependent on Greenfresh to provide the market access to achieve this. So, in this chain, Greenfresh's power was being exercised in a manner that provided a sustainable flow of value to the upstream suppliers and growers (SaladCorp B11, Growers B2, B7). This power could be said to be exercised vicariously through the chain leader SaladCorp and both appear to operate at times as either 'benevolent dictators' (dictating policy or standards) or 'collaborative leaders' (seeking joint solutions for joint goals with channel partners) using Smith's (2006) continuum of chain leadership.

In summary then, this chain demonstrated a high level of relational competence. An important factor in this was that the two largest and most powerful firms, Greenfresh and SaladCorp, placed a high priority on strategic and operational communication and provided support for innovation. They exercised their power as either 'benevolent dictators' or 'collaborative leaders' congruent with Smith's (2006) continuum of chain leadership. The chain partners also had an understanding of partnership and loyalty as well as knowing how to deliver consumer and customer value. They demonstrated commitment to long term relationships, behaved in a trustworthy manner and indirectly co-invested in the chain, in part by innovating to create whole-of-chain benefit. For many suppliers this commitment was heavily dependent on their historical relationship with the SaladCorp Founder but this was under challenge by the process of corporatisation which was de-personalising and broadening the operational and strategic contacts between them. Thus, it can be concluded that the 'relational competence' construct appears to be a critical variable in co-innovation in the inter-organisational space. However, when there are large numbers of suppliers with diverse goals and

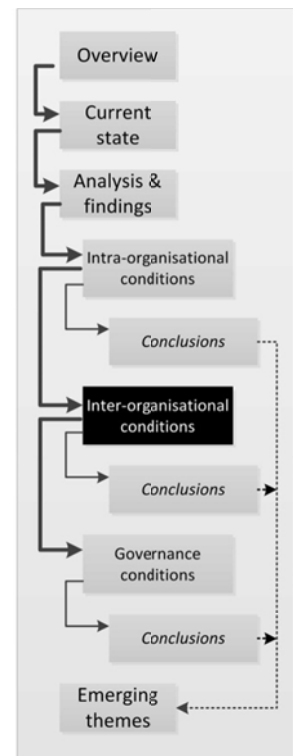
attributes, it is not appropriate or perhaps possible to have the same relationship with all of them and so some are more strategic, and consequently more intensively managed than others (Cox 2004; Ogbor 2001).

6.3.2.2 Co-innovation culture

The Literature Review (Section 2.7.2) identified that compatible cultures are essential for co-innovation to occur. The strategic relationships in this chain appeared to be built on compatible cultures and importantly compatible values and attitudes. Greenfresh Business Manager B20, SaladCorp Managers B4, B6, B9, B11, B13 and B14 and Growers B2, B7 and B17 were all clear about the relational management orientation of the chain culture and were personally aligned to that mode of operation. The culture is also based on high expectations for individual performance with accountability to peers, management and chain partners (as appropriate). Individuals are operationally empowered for risk-taking and mistakes are tolerated (within limits), both key factors in innovative and adaptive capacity.

SaladCorp, as the chain leader, appears to also be the most influential firm for setting the behavioural norms amongst the chain partners. SaladCorp has its own well defined set of corporate values and bases its internal cultural development on the explicitly values-based HRD program called Character First[®]. This was mentioned in positive terms twenty four times by ten interviewees indicating the prominence of the system in the company culture and some comments indicated the degree of identification or integration that has occurred with the individual's value system. This appears to be because individual and group attitudes and perceived norms regarding specific behaviours are matched by the actual controls as proposed by the TPB (Fishbein & Ajzen 2010). Thus, the enactment of intentions is supported by the culture and management systems. Character First[®] also appears to influence external relationships because of its strong focus on developing the values and attitudes people need to improve relationships and make ethical choices. SaladCorp's strategic relationships appeared to be formed primarily on the basis of shared direction, business competence and business ethic; but SaladCorp will not compromise their values for the sake of business (B10). This alignment appears to not only facilitate the development of similar approaches to business but also to relationship management, perhaps a form of 'institutional isomorphism' (DiMaggio & Powell 1983; Rindfleisch & Heide 1997; Rogers et al. 2007) with suppliers modelling their businesses on SaladCorp.

Market orientation is an important factor in a co-innovative chain culture and Greenfresh Business Manager B20 summed up the focus for the chain: "...you're trying to give the customer that sense of



enjoyment and discovery ... it's not about price...It's value for money...” The market orientation, set by the retailer, was communicated and managed by the chain leader, SaladCorp, through formal and informal communication and there appeared to be a high level of understanding of consumers and customers amongst strategic suppliers (Growers B2, B17). SaladCorp Senior Managers B18 and B19 had no doubt their company was strongly market oriented and innovative, a ‘prospector’ (Shields 2007): “...we are probably more in the top end of consumer focused organisations [in horticulture]...” however they were equally sure that this focus varied across the organisation. This is enculturation is critical not only to internal innovativeness but that of its partners and the co-innovation between them. Growers’ understanding of the market and knowledge of Greenfresh’s supply requirements were derived largely from communication with SaladCorp and their agile and often pro-active responses were in large part due to SaladCorp’s partner selection and development processes. This was driven by SaladCorp’s aim to control their value chain from supplier to consumer (SaladCorp Senior Executive B11).

Upstream suppliers were also focused on delivering value to their customer next in the chain; Grower B17 had a clear view of his function in the chain: “Our key to our business I think is that we have put ourselves in a position where we add value to the supply chain.” But Grower B2 sounded a word of warning about suppliers’ consumer understanding: “...in the past there has been a large amount of that information being disseminated back through us...But I think to a lesser degree, as time has gone on, we see less of that...”

Organisational learning, associated with the sharing of data and information, occurs largely through the formal annual meetings and day-to-day operational communication. However, organisational learning appears to be constrained by the developmental problems of sharing an MIS across the chain and less face-to-face contact.

In summary, SaladCorp, the chain leader, is the most influential firm and has a set of corporate values which are well operationalised in its own corporate culture. The firm purposefully seeks compatible staff internally as well as chain partners with compatible values and attitudes. It then actively manages both its own internal and chain culture through extensive formal and informal communication, high performance accountability by operational staff, management and chain partners and the sharing of data and information to facilitate chain/organisational learning. Individuals are operationally empowered for risk-taking and mistakes are tolerated. This approach to culture management is facilitative of both internal and collaborative innovation across the chain.

6.3.2.3 Co-innovation architecture

Value chain collaboration is essential to co-innovation and requires multiple integrated elements to enable the chain members to be effective in meeting consumer and customer needs: shared visions, a collaborative performance system, decision synchronisation, information sharing, incentive

alignment, integrated supply chain processes, and effective boundary spanning.

The partners in this chain had strongly aligned individual visions. To a large degree this appeared to be due to regular strategic communication and annual strategic planning occurring between all the strategic partners in the chain. Greenfresh collaboratively develops strategic and operational plans for the category with SaladCorp (Greenfresh B20); SaladCorp conducts long range (10 years), medium-term (3-5 years) and annual strategic planning from a whole-chain perspective and then discusses these with their chain partners. Greenfresh B20, three growers (B2, B7, B17) and fifteen SaladCorp managers referred to the collaborative nature of the planning processes during interview. These plans were then actively incorporated into each company's strategic and operational plans and well communicated through each organisation. They formed the basis for tactical and operational planning and management. B12 referred to the utility of these boundary objects:

...when our Greenfresh team and the SaladCorp sales team and marketing start to head butt each other we go to our strategic document. Both of them. So what does that say?
Oh right, brings them back into line down here.

Both Greenfresh and SaladCorp assess the vision alignment of prospective new chain partners and, as with cultural alignment, capacity and performance, these determine the extent to which integration of that firm takes place. The selection of strategic partners, internal recruitment practices and incentivisation also appear to be important factors in ensuring that key managers were relationally-oriented, collaborative strategic thinkers.

Greenfresh Business Manager B20 regarded the key elements of supplier performance as "...quality, service and value" and fundamentally these formed the parameters of performance management for the whole chain; that is, they appeared to be the embodiment of consumer value and therefore constitute the strategic goals of the chain. Performance was annually assessed by strategic meetings and operationally monitored for each product on a regular basis with feedback to suppliers. SaladCorp appears to drive the chain's management approach and this is reflected in its own processes. Internally, SaladCorp is a highly performance-oriented culture with regular and in some instances, real-time reporting occurring (televised performance data in many corporate areas). B12 believed they had "... [a] better cost system operating in the processing division for our factories, than I've seen in any multi-national I've ever worked in. There is no excuse for factory managers not to know their numbers on a daily basis."

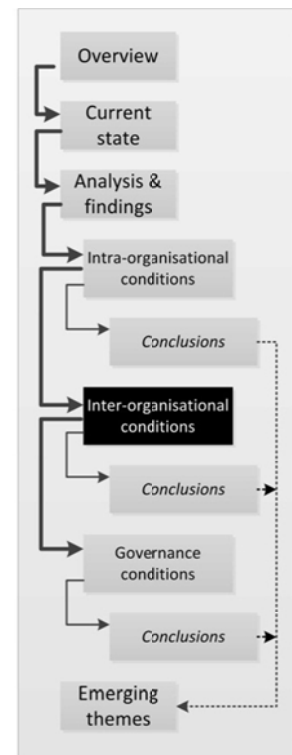
Information flows and decision synchronisation across the chain are good between strategic suppliers, but only basic, transactionally oriented information is provided for more arms-length suppliers. The extent to which they are supported by effective, real-time MIS is variable and so constitutes an opportunity to improve value chain management and co-innovation. The effectiveness of current

information flows is due to the effectiveness of boundary-spanning functions at strategic and operational levels and appears to be a culturally-driven attribute. SaladCorp Board Member B8 and Senior Executives B11, B12 and B13 and Growers B2, B7 and B17 all referred to the quality of relationships. However, the lack of an ICT based MIS can lead to uncontrolled variability as communications are dependent on individual performance and the operational conditions under which they work. Hence, SaladCorp aims to introduce transparent data flows across the whole chain as they have in some other of their chains where information on price, volume and quality performance, with a high degree of transparency is provided on all chain partners (SaladCorp B1, B13). However, B1 suggested some growers resist data sharing partly because it constrains their opportunistic behaviour (e.g. supplying the fresh market when prices are good) and indicated it was difficult to get grower's engagement with the concept until SaladCorp comprised a significant part of their business. On the other side of the triad, Greenfresh have been slow to develop a new MIS that will allow an interface with SaladCorp. Both factors will be challenges to the achievement of SaladCorp's aim of transparent, real-time data access for the whole chain.

Incentive alignment is a critical component of the collaborative architecture and has been analysed in more detail earlier. However, it appears that whilst the design and operation of incentivisation within individual firms in the chain is good, it does not appear to have occurred through purposeful management between the strategic partners but rather to have arisen because all the key personnel have a good understanding of the norms of behaviour and overall chain performance parameters.

In the Greenfresh-SaladCorp value chain there was ample evidence of co-innovation in NPD and process design as well as some relationship-specific investments by partners (e.g. R&D) but little regarding financial co-investment in projects, equipment or facilities. In their strategic relationships it was expected that individual firms were responsible for any investment required for innovation, but both Greenfresh and SaladCorp were prepared to proportionally share chain costs, risks and benefits through compensatory pricing or relational benefits with other chain partners.

Succinctly, in this case the co-innovation architecture facilitating the development of co-innovation appeared to indicate that the parameters were present at mostly adequate or better levels (Table 6.6). There was some variability of most parameters dependent on the type of exchange relationship being examined (strategic supplier or arms-length supplier), which is to be expected because deeper levels of access would be available for more trusting, long term relationships. The inadequate processes were identified as:



- Information and data flows via integrated ICT to enable decision synchronisation;
- Collaborative performance management.

The exception to this was the existence of a chain ICT system enabling real time forecasting and replenishment and performance monitoring. In this instance, the sheer scale of the retailer's problem was an evident reason and the remainder of the inadequacy for upstream partners was being addressed by the strategic goals of the lead firm, SaladCorp. Therefore, it could be concluded that in this case, the construct of co-innovation architecture (strategic structure and processes) provided a useful framework for analysing structural and processual enablers of co-innovation.

6.3.2.4 Co-innovation competence

The notion of 'innovation competence' described earlier in the Literature Review involved innovation leadership with strategic foresight, innovation strategy, organisational culture with resourcing that empowers individual businesses to adapt quickly to changing opportunities. In this chain, new product innovation was found to be outsourced to SaladCorp by the retailer⁹⁵ who adopted the role of 'challenger' and 'collaborator' with their suppliers, often playing a significant role in driving innovative new product ideas or innovative packaging etc.

In SaladCorp, innovation competence was identified in high levels and they played the lead role in generating focused innovation amongst their raw material and ingredients suppliers and in their partnership with the retailer. However, innovation competence played a wider role than even that because it underpinned their approach to chain relationships. SaladCorp Manager B13 said:

So we really pride ourselves on that fact that if the product isn't performing, we're flagging that up front...[this is] where we have our greatest success with our retailers – but it's not just with our retailers...it is understanding the numbers in the business that we're doing together and making sure that we are adding value. In Greenfresh's case, it's sales growth, it's margin improvement, it's food safety, it's service...[but] I think that concept can fly right back through the supply chain.

Indeed, it has flown back up the chain because growers cited several examples of the autonomous and coordinated adaptation that is critical to the development of the sustainability and benefit of the whole chain. Grower B2 had clearly conceptualised the notion of chain innovation:

...innovation crosses the three main levels which is grower, processor and reseller...So not one, innovation can't stay at one place, an innovation change here is an innovation change all the way through the system as well.

⁹⁵ This is not to suggest that the retailer was not innovative in their own merchandising and marketing functions.

And B2 also recognised the chain-wide benefits:

...innovation has for us, hasn't just benefited us. Every time we do innovation it's been spread across the whole grower base...I think that comes down to your relationship at the end of the day...But if the pie grows, my pie grows...the value to us is still quite significant to increase that...

So it appears that within Greenfresh's broad performance parameters of "...quality, service and value..." (B20), some strategic raw material suppliers have identified issues that are critical to Greenfresh and SaladCorp and attempted to develop competitive advantages by addressing those issues. For example, Grower B17 believes he has "probably an industry best practice cooling and packing...we can harvest, vac cool and deliver to them before lunch, at the end of their receiving time for the production that day." Grower B2 believes: "We're very drought proof...That's why we had such an accelerated growth."

As SaladCorp has transitioned to a more corporatised mode of operation, the firm has increasingly systematised broadly defined innovation throughout the company, but the Founder still plays an important role in horizon scanning for NPD on his overseas trips. However, for SaladCorp Manager B9, NPD is "...very much a relationship driven discussion. I don't think they [Greenfresh] have that same discussion with all of their vendors....there's a lot of trust involved as well."

Co-innovation occurs downstream in the selection, development and marketing of new products which frequently involves 'gentlemen's agreements' (trust) about the incursion of costs and their recompense (SaladCorp Senior Executive B12). Upstream, B12 explained that:

...we've been able to maintain our retail sales....and you can only do that by working all the way through, you know, with the growers...so it in turn saves us money. Rather than just screwing them at the farm-gate.

In conclusion, it appears that in this chain, innovation leadership by the retailer and the category leader, SaladCorp, is a key driver of collaboration and co-innovation. This is driven from multiple levels in each organisation and is highly relationship driven with the incentives based both in formal and relational agreements where trust and long term economic and relational pay-offs are the key motivators. There is a widespread fundamental understanding of the system-wide, multi-level, dynamic nature of co-innovation. Thus, the notion of 'co-innovation competence' and its components appear to have utility for analysing the ability of an organisation to co-innovate.

6.3.2.5 Conclusions for 6.3.2 Inter-organisational conditions that influence co-innovation

Overall, there are four conclusions from this section about how inter-organisational conditions affect co-innovation: (1) the role of mental models at the chain level; (2) the importance of innovation leadership in co-innovation; (3) the need for multi-level incentives and, (4) incentive alignment.

Firstly, that the inter-organisational level the mental models of managers again appeared to be important in determining the nature of inter-firm relationships. The shared understanding of vision, values and performance across the chain were pre-cursors to the development of trust, communication and co-innovative behaviour (Eisenberg 1999). Where this was present between chain partners there appeared to be a much greater likelihood that there was also an alignment between internal firm processes and practices and those required by the chain. Such a finding is in line with Tang and Gattorna's (2003, p. 28) model of strategic alignment which explicitly links the competitive environment, strategy and the internal environment of leadership and culture.

Secondly, innovation leadership by the retailer and the lead firm, SaladCorp, was the key driver of inter-organisational collaboration and co-innovation (Table 6.3; Section 6.4.1.2) which is cognisant with Mentzer (2001) who said succinctly: "Leadership - without a champion, collaboration will never be accomplished" (p. 83). SaladCorp's approach to chain leadership appears to be derived from the mental models of innovation and relationship management which they employ in their selection, management and development of chain partners. Innovation leadership was based on a very high level of relational competence (Table 6.3; Section 6.3.2.1), and in particular, a high level of strategic and operational communication which created the supportive conditions for innovation/co-innovation. It focused on enabling innovation by intellectual (envisioning processes, training), affective (trustworthiness, expectation, obligation) and tangible (financial, skill development) support cognisant with Defee's (2007) description of a 'transformational leadership'.

Thirdly, in this chain, incentives at all levels (chain, firm and individual) provided a highly effective motivation to align with the performance requirements of the retailer through a framework of formal and relational agreements. Even though this was a chain supplying private label lettuce products (thus competing on price), it was their innovativeness and responsiveness that kept SaladCorp ahead of its competitors and made them a benchmark for strategic suppliers (Sections 6.2.1 and 6.3.3). The incentives for each supplier were based on consumer value attributes, the customer's performance requisites and the chain-oriented behaviour required by the lead firm, incorporating the aims of the customer. According to Greenfresh B20 and SaladCorp's Founder B11, they delivered on the requirement for innovative products that performed in the marketplace, so it is concluded that their incentive system achieved the goal. From the strategic suppliers' viewpoint, they needed to deliver value for consumers and customers to achieve 'preferred supplier' status with both the lead firm and

the retailer through efficiency, effectiveness and responsiveness consistent with Svahn and Westerlund (1967). The motivators for strategic partners involved trust, long term economic and relational pay-offs, ‘preferred supplier’ status and relational agreements.

Fourthly, the notion of incentive ‘alignment’ in the previous paragraph lies at the heart of Simatupang and Sridharan’s (2002; 2007) model of the architecture required for collaboration and “...constitutes a key element for successful collaboration...” (p. 308). They explicitly define incentive alignment as a broad concept that is “...the process of sharing costs, risks and benefits amongst participating members...” (Simatupang, Togar M. & Sridharan 2007, p. 312). Whilst this chain stopped short of explicitly sharing the costs and risks of development, their practices are consistent with Williamson’s (1985) and Macneil’s (1973; 1980; 2000) concepts of relational agreements, often including a period of ‘pay-back’ for the costs and risks associated with innovation. However, not all Greenfresh or SaladCorp suppliers enjoyed strategic alignment. As noted in Section 6.3.2.3, 6.3.3 and elsewhere, some suppliers were more arms-length, short term and were managed using more transaction-oriented contingent reward behaviour and management-by-exception in concert with price-based incentives (Defee 2007).

Once again this approach to supplier management was one that had evolved on the basis of ‘organisational fit’ (Ogbor 2001) incorporating notions of shared vision, values, trust and supplier performance as outlined by Squire, Cousins and Brown (1999), Tangpong, Michalson and Melcher (1993). SaladCorp’s strategic suppliers are similar to what Cox (2004, p. 354) called “Buyer-Supplier Reciprocal Collaborative Relationships” where there are long-term, collaborative, non-adversarial relationships with equitable sharing of costs, risks and benefits. At the other extreme, the ‘casual’ suppliers described above, are similar to Cox et al’s (2002, p. 62) “Buyer-dominant Arm’s-length” relationship. The different feature of supplier management in this chain is the ‘situational’ and ‘dynamic’ management approach employed by SaladCorp which means that suppliers are positioned in Cox et al’s typology according to fit and performance on a continuous basis so that some suppliers progress from arms-length to strategic and others regress temporarily or permanently.

However, not all the findings regarding inter-organisational conditions were conducive to co-innovation. Three conditions were identified that were acting as barriers to co-innovation. Firstly the lack of an effective ICT system across the whole chain was confirmed as constraining the development co-innovation and chain performance in the researcher’s validation session with the SaladCorp management team. This is consistent with the suggestions of Hau Lee (2004), Simatupang and Sridharan (2007) and Gattorna (1990) and others that equal access to data and information for all chain partners is essential for alignment, innovation and performance.

Secondly SaladCorp, the lead firm, was avoiding the explicit identification and communication of defined categories of suppliers based on potential and performance. Such a definition would make

explicit the criteria for the development of relationships and have the potential to promote the open discussion of performance expectations in a long term context and incentivise those suppliers who want to further develop their relationship with SaladCorp. Some SaladCorp managers were concerned that they would lose suppliers but the research demonstrated that the suppliers were aware of their status despite the secrecy. So, the lack of a framework on which to base discussions, negotiations and long range planning appears to be constraining relationship development.

The third identified constraint was the lack of co-investment or joint investment by partners in the chain as distinct from independent investments. There appeared to be a reticence at all stages of the chain to the notion of co-investment due to the economic implications of a deeper commitment, potential switching costs and market vulnerability, all of which are acknowledged by Hammer (2006) as risks. This appeared to be a psychological threshold and could be called a 'commitment threshold'. However, whilst the failure to explicitly address the issue was a barrier to deeper communications about their joint problems and challenges, Autry and Griffis (2008) suggest that such weak linkages (as opposed to full or near integration type linkages) may actually enhance innovativeness by enabling inflows of unique information through supplier turnover.

It was from this case study that notion of 'purposeful' design and management of incentives emerged. It is much more than simply an observation about leadership or management intensity because it was a 'way or working' or perhaps a mental model of implementation incorporating elements of strategic alignment, dynamic adaptation, integration with other processes, critical evaluation, constant monitoring and reporting on the whole chain. Hamel and Prahalad (1989) introduced the term 'strategic intent' to the management field and referred to it as "...an active management process...focusing the organization's attention ... motivating people ..." (p. 64). Whilst their article referred to competitiveness, it has many of elements of 'purposeful management'. The explicit term 'purposeful management' appears to be a more recent concept that is mostly associated with knowledge management field (Jain 2007) although it also appears to be a general management concept founded in a ten year longitudinal research project of a dozen US companies by Bruch and Ghoshal (2004). They described it as "...purposeful, goal-directed, action-taking..." (p. 7) by individual managers in a single firm. The term is also referred to in the supply chain literature (Kalfagianni 2006; McCuiston 2004; Rainbird 2004; Tatikonda & Stock 2003) but the references are without definition or detail. The notion of 'purposeful' design and management appears to be underpinned by the creation of a firm and chain culture that encourages individual and group action. This occurs because of employees beliefs about peer and organisational support for key behaviours associated with boundary-spanning and innovation thus suggesting the explanatory utility of the TPB (Fishbein & Ajzen 2010) in co-innovation.

6.3.3 Chain governance conditions

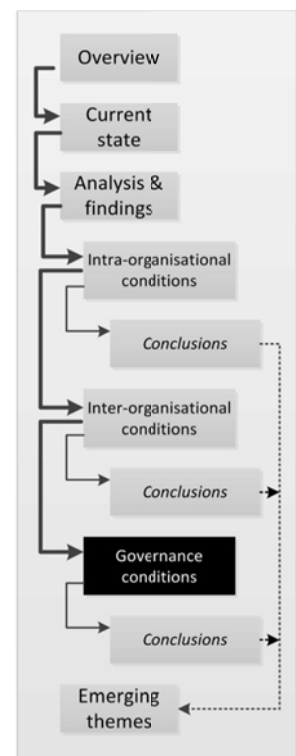
This section addresses SRQ5. In terms of the model of governance mechanisms described in Table 2.3, the Greenfresh-SaladCorp Lettuce Value Chain appears to be operating in a ‘relational hybrid’ form of governance (Williamson 1979, 1985). This means that a relationship based on mutual dependence regulated by trust, reputation, norms and other factors is more likely to occur. This indeed was observed in this study of a retailer-processor-strategic farm supplier triad. Despite the asymmetrical power situation almost all those interviewed were clear on the fundamental importance of relationships to the chain’s performance and a high level of relationship-specific co-innovation had resulted.

Greenfresh Business Manager B20 is of the view that the fundamental way that he incentivises suppliers is through ‘challenging’ them to deliver some new initiative or product using, for example, exclusive rights to a region or a product for a period of time as a means of supporting the innovation. On the other hand the processor, SaladCorp, reciprocated by focusing on giving Greenfresh good margins and innovative products. This approach was “...unwritten, that we don’t talk about it, we don’t bring it up every five minutes...” (SaladCorp Manager B14). These are characteristic of a relational hybrid form of governance.

SaladCorp have about twenty four suppliers into their processed lettuce chain with a range of relationships from strategic to occasional, ‘spot market’ relationships where raw materials are procured during periods of shortage. There are only about 4 – 5 strategic relationships characterised by moderate levels of shared business architecture and frequent, multi-level communication employing relational contracting where trust and verbal or implicit agreements are the basis for many strategic developments and operational activities. Suppliers have to be very nimble in their responses to keep both customers and consumers satisfied because product development times may be less than six months and the typical product life cycle is two years.

At the other end of the continuum, there are a few growers who are less aligned with SaladCorp and are either medium term arms-length suppliers or occasional ‘casual’ suppliers when more strategic suppliers cannot meet the requirements. They receive fewer relational benefits and the prime incentive is the price they receive. For arms-length relationships Greenfresh and SaladCorp both rely on formal agreements that tightly specify price, quantity, quality and timing parameters, the common approach for ‘outcomes-based’ incentives.

The specifications and performance required by Greenfresh cascades down through the KPIs to SaladCorp which in turn become the KPIs of individual managers in SaladCorp who then pass them



on through their operational responsibilities to farm suppliers as supply agreements with price/quality and DIFFOT conditions. For SaladCorp, the duration of these ‘supply agreements’ is usually around three months and compliance requirements are strict, particularly regarding price and quality (Growers B15, B17). Some arms-length growers harbour some reservations about becoming too exposed through higher levels of business activity with SaladCorp (B15, B17) but have divergent views on their future relationship. It appears that whilst trust is the key to future development of the relationship for the less committed growers, the perceived barriers appeared to be more about mutual performance expectations (B15), the adequacy of information and the alignment of goals (B17) rather than fundamental issues such as ethics, justice and trustworthiness.

Thus, relational agreements are required because of fast moving, market driven, high complexity transactions where there is an inability to codify the entire performance specifications in the formal partnership agreements and supply schedules. In combination, the use of both formal and relational agreements achieves moderate levels of coordination through bargaining, autonomous cooperative adaptation of inputs based on trust and, importantly, a mix of outcomes-based and behavioural incentives.

This approach to relationship management was attributed by <The Founder> to “...along the way I guess we learned that it was – the relationships were better if you’re creating business value for all stakeholders [sic]...” a concept that appears to be well enculturated within the company as it was referred to ten times by six SaladCorp managers. The phrase “creating business value” was also referred to by two of their strategic suppliers, so it also appears to be a value or norm in the chain recognised by strategic suppliers as being an important difference and an incentive for doing business with SaladCorp. Upstream, Manager B10 defined what the concept means:

Our grower relationships are becoming more and more formalised where we’re analysing what percentage of business we are at with that particular grower, how we’re adding value to their business by the work we do with them, what do they need from us in terms of assistance to be sustainable, what do we need from them for our future process improvements and how can we get value out of the chain?

Hence, both Greenfresh and SaladCorp employ a mix of outcomes-based and behavioural types of incentives, because it is cognisant with the views of their senior managers about the best way to achieve their strategic goals within their specific business environment. But not everyone in their supplier networks are suitable or agree with those views so the retailer and processor don’t always have sufficient choice to be able to only do business with ‘ideal’ firms so they employ a range of governance types to manage each individual partnership consistent with the governance continuum outlined in the model in Table 2.3. Therefore, they are more outcomes (price) oriented for arms-length

relationships or more behavioural for strategic relationships. This could be called ‘contingent relationship management’.

In this relational or hybrid type chain, trust and the associated notions of commitment, reciprocity, communication and information sharing, collaboration and expectations of performance are all variables used by chain partners to discriminate between potential strategic supply relationships and more arms-length relationships. The incentives employed in strategic partnerships are a broadly-based mix of extrinsic, social and intrinsic incentives necessary to sustain a more relational form of contracting where partner expectations are rarely formally expressed. However, formal contracting is still important to the management of supply, so the next section will analyse how contracts are used in this chain.

6.3.3.1 The use of contracts across the chain

This section addresses SRQ8. In the Greenfresh-SaladCorp Processed Lettuce Value Chain a mix of formal and relational contracting appears to be used. The formal agreements with suppliers are called “schedules of supply” which are “almost like a gentlemen's agreement but signed” (Greenfresh B20) and so are not regarded as formal contracts (SaladCorp B5). The schedule of supply, which specifies quality, service and price, is the core of the whole agreement for both sides and includes both positive and negative incentives for suppliers. In Greenfresh B20's view: “...[Come] hell and high water we will not under order based on our agreement because that's something that we've made this commitment to as a produce business.” however, as SaladCorp B13 said: “If we start acting like they're legal contracts then they'll lose their worth.”

All chain partners appear to be clear that these agreements are not inflexible contracts and accept that there will be an amount of variation both within and between seasons. It is the latter which is difficult to forecast because of uncontrollable variation in market and environmental conditions, however, it is the variation within seasons of scheduled amounts that causes the most dissatisfaction between growers and SaladCorp (B17). The compromises made by both parties to cope with the vagaries of each production season can be the basis for the development of obligation, reciprocity and trust.

Much of the business between chain partners is still conducted through relational contracting which is comprised of verbal understandings, inferences or expectations based on behavioural norms or future business value creation or a sense of obligation built up from past exchanges. It appears that strategic suppliers have no doubt that “...there's a lot of trust between each other...” (Growers B2, B7). For B2 this was based on a business disaster not of his making where the SaladCorp Founder provided support to re-establish. “He put trust in us to give it a go...[a]t the end of the day he did some things for us and we are now – we feel that we've got to follow that line...” However, it also seems that even the more arms-length growers have considerable faith in SaladCorp's integrity and history of

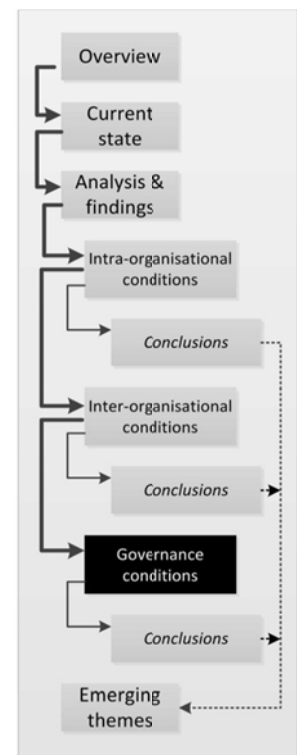
business growth (Growers B15, B17). This demonstrates the role of trust, reciprocity and obligation in relational contracting in the governance of this chain.

It seems that SaladCorp's Founder is widely recognised as "...a good person by nature. He's fair and he also is very shrewd..." (Grower B17). But the Founder described a need for a balanced approach citing how early in the company's life they:

...got a bit carried away with all this softer side of business and we didn't have the attention to detail, and we went totally off the rails. We were employing nice people who had no accountability. So it's not all one-sided, you know, it's a balance – it's a balance between character qualities. But one of the unwritten character qualities is accountability.

So the company today appears to be highly accountable at an individual level as well as in its external relationships. All suppliers have schedules of supply and all NPD activities are governed by contracts protecting rights and proscribing non-circumvention. If DIFFOT performance is not up to the contracted standards then there is evidence from Grower B15 that they "...reject whole semi-trailer loads for a few bad bins..." If exploitative or perceived dishonest behaviour occurs then SaladCorp takes firm action. Senior Executive B11 said:

...at times we're involved in some pretty ruthless discussions... You know, just don't stuff around... we talked a lot about the softer side of business but there's an expectation out there that... It's not a social club...



This was justified by SaladCorp Executive B3 on the grounds that: "It's pretty hard to be green [sic] when you're in the red!"

However, it appears that support and tolerance of performance or behavioural aberrations is more extensive for strategic suppliers whilst arms-length or occasional suppliers are likely to be more highly governed by the performance specifications in the schedules of supply. As a history of exchange builds up so does the understanding of the capability and behavioural norms of the other party. This provides part of the strategic 'fit' that is the pre-cursor to the development of a deeper relationship with SaladCorp.

In summary, this chain appears to use a mix of formal and relational contracting to govern the behaviour of the chain partners. An important driver of this is the maintenance of flexibility to manage the natural variability that occurs in agrifood production. This demonstrates the role of trust,

reciprocity and obligation in relational contracting in the governance of this chain. Another important cultural factor appears to be the emphasis placed on accountability, both in individual as well as firm performance of their obligations. ‘Strategic fit’ is the pre-cursor to the development of a deeper relationship with SaladCorp and these are more likely to emphasise relational contracting whilst arms-length suppliers will be governed more by the conditions of the formal ‘contracts’, the schedules of supply.

However, as pointed out earlier, this chain involves asymmetrical power relationships superficially similar to those that exist elsewhere in the agrifood industry, but they appear different. So a deeper analysis is necessary to answer the question of how has this asymmetry of power affected the nature of the incentives employed, and the next section attempts to answer that question.

6.3.3.2 The use of power across the chain

This section addresses SRQ6. The key to the use of power in the Greenfresh-SaladCorp Processed Lettuce Value Chain appears to be their idiosyncratic approach to business which involves efficient governance through purposefully managed exchange relationships, efficient contracting with a mix of behavioural and outcomes-based incentives and collaboration to deliver their business needs. The achievement of this appears to require the exercise of both leadership and power.

In this instance, Greenfresh appears to have had a private label strategy for the fresh produce category and they employ explicit buying power to achieve what they want. Either the supplier provides what the retailer wants or (implicitly) they’ll get it from someone else (SaladCorp Senior Executive B12). Such a situation has been categorised by Cox et al (2002, p. 62) as “Buyer dominance with transparent, supply-side contestation”, succinctly, few buyers with many sellers or a monopsonistic situation. Knowing that there were many other producers of the same or similar products (i.e. commodities) and few alternative high volume customers, the decision for SaladCorp was fundamentally about whether they wanted to re-align their marketing strategy with that of Greenfresh, pursue one of the few other markets or radically change their business model. That they were flexible enough to re-align and then, as Greenfresh Business Manager B20 has previously explained, to consistently improve supply performance and aggressively innovate to meet Greenfresh’s challenges over time, resulted in them becoming one of a small group of strategic vendors. In this instance the incentive for SaladCorp was to achieve a consistent market for a product family that, whilst the margin was only moderate, the volumes were high which has eventually become an important source of profitability and growth. These imperatives for SaladCorp appear to have elicited a motivation to expand the relationship to gain greater market share in the category and ultimately a competitive advantage over other suppliers through the development of a preferred supplier status. Thus, a clear strategy in Greenfresh combined with an exercise of power and a relational approach to supplier

management to elicit growth motives in SaladCorp has ultimately benefitted everyone in the chain as it has also been employed by SaladCorp and has become the chain culture.

Greenfresh Business Manager B20 indicated that the function of ‘category captaincy’, in this instance, is not a formal appointment but more the building of an awareness of being the category leader in terms of innovativeness and performance. He regarded the strategic vendors to be a team who worked together to ensure the performance of the category. Greenfresh would provide the strategic vendors with more information than other suppliers but only in a “push-pull” (B20) type of situation where the supplier is “hungry for information” (B20).

The assumption of category captaincy by SaladCorp appears to have been incentivised by the perceived competitive advantage in progressing from preferred supplier to a category leadership role. Many SaladCorp executives and managers consider their firm to be the market leaders in innovation, DIFFOT and other critical areas such as food safety (B1, B4, B6, B9, B12, B13, B14) and occupational health and safety (B5, B10, B11, B12). This has resulted in the motivation to develop a sustainable competitive advantage, to ensure supply and demand stability, particularly with regard to quality, responsiveness, exploiting core competencies (e.g. growing skills, regional climatic synergies, specific resources) and facilitating this through technological access to the whole chain in order to “control [our] product all the way through past the retailer to consumer” (SaladCorp Senior Executive B11). However, this level of control or ‘coordination’ of independent suppliers is difficult to achieve. But, Greenfresh’s strategic relational approach to managing suppliers appears to have found people with a similar approach to doing business in SaladCorp. SaladCorp have responded to the constructive use of power by the retailer and have themselves demonstrated a similar approach with their own suppliers. SaladCorp Senior Executive B13 said:

I think how we’ve got there with Greenfresh is the same way that the suppliers who’ve got, who have grown their business with us, it’s really understanding the customer-supplier relationship and understanding that we are a supplier and we have an obligation as a supplier to deliver on the requirements of our customer. If we don’t, our customer has got every right to go and seek someone else to deliver on those requirements. It’s not a right for us to do business with any of our customers.

Therefore, in summary, whilst the Greenfresh-SaladCorp Processed Lettuce Value Chain appears to demonstrate a significant asymmetry in power relationships, implicit and explicit power has been exercised to motivate the behaviours required to align suppliers at all levels to govern supply. Whilst margins are low there are a number of significant advantages that many recognise as key incentives to develop the relationship (e.g. volume, consistency, support, commitment, loyalty). In the case of SaladCorp, they were motivated to develop a sustainable competitive advantage, manage risks, and exploit core competencies to aggressively innovate and consistently improve supply performance to

become a strategic vendor to Greenfresh and, in doing so, become regarded as an industry leader.. This approach by has ultimately benefited all the chain participants.

The manner in which power has been exercised to develop strategic relationships at all levels in this chain appears to highlight the importance of the leadership by firms as well as individuals within firms. The following section will address the question of how leadership has been exercised within this chain.

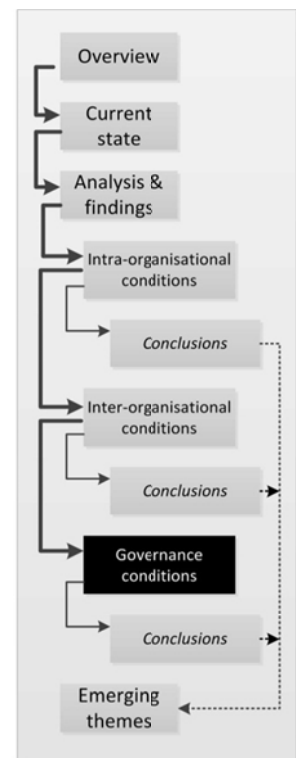
6.3.3.3 The role of chain leadership

This section addresses SRQ7.

Greenfresh Business Manager B20 stated: “...what makes things work, is having the right people in the retail side as well as the supply world.” If this is so, the two critical people who have driven the development of this chain appear to have been the Greenfresh Business Manager (B20 in his former role as the category manager for ten years) and SaladCorp Senior Executive B11. B20 established the climate for dealing with suppliers and found in B11 a highly innovative, values-driven (then) small businessman with a relational approach, a whole-of-chain outlook and an economic approach to business. He explained how it was a priority for Greenfresh to identify family businesses with whom it was possible to develop long term strategic supply relationships; this included both an evaluation of their long term financial capacity and their succession planning. For such strategic partners a degree of developmental support or tolerance of performance aberrations was possible.

In SaladCorp it appears that the basis for Founder B11’s leadership has been the ‘fit’ of strategy and relationships with his own values and the enculturation of those values into his business. Consequently, for him, strategic management is not just about process efficiencies, prices or market positioning but also about broader issues such as relationships, communication, organisational learning and social responsibility. This constitutes a mental model that he has not only passed on to his managers and staff but also to his suppliers. Further, he has actively sought to find suppliers and customers who either hold compatible views or who can integrate these views with their own.

SaladCorp have played the primary role in developing the chain through high levels of product and process innovation. In Greenfresh Business Manager B20’s view: “SaladCorp is one of those companies that they bring a lot to the table, more than what some other companies do.” However, whilst he recognised that SaladCorp might play an informal role in category leadership amongst the five or so strategic vendors, he insisted that leadership was shared amongst them and they worked together as a team.



SaladCorp Senior Executive B11 said: “We sat down one day and listed out the innovations. We reckon it’s about 22 major things that we did that totally changed the industry.” It may have been this innovativeness that has contributed to SaladCorp’s extraordinary growth over the last sixteen years.

SaladCorp Senior Executive B12 explained how extraordinary this is:

I spent thirty years restructuring companies for survival [Australia, New Zealand and Europe]. I didn't have growth. Growth, you're lucky to keep what you've got let alone grow... I've been here six years nearly...it's a privilege to work in a company that grows double digit figures every year. It's a privilege.

Consequently, the company is now one of the largest of its type in the country and is planning 250% growth in the next five years. SaladCorp has a strong whole-of-chain outlook at both corporate and individual manager levels, constantly seeking to control product across the whole chain right to the consumer, closely monitoring consumer needs, international trends and setting quality standards for its suppliers. They undertake both regular long range planning, medium term and annual strategic planning. This planning is shared annually with strategic suppliers, where appropriate, inviting them to expand their operations. In some instances tactical changes are also discussed with suppliers and they are involved in the changes and developments that result. This demonstrates how SaladCorp share the benefits or “create value” for stakeholders (B5, B9, B11, B12, B14) which was recognised by Growers B2 and B7.

The company is highly market-oriented and takes the lead in understanding the consumer, providing that information as necessary to its suppliers. During interviews ten SaladCorp managers and two strategic suppliers referred to consumers sixty two times. SaladCorp Senior Manager B18 said: “...it's all consumer, so the consumer is number one...” however SaladCorp Senior Manager B19 (within a joint interview) qualified that by saying: “...the word is used very often but it is not always fully carried through it’s sad to say, at some levels.”

SaladCorp also demonstrates its chain leadership in coordination with its aims to develop an MIS that will enable the transparent monitoring of performance across the whole chain and as well as planning a raw material intake pre-approval system that will allow the removal of the factory intake monitoring function to reduce cost (Senior Executive B12).

Leadership is not just confined to Greenfresh and SaladCorp, but from time to time is exercised also by the suppliers. Grower B2 described several innovative activities he undertook independently that benefitted the whole chain. Likewise, other strategic growers and even some of the more arms-length growers were independently undertaking plant variety and agronomic trials in an attempt to solve production problems that would benefit the whole chain.

So, in summary, leadership in this chain appears to be derived from the broad-based mental models employed by SaladCorp and their selection, management and development of their chain partners. Their leadership appears to demonstrate the ‘transformational chain leadership’ characteristics: inspiration, intellectual stimulation and idealised consideration behaviour (Defee 2007). Further, it is broad-based, encompassing the full range of Schumpeter’s (1934) original definition of innovative activity: products, processes, markets, raw material sources and organisation. This has generated a strongly ‘prospective’ (Shields 2007) or innovative market orientation and strategic foresight with sustained, high level of broad-based internal innovation and informal co-innovation. Whilst SaladCorp exercises primary leadership, it is by no means limited to this company and there are many examples of autonomous adaptive behaviour that benefits the whole chain and therefore appears to be a form of leadership. This exemplifies ‘transformational followership’ behaviours such as independent critical thinking, proactive responsibility, collaboration and whole-chain commitment.

Succinctly then, despite a major asymmetry of power and capacity between the chain partners, this chain employs ‘contingent relationship management’ for its suppliers with multiple types of incentives and a variable mixed formal and relational contracting employed between firms. There is a high degree of alignment of vision, values, strategy and incentives between the retailer, the lead firm and the strategic farm suppliers resulting in informal co-innovation occurring to improve the chain’s performance. This has resulted in consistent high level growth in volume, turnover and profit sustained over many years.

But what conclusions can be drawn about the operation of the facilitating and inhibiting conditions on co-innovation and what themes appear to be emerging about how agrifood value chains are incentivised.

6.3.3.4 Conclusions for 6.3.3 Chain governance conditions that influence co-innovation

Comparatively, the Greenfresh-SaladCorp value chain was the most co-innovative chain of the three case studies. The conclusions in this section will show that the chain governance conditions affecting co-innovation include a number of strong facilitators with only a few inhibitors.

Firstly, the form of chain governance reflected the lead firm’s mental models about the optimal means of implementing their business model (Section 6.3.3.3). In this chain, there was a large power and capability asymmetry between the multi-billion dollar retailer and the processor, but despite this, the retailer had chosen to employ a mix of implicit and explicit power to motivate aligned behaviours at all levels which was similar to Smith’s (2006) categories of ‘benevolent dictator’ or a ‘collaborative leadership’ approach to channel leadership. His typology of eight categories from leader to ‘non-leader’ describes the former as a dominant firm dictating policy in a congenial style and the latter as

being collaborative with chain partners to achieve joint solutions to chain-wide issues. Notably, Smith (2006) applies the Hersey Blanchard (1982) Situational Leadership Model to his channel leadership typology and speculates that the notion of a ‘situational channel leadership’ style where “...a range of behavioural styles are available from which to select that which suits the task, ability and attitude of the other party” (p. 333). This type of approach to supplier management has been described in Sections 6.3.2.1 and 6.3.2.5 as being that adopted by SaladCorp and Greenfresh. This provides evidence that such a practice is used in the agrifood industry and extends the notion to suggest that it may be a means for channel leaders to manage co-innovation.

Thus, to attain competitive advantage in delivering value to its customer and the consumer, both the retailer and the lead firm seek to work in a more integrated, collaborative way with a small number of strategically aligned firms willing to adopt a whole-chain oriented outlook and behaviour. This approach was referred to earlier in Section 6.3.2.5 where it was noted that it is similar to what Cox (2004, p. 354) called “Buyer-Supplier Reciprocal Collaborative Relationships.” It should be noted here that this situation is classed by Cox as a pro-active, long-term, co-innovative approach that is most attractive for buyers. Whilst Greenfresh determined the supply requirements, it was SaladCorp, the lead firm, who determined the behavioural norms for the chain’s operations. This required the farm suppliers in particular to understand the notion of creating value for the whole chain through trustworthy behaviour, autonomous adaptation and collaborative innovation. It was evident that the level of compatibility or ‘fit’ with the lead firm’s values and strategies determined whether the partner relationships were arms-length, short term contracts or more long term and strategic (Refer Section 6.3.2.5 for a detailed discussion of ‘fit’). Altenberg (2006) suggests that hybrid forms of governance are superior to both markets and hierarchies (the extremes of the governance model continuum described in 2. 3) but determination of the appropriate mix is a matter of trading off short-term benefit with long-term competitiveness. In this case, the lead firm has opted to take a longer term view of the chain and its overall business and part of its long term high growth rate could be attributed to this approach. However, Oliver (1997) also argues that a firm’s profitability and competitive advantage depend on its ability to manage the internal and external social context of its resources and capabilities, particularly the normative rationality in decision-making. Thus, SaladCorp has opted to achieve long term competitiveness by managing its resources and capabilities through managing the social context.

Thirdly, effective boundary-spanning incorporating strategic and operational communication (multi-level) between the chain partners played an important role in the development of the trust and communication. This facilitated the alignment of vision, strategy and performance which led to the more flexible, responsive relational type of contracting that was needed for incentivising co-innovation. However, it was SaladCorp’s explicit strategy of seeking to identify and develop firms with which they believed they could develop a deeper relationship and their commitment to not

compromising their values in that relationship that made this chain so different to the other case studies. If their judgment of that potential proved to be incorrect and the differences were intractable, then they would rapidly downgrade or withdraw from the relationship even if substantial losses occurred as a result. So the selection, management and development of their strategic suppliers were critical to the longevity of SaladCorp's relationships and the co-innovativeness of this chain.

Therefore, the alignment of vision, values and culture across the chain appears fundamental for the development of the trust and long term commitment necessary for stable exchange relationships and co-innovation. This finding supports Lavie, Haunschild and Khanna's (2009) recent study of 420 alliances which found that firms that formed alliances on the basis of the fit of prospective partners management styles, business processes and culture were more likely to be successful in that alliance because it was essential for the development of trust, collaboration and the reduction of conflict. Those that did not do so at alliance formation but subsequently discussed and addressed their differences through familiarization and adapting routines were also more likely to be successful.

Fourthly, it was also observed that incentives are a critical element for achieving chain integration. Incentivation operated at multiple levels (chain, firm and individual), employed broad-based types of incentives (economic, normative or social and extrinsic/social/intrinsic) and was purposefully aligned with strategy to elicit integrated, cohesive chain behaviour. This was necessary because both firms and individuals had complex goals and motivations and so single-strategy, price-based incentives were unlikely to be successful in achieving the complex types of behaviour necessary for co-innovation. Sung-Choon, Morris and Snell (2007), in a conceptual paper, specifically suggest that a broadly-based incentive system combined with work design and skill development are essential to managing inter-organisational relationships for value creation. Therefore, this finding provides evidence supporting that concept.

Finally, it was observed that a hesitancy to employ purposeful, formal collaborative management of chain issues represented a major area inhibiting the effectiveness of their current relational approaches to chain management. Specifically, this applied to two areas; firstly, the installation of an improved chain-wide ICT system strategic to enable real-time information sharing and decision synchronisation and, secondly, there was a reticence by all chain partners to engage in the more explicit, purposeful chain management required for further integration e.g. the lack of explicit co-design and co-management of chain processes, supplier incentives, joint investment in formal co-innovation and the leveraging trust to achieve more formal types of co-innovation.

6.4 Emerging themes from this case study

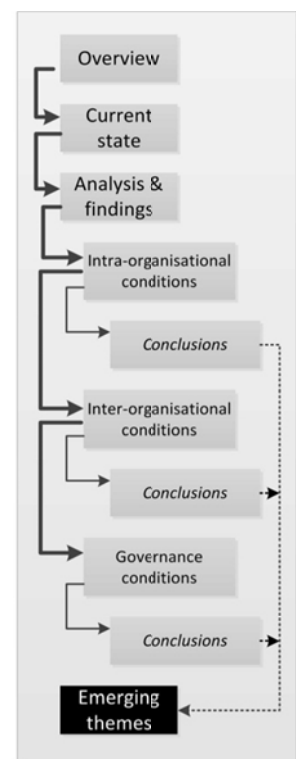
The previous sections have provided data and findings that address the research questions regarding the conditions that facilitate or inhibit the formation of co-innovative relationships in the Greenfresh-SaladCorp processed lettuce value chain. This section will draw together the intra and inter-organisational conditions as well as whole-of-chain governance perspectives to identify the themes emerging from this case study.

As described in Chapter 3: Methodology, this analysis has employed a hybrid, data-driven approach to coding and the conceptual clustering of emergent themes recommended by Boyatzis (1998). This process identifies the potential “themes that differentiate” (p. 44) and these are described in the following:

Theme 1: Mental models influence governance and incentivisation at all levels of the chain

A strong theme across all levels of this analysis is that of the importance and pervasiveness of the mental models of managers of the chain partners in driving the form of chain governance, achieving the vision, embedding values and culture, and the deployment of innovation leadership through relational competence. Likewise, at a firm level, mental models influenced business strategy and human resource management that was critical to achieving co-innovative behaviours between firms in the chain. These were expressed through strategic planning processes (value innovation to create uncontested space), the alignment of their physical and human resources with strategy to deliver value innovation and the behavioural norms by which these will be achieved. The beliefs by operational staff about behavioural issues, the prevailing organisational norms and control beliefs influence their willingness to convert their intentions into action i.e. take risks, collaborate and innovate.

Thus, the alignment of mental models along the chain and the actions that flow from them at all levels of the chain are critical elements in its overall behavioural characteristics and determines how coherently the chain operates in delivering value to consumers and achieving its goals.



Theme 2: The situational use of incentives and contracts to govern chain relationships – ‘contingent relationship management’

Greenfresh and SaladCorp employed a hybrid form of supplier governance to achieve their goals, gain compliance with behavioural norms, minimise supply risk and provide operational flexibility. This combined the use of contracts (formal and informal) and incentives (positive and negative). A tacit supplier classification of ‘strategic’ or ‘arms-length’ was used by SaladCorp that in practical terms was administered as a dynamic continuum; that is, suppliers’ status was determined by organisational

fit and supply performance. Strategic suppliers experienced a hybrid form of governance that included more relational forms of contracting with closer strategic and operational collaboration. On the other hand, arms-length suppliers were governed by more market-oriented, formal contracts and purely price/performance-based incentives and dis-incentives. Arms-length suppliers were accorded less commitment and support, and were more likely to have supply volumes or prices cut in times of reduced demand. Thus, supplier management amounted to a situational, firm-specific tailoring of the contractual relationship where, in the case of strategic suppliers, the mix of broad-based incentives used was unique. This could be called ‘contingent relationship management’.

Theme 3: Multiple types of incentives are employed at individual, firm and chain levels

Following from the previous two sections, an appropriate balance of multiple types of incentives are used to achieve complex behaviours and cater for the idiosyncratic goals, values and attitudes of the individuals and firms within the chain. At an individual managerial level, a range of extrinsic, social and intrinsic incentives are employed and tailored⁹⁶ to meet those different needs. Similarly, at the firm level a range of economic, normative and social incentives are used to motivate the individual chain partners, especially the strategic suppliers. The incentives for each supplier are focused on consumer and customer value attributes, chain-oriented goals and the idiosyncratic aims of the customer. It was also observed that the characteristics of the incentives and motives are different at the various stages of the chain dependent on the scope of the firm’s goals and their capacity to understand and cope with their operating environment. Thus, for the processor incentives are more strategic, being about ‘growing the pie’ by becoming a national or international supplier and about opportunities for industry leadership, whilst for farm suppliers, incentives are focused on more operational and relational issues such as long term outlets, volume growth and attractive business arrangements.

Theme 4: Incentives are purposefully designed and individually managed across the whole chain

In this chain, there is a degree of purposeful, individualised design and management of incentives that was critical for motivation. For the retailer and processor/lead firm it is part of the normal operational procedures. Whilst this could have been more explicit and systematic it was an internal strategy for supplier relationship and human resource management for both companies. At the firm level, it aimed to satisfy the unique goals of each chain partner and informally compensate them for the costs of innovation. Several suppliers indicated this was responsible for the development of their trust and commitment as well as the creation of a sense of expectation of future benefit and/or a sense of obligation. Similarly, at the individual level, purposeful design and management of incentives

⁹⁶ Tailoring incentives to meet individual and firm’s needs is highly situational and involves incurring costs so there is a cost-benefit assessment involved for each case to determine the amount of ‘tailoring’ that occurs.

motivated the high level of trust and commitment of staff to their employer observed amongst many managers, which was important in translating intent to action. In doing so, they provide many of the cognitive and symbolic supports outlined in Lindenberg and Foss (2011, pp. 508-17) such as transparency, clear and consensual vision and mission statements, signaling and symbolic behaviour by senior executives, indirect support of the normative goal frame and their management of non-monetary extrinsic (introjection) and social incentives (identification and integration) to maintain the fragile normative frame.

Theme 5: Transformational chain leadership and followership facilitates co-innovative competence

In this case, both the retailer and the lead firm demonstrated ‘transformational’ chain leadership and had, through the purposeful management of the strategic fit of partners, selected strategic suppliers who were ‘transformational followers’ (Defee 2007); described in Section 6.3.3.3. The outcomes for this chain were the wide availability of information, highly effective informal communication, more decentralised decision-making and sharing benefits consistent with Defee’s (2007) ‘supply chain structural matrix’ (p. 112). As these attributes have also been described in the Literature Review (Section 2.7) as being possible ‘facilitators’ of co-innovation, and co-innovation was observed to be occurring in this chain, then it appears that the alignment of transformational leaders with transformational followers in value chains may be important for the co-innovative competence.

Theme 6: Individual beliefs and values and organisational norms are important determinants of a firm’s capacity to implement co-innovation

This chain, led by SaladCorp, effectively linked values to firm and individual behaviour through its incentivisation, recruitment (including partner selection) and culture management processes. This was very effective in achieving aligned behaviour from Saladcorp’s employees, managers and suppliers. For individual employees/managers, it made SaladCorp a ‘preferred employer’ generating high levels of commitment and performance, giving them the confidence to work autonomously and take calculated risks. On the other hand, SaladCorp’s reputation for ethical, innovative and profitable performance helped build trust with partners, achieve leadership status and become a ‘preferred partner’ in the industry. Thus, creating the internal and chain environment of values, attitudes and beliefs about their capability and ethics enabled people at all levels of the chain to put innovative intent into action.

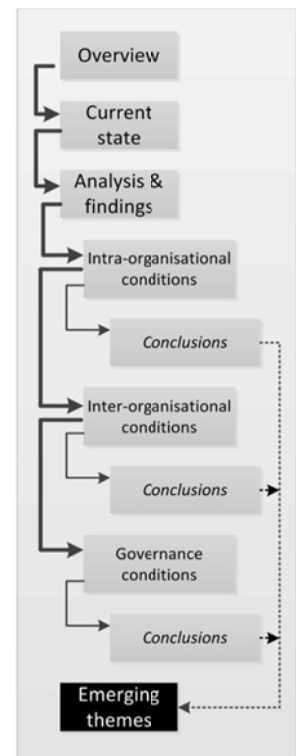
Theme 7: An effective ICT system across the chain is a necessary base for a co-innovation architecture

An effective ICT system across the chain is necessary for the establishment of the architecture of co-innovation with strategic partners (collaborative performance management system, information sharing, decision synchronisation, incentive alignment, integrated value chain processes and boundary

spanning roles). However, the alignment of vision and the development of trust and commitment between chain partners appeared to be pre-cursors for such a development to occur. In this chain, such a system was only partially developed and this was identified as a constraint on the chain's performance. However, there was evidence from other chains operated by the processor as well as their strategic plan for this chain of how the ICT system would be developed to provide real-time, transparent forecasting, ordering and performance information.

Theme 8: The alignment of business vision, values, strategy, business models, culture, processes and incentives appears critical to co-innovation

In this chain, the strategic suppliers shared a vision about creating high quality, innovative and nutritious plain label fresh vegetable products in an open, ethical and sustainable manner. Their business models were focused on creating the value that the vision demanded and so most had a very large part of their business committed to that end (70% – 90%). Therefore, they were not diverted by other unrelated major efforts to generate profit by participating in other chains. There were common mental models about how business should be done internally and externally and so there was a high degree of harmony and singleness of purpose⁹⁷ in the chain. Partners were willing to collaborate to innovate because they understood that they would benefit by arrangements to reimburse development costs in the short term and in the long term they would benefit from growth. They were also willing to be pro-active in autonomously innovating for the benefit of the whole chain because they understood that their own business would benefit both from their own effort and the similar autonomous effort of others. This alignment facilitated the trust and provided the incentives to co-innovate.



Theme 9: The integration of the executive and employee incentive systems with other human resource management systems supports co-innovation

The integration of the incentive system with other human resource management systems was more evident in the upstream end of the chain and this was largely due to the approach adopted by SaladCorp. As described in Sections 6.3.1.5 and 6.3.2.2 and 6.3.3.1, the incentive system is an integral part of both the contracting and the human resource management (HRM) systems, and both of these are focused on achieving strategy. The incentive system is integrated with organisational values and culture through the Character First[®] organisational development program where every manager

⁹⁷ This finding should not be taken as naïve or implying that this chain was a business utopia. Chain partners were shrewd, tough business people, but ultimately they shared very similar outlooks about how business should be done and when facing dilemmas in decision-making fell back on their shared values and common history to resolve issues.

has KPIs, supported by broad based incentives that motivate them to exhibit desired behaviour and achieve specified goals (Section 6.3.1.4). The incentive system is supported by two other human resource processes: firstly, professional development which provides both an incentive in itself and enabling skills for innovation/co-innovation, and secondly, recruitment which ensures the fit of new employees with the organisational values and culture which provide the framework for guiding work performance. Thus, the integration of incentive system with other human resource management processes is a critical component of driving co-innovation.

Conclusion

This chapter has provided a contrast to the case study in Chapter 4 where a market form of governance and seriously misaligned inter-organisational goals and incentives resulted in a focus on transactional exchanges and highly individualistic behaviour by the firms in the chain. In that instance, the motivational regime was a normative-gain frame, thus ensuring a long term oriented, norm-driven, risk-averse culture lacking in market and profit orientation. Consequently, by failing to deliver value to consumers it was losing market share, had poor performance and low profitability and was experiencing opportunistic behaviour by its key suppliers as they sought an outlet with better market access.

However, in this Chapter, despite a major asymmetry of power and capacity between the chain partners, this chain employs ‘contingent relationship management’ for its suppliers with multiple types of incentives and a situationally based mix of formal and relational contracting employed between firms. There is a high degree of alignment of vision, values, strategy and incentives between the retailer, the lead firm and the strategic farm suppliers resulting in informal co-innovation occurring to improve the chain’s performance. This has resulted in consistent high level growth in volume, turnover and profit sustained over many years.

Chapter 7, following, provides a cross-case discussion comparing and contrasting findings and seeking explanations for the data (Kohlbacher 2006; Yin 2003).

Chapter 7: Conclusions and implications

7.1 Introduction

The agrifood industry has been under increasing competitive pressure in recent decades due to globalisation and the liberalisation of world trade. This is creating a new competitive environment where the locus of competition is now whole chains and the core strategy is continuous innovation and co-innovation. The agrifood industry has been slow to adopt co-innovation and there has been little research on the dynamics of co-innovation in agrifood chains or the strategic issue of how employees, executives and firms are incentivised to co-innovate. This research sought to explore how incentivisation occurs in agrifood value chains.

A Literature Review indicated that to address the above question a multi-disciplinary investigation of multi-level systems with complex, interacting variables was required. This led to the development of a multi-level theoretical model of how firms and employees are incentivised to co-innovate in agrifood value chains (Figure 2.8). The model combines research on firm level incentives with an integrated model of individual incentivisation (Figure 2.4). A research project was then proposed with the aim of providing farmers and agrifood managers with an understanding of how to incentivise collaborative innovation in agrifood value chains, justified on the basis of its contribution to both theoretical research and practical agrifood value chain management. The research question posed was “How are firms, executives and employees incentivised to co-innovate in agrifood value chains?”

To answer this question, Chapter 3 proposed an exploratory research design based on the constructivist-interpretivist paradigm using a phenomenological strategy of inquiry and a case study research method. Data were gathered from one hundred and twenty eight semi-structured interviews with managers in three purposively selected, contrasting agrifood value chains in Australia and North America and analysis of a range of company and public documents. The investigation of case studies from two culturally closely related countries has expanded the international utility of the findings.

Chapters 4, 5 and 6 undertook qualitative content analysis using NVivo 8 computer software. The findings were presented highlighting the intra-organisational, inter-organisational and governance conditions that influence incentivisation in the three agrifood value chain cases with reference to the literature from which the theoretical model was developed.

The purpose of Chapter 7 is to review the conclusions and emerging themes from the preceding chapters to identify the distinct contribution of this research. The chapter begins with a review of the findings from the case studies in the context of the subsidiary research questions, followed by a consideration of the emerging themes from the case studies. Then the conclusions about the research problem are addressed, a revised conceptual framework presented and the contributions identified and

justified. The implications that these conclusions might have for theory, policy and practice are considered with research limitations and finally the implications for further research.

Some of the findings in this thesis contribute to knowledge about how to incentivate co-innovation by their application to the agrifood context, providing evidence of management practice which supports previous theoretical concepts or by developing new concepts not previously found in the literature.

The contributions that will be highlighted in this chapter can be summarised as:

- Extending the understanding of the concept of incentive alignment;
- Applying incentivisation theory to agrifood and Australia that has not previously been done;
- Developing a new model of agrifood value chain incentivisation;
- Using a cross-disciplinary approach to understand how co-innovation is incentivised in agrifood value chains;
- Applying the Theory of Planned Behavior, an individual behavioural construct, at the organisational level to explain the performance or non-performance of incentivised behaviour.

7.2 Conclusions from the case studies

The following two sub-sections review the findings from the case studies in the context of the subsidiary research questions using the sequence in which those questions were addressed in the case studies. Then, the emerging themes from each of the case studies are discussed.

7.2.1 Conclusions about research questions

The review of the extant literature produced a number of subsidiary research questions (SRQs 1 - 11). As explained in the Introduction to the Analysis and Findings of each case study in Chapters 4, 5 and 6, the SRQs were arranged in a different sequence to that in which they emerged from the Literature Review, providing a more logical sequence related to the Conceptual Model (Figure 2.8). Therefore, this discussion about the conclusions regarding the subsidiary research questions follows that structure, which is also reflected in the structure of Table 7.1 summarising the case study findings within the context of those questions.

Table 7.1: Summary of case study findings in the context of the subsidiary research questions

Subs Res Questions		CS 1: Heritage Co-Processed Meats	CS 2: Battel-Decloid Frozen Vegetables	CS 3: Greenfresh-SaladCorp Lettuce
1. Intra-organisational conditions affecting co-innovation				
a. <i>How are firms incentivised?</i> (SRQ 9 & 10)		<ul style="list-style-type: none"> Chain - misaligned economic incentives influenced by misaligned strategies & business models Incentives not purposefully managed due to lack of chain leadership Retailer – economic, normative & social incentives with motivations for capacity building, organisational learning & risk management Processor – economic with motivations of demand stability, exploiting core competencies & market access Pig Producers – economic with survival & resource motives 	<ul style="list-style-type: none"> Chain - misaligned economic incentives influenced by misaligned strategies Incentives not managed purposefully Retailer - economic incentives eliciting market power, efficiency & risk management motives Processor - economic with minor social incentives with strong motives for SCA, market access, leveraging capital & exploiting core competencies Veg suppliers – largely economic with some social incentives eliciting mainly goal attainment, pattern maintenance but also some integration & adaptability motives 	<ul style="list-style-type: none"> Chain - aligned strategies & incentives Incentives managed purposefully Retailer – largely economic with minor social incentives eliciting market power & efficiency motives Processor – economic with strong normative & social incentives eliciting SCA, supply stability, exploitation of core competency motives Lettuce suppliers - economic & growth incentives eliciting goal attainment, pattern maintenance & adaptability motives
b. <i>How are individual employees incentivised?</i> (SRQ 3)		<ul style="list-style-type: none"> Retailer - balanced incentive types with extrinsic, social & intrinsic incentives but some 'crowding out' by extrinsic incentives - Normative/Hedonic Motivational Frame Processor & farmers motivated by extrinsic (monetary) incentives only - Gain/Hedonic Motivational Frame 	<ul style="list-style-type: none"> Retailer – externally regulated economic incentives within a Gain/Hedonic Motivational Frame Processor – internalised balance of economic, social & intrinsic incentives – Gain/Normative Motivational Frame Veg farmers – mainly intrinsic & social with some economic incentives - Gain/Normative Motivational Frame 	<ul style="list-style-type: none"> Retailer – external regulated economic with some social & intrinsic incentives – Gain/Normative Motivational Frame Processor – internalised balance of economic, social & intrinsic incentives – Gain/Normative Motivational Frame Lettuce farmers – internalised balance of economic, social & intrinsic incentives – Gain/Normative Motivational Frame
c. <i>How are executives incentivised?</i> (SRQ 4)		<ul style="list-style-type: none"> Retailer - balanced incentive types - Normative/Hedonic Motivational Frame Upstream partners - motivated by extrinsic (monetary) incentives only - Gain/Hedonic Motivational Frame 	<ul style="list-style-type: none"> Retailer – extrinsic (inc. negative)/monetary reward Processor – internalised balance of economic, social & intrinsic incentives – Gain/Normative Motivational Frame Veg farmers – mainly intrinsic & social with some economic incentives - Gain/Normative Motivational Frame 	<ul style="list-style-type: none"> Retailer – more extrinsic/monetary reward Processor – internalised balance of economic, social & intrinsic incentives – Gain/Normative Motivational Frame Lettuce farmers – internalised balance of economic, social & intrinsic incentives – Gain/Normative Motivational Frame
d. <i>How do values, attitudes & norms influence incentivised motives?</i> (SRQ 11)		<ul style="list-style-type: none"> Misaligned organisational value systems Heritage Co has legacy values/norms & misaligned business model Important negative effects on strategy & business model 	<ul style="list-style-type: none"> Misaligned organisational value systems Processor – moderate enculturation of values; poorly designed & supported by HRM functions Important negative effects on strategy execution 	<ul style="list-style-type: none"> Value systems aligned with strategy & incentives Processor – Supplier value systems strongly aligned, enculturated, incentivised & supported by HRM processes Important positive effect on incentive implementation
2. Inter-organisational conditions affecting co-innovation				
(SRQ 1 & 2)		<ul style="list-style-type: none"> All conditions lacking or absent with inhibitive effects 	<ul style="list-style-type: none"> Low-moderate relational competence; moderate compatibility of cultures; low co-innovation architecture; low-moderate innovation competence Inhibiting effects 	<ul style="list-style-type: none"> High relational competence; high-moderate compatibility of cultures; moderate co-innovation architecture; high-moderate innovation competence Facilitating effects
3. Chain governance conditions affecting co-innovation				
<i>Use of contracts?</i> (SRQ 8)		<ul style="list-style-type: none"> Formal contracts, Common Law, industry norms 	<ul style="list-style-type: none"> Formal contracts, Common Law, industry norms 	<ul style="list-style-type: none"> Mix of formal, Common Law & relational contracts
e. <i>Use of power?</i> (SRQ 6)		<ul style="list-style-type: none"> Category 7 - opaque supplier dominance; Overcome by greater external power & low switching costs 	<ul style="list-style-type: none"> Category 2 - Asymmetric - buyer dominance with transparent, supply-side contestation; varying to 'Cat 5 - transparent supplier dominance' with climatic variation Application usually 'benevolent dictator' 	<ul style="list-style-type: none"> Category 6 – buyer-supplier inter-dependence Application varying from 'benevolent dictator' to 'collaborative leader'
f. <i>Role of chain leadership?</i> (SRQ 7)		<ul style="list-style-type: none"> Nil leadership 	<ul style="list-style-type: none"> Processor as transactional chain leader Suppliers are transactional followers 	<ul style="list-style-type: none"> Processor as transformative chain leader Strategic suppliers transformational followers

7.2.1.1 The intra-organisational conditions that influence incentives to co-innovate in agrifood value chains:

7.2.1.1.1 How are firms within agrifood value chains incentivised? (SRQ9 and SRQ10)

In the three case studies, ‘co-innovation’ varied across the three cases (Table 7.1). In CS1 none was identified, in CS2 two small, informally initiated projects were identified whilst in CS3 co-innovation, both formal and informal, was occurring on a continual basis. The lead firms employed a range of supplier incentivisation strategies from the price-based incentives under the near-market form of governance in CS1, to the misaligned, largely economic incentives under the modular governance of CS2 and the aligned, broad-based (multiple types), multi-level (chain, firm and individual) incentives in the hybrid relational governance of CS3. Thus, there appears to be an association between aligned, broad-based incentives at multiple levels of the value chain and co-innovativeness. To put it another way, employee and executive incentives and KPIs must be aligned with the firm’s incentives and KPIs which in turn contribute to the overall chain goals if co-innovation and high levels of chain performance are to be achieved. Further, the lead firm in CS3, SaladCorp, purposefully designs and continuously manages a mix of economic, normative and social incentives, tailored to accommodate the diversity of chain partners thus ensuring the achievement of their chain strategy. This is called “individualized consideration” by Defee (2007, pp. 134-5).

This association between the type of governance and the form of incentives is not new and is consistent with the model of governance developed in the Literature Review (Table 2.3) from Albers (2005); Grzeskowiak (2006), Gereffi, Humphrey and Sturgeon (2005) and Peterson, Wysocki and Harsh (2001), but these other models do not provide insights into the process by which this occurs. However, a number of authors have called for a multi-level approach to complex situations such as value chains (Agrawal & Tsay 2002; Capelli & Sherer 1991; Miner 2005; Rousseau & House 1994; Smith, Schneider & Dickson 2006). Frazier (1999) found that to control marketing channels “...a complex array of different tools-levers may be used...” (p. 229) which was confirmed by Gilliland (2003) who found that one hundred and seventy types of incentives in five categories were used in practice by high technology companies and that goals determined the specific mix of incentives used. Gilliland also suggested in his future research that the breadth (number of incentive employed) and depth (the different types of incentives employed) of governance mechanisms” (p. 65) was an important area of future research.

The validation session with CS3 – SaladCorp’s executive management group provided strong interpretive validation for the findings regarding their chain. So, combined with the research design tactics to increase internal validity and the support from other research publications, this appears to have conditional external validity for similar agrifood chains.

Hence, this thesis makes a contribution to that challenge with its finding that the use of aligned, purposefully managed⁹⁸, multiple types of incentives (identified in this thesis as ‘breadth’) at multiple levels (identified as ‘depth’) in these case study value chains appears to motivate co-innovative behaviour between firms.

7.2.1.1.2 How are individuals incentivised in agrifood chains? (SRQ3)

This study found that motivational frame theory (Lindenberg 2003; Lindenberg & Foss 2011) provided a useful lens for understanding how firms manage motivational culture. The evidence in these three cases was again one of contrast. In CS1 the Heritage Co had developed a normative/hedonic motivational frame whilst the processor and farm suppliers had a gain/hedonic frame (Section 4.3.1.5), so the misalignment between Heritage Co’s dominant normative ‘social benefit’ frame and the upstream focus on dominant monetary ‘gain’ without ethics (Lindenberg & Foss 2011) is an important consequence of the misaligned firm level goals and incentives. There was no alignment of incentives between chain partners because there was no shared strategy (Sections 4.3.1.5 and 4.3.2.5). Heritage Co had a balance of extrinsic, social and intrinsic types of incentives operating, which could be called ‘broadly-based’ incentivisation, whilst the processor and pig farmers employed purely pecuniary extrinsic incentives (Table 4.4), hence ‘narrowly-based’ incentivisation. Purposeful management of the incentive system only occurred to a moderate degree within the retailer, Heritage Co.

In CS2, again there was no chain level approach to managing strategy (Tables 5.1 and 5.6) or incentives (Section 5.3.2.5). Incentives were only aligned between chain partners where they were associated with exchange relationship KPIs (e.g. DIFOT, NPD, volume growth). The purposeful management of incentive systems was only internal and involved the performance of individuals against the KPIs plus other unrelated organisational goals. Notwithstanding this, the firms at each stage of the chain had an emphasis on economic goals and were motivating their staff to achieve those goals using a dominant ‘gain frame’ emphasising personal material gain (Lindenberg & Foss 2011), although with varying emphasis on the types and nature of extrinsic incentives being employed (Sections 5.2.1; 5.2.2 and 5.3.1.1).

CS3, on the other hand, had a high level of alignment of strategy, culture and tacit coordination of incentives by the lead firm SaladCorp (Table 6.5). The chain strategy determined partner strategies and the incentives to motivate partners to achieve shared goals. Within each partner firm, the individual firm strategies, executive and employee KPIs and incentives were designed to focus executive effort on achieving those outcomes, i.e. they were ‘aligned’. SaladCorp purposefully manage the balance of the gain and normative goal frames both within their firm and with strategic

⁹⁸ Refer Theme 7.2.2.4

suppliers. They achieve this by firstly, providing many of the cognitive supports outlined in Lindenberg and Foss (2011); secondly, managing non-monetary extrinsic (introjection) and social incentives (identification and integration) to maintain the fragile normative frame; and finally, tailoring a range of individualised extrinsic and social incentives to motivate individual behaviours to achieve the chain's goals. The latter tactic, is consistent with Miner's (2005) call for individualised incentivisation and more recently Rizzotti's (2007) finding that a multi-dimensional incentive system had superior performance in a multi-tasking situation for individuals. The analysis in Table 6.5 indicates that SaladCorp's approach has developed a high degree of the more internalised forms of motivation; identification, integration and intrinsic motivation outlined in the integrated model of individual motivation derived in Figure 2.4. As broadly defined innovation and co-innovation were explicitly part of the incentive systems at all levels in CS3 and co-innovation is high, it appears that the employment of multiple types of incentives, tailored to suit individuals and purposefully managed to achieve chain strategies, is associated with the high level of co-innovation that has occurred. This is consistent with a number of studies (Eisenberg 1999; Gottschalg & Zollo 2007; Sauermann, Henry 2006, 2008; Simatupang & Sridharan 2007; Soosay, Hyland & Ferrer 2008) that have proposed incentivisation as a pre-cursor of collaboration and innovation.

These findings provide possibly the first support in the agrifood industry for Lindenberg and Foss' (2011) recent theoretical extension of their widely acclaimed Gain Frame Theory as a tool of governance for motivating "joint production" (p. 502), which appears to incorporate 'collaboration' and 'co-innovation' as defined in this thesis. Further, this study also appeared to provide support for Lindenberg's (2008) concern about the fragility of the gain/normative frame, particularly the displacement of the normative background frame by the more fundamental and powerful 'hedonic' frame leading to selfish small group or individualistic behaviour that undermines joint achievement of goals as occurred in CS1 and, in part, CS2. Finally, this study supports the notion in the theoretical model of the need for individualised, purposefully designed and managed mixes of types of incentives to achieve complex outcomes.

The validation sessions with executive management groups in the lead firms of CS2 and CS3 provided strong interpretive validation for the findings regarding their chains. Hence, there appears to be strong internal validity and with the supporting literature this appears to have strong, conditional external validity for similar agrifood chains.

Hence, this thesis makes a contribution to that challenge with its finding that the use of aligned, purposefully managed⁹⁹, multiple types of incentives (at multiple levels (in these case study value chains appears to motivate co-innovative behaviour between firms.

⁹⁹ Refer Theme 7.2.2.4

7.2.1.1.3 How are executives incentivised? (SRQ4)

Investigating executive incentivisation proved problematic due to the high level of confidentiality involved despite the confidentiality agreements entered into prior to data collection (Sections 3.5.3.5.3; 3.5.7. and Appendices 5A and 5B). This resulted in a variable quality of data being provided. Further, the numbers of senior executives in each case study were quite low, typically being no more than six individuals, so inferences were difficult. Notwithstanding these limitations, two conclusions can be drawn about executive incentivisation in these agrifood chains.

Firstly, in these cases executive incentivisation was similar to the overall company approach. That is, where the overall approach employed mainly extrinsic incentives then the executive incentive system was extrinsically oriented and where the overall approach in firms used multiple types of incentives then executives also had broad-based incentives.

Secondly, executive interview data showed that they were more broadly motivated than might have been expected from the literature which focuses heavily on pecuniary incentives. Many of the executives interviewed find the "...passion for the business is what keeps me in it..." and is what "...gets me up in the morning..." (Decloid Senior Executive C60) (Section 5.3.1.3). This is in contrast to the emphasis on extrinsic incentives, particularly monetary rewards and stock options in Devers et al (2007), Tosi et al (2000) and Bebachuk and Fried (2006). Whilst this difference may have been due to senior executives attempting to show themselves in a good light, the observed enthusiasm taken in these aspects of their job may also have been due to the good fit of these senior executives with their organisation's values. If the latter is so, then this may be linked to the values orientation of the lead firms in each of the case studies.

7.2.1.1.4 How do values, attitudes and norms of firms in agrifood chains influence the enactment of incentivised motives? (SRQ11)

The case study value chains indicate the important influence of values, attitudes and norms (hereinafter 'values') on the enactment of motives in distinctly different ways for individuals:

- CS1 showed the strong constraining influence on Heritage Co staff of constitutionally mandated values and, in Processed Meats, the effects of incentivisation without a values framework.
- In CS2, the retailer Battel similarly demonstrated the supportive effect of expedient values on strong extrinsic incentives (positive and negative) focusing behaviour on profitability alone.
- In CS3 the effect of broad-based incentivisation with a strong, well-enculturated value system in generating broad-based ethical but profit-centred behaviour was identified.

So in these instances it appears that values played a moderating role between incentives and individual behaviour which is consistent with Fishbein and Ajzen's (2010) Theory of Planned

Behaviour (TPB). However, it is the Literature Review's proposition (Section 2.6) that the TPB might influence aggregate or firm level collaborative behaviour which is a potentially important extension of a well-accepted theory. In CS1, the prevailing conservative ethic was influencing Heritage Co's corporate response to the need to re-align its business model with the modern consumer conceptions of value (Section 4.2.2 and Table 4.1) and to its approach to chain leadership (Section 4.3.3.3). Even though many managers had experience in the other major retailers and were explicitly aware of Heritage Co's strategic constraints, the executive group were not willing to challenge that ethic. Similarly, in CS2 Decloid managers were operating in a culture where the incentivisation for innovation was poorly designed and managed (Section 5.3.1.2) and fundamental concepts such as their definition of innovation and supplier relationship management strategy were unclear (Section 5.3.1.1). They knew the company was in a very difficult and marginally profitable relationship with Battel but there was no evidence that the executive group were willing to expand their business with Battel's major competitor for their existing products. However, in CS3, where values and multiple types of incentives explicitly supported individual experimentation, ethical behaviour, and autonomous decision-making, broad-based innovative and co-innovative behaviour occurred frequently. Therefore, in terms of Fishbein and Ajzen's (2010) model (Figure 2.6):

- The TPB 'background factors' in the cases in this study varied from constraining in CS1 to facilitating in CS3;
- The TPB 'behavioural and normative beliefs' ranged from conservative, change resistant in CS1 to supportive of experimentation in CS3;
- The TPB 'actual control beliefs' (containing incentives) that intervene between intention and behaviour (Icek Ajzen 2009, pers. comm., 17 September), range from no incentivisation in CS1 to low-moderate incentivisation in CS2 to high incentivisation in CS3.

Therefore, it appears that in these cases the values, attitudes and norms do indeed play a moderating role in the individual enactment of motives oriented towards co-innovation. The TPB may also provide an explanation of the mechanism of this variance in firm willingness to co-innovate (Section 2.13). In CS3, there is a prevailing cultural consensus supportive of the formal innovation and customer relationship management systems both within the retailer and the processor, so firms and their teams are encouraged to be innovative internally and to collaborate with other chain partners to innovate. Indeed, group attitudes are not only favourable towards autonomous decision-making, experimentation and accountability but create social pressure to act on those cultural beliefs and convert intention into action. The support of these cultural beliefs and intentions by the formal incentive and human resource management systems appears to be the key to this conversion of co-innovative intention into co-innovative behaviour (Ajzen, Icek 2006; Fishbein & Ajzen 2010). In CS1 the converse is true, where the prevailing culture is one of minimising risk, cost and experimentation resulting in the acknowledged 'follower culture' and no co-innovation. Similarly, in CS2 the formal

strategy and culture are notionally innovative but where the incentives are focused on group performance, the ‘actual’ organisational culture is not very supportive of innovation and business processes frequently present barriers and dis-incentives for innovation/co-innovation.

The validation session with CS3 – SaladCorp’s executive management group provided strong interpretive validation for this finding for their perspective and management of incentivisation in their chain. Whilst the research design in this study focused on increasing internal validity, the limited support from other research publications suggests that external validity may be low without further research. However, this finding is believed to be a new application of the TPB theory at an aggregate level in the agrifood industry.

7.2.1.2 Inter-organisational conditions that influence collaborative innovation in agrifood value chains – SRQ1 and SRQ2:

The Literature Review identified a number of inter-organisational conditions that influence incentives and the structure and processes of co-innovation: relational competence, compatible culture and climate, co-innovation architecture and innovation competence (Appendix 2). In the case studies these four conditions appeared to be positively associated with collaboration and co-innovation; in CS1 they were generally absent or low, in CS2 they were generally low or low to moderate and in CS3 high to very high or moderate (Appendix 7). This assessment of CS1 is consistent with what is expected in a market form of governance (Table 2.3) because exchanges are discrete and have no ongoing relationships, so the facilitating inter-organisational conditions are largely lacking and co-innovation is entirely absent.

Similarly, CS2 generally has low or low to moderate ratings because governance is based on contract specifications where coordination involves price bargaining, relationships are reliant on formal contracting and coordination is basic. In particular, in CS2 there is a lack of shared strategic direction, the key relational elements are low to moderate and cultures lack compatibility to the degree that the basic capacity to co-innovate is absent.

However, the inter-organisational conditions in CS3 are markedly different. Most of the key components are rated either high to very high or moderate (Table 6.6; Sections 6.3.1.2; 6.3.2.1 and 6.3.2.5). In CS3 the lead firm, SaladCorp, purposefully managed the formation of partner relationships to ensure the compatibility of cultures, values and vision. In this case, the Greenfresh and SaladCorp senior managers’ mental models of ethics, innovation and collaboration played critical roles in developing the co-innovative attributes of the chain, which is consistent with that proposed by Gellynck, Kuhne and Weaver (2011) and West (2002). Hence, SaladCorp played the key role in providing co-innovation leadership and in the development of the structure and processes of co-innovation consistent with the notion of a ‘lead firm’ (Altenburg 2006) thus demonstrating the

condition of ‘co-innovation competence’, an extension of Prahalad and Hamel’s (1990, p. 81) “innovation competence”.

These findings suggest that the high levels of inter-organisational conditions identified were associated with high performance and co-innovativeness (CS3) whilst their absence was associated with low performance and low co-innovativeness in (CS1 and CS2). Whilst interpretive validity appears high and these findings are consistent with the Literature Review (Section 2.7 and Appendix 2) they may require further validation for construct validity before they can be externally generalised.

7.2.1.3 Chain governance conditions that influence incentives to co-innovate in agrifood value chains:

The chain governance variables identified in the Literature Review as possibly affecting co-innovation incentives were the manner in which contracts, power and leadership are implemented.

7.2.1.3.1 The use of contracts – SRQ8:

In this study CS1 was operating under a market form of governance where discrete transactions occurred as described by governance theorists such as Williamson (1979). However, as Macneil (1978) and Gundlach (1994) remind us, real commercial life is considerably more complex than theory. So in CS1, discrete exchange occurred with little personal engagement and linguistic communications had limited content, involved a low degree of social exchange, little reliance on past or future transactions and involved an easily commoditised product with a monetised relationship. However, consistent with Macneil’s (1978, pp. 856-7) admonition about “real life”, in CS1 social exchange frequently modified discrete transactions from that described in the theoretical model but was still consistent with the notion of ‘discrete’ exchange. However, as Macneil (1978, p. 856) says: “When so modified, the construct [classical contract law] will no longer represent an entirely discrete transaction, but will retain substantial discreteness while nevertheless remaining relatively realistic.” Thus, whilst the CS1 exchanges were essentially consistent with the market form of governance predicted in the governance model (Table 2.3) using price-based incentives, they still involved a degree of social complexity perhaps not expected from that model.

CS2’s specifications contract form of governance had more reliance on formal contracts using explicit price/quality/volume conditions as incentive mechanisms. However, the longer production cycle and seasonality of vegetables compared to pig meat¹⁰⁰ meant that Decloid used annual contracts with its vegetable suppliers and Battel used two year contracts with Decloid to enable planning. Given Battel’s low commitment to Decloid and the enculturated opportunism of Decloid’s vegetable

¹⁰⁰ The pig production cycle is four months and continuous whilst vegetables range from a 4 - 10 month growth period, generally of one crop per year with inherent perishability. Thus, contracts for spot supply of live pigs could be a matter of days or up to four months for one generation of pigs, whilst the minimum term of contracts for vegetables, with crop preparation might require 6 – 14 months.

suppliers, there were minimal relational elements beyond familiarity with the actors in this chain. Battel was quite willing to look overseas for cheaper spot market frozen vegetables, and Decloid was often willing to cancel contracts with its suppliers if an over-supply situation existed. Similarly, the vegetable growers routinely shopped around processors for contracts that suited them.

On the other hand CS3, under a relational form of governance, used contracts differently (Section 6.3.3.1). In this chain a mix of formal and relational contracting is practised, but even in the formal contracts there are tacit industry norms which allow adaptation to cope with the environmental variation inherent in the industry. The reciprocity involved in this is an important part of developing the trust which is so important in the relational contracts that govern most aspects of longer term supply relationships. Where, for instance, innovation or co-innovation is contractually initiated, the contracts will not be highly prescriptive to cater for flexibility in implementation and will not involve monetary recompense for the project costs because of the informal expectation of future profits from that innovation. However, there is frequently a tacit expectation that recompense will be forthcoming in terms of arrangements for a period of higher prices or an extension of existing markets, the delivery of which will further build the trust in the relationship. This is consistent with Macneil's (1978, pp. 865-73) foundational description of 'relational' or 'neoclassical' contracting. So, the role of relational contracting and the trust and communication that occurs as a result of the long term relationship and the apparent co-innovativeness occurring in CS3 is consistent with that proposed by Blomqvist and Levy (2006) and observed by researchers in other industries (Mesquita & Lazzarini 2005; Rindfleisch & Moorman 2001). Of note though, is SaladCorp's situational use of incentives and contracts on the basis of organisational fit to tacitly develop 'strategic' or 'arms-length' suppliers thus providing operational flexibility, better risk management and gain compliance to achieve their goals (Section 6.3.2.5). This is consistent with Smith's (2006) proposition for what could be termed 'situational channel leadership'.

Therefore, it appears that a hybrid mix of formal and relational contracting was associated with the development of co-innovative behaviour. However, in contrast to the inherently static notion of governance in Table 2.3, governance appears dynamic, progressing and regressing on the basis of performance and organisational fit. Due to strong internal validity and cognisance with a large body of economic and contract literature, this finding appears to have external validity for agrifood chains and suggests an extension to the existing knowledge about the outcomes of relational contracting.

7.2.1.3.2 The use of power - SRQ6:

Three different power regimes were operating across these three case studies. CS1 was an interesting case because Heritage Co was the largest firm in the chain and had more capacity to act than the other chain partners but was reluctant to use that power for internal reasons (Section 4.3.3.2). However, the upstream partners gave little credence to Heritage Co and became suppliers to a more powerful

competitor; thus power may be ineffectual if switching costs are low. This situation appears similar to Cox et al's (2002) 'Category 7 – opaque supplier dominance' where suppliers have the power because there are other markets but the buyer cannot determine how much that power is being exploited, hence the opacity.

The power dynamic in CS2 equated to Cox et al's (2002) 'Category 2 - asymmetric - buyer dominance with transparent, supply-side contestation'. In CS2, coercive power was intermittently applied through the contracts between Battel and Decloid as well as Decloid and its farm suppliers. Implicit and explicit threats were made about the continuation of the relationship that heightened the coercive pressure. However, in times of drought or national vegetable shortages, the locus of power moved to Cox et al's (2002) 'Category 5 –transparent supplier dominance. The regime is 'transparent' because the buyers' search costs are low so they are able to know that the suppliers are taking advantage of the situation and can calculate the degree of that advantage. This variation in the locus of power caused periodic price increases and changes to the conditions of supply, resulting in fluctuating costs of production and potential supply volume for the processor and a 'feast or famine' situation for farm incomes. The use of coercive power and the inconsistent nature of the ensuing exchange relationship led to antagonism and opportunism by vegetable suppliers.

In CS3 the power regime is Cox et al's (2002) 'Category 6 – buyer-supplier inter-dependence'. In this typology, whilst the buyer's search costs are low, there are few suitable suppliers; in CS3 only five or six were suitable as 'strategic vendors' out of 450 fresh food suppliers. Equally, from the suppliers' point of view, there are few suitable buyers, in this case only two national retailers. Both Greenfresh and SaladCorp used tough formal contracts and relational contracts to generate the high level of supply performance. But in contrast to CS2, both the larger firms had a mental model of supplier management that was much more flexible, less reliant on the exercise of power and tolerant of some variation in supply to achieve better performance and based on long term commitment. SaladCorp aims to manage the whole chain and "create value" for all stakeholders (SaladCorp Executive B11) (Section 5.3.3.3). SaladCorp's leadership, multi-level boundary-spanning and benefit-sharing generated greater trust and commitment from suppliers. So, this approach to chain management is much more relational and long-term oriented than the other two chains and has resulted in a higher level of collaboration, autonomous adaptation and co-innovativeness for the benefit of all chain participants, making them an industry leader in innovative private label products.

This finding supports Ireland and Webb's (2007) propositions that effective boundary-spanning and provision of organisational justice facilitates trust development and improves competitiveness. It is also consistent with Fawcett, Magnan and McCarter's (2008, p. 45) contention that: "People are the key to successful collaborative innovation" and their emphasis on capacity-building and getting the right people involved. Further, Soosay, Hyland and Ferrer (2008) found that collaborative activity such as standardising operations, joint planning with partners, shared knowledge, common processes,

co-investment and synchronising with customers and suppliers “...removes barriers to communication and learning, and enhances the opportunity to innovate either individually or jointly” (p. 166). These are all key strategies used by Greenfresh and SaladCorp.

Therefore, in this research there appears to be strong internal validity for the findings that: 1) opportunistic, coercive or inconsistent use of power is not being associated with co-innovativeness due to the disincentives for collaboration, and that 2) how power is used to coordinate the chain, rather than its locus or quantum, determines whether it has a positive or negative effect on co-innovativeness. The strong literature support for these findings suggests that there is a strong external validity for other agrifood chains.

7.2.1.3.3 The role of chain leadership - SRQ7:

In this study, the nature of chain leadership varied considerably across the three case studies. Defee (2007, p. 110) has proposed one of the few typologies of supply chain leadership and followership, describing both on a continuum from transformational to transactional leadership. In CS1 there was no leadership being exercised because the chain was operating almost as a pure market.

In CS2, no leadership was provided by Battel, as it relied on its coercive power. However, transformational leadership was intermittently exercised by Decloid in times of supply excess (i.e. the locus of power shifted to the processor) but when frustrated by the transactional followership response or when the vegetable supply cycle shifted to shortage (i.e. the locus of power shifted to the growers) Decloid shifted back to being a transactional leader, that is, price/power focused. Thus, because price and contracted volume were the main incentives, the shifting locus of power resulted in a changing approach to the management of incentives. When supply was short, prices were increased and growers could negotiate greater individual contract volumes and better conditions (incentives). However, when there was an over-supply, Decloid was able to reduce prices and volumes and gain advantageous changes in the contracted conditions of supply. This amounted to a form of ‘situational leadership’ depending on the market circumstances, a contrast to the more consistent ‘values-based leadership’ employed by SaladCorp in CS3. Decloid had little credibility with growers and to some degree ultimately every situation was reduced to an exercise of power by one of the partners. This could be classed as a “mismatched supply chain” in Defee’s (2007, pp. 110-1) typology.

In CS3 both Greenfresh and SaladCorp were exercising chain leadership, but in different and appropriate ways, and their strategic suppliers were acting in a manner consistent with transformational followership. Greenfresh was playing a ‘challenging’ role to achieve the level of innovation it required whilst SaladCorp played the major transforming and coordinating leadership role in the chain. Sections 6.3.3.3 and 6.3.3.4 illustrate how SaladCorp demonstrates inspiration, intellectual stimulation and individualised consideration, that is, Defee’s (2007) concept of transformational chain leadership.

The differences in the way SaladCorp exercise their transformational leadership compared to Decloid (CS2) are threefold; firstly, it is values-based and incorporates vision and inspiration, secondly, it is consistent and unwavering, even in the face of sustaining substantial financial loss to maintain their values and, thirdly, they have selected from amongst all their followers those who are or want to be transformational and these have become their strategic suppliers. It is these characteristics that impressed all the growers interviewed and inspired several to become strategic suppliers. So this could be classed as a 'transformational supply chain network' in Defee's (2007) typology. By comparison, with regard to the first two of these aspects, Decloid have adopted a situational approach depending on their power hegemony and the demands of the moment from Battel. They lack consistent inspirational vision, strategies and leadership at an operational level and their values are inconsistently applied. Further, they have failed to select from amongst their two hundred and forty growers those with the capacity to be strategic transformational suppliers as a focus for relationship development. It is this inconsistency that has resulted in negative and even antagonistic behaviours by suppliers.

Therefore, it appears there is strong internal support in all three cases for how leadership, incorporating the use of power, vision and values, interacts with incentives. Where leadership uses coercive power it has a negative effect on supplier incentives due to the negative effects on margin, risk and independence (CS2) and where it is based on inspirational, collaborative, benefit-sharing and development-oriented relationships then it has positive effects on the incentivisation of suppliers (CS3).

7.2.1.4 Summary of the research findings

Section 7.2 commenced with Table 7.1 outlining the findings for each case study. The subsequent sub-sections have provided a cross-case analysis which answered the subsidiary research questions. In drawing this section to a close, it may be useful to summarise those findings (Table 7.2) before proceeding to discuss the themes that have emerged from this research.

Table 7.2: Summary of the research findings

Subs Res Questions	Research findings
1. Intra-organisational conditions affecting co-innovation	
<i>How are firms incentivised?</i> (SRQ 9 & 10)	<ul style="list-style-type: none"> • The form of governance largely determines the form of incentives. Hybrid or 'relational' governance enables a dynamic, situational use of multiple types of incentives; • Motivating firms requires multiple types (broad-based) of incentives with aligned individual incentives to facilitate co-innovation; • "Individualised consideration" or purposeful design and continuous management of a mix of economic, normative and social incentives, tailored to accommodate the diverse needs/goals of chain partners incentivises chain-oriented behaviours;
<i>How are individual employees incentivised?</i> (SRQ 3)	<ul style="list-style-type: none"> • Motivational frame theory (Lindenberg 2003; Lindenberg & Foss 2011) has utility for how firms manage motivational culture. It requires <ul style="list-style-type: none"> ○ Provision of cognitive supports; ○ Managing non-monetary extrinsic (introjection) and social incentives (identification and integration) to maintain the fragile normative frame; ○ Tailoring a range of individualised extrinsic and social incentives to motivate individual behaviours to achieve the chain's goals. • The employment of multiple types of incentives, tailored to suit individuals and purposefully managed to achieve chain strategies, is associated with the high level of co-innovation; • Alignment of strategy, culture and tacit coordination of incentives across the chain by the lead firm;
<i>How are executives incentivised?</i> (SRQ 4)	<ul style="list-style-type: none"> • Executive incentivisation was similar to the overall company approach; • Executives appear to be more broadly motivated than just extrinsic incentives as suggested by the literature;
<i>How do values, attitudes & norms influence incentivised motives?</i> (SRQ 11)	<ul style="list-style-type: none"> • Values, attitudes and norms play a moderating role in the individual enactment of motives oriented towards co-innovation; • Values played a moderating role between incentives and individual behaviour consistent with Fishbein and Ajzen's (2010) Theory of Planned Behaviour (TPB); • The TPB may provide an explanation of the mechanism of the variance in firm willingness (group level) to co-innovate;
2. Inter-organisational conditions affecting co-innovation	
(SRQ 1 & 2)	<ul style="list-style-type: none"> • High levels of the inter-organisational conditions identified in the literature (relational competence, compatible culture and climate, co-innovation architecture and innovation competence) were associated with high performance and co-innovativeness whilst their absence was associated with low performance and low co-innovativeness;
3. Chain governance conditions affecting co-innovation	
<i>Use of contracts?</i> (SRQ 8)	<ul style="list-style-type: none"> • A hybrid of formal and relational contracting was associated with the development of co-innovative behaviour;
<i>Use of power?</i> (SRQ 6)	<ul style="list-style-type: none"> • Opportunistic, coercive or inconsistent use of power is not associated with co-innovativeness due to the disincentives for collaboration; • How power is used to coordinate the chain, rather than its locus or quantum, determines whether it has a positive or negative effect on co-innovativeness;
<i>Role of chain leadership?</i> (SRQ 7)	<ul style="list-style-type: none"> • Leadership, incorporating the use of power, vision and values, interacts with incentives to facilitate co-innovation: <ul style="list-style-type: none"> ○ Where leadership uses coercive power it has a negative effect on supplier incentives due to the negative effects on margin, risk and independence; ○ Where it is based on inspirational, collaborative, benefit-sharing and development-oriented relationships then it has positive effects on the incentivisation of suppliers.

7.2.2 Conclusions about the emerging themes

Following Yin's (2003) advice, the development of general hypotheses about chain behaviour is inappropriate. However, it is worth noting that these are three contrasting, in-depth investigations using a convergent interviewing technique that has been found to have a high degree of utility in this type of strategic management research (Dick 1999; Jepsen & Rodwell 2008; Riege & Nair 2004; Williams & Lewis 2005). It compares for differences and similarities, employs multiple sources of data, considers outliers, follows up surprise results, validates and triangulates multiple forms of data thus providing evidence of both the effect and the consequences of the case study variables (Sections 3.5.3.4 and 3.5.3.5). Further, the research methodology employs a comprehensive, systematic approach to addressing the case study limitations relating to construct validity, internal validity, external validity and reliability (Table 3.6). Thus, it appears that this research has a high level of internal validity and sufficient external validity and reliability to make analytic generalisations under limited conditions and case-to-case transfers where there are comparable conditions. This would be in keeping with the pragmatic views of many qualitative researchers (Eisenhardt 1989; Firestone 1993; Greene 1994; Janesick 1994; Mayring 2007; Miles & Huberman 1994; Whittemore, Chase & Mandle 2001; Yin 2003). Hence, it is believed that the findings here extend the existing knowledge base in a comprehensible manner showing potential cause and effect with internal consistency.

Case study chapters 4 to 6 each concluded with a section identifying the 'emerging themes'. This subsection draws together the emerging themes in Table 7.3 and discusses those that address the research problem. Related themes appear on the one line, and where two or more case studies have a related theme it has been concluded that these are 'themes that address the research problem'. These appear in the right hand column in that table. Seven themes have been identified and numbered sequentially and discussed consecutively in the following paragraphs.

Table 7.3: Summary of case study themes^{***}

CS 1: Heritage Co-Processed Meats	CS 2: Battel-Decloid Froz Veg	CS 3: Greenfresh-SaladCorp	Emergent Cross-case Themes Relevant to the Research Problem
T1: The lack of strategic alignment across the chain inhibits co-innovation	T6: The lack of alignment of strategy, culture & values across the chain reduces co-innovation	T8: The alignment of business vision, values, strategy, business models, culture, processes & incentives appears critical to co-innovation	The lack of alignment of strategy, culture, values & incentives across the chain reduces co-innovation
T2: The lack of a shared business model (mental model) as to how value is created for consumers, customers & shareholders constrains co-innovation	T1: Mental models drive governance, incentivisation & innovation	T1: Mental models drive governance & incentivisation at all levels of the chain	Mental models drive governance, incentivisation & innovation
T7: Different types of incentives need to be used to achieve complex firm & individual behaviours	T5: 'One dimensional' incentive strategies may be inadequate to motivate co-innovative behaviour	T3: Multiple types of incentives are employed at individual, firm & chain levels	Multiple types of incentives need to be used at individual, firm & chain levels to achieve complex firm & individual behaviours
T6: A shared, purposefully designed & managed incentive system aligned across the chain, firm & individual levels is necessary to be co-innovative	T4: If incentive systems are not aligned with other business processes they will be less effective	T4: Incentives are purposefully designed & individually managed across the whole chain	A shared, purposefully designed & managed incentive system aligned across the chain, firm & individual levels is necessary to be co-innovative
		T9: The integration of the executive & employee incentive systems with other human resource management systems supports co-innovation	
	T2: Without a shared vision chain partners will be driven by their own motivators to pursue their own vision		
		T2: The situational use of incentives & contracts to govern chain relationships – 'contingent relationship management'	
T3: Defensive, risk averse, self-interested cultures will not create incentives for co-innovation			
	T3: The mental models about incentives in the most powerful firm are a very important influence in the design of firm incentivisation systems		
	T7: Transactional chain leadership & followership appears to constrain co-innovation	T5: Transformational chain leadership & followership facilitates co-innovative competence	Transformational chain leadership & followership facilitates co-innovative competence
T8: The behaviour of firms & individuals can be mediated by strong organisational values		T6: Individual beliefs & values & organisational norms are important determinants of a firm's capacity to implement co-innovation	Individual beliefs & values & organisational norms are important determinants of a firm's capacity to implement co-innovation
T4: The absence of any of the co-innovation facilitators inhibits co-innovation	T8: The absence of the conditions that facilitate co-innovation will inhibit its operation	T7: An effective ICT system across the chain is a necessary base for co-innovation structure & processes	The co-innovation conditions facilitate co-innovation & their absence inhibits the phenomenon
T5: Power alone is insufficient to manage a chain			

Note: ** = Theme numbers refer to their original number in the relevant case study chapter

7.2.2.1 The lack of alignment of strategy, culture, values and incentives across the chain reduces co-innovation

This research has found that where there was no alignment of strategy or shared logic of value creation (business model) there was no coordinated effort because the chain partners were driven by their own motives to achieve their own idiosyncratic visions (Sections 4.3.1.5 and 5.3.1.5). In CS1, a lack of strategy, incompatibility between ethical, socially responsible and profit-oriented cultures with expedient values resulted in the partners adopting different approaches to solving a shared problem, insufficient demand for fresh pork. The lack of incentives for upstream suppliers to stay in that chain and low switching costs prevailed over greater power and they moved into a competitor's supply chain.

Similarly in CS2, there was a lack of shared strategy and logic of value creation because Battel pursued a lowest price, private label strategy whilst Decloid employed a premium brand strategy. Fundamentally, their relationship was based on Decloid's need for a large volume market and their desire to exploit their brands rather than shared strategy. The differences in the cultures and values across the chain allowed them to mask their real strategic intentions (Section 5.3.1.5). Consequently, little or no co-innovation was occurring because there was little willingness to invest and take risk.

However, in CS3 there was a shared goal to create high quality, innovative and nutritious private label fresh vegetable products with a shared cultural and values-based approach, in an open, ethical and sustainable manner. Here relationships focused on long-term, chain and market-oriented approaches with recognition of both the direct economic incentives and tacit future benefits and/or obligations for past assistance or good performance, so partners were willing to take risks, innovate internally and co-innovate to grow the market as well as their market share. The incentives at a chain and firm level were aligned with internal executive and employee incentives to link individual internal and external behaviour with the chain's goals. Further though, their internal practices and beliefs were aligned with the value creation model (Section 6.3.1.5) and this was extended to their careful choice of strategic partners with whom to develop co-innovation (Section 6.3.2.5). This was in contrast to CS2 and CS1 where there was a far less discriminating approach to forming partnerships. So, there appears to be strong internal support in these three case studies for the finding of the need for value chains to align strategy, culture, values and incentives for co-innovation.

In other industries, a range of authors have proposed that strategic alignment (Gattorna, Ogulin & Reynolds 2003; Hammer 2006; Kampstra, Ashayeri & Gattorna 2006) and, in particular, incentive alignment (Heide 1994; Narayanan & Raman 2004; Simatupang & Sridharan 2007) are essential elements of supply chain management. More recently, in an empirical study of 196 US manufacturing firms, Kroes and Ghosh (2010) found a strong association between strategic alignment of chain outsourcing drivers and business performance. Bolton and Dwyer (2003) also highlight the

importance of aligning internal practices and beliefs with the value proposition. Whilst all these studies identify different constructs that need to be aligned, there is considerable agreement that the alignment of strategies improves performance, including innovation. Thus, they provide support for the findings in this research that where there was no alignment of strategy culture, values or shared logic of value creation (business model) there was no coordinated effort because the chain partners were driven by their own motives to achieve their own idiosyncratic visions.

Accordingly the high internal validity and strong research literature support in other industries suggests that conditional external generalisation to similar agrifood chains could be justified.

7.2.2.2 Mental models influence governance, culture, innovation and incentivisation

Company executives are critically important to the way a value chain develops due to the mental models that they individually and collectively endorse as policy because these determine the executive style of management, particularly with regard to strategy, values, culture and leadership of their individual firms and the chain (Elenkov, Judge & Wright 2005; Gimeno, J., Dial & Sengul 2001b). In this investigation, a lead firm's choice of the type of governance, the nature of organisational values and culture as well as their concepts of innovation and incentivisation, are all strongly influenced by the senior executives, particularly the CEO. The linkage between governance and co-innovation is particularly pertinent for this project because the form of governance determines the nature of a number of parameters important for the occurrence of co-innovation (Table 2.3). It appears that only governance that enables longer term relationships, coordination control, the ability to negotiate high complexity responsive performance by suppliers and provide the multi-faceted behavioural incentives to motivate them to engage in cooperative adaptation will enable co-innovation. These attributes are only found in the mid-region of the governance continuum; those associated primarily with relational hybrid forms of governance but also perhaps with some forms of specifications contract and equity-based alliance governance.

In this study, CEOs played a critical part in the way their company and the chain operated; in CS1 it was the shared mental model held by management of their constitutional mandate for social benefit that drove the company whilst the 'survive at all costs' approach of the owners of Processed Meats resulted in expediency and opportunism. In CS2, Battel was emerging from a highly dysfunctional past which appeared to be driving their 'least cost' approach to business whilst at Decloid the senior executives were responsible for the open and egalitarian internal culture, but it was also their mental model of innovation and incentivisation that was contributing to the inhibition of their co-innovative performance. In CS3, it was Greenfresh B20's approach to supplier management that fostered co-innovation in SaladCorp and in SaladCorp it was the widely attested ethical and innovative approach of the Founder that set the high ethical standards of the company and chain.

Thus, it appears that it was the mental models that encouraged collaborative behaviour similar to that described in the co-innovation facilitators (Chapter 2.7; Appendix 7) were associated with co-innovative behaviour. In CS3 for instance, most of the co-innovation facilitators were operating at quite high levels and the chain was the most co-innovative of the three cases investigated. However in CS2 and in particular CS1, where the mental models appeared to encompass less of these facilitators, there was little or no co-innovation. Such findings are consistent with Hendrikse (2003) who highlights the impact of chain partner cognitive capabilities and perceptions of complexity and risk on the choice of governance. Other studies identify the importance of mental models to performance per se (Gary & Wood 2011; Osborne, JD, Stubbart & Ramaprasad 2001; Pandza & Thorpe 2009) and innovation in particular (Gellynck, Kuhne & Weaver 2011; Roucan-Kane & Boehlje 2009; West, MA 2002).

Thus, this theme's suggestion that the manager's mental models of governance played an important part in enabling and incentivising co-innovation appears to have strong internal validity and be supported by findings elsewhere in the research literature. The key mechanism for this is the nature of the exchange transaction and the relational environment that emanates from that; that is, from discrete, market exchanges there are no on-going relationship so no co-innovation, whilst the complexity and flexibility of more relational forms of exchange enables the collaboration from which co-innovation can emerge. Thus, this theme appears to have a high level of external validity in similar cases.

7.2.2.3 Multiple types of incentives need to be used at individual, firm and chain levels to achieve complex firm and individual behaviours

Using inter-organisational relationships for innovation is complex (Barringer & Harrison 2000; Pittaway et al. 2004). In this study, co-innovation and innovation occurred as part of normal strategic and operational practices only in CS3, to a very minor extent in CS2 and not at all in CS1. It appeared that in CS3, the broad-based nature of the incentive systems played a key role in focusing the individual firms, executives and employees on their strategy to be innovative in their own firms and to develop a co-innovative chain. At the firm level the chain partners were motivated by a mix of economic, normative and social incentives. Internally, their executives and employees were incentivised by a dominant gain motivational frame with a background normative frame which encouraged economic performance in an ethical manner. This was achieved with a tailored mix of extrinsic and social types of incentives aligned with strategy, culture and values and supported by other functions like recruitment¹⁰¹. In short, it was a purposefully managed multi-level, integrated system of incentives and at each level multiple types of incentives were used; all aimed at achieving their chain strategies and ultimately their long term vision. This contrasted with CS2, where the

¹⁰¹ Recruitment strategies attempt to identify intrinsically motivated individuals by psychological testing.

misalignment of strategy and cultures across the chain combined with siloes and confusion within Battel, the poor design and structure of Decloid's incentive system and the conservatism and antagonism of the vegetable suppliers to produce a lack of coherence in the overall chain. So, it appears that multiple types of incentives aligned across multiple levels with strategy and goals is directly associated with co-innovation.

This conclusion is consistent with Gilliland's (2003) finding of highly diverse firm level incentives being used in practice to control technology resellers in fifty seven distribution channels. Further, Söderlund (2007) identified the complexity of alliance incentives, the need for incentives to be aligned between firms, and both employee and firm incentives to be aligned with overall alliance strategy. Similarly, at an individual employee level, a number of studies in scientific R&D settings have identified the need for congruence with strategy and tailored, multidimensional incentive systems to achieve balanced multi-tasking performance (Cockburn, IM, Henderson, R & Stern, S 1999; Rizzotti 2007; Sauermann, Henry 2008). The notion of balance between incentives has existed for many years; Barnard (1938) pointed out the need for a "delicate balance" (p.156), a theme picked up by Laffont and Martimort (2002) in their treatise on the principal-agent perspective on incentives. However, a number of researchers also support the notion of using a dynamic balance of incentives as a 'lever' for situationally relevant control (Cockburn, IM, Henderson, RM & Stern, S 1999; Gibbons 1998; Gottschalg & Zollo 2005; Sauermann, H. & Cohen 2007). So the finding in this study not only brings together a number of views from other research but appears to be the first such finding in an agrifood and vertical co-innovation context.

Thus, it appeared that in these cases there is strong internal support, consistent with a range of other research, for the proposition that the use of multiple types of incentives aligned across multiple levels with strategy and goals to achieve a range of goal-focused organisational and individual behaviours is directly associated with co-innovation. Hence, it is likely that there will be a high degree of external validity in similar cases.

7.2.2.4 A shared, purposefully designed and managed incentive system aligned across the chain, firm and individual levels is necessary to be co-innovative

The notion of 'purposeful' design and management was introduced in Chapter 4, CS1, from soft systems methodology (Waring 1996) and applied in this thesis to describe the highly creative, interactive processes involved in the management of value chains as opposed to processes constrained by prior experience or social conditioning. The contrasting mode of management and incentivisation of the case study chains highlighted the different approaches to managing their chains. The concept was later identified in CS3 as appearing to be of strategic importance where Theme 4 (Section 6.4) defined it as the 'purposeful, individualised design and management of incentives'. According to Bruch and Ghoshal (2004) and Hamel and Prahalad (1989) it focuses the organisation's attention on the strategic

alignment, dynamic adaptation, process integration, critical evaluation and constant monitoring and reporting of the whole chain.

To recap briefly, in CS1 incentives were broad-based but constrained by legacy approaches in Heritage Co and very one dimensional and simplistic amongst the upstream partners. In CS2, Battel had a one dimensional emphasis on extrinsic incentives whilst in Decloid they were purposefully designed and managed but constrained by the very conservative mental models of the senior executives (Sections 5.3.1.1; 5.3.1.2; 5.3.2.5). Then in CS3, incentives were more intensively designed, creatively individualised to fit the needs of individuals and partner firms, especially by SaladCorp, where they were integrated with a wide range of other systems and continually managed and reported (Section 5.3.3.4). In this instance, the approach was also adopted by the strategic farm suppliers. The contrast with CS1 is stark. Heritage Co failed to engage its fresh pork chain, did not understand their needs as suppliers and so failed to incentivise them to collaborate on innovating fresh pork.

So there appears to be sufficient internal validity to suggest that ‘purposeful management’ is an important mental model about holistic management of the case study chains. In this investigation it has emerged as a strategy used by the lead firm in CS3 to coordinate its chain. It is a shared approach amongst senior executives in CS3 which has been incorporated into their operational management of the chain and is an important component of ensuring the incentivisation not only of its own staff but also its suppliers and therefore of maintaining chain alignment and facilitating co-innovation to create consumer value.

7.2.2.5 Transformational chain leadership and followership facilitates co-innovative competence

In these case studies chain leadership and followership were key differences between the chains. In CS1 the leadership was transactional and the followership was minimal (Section 4.3.3.3). In CS2, Battel’s leadership was autocratic, dictatorial and focused on achieving its own goals, whilst in coping with this approach Decloid oscillated from reflecting Battel’s approach to gain the compliance of the farm suppliers to attempting more collaborative, benevolent interaction which may have been closer to its own corporate values (Section 5.3.3.3). CS3 on the other hand, was focused on controlling their whole chain from suppliers to the consumer (Section 6.3.3.3) and led the industry in innovation, quality, service and safety (SaladCorp B11, B12; Greenfresh B20). The SaladCorp Founder’s aim and track record of “creat[ing] value” for their chain partners and growing the chain’s business exhibited many of the characteristics suggested by Defee (2007, pp. 56, 195) as being associated with his theoretical construct of a ‘transformational supply chain leader’. On the other hand, whilst Battel, Decloid and Heritage Co in the other cases demonstrated ‘transactional supply chain leadership’ attributes (Sections 5.3.3.3 and 4.3.3.3). Likewise, SaladCorp’s strategic suppliers exhibited the

characteristics of ‘transformational supply chain followers’ Defee (2007, pp. 75, 209-10) whilst in the other cases the upstream suppliers demonstrated ‘transactional supply chain followership’ attributes. Therefore, because of the co-innovativeness of CS3 compared with the other cases it is concluded that there is an association between transformational chain leadership and followership as a single construct and co-innovativeness. This was suggested by Defee’s (2007) theoretical leadership/followership model and earlier by Elenkov, Judge and Wright (2005) in their business survey in the US and five European countries. The differences between the case study chains appear to have good interpretive validity from validation interviews and good theoretical validity in that it is consistent with the theoretical model and supporting literature. This also appears to be the first investigation which indicates a possible leadership/followership association with co-innovativeness in the agrifood industry.

7.2.2.6 Individual beliefs and values and organisational norms are important determinants of a firm’s capacity to implement co-innovation

Organisational behaviour is based on organisational values (Schein 1990) and interestingly, the lead firms in this project’s case studies all espoused a high values orientation. In CS1 Heritage Co was proudly basing its business on the founding values from 1927 and the current values espoused by fellow cooperatives (Section 4.3.1.4). In CS2 Decloid also espoused ‘family values’ of its founders from the 1930s (Section 5.3.1.4) and in CS3 SaladCorp attributed its values to the influence of its Founder who was still in the company (Section 6.3.1.4). The large corporate retailers in the latter two case studies, Battel and Greenfresh, made no such attributions of their current espoused corporate values to history. However, the analysis found that there was some incongruence between the values espoused and the values-in-action, similar to the widely accepted notion described in Argyris and Schön (1978). This was particularly evident in CS2 where Battel’s values-in-action were self-focused and expedient and Decloid oscillated from their espoused values to implementing those of Battel. In CS1, whilst there was no doubting the Heritage Co’s commitment to its values, the analysis raised some questions as to whether the underlying motive was hedonic or indeed, as espoused, normative (Lindenberg & Foss 2011).

This incongruence appears to be important because Roh, Hong and Park (2008) suggest that the culture of the lead or most powerful firm has an important influence on suppliers and distributors. Further, Lichtenstein and Dade (2007) have proposed that executive needs and values affect organisational vision, goals, strategic orientation, performance and shareholder value creation. However, it appears that there has been insufficient theoretical development to be able to provide detailed guidance on the influence of values and norms in value chains (Shub & Stonebraker 2009) as many of the studies have been conceptual.

However, there does appear to be some support for the notion of ‘fit’ or congruence between values, culture and strategy (Edwards & Cable 2009; Lavie, Haunschild & Khanna 2011; Meglino, B.M. & Ravlin 1998; Meglino, Bruce M., Ravlin & Adkins 1989; Rao Tummala, Phillips & Johnson 2006; Roh, Hong & Park 2008; Shub & Stonebraker 2009). Further, a detailed survey of two hundred and twenty four small furniture manufacturers in Australia found that managers’ personal values, business strategies and performance were empirically related; high performers had a proactive strategic orientation and entrepreneurial values whereas lower performers were reactive and personally conservative (Kotey & Meredith 1997). This provides some empirical support for the observations regarding the role of values in these case studies.

Overall, the interpretive and theoretical validity of this finding appears high given the quite explicit internal evidence of the role of beliefs, values and norms across the three case studies and the support from wider studies. Thus, external validity in similar cases may also be high.

7.2.2.7 The presence of co-innovation conditions facilitate co-innovation and their absence inhibits co-innovation

The four ‘facilitators of co-innovation’ and their twenty components were a construct for this research based on the factors found in the Literature Review. Appendix 2 shows that relational competence (Marshall et al. 2006), incorporating the critically important factors of trust, commitment and communication, was low to moderate in CS1 and CS2 and high to very high in CS3. Cultural compatibility (Campbell & Sankaran 2005; Emden, Calantone & Droge 2006) had similar assessments. Co-innovation architecture (Simatupang, Togar & Sridharan, R. 2002; Simatupang & Sridharan 2007), the systems and process requisites of co-innovation, was similarly non-existent to moderate in CS1 and CS2 and variable but generally moderate to high in CS3. Finally, innovation competence (Gellynck, Vermeire & Viaene 2006; Lawson & Samson 2001; Malerba & Marengo 1995; Manseau & Shields 2005) had a similar pattern of assessments. As CS3 was more co-innovative than CS2 or CS1, this suggests that these facilitating conditions are indeed associated with the occurrence of co-innovation, so there appears to be a high degree of internal validity

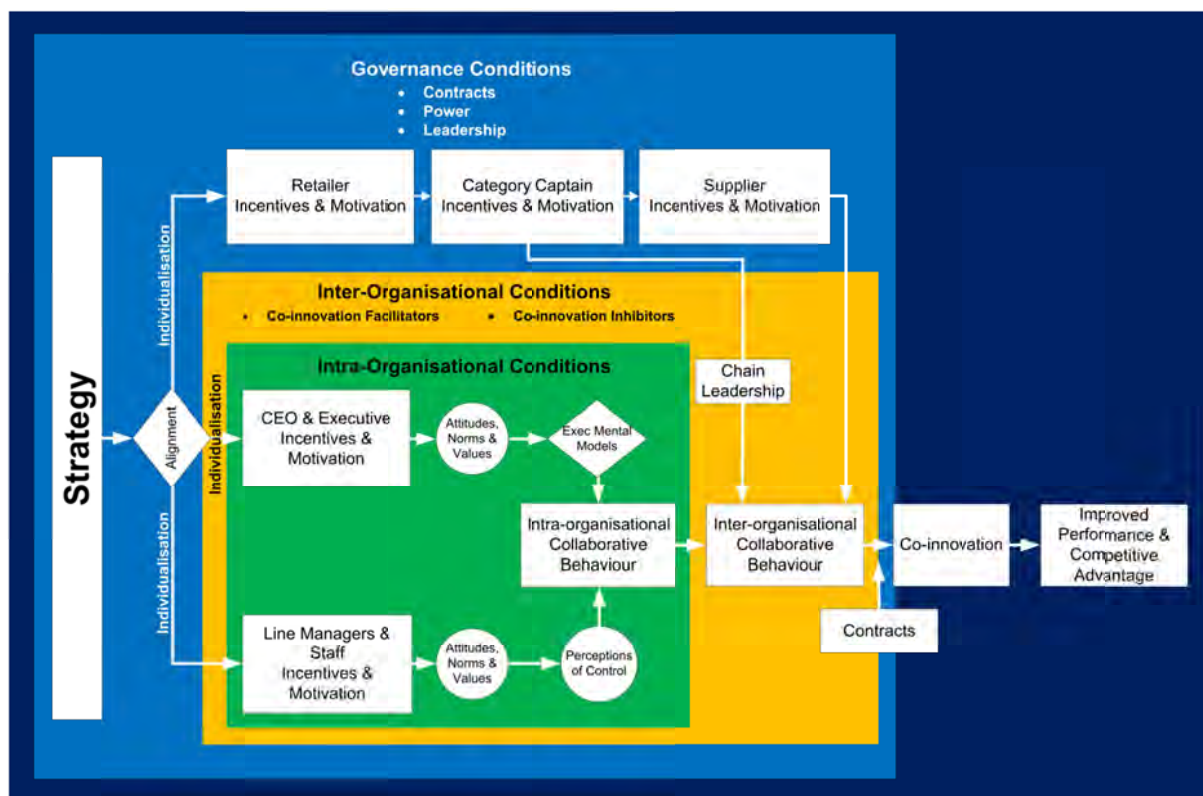
It is believed that this is the first attempt to reduce the plethora of terms used in the literature to a manageable typology that may have some utility for managers and researchers alike. However, further research is required to validate the number of factors and their association with the co-innovation phenomenon.

7.3 Conclusions about the research problem

The research problem addressed how collaborative innovation in agrifood value chains is incentivised and led to a multi-disciplinary investigation of multi-level systems with complex, interacting variables. An exploratory research design was employed using a phenomenological strategy of inquiry

and a case study research method in three purposively selected, contrasting agrifood value chains. The literature suggested that value chain systems were incentivised by a mix of multiple types of incentives, aligned across the chain, firm and executive and individual employee levels. A conceptual model was developed in Figure 2.8 to facilitate developing an understanding of the relationships of the incentivisation phenomenon. The preceding sections have discussed the conclusions about the subsidiary research questions and the themes emerging from the case study findings. A number of implications have been highlighted that contribute to the understanding of how to incentivise co-innovation in agrifood value chains. These findings make minor amendments to the conceptual model depicted in Figure 7.1 providing additional insights into how incentivisation works in practice. These amendments encompass firstly, mental models as drivers of governance and incentivisation; secondly, the alignment of multi-level incentives with strategy and other processes; thirdly, the individualisation of multiple types at each level; and fourthly, the role of the co-innovation facilitators. Each of these are outlined in more detail.

Figure 7.1: Conceptual model of the co-innovation phenomenon



Firstly, the research revealed that in broad terms, the form of governance (dark grey box in Figure 7.1) or control was the prime determinant of the approach to incentivising chain partners in these agrifood chains. However, the choice of the type of governance was influenced by executives' mental models (e.g. vision, goals, values, strategies, risk) of how the business will create and deliver value for consumers because governance and its control processes of contracting and incentivisation are key components of the value creating logic. In CS1, that mental model for Heritage Co executives was

derived from the firm's 1927 constitution, the unique constraints it faced and the perceptions of its executives about their ability to compete; hence they adopted a 'follower' position. The model focused on delivering lowest prices (social benefit was an important but secondary component) and hence adopted a transactional, market-based form of governance with price-based firm incentives. However, for the Tier 1 and 2 suppliers, their mental model was idiosyncratic to the owners/executives and singularly profit-focused, driving a market-based view of governance giving them the independence of action and opportunity to chase the highest prices. In contrast, the mental models dominating in CS2 and CS3 were also derived from the idiosyncratic individual characteristics of the senior executives; from the dysfunctional history of Battel's executives (CS2) and the Founder's family values in CS3. Thus, in CS2 the governance model was more transactional, emphasising coercive power and there were divergent conceptions of value creation and incentivisation between Battel and Decloid. In CS3 there was a hybrid relational governance model with shared models of strategy, values and co-innovative value creation which influenced Greenfresh and SaladCorp's emphasis on 'getting the right people', particularly SaladCorp's commitment to obtaining organisational and executive 'fit' with its strategy and values. This emphasis led to the observation of Greenfresh and SaladCorp's 'situational relationship management' of suppliers. This involves their selection of a small number of suppliers with a greater level of 'strategic fit' with strategy and values, with whom they develop stronger, multi-faceted, long term strategic relationships. Other suppliers remain in varying degrees of 'arms-length' relationships, some aspiring to have more extensive relationships but others having a lower level and possibly only an occasional engagement with the chain. This appears to be a necessary response by the larger firms to cope with the biological and climatic variability inherent in the agrifood industry. This leads to the following propositions for future research:

Proposition 1: That executives' mental models of how to govern an agrifood value chain are an important influence on the type of incentives employed to achieve the chain's goals.

Proposition 2: That executives' mental models of innovation are an important influence on the manner in which innovation occurs in an agrifood value chain.

Secondly, beyond the broad influence of governance on the type of incentives used in these case studies, it has been concluded that the alignment of multi-level incentives with strategy and other processes was an important element of strategy design. The term 'multi-level' refers to the hierarchical alignment of incentives and KPIs at the individual, executive, firm and chain (Figure 7.2). This notion of 'alignment of incentives' was consistent with the conceptual model developed in Chapter 2 (Figure 2.8). In CS1 there was no alignment for the reasons explained earlier, associated with the attributes of the chain. In CS2, there was only some operational alignment of incentives with

DIFOT and quality based KPIs and little strategic alignment. In CS3, due to the shared strategies between the chain partners, there was a much higher degree of strategic alignment of firm incentives.



However, the alignment of incentives with strategy was both supported by and supported other management functions such as recruitment (“...hire for character and train for skill...” SaladCorp B5, B10, B11, B12), professional development, organisational cultural management and selecting the right chain partners (working with the ‘right people’). In CS3, both the retailer Greenfresh and the chain leader SaladCorp used these functions to develop co-innovative capacity within the chain by incentivising chain-oriented behaviours; that is, firm and individual behaviour that benefited the whole chain. So their formal incentive systems and management practices specifically incentivised chain oriented behaviours such as, at the firm level, relationship-specific investment or innovation with pay-offs for the whole chain. At the individual level, incentives were used to encourage culturally desired individual behaviours, long-term commitment, communication and collaboration and appropriate

external relationship management behaviours. In CS2, where the incentive system was strongly focused on group behaviours and corporate performance, the range and intensity of chain-oriented behaviours by firms and individuals was less evident, although sufficient to be a moderately profitable operation over many years. In CS1 though, the range and intensity of chain-oriented behaviours was quite restricted.

Finally, it is noted that in CS3 in contrast to CS2 and CS1, the alignment of incentives was purposefully managed across multiple levels and integrated with other inter-organisational and intra-organisational behaviours. In CS3 this ‘purposeful management’ was much more than simply having the HRM team design an incentive system. It was an important enculturated function for every manager and boundary-spanner leading to a constant process of sensing what motivated partner firms and staff and matching this with behaviours that improved chain performance. This was the process of ‘individualisation’ of incentives to needs/wants to achieve chain goals. This leads to the following proposition for future research:

Proposition 3: That the multi-level alignment of incentives is necessary to optimise the degree of co-innovation occurring in an agrifood value chain.

Thirdly, an important aspect of incentivisation at multiple levels was the individualisation of multiple types of incentives at each level. In CS3 it was apparent that managing co-innovation involved complex intra and inter-organisational behaviours. For individuals within a firm there was a range of production, cultural maintenance and innovation-oriented behaviours both within the firm and, for many of them, also in their boundary-spanning activities. In this chain an individualised mix of

extrinsic and social incentives were employed for managers to motivate the complex behaviours required. The effort expended in this individualisation was directly related to the value of that person to the company. Similarly, for firms a range of economic, normative and social incentives were individualised to each specific firm, tailored to their joint interests as well as ensuring that some of the firm's own goals were incentivised too. Again, the level of individualisation was directly related to the value of that partner to the lead firm; thus, both for employee and firm individualisation it was a cost-benefit assessment. This leads to the following proposition for future research:

Proposition 4A: That an individualised mix of multiple types of incentives is necessary to incentivate firms in an agrifood value chain to co-innovate.

Proposition 4B: That an individualised mix of multiple types of incentives is necessary to incentivate individuals in an agrifood value chain to undertake co-innovative behaviours.

Finally, the conceptual model suggested that the co-innovation facilitators may influence the amount of co-innovative behaviour that occurs between organisations in a value chain. In these case studies, where the co-innovation facilitators were more evident, more co-innovation was occurring and where they were absent or lacking, co-innovation was absent or minimal. So, it appears that they are directly associated with co-innovation. This leads to the following propositions for future research:

Proposition 5: That relational competence across the value chain is a necessary condition for co-innovation to occur in agrifood value chains.

Proposition 6: That cultural compatibility across the value chain is a necessary condition for co-innovation to occur in agrifood value chains.

Proposition 7: That co-innovation architecture across the value chain is a necessary condition for co-innovation to occur in agrifood value chains.

Proposition 8: That innovation competence across the value chain is a necessary condition for co-innovation to occur in agrifood value chains.

This research has made a number of important contributions to our understanding of the phenomenon of incentivising co-innovation in agrifood value chains:

- *Extending the understanding of the concept of incentive alignment*

In the literature, the notion of 'incentive alignment' is frequently referred to but guidance for practical management is rarely provided. Some research deals with issues involved in incentivising individuals within firms (Augier & Teece 2009; Gottschalg & Zollo 2005, 2006), between firms (Bäckstrand 2007; Gimeno, Javier 2004; Kent 2007; Narayanan & Raman 2004; Simatupang & Sridharan 2007; Stolze et al. 2007) and others at a principal-agency theoretical

level (Tosi, Katz & Gomez-Mejia 1997; Williamson, O. E. 2000). This investigation advances our understanding by suggesting that multiple types of incentives were tailored for key individuals and chain partners, strategically aligned across the levels and purposefully managed to achieve shared chain goals.

- *Applying incentivisation theory to agrifood and Australia that has not previously been done*

This research is believed to be the first application of incentive theory in an agrifood or an Australian value chain context.

- *Developing a new model of agrifood value chain incentivisation*

This research has developed a new integrated, multi-disciplinary model (Figure 7.1) of agrifood value chain incentivisation. The model provides guidance on how to design and implement a strategically aligned incentive system that motivates co-innovation. It suggests multiple types of incentives be used at the chain, firm and individual levels and identifies the key facilitators that are necessary for co-innovation to occur.

- *Using a multi-disciplinary approach to understand how co-innovation is incentivised in agrifood value chains*

The Literature Review noted the lack of cross-disciplinary approaches (Friedland 2004; Halldorsson et al. 2007; Sachan & Datta 2005; Werner & Ward 2004) and the lack of unified theory in the value chain field (Halldorsson et al. 2007). Love (2002) also suggested that incorporating multiple perspectives may be appropriate for building the epistemological foundations to answer the research questions. With that in mind, this research draws on theory from strategic management, innovation, motivation/incentive, marketing, economics, supply chain, logistics and organisational behaviour disciplines and applies it to the agrifood context across a range of selected case studies. In particular, the model highlights the importance of aligning human resource management (HRM) and organisational behavioural factors with strategic management and governance theory, thus suggesting the strategic importance of incentivisation to the core concern of modern businesses, the achievement of more sustainable competitive advantage. This does not appear to have been investigated previously.

- *Applying the Theory of Planned Behavior (TPB), an individual behavioural construct, at the organisational level to explain the performance or non-performance of incentivised behaviour*

The Literature Review suggested that Fishbein and Ajzen's (2010) TPB, a theory with high predictive validity for explaining the link between beliefs, attitudes, intentions and behaviours for individuals (Armitage & Conner 2001; Hagger, Chatzisarantis & Biddle 2002; Sheppard, Jon & Warshaw 1988) may have utility for explaining implementation of value chain management for both individual and group level incentivisation. Fitch and McCarty's (1993)

attempt to extend the theory to the group level was inconclusive but this author's communication with Icek Ajzen (2009, pers. comm., 17 September) and the theory underpinning the 'attraction-selection-attrition cycle (ASA)' (Schneider 1987), an important construct in organisational change and personnel recruitment, provided a rationale for investigating its utility for incentivising value chain co-innovation. The findings appeared to have utility in providing an explanation of the role of values, attitudes and norms in moderating the effect of incentives on individual manager's behaviour as well as on group decision-making.

Therefore, this research has advanced knowledge about how agrifood value chains are incentivised and helps to address Halldorsson et al's (2007) concern about the lack of unified theory in the field. The following sections will explicate the implications of this research for theory and practice.

7.4 Implications for theory

This research makes several contributions to the development of theory in the disciplines of agrifood value chains, motivation and incentivisation, co-innovation and chain collaboration (Figure 2.1).

7.4.1 Implications for value chain theory

The focus of this research on incentivisation in three contrasting whole chain systems may be the first time that such a comparison has been undertaken. The comparisons enable some unique insights to be gained. Some of the findings in this research have implications for value chain theory, in particular governance theory. The multi-disciplinary approach adopted by this research has highlighted the importance of seeing governance in the context of other related disciplines such as organisational psychology, HRM and strategic management. Commercial life in value chains is often different to that depicted in economic exchange theories; there is more of a social element, even in spot markets. This research has suggested that managers' mental models play a role in the choice of governance as well as other factors such as mandated business models (CS1). It has also suggested it is possible that Fishbein and Ajzen's (2010) TPB may have utility in understanding the intra and inter-organisational contextual influences on decision-making processes regarding governance and co-innovation and the conversion of 'intention-into-action' by executive managers. Peterson, Wysocki and Harsh (2005) and Wysocki, Peterson and Harsh (2006) have found that there are at least three and possibly four considerations involved in the choice of governance, whilst Roucan-Kane and Boehlje (2009) have proposed that for NPD innovation there may be as many as ten others. At least six of them were factors identified in this investigation; market uncertainty, peer pressure, expected profit, risk of leakage of information, capability concerns and pre-emption strategies. However some researchers, such as Kogut and Singh (2009) and Moatti (2007), suggest that decision-making about governance may not be as rational and deliberate as the Wysocki, Peterson and Harsh (2006, p. 115) framework implies, but rather is made under pressure and with bounded rationality. This then leads to the

possibility that the choice of governance form is perhaps more influenced by executives' mental models, cognisant with Gary and Wood's (2011) suggestion that mental models are "...simplified knowledge structures or cognitive representations about how the business environment works...[and]...are critical determinant[s] of strategic choices..." Their findings indicate that managers don't need to have accurate knowledge of the environment but simply accurate mental models to achieve superior corporate performance. As Peterson, Wysocki and Harsh's (2005) framework is explicitly about a "logical" (p.156) process, it is believed that this research's proposition about the more subtle role of mental models is a possible advance of the theory.

The three case studies in this thesis exhibit governance forms ranging from 'markets' (CS1) to 'specifications contract' (CS2) to 'relationship-based alliance or relational hybrid (CS3) (Gereffi, Humphrey & Sturgeon 2005; Wysocki, A, Peterson & Harsh 2003). From these it appears that co-innovativeness is associated with the relational hybrid form where contracting, incentivising and other factors provide more flexibility and long term outlook for operations than markets. Makadok and Coff (2009) in developing an incentive-system theory of hybrid governance forms, suggest that this form is increasingly being used because it provides more flexibility for incentivising complex transactions, such as might be involved in co-innovation (Barringer & Harrison 2000; Pittaway et al. 2004). Thus, this finding extends Makadok and Coff's theoretical model into the agrifood field although further development will be required to fit it to the business structures used in the industry and to validate its propositions.

This multi-disciplinary perspective on governance in agrifood chains may also have implications for incentivisation theory. If the choice of governance is less rational than believed but still involves the practical elements in Wysocki, Peterson and Harsh's (2006) model, then it is unlikely that the theoretical implications of governance for incentives and contracting receives much consideration beyond its contribution to cost implications or implementability. However, if co-innovation is a core strategic consideration to achieve competitive advantage (Gimeno, J., Dial & Sengul 2001a), then choice of governance is important because it provides the fundamental structure for co-innovation. This occurs through its enabling of the longevity, complexity and flexibility of relationships necessary for co-innovation. In short, from the value chain case studies in this thesis it appears that the choice of governance directly affects value chain co-innovation. Therefore, the contribution of this thesis in highlighting the importance of the governance-incentivisation-co-innovation link for agrifood value chains constitutes evidence to support a new, multi-disciplinary interpretation and synthesis of existing knowledge. Further, the suggestion that the TPB may influence the implementation of mental models is the first known proposition for understanding the managerial conversion of intention-to-action in an agrifood context.

Governance also involves the exercise of power and this research contributes to knowledge by suggesting that opportunistic, coercive or inconsistent use of power is not associated with agrifood co-

innovation, thus supporting Benton and Maloni's (2005) finding in the automotive industry and Gellynck, Kühne and Weaver (2010) in European traditional food chains. Burgess (2000) found shared power was more conducive to innovation in dyads and it was only in high trust forms of cooperation that stewardship of chain interests occurred. The opportunistic behaviour that occurred in CS1 demonstrated that the power resident in one chain member is relative to external power and opportunities whilst in CS2, Battel's short term coercive use of power over a long period had long term negative cultural effects on its farm suppliers. Finally, this thesis also suggests that it is not the locus or quantum of power but how it is used that is important to co-innovation, a point that can be inferred from Duffy, Fearne and Hornibrook (2003) and Fearne, Duffy & Hornibrook (2005).

7.4.2 Implications for motivation and incentivisation theory

Prior knowledge regarding how to incentivise co-innovation lacks detailed analysis of the phenomenon and is often superficial and fragmented. Perhaps more importantly, little is known about incentivising agrifood co-innovation specifically. Therefore this thesis' proposition that employing multiple types of incentives, aligned across multiple levels with chain strategy is necessary to motivate co-innovation, is an important advance in value chain incentivisation theory.

A multi-level theoretical model of incentivisation and motivation was developed in response to several authors calling for a multi-level approach to complex situations such as value chains (Agrawal & Tsay 2002; Capelli & Sherer 1991; Miner 2005; Rousseau & House 1994; Smith, Schneider & Dickson 2006). This approach required the incorporation of firm and individual level incentives within a value chain framework Figure 2.7. The incentivisation/motivation literature appeared to be dominated by research on individual motivation but Ryan and Deci (2000) and Deci and Ryan (2000) provided a very useful model reconciling the two polarised theoretical streams which this thesis has amended with elements from Reinholt (2006), Gottschalg (2004) and Osterloh, Frost, and Frey (2002). The final synthesis in Figure 2.4 clarifies terminology and provides theoretical insight and practical utility in a field where many thousands of papers have been published over thirty years of contentious academic debate. The adoption of three types of individual incentives clearly linked to deeper theory in the model provides a useful approach for this exploratory research, enabling it to inform future empirical investigations of the phenomenon of agrifood chain incentivisation. Across the three case studies the model appeared to enable a categorisation of individual incentives consistent with the literature which suggests that complex multi-tasking behaviours and innovation are facilitated by multiple types of incentives (Bruggen & Moers 2007; Lerner & Wulf 2007; Makadok & Coff 2009; Sauermann, Henry 2008).

At the firm level, incentives are frequently considered from an economic perspective but some of the literature suggests that the phenomenon is more subtle and complex (DiMaggio & Powell 1983; Meyer & Rowan 2008; Scott 2001; Suchman 1995; Wicks & Berman 2004). Section 2.12.5.1

developed a broader typology that included economic, normative and social incentives driving firm behaviour which is believed to be a new conception of firm level incentives. This appeared to have some analytical utility because it differentiated between the incentivisation in market (CS1), near-market (CS2) and hybrid relational (CS3) forms of governance, showing that economic incentivisation alone appeared insufficient to induce co-innovation whilst the use of multiple types of incentives appeared to facilitate co-innovation.

At the chain level, there is very little unity amongst those who have described the motivation that leads firms to manage their supply chains (Frankel & Whipple 1996; Gersch, Goeke & Freiling 2007; Glaister & Buckley 1996; Kogut 1988; Varadarajan & Cunningham 1995) and few models have been empirically tested. The conceptual model (Figure 7.1) and its progenitor ‘model of value chain incentivisation’ (Figure 2.7) represent a new synthesis of empirical concepts. The notion of the alignment of multi-level incentivisation with co-innovation strategy and its mediation by inter-organisational (facilitators and inhibitors) and governance conditions (contracts, power and leadership) appears to have strong internal validity and conditional external validity. As many authors are of the view that value chains are ‘systems’, this investigation took the view that Stafford Beer’s Viable System Model (VSM) (Beer 1981, 1984), the basis of cybernetics, appeared to have utility in explaining how agrifood chain partners’ motivations can be managed in the context of asymmetric capacity (power, knowledge, information, skills) to achieve the coordination, control and the collaboration necessary for co-innovation. The notion of ‘nested’ systems in the VSM model enabled the firm motivations proposed by Frankel and Whipple (1996), Gilliland (2003) and Quinn and Rohrbaugh (1983) to be fitted into a hierarchical model of firm incentivisation and motivation in value chains (Figure 2.7). This then became part of the conceptual model for this research (Figure 7.1) which is comprised of three elements: firstly, the multi-level systemic approach to incentive management, secondly the use at each level of multiple types of incentives, and thirdly the alignment of incentives at each level with the other levels and overall chain strategy.

The analysis also showed that the co-innovative chain (CS3) incentivised their chain partners with a broader range of incentives, individualised to match their idiosyncratic aims, and purposefully managed the balance of those incentives to achieve chain goals. Under the more market oriented forms of governance, with only price-based incentives on offer there was a consequent lack of communication and trust, there was opportunism, opaque behaviour and little co-innovation. This is consistent with the findings of Zhang and Aramyan (2009) and Wysocki, Peterson and Harsh (2003).

A further contribution is the finding regarding the utility of motivational frame theory for analysing and managing the incentive balance to achieve co-innovation at the firm and individual level. This is believed to be the first such application of Lindenberg, Siegwart and Foss’s (2011) revised theory for organisations as well as its first application to the agrifood industry. It provides a framework with

which to manage the multi-level model of incentivisation developed in this investigation to achieve co-innovation.

7.4.3 Implications for co-innovation theory

Hammer (2006) has highlighted the increased complexity of collaborative behaviours and this study has identified the complex interactions between strategic management and HRM that need to occur to facilitate chain co-innovation. At a strategic management level, it appears that there are four critical factors involved in facilitating co-innovation; (1) a shared vision, strategy and business model, (2) aligned, broad-based, multiple types of incentives at multiple levels of the chain system, (3) the careful choice of strategic partners, and (4) effective boundary spanning. Firstly, the necessity for a shared vision and strategy appears well accepted for chain coordination (Fuchs, Young & Zweidler-McKay 1998; Gattorna 2009; Hammer 2006) and continuous innovation (Soosay, Hyland & Ferrer 2008), however, an unexpected finding was the need for aligned business models for chains to be co-innovative. This is perhaps logical given that a chain vision about how to create value for consumers is a precursor for a business model which provides the basis for delivering that value (Casadesus-Masanell & Ricart 2007; Olofsson & Farr 2006). This appears to be an advance in the understanding of co-innovation in agrifood value chains.

Secondly, the contribution of the model of aligned, broad-based, multiple types of incentives necessary for motivating co-innovation has been explained in-depth in the previous section. However, it is important to point out that the purposeful design and active management of the individualised mixes of incentives, motivating and engaging relevant cross-functional and inter-organisational managers necessary to achieve co-innovation, is a strategic issue because it is the operational mechanism which drives co-innovation. It was apparent in this investigation that CS1 and CS2 did not have this focus, whilst CS3 had formally included many of the factors facilitating co-innovation (e.g. information sharing, relationship management) in culture management, incentivisation and performance management systems. Consequently, they were able to maintain a much more stable and cohesive chain which engaged in continual co-innovation. Thus, it is believed that the concept of ‘purposeful management’ of co-innovation may be an important phenomenon for further investigation and so constitutes a contribution to understanding value chain co-innovation and the strategic role of lead firms.

Thirdly, this study found that the choice of strategic partners was crucial to the development of collaboration and co-innovation. This is consistent with Lavie, Haunschild and Khanna (2009) who found that firms that formed alliances on the basis of the fit of prospective partners’ management styles, business processes and culture were more likely to be successful in that alliance because it was essential for the development of trust, collaboration and the reduction of conflict. It is cognisant with Craighead, Hult and Ketchen Jr’s (2009) conclusions that chain fit between innovation strategy,

partner firms' knowledge development capacity and intellectual capital influences their return-on-assets and overall financial performance. It also lends support to Defee's (2007) notion that the 'fit' between the transformational forms of 'innovation leadership' and 'innovation followership' leads to more effective innovation and customer/consumer focus.

Fourthly, once partners are engaged, effective boundary spanning at multiple hierarchical levels was found to be critical to maintaining aligned vision, for the communication of ideas, needs and problem-solving as well as for day-to-day operations. In both these respects, CS3 provided an exemplar of how these aspects could be managed whilst in CS2, a barely adequate level of boundary spanning was associated with misinformation, misunderstandings, poor information sharing, poor integration and a low level of decision synchronisation. CS3 also demonstrated the benefits that accrue from inter-organisational knowledge-sharing and complementary resources and capabilities, two of the three "competitiveness-enhancing effects" suggested by Hartmann, Hoffman and Simons (2010, p. 65). The boundary spanning demonstrated in CS3 occurred at multiple levels; that is, between the chain partners' strategic executives, managers and operational staff, thus extending the conceptions of some of the leading investigators (Ancona & Caldwell 1992; Christopher & Juttner 2000; Hutt et al. 2000; Joshi, Pandey & Han 2009) to specific hierarchical levels and to the agrifood industry. The three contrasting case studies have also identified the importance of the interaction of some HRM variables with strategic management if co-innovation is to occur; a supportive co-innovative culture, the recruitment of managers who have the right mental models and 'fit' the culture and the effect of values on performance and co-innovation. Roberts (2010) concludes that a firm's innovativeness is based on its leadership and culture, particularly the values that relate to innovation. In this investigation, the polar examples of this are CS1 with its transactionally-focussed follower culture and lack of leadership and CS3 where the widely recognised leadership by SaladCorp placed a high value on individual, corporate and collaborative innovativeness. This is consistent with a number of findings regarding culture's importance to innovation within firms (Adams 2003; Dombrowski et al. 2007; McCosh et al. 1998). However, very few studies have specifically studied the impact of chain culture on chain innovativeness; of those, Hult, Ketchen and Arrfelt (2007) found that a culture of innovativeness was an important component of competitive advantage. In this investigation, seven of Dombrowski et al's (2007) eight cultural elements¹⁰² at the firm level have been found to be important at the chain level, Suggesting that these elements also influence whole chains is an important step forward in understanding the dynamics of facilitating co-innovation in chain systems and highlights the integrated nature of an innovative chain culture.

¹⁰² Innovative mission and vision statements, democratic communication, flexibility, collaboration, boundary spanning, incentives, and leadership.

Finally, in CS3, SaladCorp's very thorough approach to the recruitment of executives and managers who 'fit' their culture of values-based, performance oriented innovation has been an important factor in their long term growth. This is consistent with Kristof-Brown, Zimmerman and Johnson's (2005) meta-analysis of individual 'fit' and Khazanchi, Lewis and Boyer's (2007) findings about the impact of shared values on performance and co-innovation. The apparent importance of values fit for CS3 was an unexpected finding and it is believed that this is the first identification of such an influence in the agrifood industry.

7.4.4 Implications for chain collaboration theory

This research has two implications for collaboration theory. Firstly, the Literature Review suggests a simplification of the inter-organisational conditions that facilitate co-innovation; relational competence, cultural compatibility, co-innovation architecture and co-innovation competence (Appendix 2). The conclusions discussed earlier in answering SRQs 1 and 2 suggest that high levels of the inter-organisational conditions identified were associated with high performance and co-innovativeness whilst their absence was associated with low performance and lack of co-innovativeness. This typology of co-innovation facilitators has the advantages of brevity in a profusion of often poorly defined concepts and so provides a new contribution to value chain management. The extent of theoretical support for each component of the construct suggests that further research may be able to refine and validate the underlying variables.

Secondly, Defee (2007) found that whilst supply chain leadership is a well-recognised factor in value chain management, supply chain followership had been neglected. Consequently, he proposed a single construct, the "Supply Chain Network Classification" (p.110), involving the interaction of transformational leadership and followership and suggested that it was associated with innovativeness. In what appears to be the first use of his construct in the analysis of an agrifood value chain, it was found that his notion of transformational leadership and followership does appear to be a factor in mediating co-innovation.

7.5 Implications for policy and practice

In addition to the theoretical contributions there were also implications for both public sector policy and private sector management. These are explicated in the following sub-sections.

7.5.1 Public sector policy

The role of government intervention in the private sector is very much a moot point in today's society, and Osborne and Gaebler (1992) famously said governments should "...steer not row..." (p. 76). There are innumerable ways government can intervene but it usually occurs at an industry level and involves policy, regulation, promotion of new industries or industry improvement and public interest strategy support to achieve change that benefits the public.

The process of changing businesses requires a change in mental models (Barr, Stimpert & Huff 1992; Binotto et al. 2004; Van de Ven, Andrew H. & Sun 2011; Walker et al. 2006) and Pandza and Thorpe (2009) suggest that mental models are important to resisting change. So, the finding from this research regarding how to incentivise co-innovation in the agrifood industry has three implications for government. It can be used to:

- i. Assist industry development policies by explicating a systematic process for incentivising change to achieve the establishment or improved competitiveness of value chain systems;
- ii. Focus market development support on training industry personnel, consultants and government agents on incentivising chains;
- iii. Focus government extension to farmers on value chain management and transformational followership.

They will be discussed sequentially. Firstly, establishing new industries or improving competitiveness in existing industries requires existing businesses and chains to change. They will only do so when they perceive the benefits that will accrue to them as a result and this is called self-interest (Jensen 1994). Section 2.9 has explained how the incentivisation of chains is essentially the alignment of self-interested parties across the chain (Gottschalg & Zollo 2007; Sirmon, Hitt & Ireland 2007). So, if industries and geographical regions are comprised of value chains, public policy interest in incentivising change at that level can focus on aligning policy initiatives with value chain incentives. This can be done by aligning ‘policy incentives’ with the interests of the chains in focus. Just as in designing chain incentives, this may involve a range of incentives, economic, normative and social to ensure that the desired behaviour within the chain meets the public policy needs of government. This may require ‘whole-of-government’ approaches (Bourn 2001; Management Advisory Committee 2004; Peters 2005; Wollman 2003) to bring a sufficient range of government functions to bear on the issue. A recent example in Tasmania has been the implementation of a policy to develop a national ‘food bowl’ based on Tasmania’s relative wealth in water resources (Isaac 2010; West, J 2009) which required the involvement of economic, agricultural extension and agricultural research agencies to facilitate the engagement of farmers and processors in new value chains and new product development.

Secondly, the identification of mental models as being important for the development of co-innovation in the agrifood industry has implications for public training and advisory services. The finding that managers at all stages of the chain need to have mental models that facilitate co-innovation through the choice of hybrid forms of governance, developing the facilitative conditions and incentivising it using multiple forms of incentives at multiple levels in the chain aligned with strategy is one which suggests that executives are either recruited with or develop those mental models. The former will be dealt with in the next section because it is a matter for individual

businesses, so the implication in focus is that which suggests the public sector could engage in changing the mental models of existing managers in the industry. This would be particularly pertinent where farmers are highly conservative or have been involved in dysfunctional chains in the past (e.g. the disaffected, antagonistic farmers in CS2).

Thirdly, this research also identified the importance to co-innovation of Defee's (2007) notion of 'transformational leadership/followership'. Generally, the value chain leaders are the dominant firm in the chain (Maloni & Benton 2000) and they coordinate the way in which the chain partners behave in a quasi-hierarchical manner (Altenburg 2006) including influencing collaborative innovation through the types of inter-organisational relationships in which collaboration is embedded (Davis 2005). The implications of transformational leadership are largely for consideration by the lead firm and will be discussed in the following section, but the issue of transformational followership by primary producers is one which could be the subject of intervention by government through extension or formal training courses, particularly in the establishment of new product chains where value, attitudes and norms are not so deeply entrenched.

Any training/extension interventions may best focus on a combination of mental models and transformational leadership/followership and may include:

- Notions of individual versus group mental models; how they are formed, maintained and changed;
- How mental models affect governance, incentives and contracting, and co-innovation;
- How achieving strategic goals requires the alignment of strategy with governance (contracts and incentives) and other supporting HRM functions;
- The nature of innovation and co-innovation;
- The notion of transformational leadership and transformational followership and how it is developed;
- The notion of strategic 'fit', particularly partner fit with chain vision, strategy and values and the implications for both processors and farm suppliers.

7.5.2 Private sector management

This investigation into three contrasting agrifood value chains suggests that there are five priority issues that need to be addressed by private sector managers:

- a) The mental models of their managers;
- b) Their selection of the form of governance;
- c) The design of their incentive system and the form of contracting employed to coordinate their chain;

- d) Achieving partner fit;
- e) The management of co-innovation.

Firstly, in the last three decades there has been a growing interest in hybrid forms of governance (Makadok & Coff 2009; Ménard 2004) although they are perceived as difficult to manage (Barringer & Harrison 2000) and have a high failure rate (Nickerson & Silverman 2003; Park & Ungson 2001). Pandza and Thorpe (2009) suggest that when managers are faced with bounded rationality they will rely on their mental models but Gary and Wood (2011) found that more accurate mental models were associated with higher performance. This suggests that companies should ensure that their managers' mental models are accurate with respect to the strategic and operational environment and the internal status of the firm, and are cognisant with the chosen form of governance and corporate values. This is a matter of both professional development (training and experience) and recruiting the 'right people' (Greenfresh B20 in Section 6.3.1.4). Hence, it is recommended that companies address both these issues as matters to be purposefully managed on a continual basis. This should be guided by the relevant co-innovation facilitators identified in this research (relational competence, compatible cultures (including values) and co-innovation competence).

Secondly, it is important to understand the effects of managers' choice of governance on chain coordination per se and how that affects the nature of incentives and contracting options, and ultimately co-innovation. The finding in this research that hybrid forms of governance will involve individualised incentivisation and relational contracting based on more intensive management with possibly higher skill levels, will not be appropriate for every company. As Albers, Gehring and Heurmann (2003) and Fisher (1997) have pointed out, the choice is a matter of strategy and matching the type of product (functional or innovative) to the appropriate type of chain (efficient or market responsive) and then choosing a suitable form of governance; bilateral (more democratic and negotiated) if focusing on innovative products in market responsive chains, or unilateral (top-down, centralised and decision-making by fiat) for functional products in efficient chains (Albers 2005; Albers, Gehring & Heurmann 2003).

Thirdly, the finding in this research that incentive systems for co-innovation should align individual, firm and chain incentives with chain strategy employing an individualised mix of purposefully managed incentives supported by other HRM functions will be a challenge to many in the agrifood industry (e.g. Decloid and their mental model that social and intrinsic incentives were too hard to manage and measure). Installing such an incentive system requires a high level of collaboration internally between function managers and externally with chain partners. Such external collaboration presumes the alignment of vision and strategy, trust, long-term relationships, a high level of organisational and partner fit with culture and shared co-innovation architecture. But this is complicated and difficult (Barringer & Harrison 2000; Pittaway et al. 2004) and will only be regarded

as an option by those lead firms with mental models that see an opportunity to develop a competitive advantage for the chain that is difficult to imitate (Hunt & Davis 2008; Ketchen & Hult 2007; Sirmon, Hitt & Ireland 2007). Most importantly, managers will need to see a pay-off that they otherwise would not have available if they are going to implement this model of incentivisation. Ultimately this will involve the creation of additional consumer value and its fair redistribution amongst chain partners according to their effort in creating that value (Fearne, Duffy & Hornibrook 2005).

Fourthly, this study has found that achieving value chain partner fit or congruence for a mix of business and relational characteristics (e.g. relational factors such as vision, goals, strategy, culture, values and systems) is very important to long-term co-innovation. This extends previous work by Kotey and Meredith (1997), Saxton (1997) Lavie, Haunschild and Khanna (2011) in other industries into the agrifood arena. The case studies in this investigation exemplified some of the problems of either the failure to carefully select partners (CS1 - Heritage Co) or not being able to do so because of market conditions (CS2 - Decloid). However, it also highlighted some of the strengths of doing so in CS3 where there was a high level of trust, long term commitment and shared benefit that had arisen from careful partner selection and *ex post* management of congruence by SaladCorp. The SaladCorp example also exemplifies the costs of this strategy both in terms of the engagement process when they had lost a large investment in a relationship by withdrawing on the basis of a clash in values, and also in the overall cost of managing the on-going process. Not every lead firm will see such costs as justified; again it comes back to the mental models of the managers concerned. If the strategy fits with their mental models of doing business, and they see an advantage in its contribution to co-innovativeness, then they will engage with it. However, for existing chains the change will be difficult. For example, in CS2, Decloid discussed at length with this researcher the feasibility of reducing their suppliers from approximately two hundred and forty farmers to about sixty and identified the high social and political costs of doing so. Thus, ensuring partner fit is a component of transformational leadership because it is a process of the lead firm creating a chain that fits their mental model of how to deliver value to consumers in the most efficient and effective manner. Ensuring that the suppliers are appropriate transformational followers is part of that function (Defee 2007).

Finally, this research found that the manner in which co-innovation was managed was also important to its successful implementation. The important elements appeared to be:

- Purposeful management – an active, purposeful, goal-directed chain management process;
- Leadership and followership – transformational leadership and followership;
- Culture management – a high level of alignment of strategy, culture values and incentives with coordination of incentives by the lead firm;

- Role of values – the lead firm selects partners on the basis of fit or congruence between values, culture and strategy;
- Co-innovation architecture – an integrated system of communication, decision-making and performance management systems for people in businesses;
- Exercise of power – buyer-supplier inter-dependence regardless of power symmetry

7.6 Limitations

Section 1.6 has previously discussed the methodological delimitations of this thesis which bounded the scope of this research design. This section discusses the limitations beyond the control of this researcher which became apparent during the research process (Perry, 2002). These limitations are acknowledged but do not detract from the importance of the findings.

In considering the limitations of this research it is useful to firstly identify the strengths of the research design. The research design incorporated three contrasting case studies in two culturally closely related English-speaking countries, Australia and Canada, representing different forms of governance which allowed a cross-case analysis of factors involved in incentivising co-innovation. Data were gathered from one hundred and twenty eight semi-structured interviews of at least one hour duration using convergent interviewing techniques and triangulated with each other, company documents and researcher observations until data saturation occurred. Interview transcripts were validated with the participants and draft findings were validated by the senior executives of each lead firm.

Nevertheless, this research has limitations that readers should be aware of as they consider the research findings. Most relate to the phenomenological research strategy adopted to provide exploratory answers to the problem of how people are incentivised to co-innovate in agrifood value chains. The aim was to provide some illumination of a specific problem that few had studied; hence, the research was exploratory and it was intended that the findings may highlight areas for further research and practice change by managers. Interestingly, in this research, the CEO's of the lead firms in CS2 and CS3, both quite large companies, commented without prompting that this research was the first time they had ever understood the dynamics of how their chain worked.

Firstly, there are limitations in attempting to generalise from context-dependent phenomenological case studies. However, the purpose of this multi-disciplinary study was to try to understand the phenomenon from many different theoretical perspectives to discover how things might work and identify areas where fruitful research might be conducted in the future. Thus, it was not so much about prediction as discovering researchable propositions (Hycner 1999). The “transferability ... [or] ... fittingness” (Patton 2002, p. 584) to another context will be dependent on the congruence of the new context with that of the case studies in this research. The interpretation of that congruence is the responsibility of the person in the new context (Lincoln & Guba 1985). There is no claim of

generalisability to other value chains, alliances or networks in the probabilistic sense but the findings have limited applicability by adding to theoretical understanding for similar phenomena in similar settings (Fossey et al. 2002).

Secondly, this research will not be directly replicable because it is context-dependent but provides a high level of ‘dependability’ which may provide some utility in other similar contexts with careful interpretation. The precise nature of the complex, dynamic human and corporate relationships, market conditions, internal company conditions and the wider socio-economic environment would be all but impossible to replicate. That is, phenomenological research occurs at a moment in time and that moment can never be captured or constructed again, so in the sense in which objectivist science might regard this research, every value chain is different. However, the control that is inherent in replication for objective methods is to be found in the phenomenological researchers’ ability to explicate his context and perspective on the data so that the reader, understanding that context and adopting the same perspective could also see what the researcher saw even if they did not agree with it (Giorgi 1975). This is what Lincoln and Guba (1985) call “dependability” (p.299), a factor which, if achieved confers “credibility” (pp.316-7). Improving dependability in this research has been facilitated in the manner recommended by Lincoln and Guba (1985, pp. 318-9): the triangulation of methods, multiple data sources, the falsification process through convergent/divergent interviewing and the involvement of third parties in validating the data with the executive group in each of the participating lead firms and the Advisory Panel (Appendix 4).

Thirdly, inherent in the nature of semi-structured interviews is the problem of “confabulation” (Hycner 1999, p. 296) which is the danger that people fill in their gaps of knowledge or tell the interviewer what they think the interviewer wants to hear. An example of this occurred in the findings regarding executive incentivisation where the executives appeared to be much more broadly motivated than suggested by the literature. The counter-balance to this problem was three-fold:

- i. The researcher has himself had nearly forty years of business management experience and of that nearly twenty years was as a senior executive or CEO so that his ability to detect confabulation is well developed.
- ii. The research method incorporated triangulation of interviews and written documents as well as observations of processes and organisational operations. This triangulation occurred through the interviewing and document review process, seeking to identify both convergent and divergent data.
- iii. Interviews continued until ‘data saturation’ occurred (Guest, Bunce & Johnson 2006) which, given the high level of openness experienced by the researcher in his interviews, meant that outlying views had ample opportunity to be expressed. Despite the best efforts of research

design and process, the problem of confabulation is one which cannot be eradicated, however the researcher is of the belief that, to whatever degree it has occurred, it has not biased the findings.

Fourthly, some will criticise the incorporation of case studies from two countries. The rationale for this (Section 3.5.3.6.1) focused on the close cultural similarity between Australia and Canada (Hofstede 1983, 1993; Inglehart & Welzel 2005; Inglehart & Welzel 2011) and methodological appropriateness and adequacy (Earley & Singh 1995; Tsui, Nifadkar & Ou 2007; Van der Stede 2009). Whilst this potential criticism is acknowledged, the researcher has assiduously addressed the methodological recommendations from the literature and so, at least for this exploratory research, the findings based on the case study comparisons appear to have high construct validity.

Finally, some will criticise the subjective influence of the researcher in both interviewing and analysis. However, the orientation in phenomenology is different from naturalistic research in that objectivity for the researcher is about being as comprehensive or inclusive of data as possible and also about methodological sufficiency to understand the phenomenon as fully as possible (Hycner 1999). In addition, the researcher suspended all pre-judgements about what might be 'real' and attempted to build reality in terms of the experience of the individual participants by 'bracketing' his own pre-conceptions to understand the phenomenon through the voices of the participants (Laverly 2003).

Therefore, whilst the research limitations are acknowledged they do not detract from the importance of the findings because of the contrasting cases, the number of interviews and methodological design which minimises these limitations.

7.7 Implications for methodology

The two main contributions of this research for the methodology of investigating value chains is to highlight the utility of multi-disciplinary approaches and conducting investigations of the phenomena in focus across the multiple levels that comprise a value chain system. At least for exploratory research of value chains, multi-disciplinary investigations enable the building of the epistemological foundations for answering complex questions (Love 2002). Chapter 2 noted that several analyses of the literature in the supply chain field have lamented the lack of cross-disciplinary approaches (Friedland 2004; Halldorsson et al. 2007; Sachan & Datta 2005; Werner & Ward 2004). For instance, in this research the adoption of a multidisciplinary approach has demonstrated the importance of incentivisation, often considered as part of an operational HRM function, to the strategic management of co-innovation which is now recognised as a core consideration of companies for competitive advantage.

Secondly, if chains are regarded as systems (Chroneer & Mirijamdotter 2009; Verdouw et al. 2011) then understanding systemic phenomena can be assisted by multi-level investigations, particularly

where traditionally they have been examined at the firm or industry level of analysis. In this study, for example, understanding how chains are incentivised required an understanding across the chain, firm and individual levels because of the connectedness of the individual and firm level phenomena with the form of governance and the approaches adopted by the lead firm.

An additional finding is that exploratory, qualitative research employing case studies in different but closely related countries can have sufficient content validity for contextualised application. This is contingent on obtaining a thorough understanding of national cultural and situational differences (Ayca et al. 2000) and supports Peng, Nisbett and Wong's (1997) assertion that qualitative approaches may have improved validity over quantitative approaches in cross-cultural exploratory research.

7.8 Implications for further research

Many of the findings of this research are worthy of further research. Firstly, the link between managers' mental models and some of the key influences on incentivisation and motivation need to be established. For example, the form of governance chosen has an important effect on the nature of chain relationships and incentivisation, the conception of 'innovation' appears to have a major influence on the way it is implemented; and mental models of what incentives are appropriate affect the balance of incentive types employed.

Secondly, the four facilitating conditions and their component variables appeared to have a direct relationship in encouraging co-innovation. Further work to establish their validity and discriminatory power would bring simplicity and coherence into a crowded theoretical field so have scope for quantitative approaches such as exploratory and confirmatory factor analysis or principle components analysis. For example, the 'relational competence' condition included the components of trust, interdependence, commitment, communication and power. The literature suggests that trust and commitment (Seppänen, Blomqvist & Sundqvist 2007) and trust and interdependence (Van de Ven, A. H. & Ring 2005) are inter-related. The question is, are they components of one factor, such as 'inter-organisational trust'? This appears to be an important question because simplifying the construct may render it more easily investigated or managed in practice and trust appears to be very important for co-innovation and collaboration per se.

Thirdly, the proposition from this research of a complex multi-level construct of multiple types of incentives involved in co-innovation is highly context-dependent; that is, what works in one situation at one point in time will not always work in other situations. Further research using tools such as Bayesian Belief Networks that enable sensitivity analysis to be undertaken might be helpful to managers as they design their own chain incentive systems. Anderson and Lenz (2001) have identified their utility for predicting the impacts of organisational change action and Bryceson and Smith (2008) have applied them to agrifood contexts.

Finally, this research identified several theories that may be useful if further developed for the agrifood industry. Defee's (2007) construct of transformational leadership and followership appeared to be useful for understanding chain co-innovativeness and may be worth further investigation. The cultural mismatch presented major problems which contributed to the development of an antagonistic, opportunistic chain. Understanding the dynamics of Defee's model and how to achieve transformational followership in a conservative rural community could be very helpful to developing co-innovative agrifood chains. Similarly, the application of the Fishbein and Ajzen's (2010) Theory of Planned Behaviour to management group decision-making and implementation processes in the agrifood area may complement the earlier recommendation about mental model research.

7.9 Chapter summary

As stated in Chapter 1, the overall aim of this research into agrifood co-innovation was to provide researchers, farmers and agrifood managers with an understanding of "how collaborative innovation in agrifood value chains is incentivised".

In addressing this research aim this chapter has sought to provide an understanding of the key findings from the three case studies as they relate to the subsidiary research questions and the emergent themes. It confirmed the theoretical model (with minor amendment) illustrating the inter-relationships between strategic governance factors, inter-organisational facilitators and intra-organisational factors such as firm, executive and individual incentivisation, highlighting the complexity of the phenomenon of incentivisation in agrifood value chains. A number of propositions were developed that may provide the basis for future research and identified the unique contributions of the research of the multi-level model to agrifood value chain incentivisation. The implications for theory of value chains, incentivisation and motivation, co-innovation and collaboration were discussed, as were implications for practical managers. The chapter concluded with consideration of the research limitations and its implications for methodology and provided some guidance for future research.

Appendix 1.1 – 1.4: Mapping relevant theoretical perspectives in VCM**Appendix 1.1: The Strategic management perspective**

The strategic management perspective contributes to understanding that firms collaborate in chains to manage their uncertainties about the supply of resources and competencies necessary to develop a competitive advantage that is inimitable and non-substitutable. They determine their scale and scope as a strategic response to the environment, whether or not their strategic posture is competitive or collaborative, adjusting continuously to their environment and choosing chain partners on the basis of cultural fit. Whilst on one hand this perspective emphasises the macro-contextual factors it also recognises that economic actions are determined by the social context of the decision makers and the firm itself and that informal relationships and flows across the inter-organisational spaces are significant determinants of cultural fit and organisational adaptiveness (Table 1.1).

Importantly for this research, the strategic management perspective highlights the importance of firm/chain competencies and the motivation of staff thus underpinning the concept that incentivisation may be a strategic issue for value chains. Further, it also views chains as systems and the managers and staff within them as actors subject in their economic activities to the influences of their social context. Thus, there is a strong link to the Relational Perspective to be reviewed shortly.

The implications of the strategic management perspective for the Value Chain Innovation Roadmap are significant as it underpins the whole organisation and its relationship with its suppliers and customers (competitive or collaborative), but particularly regarding its strategic posture and direction (vision, culture and leadership) and its structure and processes. Thus, it drives the concept of a shared vision and compatible structures and processes between the chain partners and other organisational characteristics critical to co-innovation such as its policies regarding mutual benefits and open communication.

Table 1.1: Theoretical components of the strategic management perspective

Theory	Description	Sources
1. Game theory	Involves the prediction of outcomes using complex simulations of cooperative strategy involving two or more actors with interdependent interests. Reduces firms to single actors.	(Child, J., Faulkner & Tallman 2005)
2. Contingency theory	Postulates that organisational effectiveness is dependant on fitting the characteristics (e.g. structure) of the organisation to its contingencies, its environment (the rate of change determines either mechanistic or organic type of structure), size (determining bureaucracy) and strategies (determining diversification of structure) adopted. This leads to the notion of organisational 'fit' to the firm's environment. A firm's performance depends on the closeness of this fit so firms are motivated to continuously adjust to maintain fit.	(Donaldson 2001; Ketchen, JDJ & Hult, GTM 2007)
3. Organisational perspectives	Focuses on structure, process, control, autonomy and learning. In the inter-organisational spaces between chain partner's flows of informal information, influence, power and decision-making are more important than formal structures and lead to enhanced cultural fit and adaptivity to the environment.	(Child, J., Faulkner & Tallman 2005)
4. Resource dependency theory	Illuminates the reasons why firms collaborate and how they deal with the uncertainties of the supply of essential productive resources and human competencies. Demonstrates that when there are resource and competency scarcities firms will collaborate. It also highlights the importance of competencies as well as the importance of managing the motivation of staff to achieve synergies across the partner organisations (in contrast to RBT).	(Child, J., Faulkner & Tallman 2005)
5. Social network theory	Economic actions are determined by their social context and, in particular, the position of decision-makers and their firms within the social networks. Social networks are a persistent structure of relationships between individuals or organisations that collaborate on the basis of socially binding open-ended implicit contracts.	(Child, J., Faulkner & Tallman 2005)
6. Strategic management theory	Focuses particularly on strategic fit for successful chain partnerships but also on motives for collaboration, selection of compatible partners and integration of partner cultures and systems. Is more sophisticated than TCE or MPT because it allows contingent choice of either competitive or cooperative strategies by the actors.	(Child, J., Faulkner & Tallman 2005)
7. Sustainable competitive advantage	Initially proposed as the need for firms to differentiate themselves, the modern concept of sustainable competitive advantage (SCA) that is the focus of value chains, emerged in 1984. Barney's (1991) definition: "A firm is said to have a sustained competitive advantage when it is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors and when these other firms are unable to duplicate the benefits of this strategy (<i>italics in original</i>)" (p. 102).	(Barney, J 1991; Burgess, Singh & Koroglu 2006; Hoffman 2000; Vincent, Bharadwaj & Challagalla 2005)
8. Industrial organisation theory	Industrial organization theory in economics relates to how firms adjust their strategic behavior in response to their market environment. It is now strongly related theoretically to game theory and has been the field that sought to develop a theory of the firm; that is, why firms exist and what determines their scale and scope.	(Conner 1991; Duysters, Heimeriks & Jurriens 2004)

Appendix 1.2 Mapping relevant theoretical perspectives in VCM - Economic perspective

The economic perspective predicts the form of governance that optimises transaction costs across value chains and regards intellectual property and codified knowledge as resources whose rights can be transferred. However, it is not necessarily wedded to the lowest cost configurations and proposes that higher costs are acceptable if they result in higher transactional rents. It is concerned with both tangible and intangible resources that confer sustainable competitive advantage (SCA) through rarity, value, inimitability and non-substitutability. The economic perspective highlights the importance of strategic contracting to agents to carry out functions on behalf of and in the interest of the principal as situationally determined the success of which is in large part determined by formal contracts (although recognising the importance of eventual informal contracts/obligation) and incentivisation. It has some links to the strategic perspective in that it sees firms improving their macro-positioning in the market through either competitive or collaborative behaviour and aligning their external threats and opportunities with internal constraints to continuously change to restore fit but does so with a strong economic view. This perspective regards value chains as real options for partners to reduce the uncertainty of acquiring resources or competence without future to investment or commitment. It recognises the pressure operating on individuals that determines behaviour focused on the actor's need to give a plausible rationale for their behaviour to their stakeholders (Table 1.2).

The economic perspective is a fundamental one within supply chain management and logistics. Conceptually in the Value Chain Innovation Roadmap it underpins the concept of efficiency in material flows or process innovation, 'added value' as costs of production as opposed to 'consumer values' based on attributes as well as cost. It also has implications for resource management in that it broadens the notion of assets, the important contribution of economic incentives and the pre-eminence of the new product development (NPD) function as innovation. Its recognition of intangible resources enables a broader base for analysis within the Roadmap of the value of relationships and knowledge (tacit and explicit) and non-economic incentives whilst enabling broader forms of innovation outside of product and service innovation.

Table 1.2: Theoretical components of the economic perspective

Theory	Description	Sources
1. Agency theory (also known as Principal-Agent Theory)	A dyadic focus where a principal agent requires an agent to undertake an action to meet the principal's goals. Is context specific and contract-based to ensure that the principal's best interests are achieved and focuses on efficiency as effectiveness. Recognises that environmental factors beyond principal's control (market changes, competitor behaviour and technological changes) will affect outcomes and that agents can provide some of this. Incentives drive agent behaviour.	(Child, J., Faulkner & Tallman 2005; Hornibrook 2007; Ketchen & Giunipero 2004; Ketchen, DJ & Hult, GTM 2007)
2. Increasing returns theory	Postulates the strategy to achieve continuing increasing returns; that is, lock in consumers early so that market dominance can be achieved over the long term enabling continuously increasing returns (e.g. Microsoft).	(Child, J., Faulkner & Tallman 2005)
3. Institutional theory	Is a field of politics that proposes organisational behaviour is driven by the desire of organisational actors to give a plausible and meaningful rationale for their actions to a wide range of constituents (e.g. shareholders, customers, governments) and particularly those whom they depend on for physical, financial, human or credence capital. It also postulates that the institutional environment places significant pressure to justify actions and motivates them to conform to rules and norms.	(Dacin, Oliver & Roy 2007; Ketchen & Giunipero 2004; Ketchen, JDJ & Hult, GTM 2007)
4. Market power theory	Firms can improve competitive success by strengthening market position through competitive or cooperative strategies. Is deterministic, focusing on macro-contextual factors and lacks relational considerations.	(Child, J., Faulkner & Tallman 2005)
5. Property rights theory	Is related to TCE and Agency theories but is able to explain and predict decision-making regarding knowledge-based resources and Intellectual property. It defines an economic rights view of how people can use resources, which are essentially aggregations of property rights, through informal (etiquette, custom) and formal (legal sanction) mechanisms. The transfer of rights to control the attributes of a resource is the focus of control, usually but not only through formal contracts.	(Kim & Mahoney 2005)
6. Real-options theory	Regards alliances and value chains as real options with the right partners but not the obligation to invest under conditions of uncertainty in a new market, technology or an acquisition. Contractual and socially-embedded cooperation have no independent assets but reduce uncertainty about partners, markets and technology whilst reducing the risk of present acquisition but not excluding its possibility in the future.	(Child, J., Faulkner & Tallman 2005)
7. Resource-based theory	Concerned with physical, human or organisational assets, knowledge or skill-based resources (capabilities or competencies) that confer sustainable competitive advantage through their rarity, inimitability, value and non-substitutability. These are largely knowledge based, are evolutionary and idiosyncratic to specific relationships. Considers acquisition, merger, outsourcing and collaboration.	(Ketchen & Giunipero 2004) (Child, J., Faulkner & Tallman 2005; Halldorsson et al. 2007)

8.Strategic choice	This theory is important to organisational adaptation and seeks a balance between environmental determinism and strategic choice. It is comprised of a dynamic, cyclical process of simultaneously aligning external opportunities or threats with organisational constraints and then bringing about change in the firm to align with its environment in an optimal manner.	(Child, John 1997; Hrebiniak & Joyce 1985; Ketchen, DJ & Hult, GTM 2007; Miles & Snow 2007)
9.Transaction cost economics (TCE)	Predicts the form of governance for arranging, managing and monitoring transaction costs across chains – market-based, internalised or hybrid. Lacks relational considerations that reduce opportunism or bounded rationality and build commitment; is highly codified and ethno-centric to the West.	(Child, J., Faulkner & Tallman 2005; Hornibrook, S 2007)
10. Transaction value theory	Combines TCE theory and RBTs to propose that higher costs for a bundle of activities should be acceptable if they realise higher transactional rents or vice versa. It avoids attachment to cost reduction per se.	(Child, J., Faulkner & Tallman 2005)

Appendix 1.3 Mapping relevant theoretical perspectives in VCM - Relational perspective

The relational perspective is fundamental to the concept of the Value Chain Innovation Roadmap as it provides the principles of formal and informal governance of chains as collaborative systems and the notion of the capacity to use relational interaction with chain partners to develop informal, idiosyncratic processes that improve the productivity of other resources and add SCA.

It does this by explaining the development and change of culture, the dynamics of its permeable boundaries (change) and homeostatic mechanisms (resistance). It provides underpinning concepts of how value congruency affects morale and motivation and how cultures become innovative. It also highlights how social networks are fundamental to the development of trust, commitment, reciprocity and communication within and between firms and how these can facilitate or constrain co-innovation. It also explains the basis of long term relationships and how social interaction facilitates the development of trust and commitment and the co-adaptation of culture and processes to align with consumer values.

The relationship perspective views the environment of firms/chains as a system of inter-relationships and influences and seeks to understand the chaotic interactions between them to understand behaviour and identify leverage points to achieve change. It explains how organisations acquire information and learn as a shared context for change, develop new knowledge and capabilities and influence decision-making. This includes the development of anticipatory skills, processes and mental models to develop foresight and innovation, map alternative futures, improve planning and increase chain resilience.

At an individual level it explains how individuals act with bounded rationality, make decisions with limited knowledge and collaborate to overcome these constraints. It also explains how managers optimise the level of conflict by sequential decision-making and ‘satisficing’¹⁰³ rather than optimising utility for the firm.

The relationship perspective also postulates how procedural and distributive justice facilitate desired agent behaviours, long term relationships increasing trust and commitment, partner satisfaction and decreasing conflict. It shows that commitment and trust develop when the chain partners provide resources, opportunities and benefits superior to competitors, act ethically, communicate valuable information openly and do not act opportunistically (Table 1.3).

¹⁰³ Satisficing is a decision-making strategy which, under conditions of bounded rationality, the limitations of human cognition and environmental influences, attempts to meet criteria for adequacy, rather than to identify an optimal solution (Byron 1998).

Table 1.3: Theoretical components of the relational perspective

Theory	Description	Sources
1. Commitment-Trust theory	Forms the basis for relationship marketing. It encompasses all forms of marketing that are aimed at establishing, developing and maintaining exchange relationships over the longer term. Commitment and trust develop when chain partners provide resources, opportunities, and benefits that are superior to those of other potential partners; practice high standards of corporate values; communicate valuable information; and do not exploit their chain partners.	(Morgan & Hunt 1994)
2. Behavioural theory	The behavioural approach attempts to explain how decisions are made in organisations under conditions of complexity and uncertainty where managers possess bounded rationality or limited knowledge. The individuals involved are influenced by their own aspirations and conflicting interests and so use strategies such as sequential decision-taking and 'satisficing' to optimise the level of personal conflict.	(Ketchen & Giunipero 2004; Simon 1997)
3. Dynamic capability view	Refers to the capacity of firms and chains to develop over time by relational interaction, organisationally embedded, knowledge-based, firm-specific, formal and informal processes to improve the productivity of other resources possessed by the firm.	(Duysters, Heimeriks & Jurriens 2004; Makadok 2001)
4. Social exchange theory	Postulates that the outcomes of procedural and distributive justice in value chain relationships engender the development of desired behaviours, long term relationships and ultimately result in decreased conflict and increased satisfaction amongst chain members. Commitment is strongly associated with trust and thus has strong links to Commitment –Trust Theory.	(Cook 1977; Duffy, Fearne & Hornibrook 2003; Griffith, Harvey & Lusch 2006; Kwon & Suh 2004)
5. Strategic Foresight	The process of creating and maintaining high-quality, coherent and functional forward views by analysing the sources, patterns, and causes of change and stability in order to develop foresight, map alternative futures and to use the insights arising in organisationally useful ways.	(Slaughter 1999)
6. Theories of Knowing and Learning	Provides insight into how organisations and chains use information to align with external change and foster internal growth. It studies how individuals and groups acquire and use information to create identity and a shared context for action; develop new knowledge and capabilities; and, influence decision-making that commits resources and capabilities to achieve their goals.	(Choo & Bontis 2002; Miles & Snow 2007; Sporleder & Peterson 2003)
7. Network theory	Focuses on the reciprocity of cooperative relationships as an essential variable in the performance in value chains facilitated by the interaction of social exchange and co-adaptation as continuous processes. It aims to facilitate adaptation through long term, trust-based relationships and emphasises the development of personal chemistry between individuals, trust, communication and the mutual adaptation of routines and systems to provide customisation to align with consumer values and needs.	(Halldorsson et al. 2007)
8. Organisation learning theory	Organisational Learning (OL) is a process where knowledge is acquired, distributed, interpreted and applied in an organisation. A firm's capacity to recognise and understand potential new knowledge through exploratory learning, assimilate it through transformative learning, and exploit that knowledge in useful ways through exploitative learning is called its 'absorptive capacity'. It has been strongly linked to innovation and firm performance.	(Adams & Lamont 2003; Choo & Bontis 2002; Duysters, Heimeriks & Jurriens 2004; Lane, Koka & Pathak 2006; Nonaka, von Krogh & Voelpel 2006; Templeton, Lewis & Snyder 2002)

9. Organisational culture theory	Organisational culture is dynamic, ambiguous and inconsistent due to the individual cultural backgrounds that comprise it. Culture is postulated as having permeable boundaries and homeostatic requiring management intervention to achieve organizational change. It is comprised of assumptions, values and artifacts that leaders attempt to change by introducing new values, and communication is critical to the development of shared interpretations. Value congruency across the organisation is the key to morale and culture; in particular, firm identity and market orientation are suggested to be important in determining responses to the environment and innovation.	(Hatch 2004; McCloskey 2006; Scott-Findlay & Estabrooks 2006; Wei & Morgan 2004; Ziegler 2004)
10. Relational contracting theory	Relates to the governance, management and coordination of the inter-firm relationships in a value chain. It envisages the chain as a system where attributes, events or activities in one part affect the attributes and performance of the whole system. It is based on notions of trust but still allows for a legal foundation. It includes shared vision and goals, mutual respect, shared risks, long term relationship, costs and benefits, open communication, and a credence and collaborative base for the relationship.	(Duysters, Heimeriks & Jurriens 2004; Skjoett-Larsen, Thernoe & Andresen 2003; Wathne & Heide 2004; Xu & Beamon 2006)
11. Social capital theory	Social capital theory recognises the networks of social relationships between people as having value. In a value chain context this relates to the social networks that build up trust, commitment and communication between individuals within and most importantly for co-innovation, between firms. However, the theory also envisages that the degree to which these relationships are embedded in the network also may constrain the individual's expectations and behaviour thereby constraining the options that the chain seeks outside the network.	(Duysters, Heimeriks & Jurriens 2004; Ketchen, DJ & Hult, GTM 2007; Omta, Trienekens & Beers 2001)
12. Social embeddedness theory	This is very closely related to Social Capital Theory however because of its importance to co-innovation it is treated separately here. Social embeddedness is the extent to which economic actions are mixed with or linked to actions and institutions that are non-economic in their goals, content or processes and result in an economic advantage.	(Duysters, Heimeriks & Jurriens 2004; Granovetter 1985, 2005)
13. Systems theory	Systems theory sees the world and the operating environment for firms/chains as a complex of inter-relationships and influences. It seeks to understand the complex, chaotic interactions between them to understand the structures, patterns and events that effect behaviour and identify leverage points to achieve change.	(Ashby 1957; Checkland 1981; Checkland & Scholes 1990; Meadows 1999; von Bertalanffy 1968)

Thus, the relational perspective focuses on the driving power of the characteristics of people, the culture of organisations and their relationships in achieving strategic outcomes and economic performance. It links strongly to some theories in the economic and strategic management perspectives, such as motivation, resource based theory and social network theory providing the human and affective dimensions for these concepts.

The relationship perspective and the value of the human assets to the supply chain are frequently overlooked by researchers and senior managers alike and are increasingly regarded as the critical variable in innovation and performance (Barney, JB & Wright 1998; Fawcett, Magnan & McCarter 2005; Sosik et al. 2005; Whittington & Evans 2005). This perspective provides the core underpinning principles for the Value Chain Innovation Roadmap, particularly in explaining the strategic human dynamics of vision, culture and leadership and the critical enablers of innovation, open communication, trust and commitment, ability and motivation. Both at a firm and chain level shared

vision, cultural alignment and strategic leadership are posited as critical for successful collaborative innovation. Likewise, the roadmap model suggests that shared learning and the aggregation of knowledge and intellectual property (IP) across the chain combined with extrinsic and intrinsic motivation is necessary to encourage individual employees to exhibit co-innovative behaviour and firms to act in the interests of the chain and not themselves.

Appendix 1.4 Mapping relevant theoretical perspectives in VCM - Technological perspective

The technological perspective (Table 1.4) posits that in order to control a complex system such as a value chain, the governance system must generate at least as much complexity as the system that it is trying to control. The perspective regards technological solutions as the key enabler of value chain management and innovation. This encompasses a broad range of systems and processes typically focusing on information systems. However, the fundamental focus is on reducing the dynamic internal or market based constraints that limit the performance of chains and their component firms. This emphasises the flow of materials downstream to the consumer and information and data upstream from the consumer to the retailer, logistics providers, processors and producers.

Table 1.4: Theoretical components of the technological perspective

Theory	Description	Sources
1. Theory of constraints	The theory of constraints (TOC) postulates that every organisation or system has at least one internal or market constraint limiting the performance of the system. This must be identified and managed to reduce the bottleneck. The constraints may change over time due to changes flowing from the solution of the initial problem or environmental changes. TOC is the basis for a replenishment model in value chains as opposed to a forecast model. It has spawned a suite of integrated management tools encompassing logistics/production, performance measurement, and problem solving/thinking tools.	(Berry & Smith 2005; Goldratt 1999; Houle 1998; Watson, Blackstone & Gardiner 2007)
2. Viable systems model (VSM)	Viable systems are those able to maintain a separate existence through their problem-solving capacity, adaptiveness and ability to respond to catastrophic events. The VSM postulates a recursive model of five interacting subsystems for structuring the management, business processes and communications of groups of people, machines and resources that combine to produce goods and services. Its recursive nature means that its principles are replicated from the smallest unit to organisational, chain, industry and market levels. It is used to design structural mechanisms and analyse asymmetrical power, control and communication processes, and relationships with the external environment.	(Beer 1981, 1984, 2004; Espejo 2003; Johannessen, Olaisen & Olsen 1999; McCarthy et al. 2006)
3. Law of requisite variety	This postulates that there is infinite complexity in any environment in which a firm may be operating and that if management attempted to deal with this alone it would be quickly overwhelmed. To control that (external) system, processes must be designed to interact with the environment to generate at least the same level of complexity as the system itself (the requisite variety) and the managers interact with those processes rather than the environment.	(Ashby 1957; Jaatinen et al. 2006; Johannessen, Olaisen & Olsen 1999; McCarthy et al. 2006; Moss 2001; von Krogh, Erat & Macus 2000)

However, the technological perspective also has other strategic implications in that it relates to overall organisational and systems design. Chains are regarded as recursive systems (business unit to organisation to chain to industry to market) that to be viable and resilient require five basic elements to survive; external intelligence and policy-making, internal monitoring, coordination and control. These enable management, business processes and communications to work together to solve problems, adapt and cope with catastrophic events in the production of goods and services

For the Value Chain Innovation Roadmap, this perspective provides essential underpinning theory for the communications, demand management and performance management functions. It can be used to analyse structural mechanisms and asymmetrical power, control and communication processes, as well as relationships (environmental and competitor) with the external environment.

This section has provided a framework for classifying four perspectives of value chain management and an overview of some of the major theories that comprise them. The review identified at least thirty four relevant theories and briefly described their contribution to the perspective and to the dynamics of the Value Chain Co-innovation Roadmap.

Consistent with the Roadmap and the multi-disciplinary approach on which it is based, this thesis will be primarily be based around the relational perspective but also incorporate many aspects of the other three perspectives but particularly the strategic management and the economic perspectives.

Appendix 2: The facilitators of co-innovation

Core construct	Component	Source	Findings	Outcomes/Implications
Relational competence Marshall et al. (2006); Blomqvist and Levy (2006); Lipparini and Sobrero (2003); Lambe, Spekman and Hunt (2000).	Trust	Ebert (2007)	Key trust variables partnership/collaboration, commitment, cooperation, performance, useability, transactions costs, & control.	Culture, nature of independence & opportunism are critical to trust.
		Kohtamäki, Kekäle and Vittala (2004)	Trust & the mechanisms that drive it vary with stage of development. Implementation of values critical determinant. Trust drives level & type of innovation.	Values, trust & innovation are linked.
		Kwon and Suh (2004)	Information sharing reduces behavioural uncertainty which improves trust & commitment & is related to relationship-specific investments.	Trust linked to commitment & relationship-specific investments.
		Kramer (1999)	Trust is difficult to create & sustain because it is dynamic & fragile.	Trust generates important benefits e.g. increases engagement, willingness to follow
		Sydow (1998)	Inter-organisational trust is linked more to specific individuals than internal trust.	Maintenance of boundary-spanners, communication, simultaneous cooperation & independence is essential
		Castaldo (2003)	Trust is a complex construct; a continuum between faith & confidence; between not having/having evidence/experience. Typology of 3 forms; the most abstract is 'identification/personal values' trust.	Enables flexibility for exploratory or innovative trust.
		Zaheer and Harris (2006)	Plays a critical role in the governance of inter-organisational relationships; it can substitute for or complement asset specificity, contracts, routines & calculativeness.	Improved economic & relational outcomes; the latter being improved flexibility, information-sharing, knowledge transfer & reduced relational risk.
		Morgan and Hunt (1994)	Relationship commitment & trust are related. Shared values, communication, benefits & costs of termination all contribute to commitment whilst opportunism & the use of coercive power reduce commitment.	Increases cooperation, acquiescence & functional (constructive) conflict, reduces uncertainty, the propensity to leave & negative conflict.
	Commitment	Blomqvist and Levy (2006)	Essential element of collaboration capability along with trust & communication & lead to "pro-relationship behaviours" (p. 33). Is essential to a firm's relational competence.	Collaboration capability a pre-requisite for leveraging knowledge into innovation & develop relationship-specific assets, invest in knowledge exchange & learning, & lower transaction costs.
		Owen et al. (2008)	Collaborative culture takes time & commitment to develop & must be linked to leadership incentivising desirable behaviour, performance management & constant learning & improvement.	Collaborative innovation
		Baxter (2005)	The level of commitment is one of two critical constructs essential for inter-organisational collaboration.	Reduced transaction costs, risk & relationship uncertainty.
	Interdependence	Spekman et al. (1998)	Degree to which partners recognise their dependence on partners for creating value. Associated with information-sharing.	Reduces opportunism.
		Lazzarini, Chaddad and Cook (2001)	Performance relies on the form of governance & how their interdependencies effectively deliver value to consumers.	Interdependencies need to be designed to facilitate collaborative innovation & enable the capture the benefits from innovation.

Core construct	Component	Source	Findings	Outcomes/Implications
		Hendrikse (2003)	Governance & alignment affect complementarity & interdependence which are linked to system innovation.	Provide appropriate incentives to coordinate the chain & achieve the strategic alignment necessary for complementarity & interdependence.
		Hülsheger, Anderson and Salgado (2009)	Goal interdependence significantly positively related to group innovation.	Provide clear group goals. Individual group members should have interdependent individual goals with incentives linked to the group's goals. Facilitate communication.
		McCarter and Northcraft (2007)	Proposes that fear of opportunism increases with the number of chain partners & this leads to lowered trust & under-investment.	The quality of communication, length of alliance & rewards for cooperating all increase investment & inter-dependence.
		O'Reilly, Haines and Arfani (2003)	Competitiveness will increasingly require firms to develop relational competencies to manage inter-firm dependencies to attain production scale efficiencies.	Co- investment & development to create value.
		Gulati and Singh (1998)	Type of governance is chosen to manage coordination costs & appropriation as well as to coordinate chain tasks & responsibilities to create value & allay specific concerns about the alliance.	The greater the coordination costs the more hierarchical governance is to achieve control. Reciprocal interdependencies are more hierarchical than sequential interdependencies.
		Mohr and Spekman (1994)	Quality of communication is critical to development of trust, commitment & coordination. Also participatory approaches, openness & support for collaboration & benefit sharing.	Alignment of partner expectations, goals & objectives which is important to partnership success.
		Sydow (1998)	The frequency & openness of communication increases trust but must be system-wide not just boundary spanners. Cyclical – trust increases communication.	Development of trust which is of "outstanding importance" (p. 56) for network relationships.
		Monge, Cozzens and Contractor (1992)	Individual & group communication significant positively related to the level of innovation. Requires systematic dissemination of information & carefully managed communication.	Increased innovation which, due to its dynamic nature, must be monitored & managed through communication & incentivization.
		Hummel et al (2001)	Communication critical in the early stages of innovation. Is inter-related to other variables in this phase & iterative.	Communication needs to be systematically managed t each stage of innovation.
		Ebadi and Utterback (1984)	At individual level frequency & informality of communication important to innovation. At group level, the concentration & diversity of communications is important.	Important to create a company environment conducive to communication & involve people with innovation experience in joint innovation projects.
		Ziegler (2004)	Communication important to collaboration & its importance increases with complexity of the situation. Social interaction is the basis of communication.	Directly related to organisational commitment, employee satisfaction, perceived organisational support & productivity; that is, organisational performance per se.
		Cousins et al. (2006)	Informal socialisation processes creates supply chain relational capital. But improved trust resulting may insulate firms from independent information-seeking.	Improved designs, products & responsiveness.
		Wilkinson (1996)	The manner in which power is used affects the future relationship through the feedback mechanism. Lead firms must assess if issue is one of power or incentive design.	Power should be exercised in the least conflict-oriented manner. Power is situationally specific.
	Power, equity and justice	Matopoulos et al.(2007)	Trust, dependence, risk/reward sharing & power are	Provides the basis for partner selection &

Core construct	Component	Source	Findings	Outcomes/Implications
Cultural compatibility Campbell and Sankaran (2005) Emden, Calantone and Droge (2006) Huemer (2004) Roberts (2010)	Management leadership style		essential for chain relationship establishment & maintenance.	collaboration.
		Ferrer et al. (2010)	Sharing, power & interdependence significantly influence chain relationships.	The more emphasis on using power the less cooperation. The greater the importance of sharing & interdependency the more likely power use is to result in arms-length relationships.
		Ferrer et al. (2009)	Collaborative relationships found to have cost, flexibility & responsiveness benefits.	Shift from contract-based to collaborative relationships.
		Feame, Duffy and Hornbrook (2005)	Procedural justice rather than distributive justice is the main concern for chain partners, particularly in commodity markets. Differential types of relationships based on status of supplier.	Supermarket low price strategies do not necessarily disadvantage small agrifood suppliers.
		Hornbrook, Feame & Lazzarin (2009)	Little multi-level research in agrifood. Highlights link between fairness & achieving competitive advantage: it involves procedural & distributive fairness & behavioural fairness.	Buyers should include this behavioural dimension for selection, recruitment & training buying staff.
		Harvey (2007)	Power is historically & socially driven. Consumers & regulation are major determinants of nature of transactions. Price is not as dominant as expected.	Price is not the single determinant of consumer value. Understanding consumer conceptions of value in the operational context is paramount.
		Maloni and Benton (2000)	Exercise of power plays critical role in the chain. Strong relationships enhance performance & promote integrative development. Exploitation of power has a negative effect.	Power should be exercised to build relationships, develop integration & thereby improve chain performance.
		Benton and Maloni (2005)	Supplier satisfaction primarily driven by the nature of the relationship with buyer rather than performance.	Power-holders should emphasise relationship-driven strategies rather than performance-driven which will enhance performance.
		Cox et al (2002) Cox (2004)	Identifies five value appropriation, power & relationship management (RM) styles.	Relationship alignment follows from managing the correlation between power, appropriate RM & sourcing options.
		Cox (2007) Cox and Chicksand (2007)	Power in value chains is the ability to leverage structural and cognitive resources to appropriate value. Power in vertical relationships always involves contested exchange and non-commensurability. Identifies nine possible outcomes from vertical exchange.	Proposes three dimensions of power: 1) Observable asymmetry of outcomes; 2) Obscured asymmetry of outcomes observed & rectified by structural power; 3) Fully obscured asymmetry of outcomes.
		Defee (2007)	Supply chain leadership influences others by policy & boundary spanning, identifies change issues & creates vision, establishes r'ships with others.	Attributes & competencies used to coordinate the chain.
		Wielemaker (2003)	Organisational conditions & knowledge co-evolve during the innovation process. Management must focus on this convergence.	Management style must vary over time & stage of innovation process & this involves the knowledge base & firm conditions.
		Elenkov, Judge and Wright (2005)	Strategic leadership behaviours correlated with multiple forms of innovation particularly through vision development, intellectual stimulation & contingent reward behaviour.	Leadership emphasise vision development & intellectual stimulation for product-market innovation & contingent reward leadership for administrative innovations.
		Bechtold (1997)	Developing a collaborative management culture is essential to enculturate & operationalise strategic thinking & link with internal/external information flows, external	A collaborative management culture.

Core construct	Component	Source	Findings	Outcomes/Implications
	Transparency	Lamming et al. (2001)	relationships & freedom to think & act creatively. Supplier is part of risk management process through knowledge of the value stream, markets etc.	Information shared selectively as justified. Development of information leads to shared knowledge & collaborative abilities.
		Boddy, Macbeth and Wagner (2000)	Collaborative partnering a dynamic, emergent process with uncertain & uneven outcomes for commitment & innovation.	Involves business processes, technology, resources, structure, people, culture & power.
		Helper, MacDuffie and Sabel (2000)	Information is shared on a selective & justified basis. Development of information leads to shared knowledge & learning, collaborative abilities & innovation. Co-investment facilitates, boundaries are more permeable & communication is crucial.	Development of dynamic structures able to prosper in volatile environments that jointly explore what they want to do as they are doing it.
		Deimel, Frentrup and Theuvsen (2008)	Multiple factors involved in transparency; supply chain characteristics, transaction processes, transactor's behaviour & relationship quality.	Improved performance from transparency based on perceived extent of being informed, benefits/opportunities & risks.
		Hofstede (2002)	A multidisciplinary approach is needed in three levels of transparency: history transparency (e.g. tracking & tracing), operations transparency (e.g. collaborative logistics planning) & strategy transparency (e.g. futuring & joint innovation).	Anticipation of market, improved & focused capacity development, responsiveness driven by shared purpose.
		Grunert (2004);	Higher heterogeneity & dynamism in the market increases MO. Relational capacity facilitates trust & commitment, information flows.	This dynamism concentrates MO downstream & requires more/wider dissemination of intelligence. Manager's mental models affect the extent of MO.
	Market orientation (MO)	Vázquez, Santos and Álvarez (2001)	MO significantly positively associated with higher innovation rates and NPD innovations with positive effects on performance.	Implementation of market orientation strategy stimulates innovation & results in improved provision of consumer value.
		Grinstein (2008)	MO strongly correlated with an entrepreneurial, learning, employee & innovation orientation, particularly with openness to new ideas & high novelty.	MO must be supported by a market-oriented culture & belief system; this inherently involves multiple strategic orientations & more complex culture & beliefs.
		Keskin (2006)	Learning-orientation mediates MO into effective behaviour to facilitate innovation. Innovativeness positively associated with performance. Inc. knowledge sharing, shared vision & openness.	Disseminating information to promote MO & leveraging employee/partner learning facilitates active experimentation, creativity & innovation.
		Baker and Sinkula (2005)	The strong MO-oriented performance decays with shift from NPD success to profitability & market share. Breakthrough learning must be associated with breakthrough innovation or get –ve impact.	Firms must coordinate a strong market orientation with resources & capabilities that increase the effectiveness of the marketing function.
	Learning Organisation (LO/OL) and Knowledge Management (KM)	McGill, Slocum and Lei (1992)	An LO learns collectively & continuously transforms itself to adapt to its environment; empowering people to learn from experience by reflexion on successes & failures.	OL/LO promotes adaptive businesses & chains.
		Argote and Ingram (2000)	Interactions among people, tasks, & tools are least likely to be transferable to a new context & hence are the most difficult to transfer.	Knowledge embedded in the interactions of people, tools, & tasks provides a basis for competitive advantage in firms.
		Calantone, Cavusgil and	Strategic thinking & innovation identified as a related	LO seeks to understand its wider environment

Core construct	Component	Source	Findings	Outcomes/Implications
		Zhao (2002) Costanzo (2004)	learning capacities.	including customers, consumers, competitors, technology & takes a long term view of the wider forces influencing its future development.
		Bontis and Fitz-enz (2002) Darroch and McNaughton (2002) Dunne (2006)	The systematic management of knowledge has been found to be significantly correlated with all types of innovation.	Organisational learning & knowledge needs to be systematically managed.
		Berghman (2006)	Collaborative relationships difficult. Require mutually beneficial collaboration objectives & transformational lead firm.	Develops advantages by building trust, communication & efficiency.
			Est. strategic learning mechanisms for recognition, assimilation & transformation strongly associated with innovation; with assimilation being most important. Info dissemination & risk-taking culture are critical.	Deliberate interventions possible & practical; is far more important than positioning or chain/product characteristics. Key issues are deep learning r/ships with customers/consumers, reflexive practices & leveraging chain partner knowledge.
		Hernández-Espallardo, Rodríguez-Orejuela and Sánchez-Pérez (2010)	Learning improves chain performance & positively related to trust development, co-investment but less with the use of behavioural controls.	Use governance mechanisms to facilitate knowledge-sharing, learning & performance in supply chains.
		Defee and Fugate	Strategic chain orientation & learning organisation capabilities are both internal & inter-organisational. They must be managed between partners by dynamic boundary-spanning capabilities.	Firm attitudes to collaboration & joint capability development is a critical success factor for innovation. Managers should select best fit partners for co-development and purposefully manage the processes.
		Wagner (2003)	Close relationships between chain partners fosters inter-organisational tacit and explicit learning, diffusion and accelerating growth of knowledge. Information sharing and communication are fundamental. Inter-organisational teams were the mechanisms for learning and knowledge transfer.	Organisational learning and knowledge management become central to competitive advantage.
		Burgess (2004)	OL is dynamic & is an antecedent variable that enhances innovation. As such, learning is mediated by social climate (trust, power, collaboration & interaction- participation). Governance has a major effect on information/knowledge sharing & inter-firm learning.	Social climate variables mainly influence responsiveness & effectiveness of change & increase in importance with the sophistication of the chain due to OL needs. Thus, social climate variables need to be purposefully managed for innovation.
		Pearce and Ensley (2004)	A shared vision is a mental model about a future state for the chain and the tasks that have to be done by all the chain participants to achieve that goal.	It is a value-based mental image of a supply chain system that every member wants to create in the future.
		Jaatinen et al (2006) Spekman , Kamauff Jr. and Myhr (1998)	A shared vision is a powerful tool for managing networks by creating a common goal, assisting the search for common values, focusing on the consumer & directing learning & innovation.	A common vision & values significantly assists in the willingness to share information. It helps to reduce the cognitive distance between firms & build trust & commitment.
Governance architecture Simatupang and Sridharan (2002; 2007) Jaatinen et al (2006) Park and Ungson	Shared vision and goals	Kim and Mauborgne (2009)	Failure to align strategy is a key reason for innovation failure. Firms need to choose between structuralist & reconstructionist approaches to strategy.	The structuralist approach for pursuing either differentiation or low cost & the reconstructionist approach where pursuing both differentiation or

Core construct	Component	Source	Findings	Outcomes/Implications
(2001) Nooteboom (2004)	Incentive alignment	Gattorna, Ogulin and Reynolds (2003)	Ideally mutually reinforcing visions & strategies within firms & across the chain to deliver value to the consumer. Requires understanding of the competitive environment & awareness of capabilities combined with a chain & externally-oriented culture & flexible, profit-oriented leadership.	low cost. Alignment between strategies, organisational capabilities, culture & leadership style.
		Dulaimi et al (2003)	An innovation is more likely to be successful if firms are motivated, optimistic about the results and exert additional effort.	Innovation is more likely to be successful if firms are motivated, optimistic about sharing in the benefits and exert additional effort because their interests are incorporated.
		Simatupang and Sridharan (2007)	Collaborative effort to create value that benefits whole chain requires motivation through aligned incentives. Need to be self-enforcing & distribute benefits according to the value-creating effort.	Effective incentive systems generate a whole-of-chain outlook & focus on the chain's strategic goals.
		Narayanan and Raman (2004); Cameron and Quinn (2006); Lee (2004); Prendergast (1999)	Chain incentives need to be aligned to maximise effort on the shared goal. Requires transparency, information sharing & well designed incentives. Also need to build trust & redesign contracts to reward partners for acting in the chain's interest.	To align chain incentives, lead firms need to conduct incentive audits of chain partners, educate their managers about chain partners, use case studies of other firms.
		Gottschalg (2004)	Posits that employee interest alignment through extrinsic & two types of intrinsic incentives (hedonic & normative) mediates potential firm performance into actual firm performance.	Generates economic rents and competitive advantage.
	Information sharing	Simatupang and Sridharan (2007)	Enables chain members to capture, store & use the information necessary for chain collaboration, decision-making & performance monitoring.	Unifies the elements of chain collaboration. Enables planning, forecasting, monitoring product flows, replenishment, costs & performance.
		Kaipia (2007)	The key issues are the existence, availability & usability of information to all chain partners. Info sharing more valuable as demand variance increases.	Moderates the bullwhip effect.
		Baihaqui (2007)	Australian manufacturing survey data showing that sharing often limited to operational data due to concerns about risk.	Assists chain efficiency, effectiveness, agility & responsiveness.
		Sezen (2008)	Integration & information sharing correlated with improved flexibility, resource & output performance.	Focus on chain design.
		Li et al. (2006)	Information sharing found to counter demand amplification (bullwhip effect) & the effect depends on demand patterns & chain structure.	Improved performance.
		Patnayakuni, Rai and Seth (2006)	Adopting long-term approaches by investing in tangible & intangible r'ship-specific resources for supply chain r'ships, including formal & informal interactive routines, enable the integration of info flows with supply chain partners.	Redressing information asymmetry reduces transaction risks & improves coordination.
	Decision synchronisation	Simatupang and Sridharan (2007)	Decision synchronisation fosters collaboration between supply chain members by coordinating the critical decisions involved in planning and execution of chain activities to	It aligns decisions with performance, specifies information needs, justifies aligned incentives, reveals feedback on tasks completed, and carries

Core construct	Component	Source	Findings	Outcomes/Implications
	A collaborative performance management system		optimise supply chain profitability.	out productive tasks that link to the overall integration of supply chain processes. Improves chain member turnover, profit and ROI.
		Simatupang and Sridharan (2007)	Joint design, implementation and monitoring of chain and partner performance metrics to achieve their shared objectives. Chain objectives cascade down to firm and individual objectives.	
		(Cohen, Kulp & Randall 2007; Delfmann & Albers 2000; Shen 2005)	A collaborative value chain needs to be able to direct, monitor & control the behaviour of the partner firms to achieve an optimal outcome for all the chain participants.	An effective performance system does this through devising appropriate metrics & data sharing.
		(Mehra 2005; Narayanan & Raman 2004)	A necessity for alignment of performance metrics so that they work synergistically to promote the behaviours that benefit the whole chain	
	Integrated chain processes	Bagchi et al (2002)	The level of integration is situationally dependant	A number of key determinants: core competence of the firms involved, market dynamics, type of products (functional or innovative), industry maturity, power-dependence relationships.
		Simatupang and Sridharan (2007); Trienekens, Hagen and Willems (2003); Kudyba (2006)	Value chain management is consumer oriented and aims to integrate the accurate forecasting of consumer demand, business planning, balancing supply and demand spanning the entire chain from producer to the consumer. Increasingly this is facilitated by information and communication technology (ICT).	Significant inefficiencies in inventory management, production, logistics and storage costs which improves Delivery In Full, On Time (DIFOT) to customers and consumers.
		Defee (2007)	Boundary spanning is the key to external perceptions of supply chain leadership and firm behaviour and is necessary for effective performance. Informal more important than formal.	Rewards are the key to appropriate boundary behaviour.
	Boundary-spanning	Hazy, Tivnan and Schwandt (2003)	Boundary spanning are those activities that involve interaction with people outside of the organisation necessary to coordinate chain activities and to build trust with partners.	It is the critical link between the firm and its environment and is closely linked to organisational learning and adaptation.
		Hallenbeck Jr., Hautaluoma and Bates (1999)	Boundary spanning involves high levels of tacit knowledge of the social networks.	It must be closely supported by knowledge management.
		Lane, Koka and Pathak (2006)	Boundary spanning is an important function to acquire new knowledge, improve inter-organisational learning and mental models and drive innovation.	Depending on the permeability of the organisational boundary, the amount of boundary spanning activity positively affects firm performance.
		Callahan and Salpante Jr. (1979) Shu, Wong and Lee (2005)	Because this is an organisational learning and adaptive function, boundary spanning is linked to a firm's ability to recognise important new knowledge in the environment, assimilate it and apply it.	New knowledge facilitates radical innovation.
		Taylor (2005)	Boundary objects are an essential part of the boundary spanning function and are the formalised inter-organisational artifacts.	They play a mediating role of intersecting social worlds of collaborating organisations.
		(Bolton & Dwyer	To build trust and manage power in chains firms need to	Potential improvement of entrepreneurship

Core construct	Component	Source	Findings	Outcomes/Implications
Innovation competence Gellynck, Vermeire and Viaene (2006); Gellynck, Xavier, Vermeire and Viaene (2007) Lawson and Samson (2001); Malerba and Marengo (1995); Manseau and Shields (2005)	Innovation leadership and followership	2003)(Bolton & Dwyer 2003) Ireland and Webb (2007)	develop effective boundary-spanning, a common identity, form a trust and maintain inter-organisational justice facilitates cultural competitiveness.	(inclusive of innovativeness) and competitive advantage.
		Defee (2007)	Transformational leadership & transformational followership have a significant effect on chain performance & is associated with higher performance in several parameters including innovativeness.	Inspire a sense of purpose, stimulate partners to be more creative & innovative, and provides 'individualised consideration' of development needs & incentivisation for partners.
		Elenkov, Judge and Wright (2005)	Strategic leadership behaviours correlated with multiple forms of innovation particularly through vision development, intellectual stimulation & contingent reward behaviour.	Leadership emphasise vision development & intellectual stimulation for product-market innovation & contingent reward leadership for administrative innovations.
		Kuratko et al. (2005)	Senior executive's mental models of the link between entrepreneurship & innovation results in incentivisation strategies, firm culture & support that encourages the behaviours.	Middle-level managers need incentivising to place priority on innovation and focus on managing opportunities for identifying, acquiring & deploying resources & for innovation.
		Munshi et al.(2005)	Identifies motivational & structuralist (administrative) views of innovation leadership with two phases: exploration & exploitation. Management style is dependent on type of innovation.	Radical innovation needs transformational leadership with emphasis on values, norms, beliefs & informality. Incremental needs mix of transformational & transactional leadership.
		Bossink (Bossink 2004)	Four basic innovation leadership styles: charismatic, instrumental, strategic and interactive innovation leadership.	These styles vary to fit the situation, but if performed consistently without effort to address knowledge & competence deficiencies it will hinder innovation.
		Sarros, Cooper and Santora (2008)	A competitive, performance-oriented organisational culture was strongly related to the climate for firm innovation primarily through vision articulation but also by setting high performance expectations & providing support.	Strongly links transformational leadership behaviours of visioning, stimulating the intellect & providing support to innovation.
	Foresight (anticipation)	Pitt (2007)	Australian Agrifood study positing that effective innovation strategies are built on scanning & foresight methods to identify global trends & appropriate development strategies.	Improved adaptiveness, innovation & sustainability.
		Dian and Framtidsbygget (2009)	Foresight a human physiological/neurobiological capability to cope with change. Identifies six foresight styles & four conditions which determine the degree to which it is used.	Assists understanding of how ideas are generated and complements innovation diffusion research.
		Ruff (2006)	Corporate foresight practices incorporate long-term market developments, future consumer & customer needs, prospective evaluation of innovations, business processes & change, horizon scanning & monitoring.	Implications for management of teams, idea generation, communication, relationship management & internal culture management to facilitate innovation.
		Andriopoulos and Gotsi (2006)	Foresight practices of perpetual scanning, interpretation & learning enculturated into daily operations.	Enables management of complexities of multiple product innovation.
		De Wit (2004)	Evaluates impacts of foresight practices on Dutch agricultural system innovation.	Effective in creating awareness, building interest & mobilising stakeholders.
		Könnölä, Salo and Brummer (2005)	Foresight not only useful for mapping weak signals but also foster diverse perspectives, collaboration & prospective innovations.	More focused, action-oriented responses to weak signals of change.

Core construct	Component	Source	Findings	Outcomes/Implications
	Innovation strategy	Chugh, Dolly and Bazerman (2007) Chugh, D., Bazerman and Banaji (2005)	Propose the concepts of bounded awareness, and bounded ethicality as limits to human judgement as depicted in economic & decision-making modelling.	Managers over-estimate awareness & underestimate the boundedness of their information-seeking. Consequently they focus on lower priority information & may miss potentially critical issues for adaptation.
		Thaler (2000)	Proposes bounded willpower (greater weight to the present over the future) & bounded self-interest, thus caring about others.	Former leads to short-termism & the latter confounds a fundamental principle of TCE, 'perfect self-interest'.
		Omta and Folstar (2005)	Defines 'innovation strategy' as a series of goal-directed decisions and actions matching a firm's skills & resources with environmental opportunities & threats to meet the market needs (p. 224).	Innovation strategy thus a market & consumer focus for creating value.
		Miles and Snow (1978)	Widely accepted typology of strategic choice: prospector, analyser, defender or reactor.	Prospector strategies are innovation focused.
		Faems and Van Looy (2003)	Innovation performance strongly linked to exploitative (supplier/customer) & exploratory (horizontal) collaboration strategies. Requires balancing incremental & radical innovation.	Inter-organisational collaboration essential to improve innovation performance & address complex issues.
		Fortuin (2006)	Strategic alignment is a capability in itself & balances the internal contingencies of technological & managerial competencies with the market & social environment.	Organisations strive to achieve 'fit' or congruence with their environment. Innovation strategy must be aligned with overall strategy to create efficient, effective value propositions.
		Fortuin and Omta (2009)	Main driver of food industry innovation is retailer pressure in an unequal power regime. Internal innovation capabilities lag other industries.	Improving capabilities by using process monitoring tools, knowledge management and learning capabilities will improve innovation.
		Fuchs, Young and Zweidler-McKay (1998); Easton, Brown and Armitage (1998); Hammer (2006)	Strategic alignment involves achieving a dynamic fit between a firm's capabilities, their position and the environment. It must be underpinned by a aligned culture, communication, appropriate incentives and performance monitoring systems.	Competitive advantage.
	Innovative culture	Dombrowski et al. (2007)	Identify eight elements of organizational innovative culture: innovative mission & vision, democratic communication, collaboration, boundary spanning, flexibility, safe spaces, incentives, & leadership.	Innovative cultures are firm-specific. The 8 elements must be implemented together to be effective & be adapted to context considering industry, competitive context, products, structures, knowledge, ICT, innovation types & mechanisms.
		Knight and Cavusgil (2004)	An innovative culture is critical to innovation performance in small globalised firms. Foundational firm capabilities leverage org. & individual relational knowledge to develop new unique capabilities to sustainably create value.	Globalised firms employ international entrepreneurial & marketing orientation with technological competence to develop unique, quality products & market them by leveraging relationships.
		Berghman (2006)	Cultures that stimulate the recognition & sharing of market information in a non-adversarial environment as normal operational practice leads directly to new strategic	Intelligence gathering & strategic learning are functions for the whole organisation not just marketing. Thus, creating new & superior

Core construct	Component	Source	Findings	Outcomes/Implications
			innovation.	consumer value is based on internal organisational characteristics.
		Hult, Ketchen and Arrfelt (2007)	A culture of competitiveness (inc. competitiveness orientation) interacts with knowledge to enhance chain performance, but this is negatively mediated by environmental turbulence.	A culture of competitiveness and knowledge development orientation are fundamental to innovativeness and entrepreneurship.
		Fallah and Lechler (2008)	Identify three key inter-related dimensions for managing innovation: strategic intent, organisational culture, & formal processes.	To be innovative firms must have an innovative culture, regardless of the type of innovation involved.

Appendix 3: Summary of foundational motivational theory

Theory		Description	Implications for motivating co-innovation
Content Theories	Social Psychology <i>Kurt Lewin (1930s)</i>	Contributed 'Field Theory' that the person, behaviour and his environment must be treated as inextricably interdependent. Also, the foundational theory for leadership climates, force field analysis (resisting & promoting forces) and the freezing/unfreezing of culture. Levels of success based on variables of a) the seeking of success; b) avoidance of failure; c) probability judgment (Cited in Miner 2005; Miner 2006b, 2007; Smith, Schneider & Dickson 2006).	Contributes to the understanding of multi-layered constructs such as value chains as well as cultural change, motivation and satisfying behaviour.
	Achievement Motivation Theory <i>David McClelland</i>	A person has a need for achievement, power and affiliation which emerge over time and with experience and are enabled by novel behaviour and innovation to ensure achievement. The balance of these needs varies with position and role. There is a tension between the needs for affiliation and power which in combination explain management styles and also contributes to the understanding of the acquisition of motivation, individual competence and entrepreneurial performance. Its assumptions of organisational hierarchy and Western cultural context are weaknesses (Miner 2006, 2007; Shields 2007).	Assists understanding of managing motivation and the variable outcomes experienced with motivational strategies for innovation and entrepreneurial behaviour.
	Motivation-Hygiene Theory <i>Frederick Herzberg</i>	Identified two factors that, like hygiene, if absent will result in dissatisfaction but if present do not motivate. They are: a) Motivators that satisfy higher order needs for achievement, recognition, work interest, responsibility and advancement (e.g. recognition, challenging work, responsibility) that satisfy; b) Hygiene factors (e.g. job security, status, and remuneration) which, if absent cause dissatisfaction but if present do not motivate but simply prevent dissatisfaction. Its general impact was to focus strategies on job enrichment (the link is tenuous) (Miner 2006, 2007; Shields 2007).	Contributed to the development of the concepts of intrinsic and extrinsic motivation. Not only are these fundamental to managing organisations may also be critical to achieving co-innovation in chains.
	Job Characteristics Theory - <i>Hackman, Lawler & Oldham</i>	Based on Maslow's Need Hierarchy Theory and Expectancy Theory. Identified the core job characteristics; skill variety, task identity (clear beginning, end and process visibility), task significance, autonomy and feedback. These characteristics have been expanded by Humphrey et al (2007) but these five attributes provide the basis for enriching jobs for individuals and groups in modern management. Some believe intrinsic job characteristics to be the most consistent situational motivators (Miner 2006, 2007).	Foundational to intrinsic motivation for individuals and groups.
Process Theories	Expectancy theories <i>Vroom, Porter and Lawler</i>	The strength of motivation results from: a) job effort; b) job performance, and; c) perceived valences (+/-) of extrinsic or intrinsic outcomes; d) the perceived probability that these outcomes will lead to subsequent outcomes. Particularly effective in highly structured situations. Requires data regarding what employee's value, clear job descriptions, strongly linked performance-reward contingencies and continuous performance monitoring. (Miner 2006, 2007).	One of the foundational theories for modern motivation and incentivisation strategies. Subsequent research strongly confirms the theories but also adds interactions between some of the variables that make outcomes inconsistent.
	Cognitive Evaluation Theory (CET) <i>Deci and Ryan (1985)</i>	Claims that the use of extrinsic rewards can destroy intrinsic motivation, particularly where there is some inherent job interest. Where other process theories are based on pre-cognition or calculative before action, CET posits initial task motivation is likely to be implicit and intrinsic and that individuals only evaluate and rationalise motives retrospectively to their actions. It acknowledges the power of extrinsic reward to control and crowd out intrinsic motivation (Deci, Koestner & Ryan 1999; Deci & Ryan 1985; Ryan & Deci 2000a). However, not all jobs are intrinsically motivating, nor is all motivation impulsive and the two types of motivation appear to be mutually reinforcing in many situations (Shields 2007).	Has important implications for the management of learning, creativity and innovation where it is often difficult to pre-specify work directions and measure performance. The narrow cognitive focus of extrinsic rewards may stifle innovation.
	Goal-setting Theory <i>Locke & Latham</i>	Goals are only significant in the extent to which they are accepted. They have two major attributes: content and intensity (level of importance to the person). Satisfaction is contingent on the size of the discrepancy between performance and the goal. Self-efficacy or the self-perception of adequacy for the task affects goal choice and with personal goals affects performance. Extrinsic rewards influence action by their impact on the individual's goal. Ability, task complexity and personality all moderate the outcomes and contribute to explaining high performance and entrepreneurial behaviour (Locke, Edwin A. 1991; Locke, Edwin A. & Latham 1990; Locke, Edwin A. & Latham 2002; Miner 2006b, 2007).	Particularly pertinent to linking goals to monetary incentives, specifically: stretch goals, multiple goal levels and contingent multiple rewards; linear progression of reward systems, and; motivation by goals but pay contingent on post facto performance.
	Equity Theory <i>Stacy Adams</i>	Is related to Herzberg's Motivation-Hygiene Theory and involves a motivating force striving for equity from a position of perceived negative inequity (distress, dissatisfaction) or striving to maintain inequity where it is positive inequity (guilt). It involves equity, balance and reciprocity (Miner 2006, 2007). The theory extension into 'distributive justice' which contributes to understanding of such phenomena as employee theft, third party reactions to injustice, non-equity distribution rules where special needs exist, individual differences in equity sensitivity and the different referent points used by individuals. Some aspects clash with Expectancy Theory (Miner 2007).	This has implications for distributive justice of cost, risk and benefits for collaborative activities in chains, and the negative chain behaviour and dissatisfaction that results from power asymmetries.

Appendix 4: Members of the Research Advisory Panel

Throughout the Candidacy, the following persons constituted an Advisory Panel providing broad agrifood industry and academic advice:

- **Prof David McNeil**, Director (2008-11), Tasmanian Institute of Agricultural Research (TIAR), Chair of Agricultural Sciences (2006 -) at the University of Tasmania;
- **Prof Andrew Fearne**, University of Kent, Director, Centre for Value Chain Research, Founding Editor of the International Journal of Supply Chain Management;
- **Prof Ray Collins**, School of Agriculture and Food Sciences, The University of Queensland - Australian Government Regional Food Producers Innovation and Productivity Programme;
- **Prof Robert Clark AO**, Foundation Director (1995-08), Tasmanian Institute of Agricultural Research (TIAR), Chair of Agricultural Sciences (1991 - 2006) University of Tasmania - Member, Australian Government Rural Research and Development (R&D) Council, Non-Executive Director and Deputy Chair of Horticulture Australia Ltd.
- **Ben Dent**, Research Fellow at the Centre for Value Chain Research, University of Kent and PhD Candidate in Value Chain Management, the University of Queensland.

Appendix 5A - Ethics Information Sheet & Consent Forms



Incentivising Value Chain Co-innovation Research Project

Research Information Sheet for Companies and Invitation to Participate

This Information Sheet and Invitation to Participate provides information to potential chain participants in a research project on the <Insert the Name of the Value Chain> value chain. This project is part of PhD research being undertaken by Laurie Bonney at the University of Tasmania that aims to identify and describe the variables that affect the collaborative innovation or „co-innovation“ occurring **between** firms in agrifood value chains to determine how co-innovation can be incentivised. The findings are of potential significance for improving the performance of many of Australia’s agrifood value chains.

In 2005, the University of Tasmania and the Tasmanian institute of Agricultural Research (TIAR) formed an international Value Chain Innovation Research (VCIR) team involving some of the world’s leading research scientists in the field and have been conducting research into value chain management in Australian agrifood value chains over the last three years. This research has highlighted a number of potentially important factors that may improve chain performance and one of these is how co-innovation is incentivised within and between companies in value chains. Laurie Bonney, as well as conducting research for his PhD, also coordinates the projects for this group.

This project will investigate a number of agrifood value chains in order to understand how managers incentivise co-innovation between the businesses in an agrifood value chain. Incentives will include contract conditions, performance rewards, recognition systems and other monetary and non-monetary incentives that encourage high performance, commitment and loyalty from employees and suppliers. It has potential significance for Australia’s agrifood industry as many chains are dysfunctional, under-performing due to a lack of innovation and are facing increasing competition in both global and in domestic markets.

If you do participate, you will be contributing to research that may be of significance to your industry and you may also find that there are benefits for your own business. The following information explains:

- The reasons why this research is being done;
- The research procedures;
- The outputs from the project;
- The possible implications for you;
- What to do if you participate but are unhappy with the research procedures;

A formal response to this Information Sheet and Invitation to Participate is attached as a Consent Form for you to complete if you wish to participate in this research.

What's it all about?

The focus for business competition and innovation is now the value chain itself rather than individual firms. Value chain management is a well accepted concept in many other industries (e.g. automotive and electronics industries) and has been found to be a significant contributor to their high performance. However, generally the Australian agrifood industry has been slow to embrace the principles of value chain management and many chains are still seeking to compete on price in global commodity markets and/or have opportunistic and adversarial relationships. Consequently, they face increasing competition in both export and domestic markets. A number of recent government and industry reports have highlighted the importance of improved chain collaboration, integration and innovation to more sustainable competitiveness for the industry.

Managing collaborative innovation or „co-innovation“ between organisations in a value chain is a highly complex strategic and relational activity that involves the human dynamics of employees and managers as well as other inter-organisational factors. The failure rate in „chain improvement“ or „chain integration“ projects is high, yet little research has been conducted into some of the key issues involved in enabling co-innovation. The time is ripe for innovative approaches to value chain management in an effort to improve the sustainable competitive advantage of Australia's agrifood value chains at home and overseas.

Who is Laurie Bonney?

Laurie holds a Post-Graduate Diploma of Agriculture, a Master of Science (Strategic Foresight) from the Australian Foresight Institute and a Masters Degree in Educational Management with Honours from the University of Western Australia (for research into the organisational capability issues associated with change management in large Australian corporations and public sector agencies).

He is currently a Senior Research Fellow and PhD Candidate in value chain innovation with the Tasmanian Institute of Agricultural Research at the University of Tasmania and is researching the role of human dynamics in co-innovation within agri-food value chains. He has recently been working with the Associate Professor Ray Collins from the University of Queensland, Professor Andy Fearne from the University of Kent and Professor Rob Clark from the University of Tasmania on the development of a Value Chain Innovation Index for agri-food value chains.

Between 1997-2007 Laurie was the Managing Director of Strategic Alignment Associates, advising a wide range of clients in business and the public sector in Australia, New Zealand and S.E. Asia in foresight, strategy and change. Earlier in his career he built a reputation as an innovative public sector chief executive and private sector strategic manager and has lectured in Agriculture and Strategic Human Resource Development at the University of Tasmania.

He may be contacted at the School of Agricultural Science, University of Tasmania on Ph: (03) 6226 7460 or Mobile: 0417 404 303 or E-mail: lbbonney@utas.edu.au

What are the aims of the project?

The main research question is: “How are people incentivised to co-innovate in agrifood value chains?”

To answer this question the project aims to:

1. Identify the facilitators and barriers to collaboration in Australian agrifood value chains;
2. Understand what incentives are employed within and between firms in the chain to facilitate collaboration and innovation;

3. Understand how incentives are aligned within and between firms in the chain to facilitate collaboration and innovation.

What are the potential benefits?

Your company may benefit from the project by gaining an understanding of the:

- Benefits of co-innovation for your business;
- Skills and behaviours involved in co-innovation;
- Pre-conditions that facilitate co-innovation and, in particular, incentivise co-innovation;
- Possible ways to improve your relationships with your suppliers and customers in the chain;
- How you may improve the incentivisation of your managers/staff to co-innovate with suppliers and customers.

What does the research involve?

This research involves:

- Interviews of approximately one hour between the researcher, Laurie Bonney, and a number of people involved in the value chain from growers, processors, logistics providers and retailers;
- The provision of any documentation about your relationships with your suppliers and customers that you think might be relevant to the discussion e.g. copies of contracts.

How will the research be conducted and what could be your involvement?

Chief Executive Officers (CEOs) will be asked to:

1. Participate in a one hour interview with the researcher at a time and place convenient to you. This interview will preferably be tape recorded to enable in-depth qualitative analysis and allow a free-ranging discussion to take place. *However, it is important that you feel able to be frank in your views about how the chain works so the research process will provide a very high level of confidentiality.* Exactly how confidentiality will be managed is explained in subsequent sections of this brief;
2. Nominate and authorise a number of managers in your firm who are involved in managing the production/marketing of products to your downstream customer/consumer to participate in similar interviews about their function and relationships with internal/external customers;
3. Encourage some of your upstream suppliers to also participate in this project.

During the interview the topics we would like to discuss are:

- The relationships within and between firms in your value chain;
- The cultures of firms in your value chain;
- The level of innovation within and between firms in your value chain;
- The management structures within and between firms in your value chain;
- The activities and behaviours that facilitate or inhibit collaboration in your value chain;
- The nature of the incentives employed by your company and others in your value chain;
- The alignment of the incentives within and between firms their agrifood chain.

Note that this research does not seek to obtain personal or financial information about you or your managers or your business.

If your company participates, you/your managers may:

- Decline to answer any question;
- Withdraw at any time without fear of any effect or need for explanation; and,
- Withdraw any information they have provided to that point.

What are the risks if you participate?

The University of Tasmania and the researcher, Laurie Bonney, are making every endeavour to ensure that there are no risks to those participating. We are well aware of the importance of confidentiality to value chain participants and have previous experience in handling the often highly confidential material that emerges in this type of research. We are able to provide referees if you wish to speak with other businesses (corporate and SME) regarding the protection of their information during research projects of this nature.

The University of Tasmania on behalf of TIAR will sign legally binding Confidentiality Agreements with the corporate members of your value chain to ensure that their confidential material is protected and not disclosed.

The content of all discussions with individuals or groups or any other information provided by each participating business in a value chain are regarded as highly confidential and will not be communicated in a form that might identify their source or divulge sensitive or commercial-in-confidence information or opinions to other individuals or businesses in that or any other chain or any unauthorised person.

All individual value chains, the businesses that comprise them and the individuals interviewed will be protected by a coded numbering system. The researcher, Laurie Bonney, will hold the master list of participants securely in a locked cabinet and in a high security computer folder. Business or individual names will not appear in any document to identify you as a participant and will not be provided verbally or in writing to anyone.

In the final report (thesis), your value chain will not be named except using a code. Any individual information given or opinions expressed will NOT be identifiable because it will be aggregated with that of many others and will not be sufficiently specific to identify the source. If any direct quotations from interviewees become necessary in the final report they will be attributed to non-identifiable codes and any such quotations will be cleared with the individuals concerned before the publication of the final draft.

Prior to submission of the final thesis, each corporate CEO will receive a draft copy of the sections of the thesis containing potentially sensitive information and be asked to review it and, after making any necessary amendments, authorise it for submission.

An important part of PhD research is the publication of journal articles to contribute to similar research and theoretical development around the world. On average, 1 – 3 such articles would result from a typical PhD project. Prior to the submission of any academic or trade publications based on this research, CEOs will be asked to review any potentially sensitive information and authorise them for publication.

The information and data obtained from these interviews and other research activities will be held securely for five years from the date of first reporting; if electronic in an encrypted file and, if hard copy, in a locked filing cabinet in a secured office in the School of Agricultural Science at the University of Tasmania. Any original documents provided by interviewees will be returned at the completion of the project or at a date specified by the interviewee concerned. After five years, the project data and information will be security shredded. This information will not be used for any other purpose other than those stated.

If you have any further questions about this research or concerns about the risk of participating please don't hesitate in contacting the researcher Laurie Bonney.

How do I find out about the outcomes of the research?

The outcomes of this research will be an academic thesis and several articles published in academic or trade journals, all of which will be available to the public.

However, if your company participates in this research, at the completion of the project:

- The CEO will receive, either by email or via Australia Post, a copy of the thesis and a summary of the Final Report;
- Other managers who are interviewed will receive a Summary of the Final Report.

Concerns or complaints

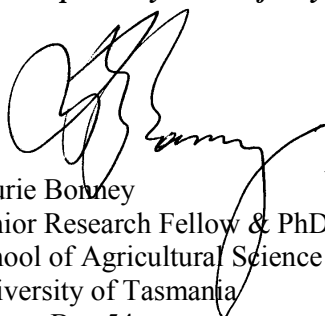
The student is collecting this data for his PhD under the supervision of:

- **Chief Investigator:** Professor David McNeil, Director of the Tasmanian Institute of Technology (Ph: 03 6226 2610)
- **Co-Investigator:** Associate Professor Ray Collins, University of Queensland (Ph: 07 5460 1328)
- **Co-Investigator:** Professor Andrew Fearn, University of Kent (Ph: UK Mob +44 (777) 584 8503)

If you have any concerns about the manner in which this research has been conducted you may contact the senior investigators above or:

The Executive Officer
Human Research Ethics Committee (Tasmania) Network
Ph: 03 6226 7479
Email: human.ethics@utas.edu.au

Thank you for taking the time to read this Information Sheet and Invitation to Participate and I hope that you now feel you can participate in this important project.



Laurie Bonney
Senior Research Fellow & PhD Candidate
School of Agricultural Science
University of Tasmania
Private Bag 54
Hobart Tasmania 7001
Ph: 03 7226 7460
Mobile: 0417 404 303
Email: lbbonney@utas.edu.au

Incentivising Value Chain Co-innovation Research Project

Company Consent Form

We would like to invite you to participate in the Incentivising Value Chain Co-innovation Research Project. This project has developed from previous research undertaken by the Value Chain Innovation Research team at the University of Tasmania and the Tasmanian Institute of Agricultural Research (TIAR) which highlighted a number of potentially important factors that may improve chain performance, one of these being how co-innovation is incentivised within and between companies in value chains.

The nature of this research and the conditions under which the research will be conducted, including the confidentiality arrangements to protect participants and the information they provide has been explained in the attached Research Information Sheet.

In seeking your CONSENT to participate we ask you to confirm the following:

1. I have read and understood the „Research Information Sheet and Invitation to Participate' for this study.
2. The nature and possible effects of the study have been explained to me via the Research Information Sheet and Invitation to Participate.
3. I understand that the study involves the following procedures:
 - a. A semi-structured audio taped interview of approximately one (1) hour with questions as outlined in the Research Information Sheet and Invitation to Participate;
 - b. The possible provision of relevant business information that is **NOT** of a financial or personal nature;
4. I understand that I will **NOT** be expected to answer any questions that make me feel uncomfortable. There will be no questions that require me to divulge financial or personal information about my/my employer's business.
5. I understand that there is a risk associated with:
 - a. Confidentiality and that this has been mitigated by:
 - i. The content of all discussions and any other information provided are regarded as highly confidential and will not be communicated in a form that might identify their source or divulge sensitive or commercial-in-confidence information to any unauthorised person.
 - ii. That the University of Tasmania on behalf of TIAR have signed Confidentiality Agreements with the major processor and retailer in this chain.
 - iii. Any reports or publications arising from this research will NOT contain information which will enable me to be identified or information or opinions that are sensitive to me or my business. This will be achieved by the use of codes to identify individual interviewees, businesses and chains involved in the research.

- iv. That the information and data obtained from will be held securely on the University of Tasmania premises for at least five years; if electronic in an encrypted file and, if hard copy, in a locked filing cabinet in a secured office and that it will be destroyed when no longer required.
6. Any questions that I have asked have been answered to my satisfaction.
7. I agree that research data of a non-confidential nature, provided by me for the study may be used in published outputs, provided that this data cannot be attributed to me as a participant.
8. I understand that my identity will be kept confidential and that any information I supply to the researcher(s) will be used only for the purposes of the research.
9. I understand that prior to commencing analysis, I will be requested to review my interview transcript to approve the incorporation of my data OR amend, exclude sections or withdraw my interview data entirely.
10. I agree to participate in this investigation and understand that I may withdraw at any time without any effect and if I so wish may request that any data I have supplied to date be withdrawn from the research. I also understand that I may withdraw any data I have provided at any time up until analysis commences.

Declaration made at on the day of (Insert Month)
 2008. (Place)

.....
 (Signature of Interviewee)

Statement by Investigator

I have explained this project and the implications of participation in it to this volunteer and I believe that the consent is informed and that he/she understands the implications of participation

The participant has received the Information Sheet in which my details have been provided so that participants have had opportunity to contact me prior to them consenting to participate in this project.

Name of Investigator: Laurie Bonney

Signature of Investigator: Date: / /2008

Incentivising Value Chain Co-innovation Research Project

Producer Consent Form

We would like to invite you to participate in the Incentivising Value Chain Co-innovation Research Project. This project has developed from previous research undertaken by the Value Chain Innovation Research team at the University of Tasmania and the Tasmanian Institute of Agricultural Research (TIAR) which highlighted a number of potentially important factors that may improve chain performance, one of these being how co-innovation is incentivised within and between companies in value chains.

The nature of this research and the conditions under which the research will be conducted, including the confidentiality arrangements to protect participants and the information they provide has been explained in the attached Producer Information Sheet.

In seeking your CONSENT to participate we ask you to confirm the following:

1. I have read and understood the 'Producer Information Sheet and Invitation to Participate' for this study.
2. The nature and possible effects of the study have been explained to me via the Producer Information Sheet and Invitation to Participate.
3. I understand that the study involves the following procedures:
 - a. A semi-structured audio taped interview of approximately one (1) hour with questions as outlined in the Producer Information Sheet and Invitation to Participate;
 - b. The possible provision of relevant business information that is **NOT** of a financial or personal nature;
4. I understand that I will **NOT** be expected to answer any questions that make me feel uncomfortable. There will be no questions that require me to divulge financial or personal information about my/my employer's business.
5. I understand that there is a risk associated with:
 - a. Confidentiality and that this has been mitigated by:
 - i. The content of all discussions and any other information provided are regarded as highly confidential and will not be communicated in a form that might identify their source or divulge sensitive or commercial-in-confidence information to any unauthorised person.
 - ii. That the University of Tasmania on behalf of TIAR have signed Confidentiality Agreements with the major processor and retailer in this chain.
 - iii. Any reports or publications arising from this research will NOT contain information which will enable me to be identified or information or opinions that are sensitive to me or my business. This will be achieved by the use of codes to identify individual interviewees, businesses and chains involved in the research.

- iv. That the information and data obtained from will be held securely on the University of Tasmania premises for at least five years; if electronic in an encrypted file and, if hard copy, in a locked filing cabinet in a secured office and that it will be destroyed when no longer required.
6. Any questions that I have asked have been answered to my satisfaction.
7. I agree that research data of a non-confidential nature, provided by me for the study may be used in published outputs, provided that this data cannot be attributed to me as a participant.
8. I understand that my identity will be kept confidential and that any information I supply to the researcher(s) will be used only for the purposes of the research.
9. I understand that prior to commencing analysis, I will be requested to review my interview transcript to approve the incorporation of my data OR amend, exclude sections or withdraw my interview data entirely.
10. I agree to participate in this investigation and understand that I may withdraw at any time without any effect and if I so wish may request that any data I have supplied to date be withdrawn from the research. I also understand that I may withdraw any data I have provided at any time up until analysis commences.

Declaration made aton theday of
 2008. (Place) (Insert Month)

.....
 (Signature of Interviewee)

Statement by Investigator

I have explained this project and the implications of participation in it to this volunteer and I believe that the consent is informed and that he/she understands the implications of participation

The participant has received the Information Sheet in which my details have been provided so that participants have had opportunity to contact me prior to them consenting to participate in this project.

Name of Investigator: Laurie Bonney

Signature of Investigator:Date: / /2008

Appendix 5B – Research Confidentiality Agreement

THIS CONFIDENTIALITY AGREEMENT IS MADE the 29th day of August 2007

BETWEEN

The University of Tasmania

AND

<Company>

RECITALS:

- A. The Parties are having discussions on value chain innovation research.
- B. The parties possess certain information of a confidential nature which they wish to protect in accordance with the terms and conditions set out in this agreement.

The Parties Agree as Follows:

1. Definitions

1.1. In this Agreement:

"Confidential Information" means:

- a) the information listed in the Schedule
- b) all trade secrets, ideas, know-how, concepts and information whether in writing or otherwise relating in any way to the matters described in item 1 of the Schedule.
- c) all other information relating to the Disclosing Party and its affairs or businesses, sales, marketing or promotional information, which is not in the public domain and includes any such information in the Disclosing Party's power, possession or control concerning or belonging to any other person;

"Ineffective" means void, illegal or unenforceable; and

"Specified Purpose" means the purpose set out in item 2 of the Schedule.

"Disclosing Party" means a party disclosing Confidential Information to the other party(ies).

"Receiving Party" means the party receiving Confidential Information from a Disclosing Party.

2. Access

The Receiving Party acknowledges that it may be given access to Confidential Information of the Disclosing Party, but only for the Specified Purpose, and the Disclosing Party is not obliged to disclose any such information.

3. Obligation of Confidentiality

In consideration of the Disclosing Party allowing the Receiving Party to have access to the Confidential Information, the Receiving Party agrees that it will keep and will ensure that its employees keep confidential the Confidential Information.

4. Duties of Receiving Party

4.1. Non-Disclosure and Use

The Receiving Party will not and will ensure that its employees do not:

- a) disclose any of the Confidential Information to any person other than its employees, contractors and officers who require access for the Specified Purpose (and only to the extent they require access) and who have been expressly directed to and have agreed to keep that information confidential; or
- b) use all or any of the Confidential Information otherwise than for the Specified Purpose.

4.2. Uncertainty

If the Receiving Party is uncertain as to whether any information is Confidential Information, the Receiving Party will treat the information as if it were Confidential Information and as not being in the public domain unless and until the Disclosing Party agrees in writing that the information is in the public domain.

4.3. Precautions

The Receiving Party will take all reasonable precautions to maintain the confidentiality of and to prevent unauthorised access, disclosure or use of the Confidential Information, including:

- a) not copying or reproducing or making any notes, memoranda or soft copies based on the Confidential Information except as strictly necessary and ensuring that all such copies are marked as 'Confidential' with the name of the Disclosing Party; and
- b) maintaining complete, accurate and up to date records of the Receiving Party's copying of the Confidential Information and promptly producing these records to the Disclosing Party on request.

4.4. Unauthorised Disclosure or Use

The Receiving Party will immediately notify the Disclosing Party of any suspected or actual unauthorised disclosure or use of the Confidential Information of which the Receiving Party becomes aware and will take all steps which the Disclosing Party may reasonably require in relation to such unauthorised disclosure or use.

4.5. Return of Confidential Information

At the conclusion of the Specified Purpose or upon the written request of the Disclosing Party, at its own expense, the Receiving Party will immediately deliver to the Disclosing Party all records and materials (and copies of those records and materials) containing or embodying the Confidential Information and that are in the possession of the Receiving Party, its employees and any person to whom the Receiving Party has disclosed all or any of the Confidential Information (whether or not with the consent of the Disclosing Party).

5. Exceptions

The Receiving Party will not be bound to keep confidential any information if and to the extent that:

- a) the information is, or becomes lawfully part of the public domain (this excludes the information becoming public as a result of a breach of this Agreement by the Receiving Party or as a result of disclosure by a party to whom the Receiving Party has disclosed the information);
- b) the information is lawfully obtained by the Receiving Party from another person without any restriction as to use and disclosure;
- c) the information was in the Receiving Party's possession prior to disclosure to it by the Disclosing Party;
- d) the information is required to be disclosed by the operation of any law, stock exchange, judicial or parliamentary body or governmental agency (provided that in such circumstances the Receiving Party must immediately advise the Disclosing Party of the requirement, and fully cooperate in assisting the Disclosing Party to resist such requirement, if it seeks to do so);
- e) the Disclosing Party has authorised in writing the disclosure of the information; or
- f) the information is disclosed by the Receiving Party to its professional advisers who have agreed to keep confidential the Confidential Information.

6. Remedy

The Receiving Party acknowledges and accepts that the Disclosing Party would suffer financial and other loss and damage if the Confidential Information were disclosed to any other person or used for any purpose other than the Specified Purpose and that monetary damages would be an insufficient remedy. The Receiving Party acknowledges and accepts that, in addition to any other remedy which may be available in law or equity, the Disclosing Party is entitled to injunctive relief to prevent a breach of this Agreement and to compel specific performance of this Agreement.

7. Indemnity

7.1. Indemnity for Costs

The Receiving Party indemnifies the Disclosing Party against all costs, expenses, actions or claims directly or indirectly incurred or suffered by the Disclosing Party as a result of any breach of this Agreement by the Receiving Party.

7.2. Scope of Indemnity

The indemnity in Clause 7.1 extends to and includes all costs, damages and expenses incurred by the Disclosing Party in defending and/or settling any such costs, expenses, actions, suits, proceedings, claims or demands (including legal costs and disbursements on a full indemnity basis).

8. Cumulative Rights

The rights arising out of this Agreement do not exclude any other rights of either party.

9. Enforceability

9.1. Effect of Ineffectiveness on Part of the Agreement

Any Clause or part of a Clause of this Agreement which is Ineffective in any jurisdiction is Ineffective only to that extent in that jurisdiction.

9.2. Severance of Ineffective Parts of the Agreement

Where any Clause or part of a Clause is Ineffective it may be severed without affecting any other part of this Agreement.

10. Waiver

10.1.No Waiver Except by Notice in Writing

No right under this Agreement is waived or deemed to be waived except by notice in writing signed by the party waiving the right.

10.2.No Waiver of Subsequent Breaches

A waiver by one party under clause 9.1 does not prejudice its rights in respect of any subsequent breach of this Agreement by the other party.

10.3.No Waiver by Extension or Forbearance

A party does not waive its rights under this Agreement because it grants an extension or forbearance to the other party.

11. Variation

A variation of this Agreement must be in writing and signed by the parties.

12. Governing law and jurisdiction

12.1.Governing Law

This Agreement is governed by the laws of Victoria.

12.2.Jurisdiction

The parties irrevocably submit to the non-exclusive jurisdiction of the courts of Victoria.

13. Execution Clauses

Executed as an Agreement by the parties

Signed for and on behalf of **<The Company>**

By <Company> (Name)
(Signature) (Title)

who warrants by his or her signing that he or she has authority to sign this Agreement.

In the presence of

Witness

..... (Name)
(Signature) (Title)

Signed for and on behalf of:

University of Tasmania

By (Name)
(Signature) (Title)

who warrants by his or her signing that he or she has authority to sign this Agreement.

In the presence of

Witness

..... (Name)
(Signature) (Title)

Schedule

Item 1 Description of subject matter of Confidentiality Obligation (Clauses 1):

Information regarding value chain innovation research, whether oral or written, explicitly described or marked as Confidential Information by the Disclosing Party, or which should reasonably be assumed by its nature to be confidential. The information likely to be disclosed concerns:

- Performance of the main functions of value chain: supplier management, ordering and buying of <The Product>, managing their logistics, inventories and distribution, and managing the retail interface with the customer.
- Efficiency and effectiveness of product flows
- How information flows within the value chain
- Relationships between chain members
- Value chain improvement projects that have the greatest impact on delivery of value to <The Company's> suppliers and customers especially projects involving innovation.

The information will not include financial data.

The information may be disclosed verbally in interviews with staff.

Item 2 Purpose of disclosure (Clauses 1)

The purpose of this Agreement is to allow information exchange to enable the University of Tasmania staff and other Research Team Members, to conduct a value chain innovation research project using the <The Company> Value Chain as a case study. This agreement recognises that some of the information provided to University of Tasmania staff and other Research Team Members may be Confidential Information.

University of Tasmania staff include;

Professor Robert Clark

Mr Lawrence Bonney

Appendix 6: Research Interview Guide

Semi-structured Interview Guide

Preamble

- Introduction of self
- Thanks for being available for interview

Introduction to the researcher

- Tasmanian Institute of Agricultural Research (TIAR)...
- Value chain management is ...
- This research aims to:
 - Evaluate the preparedness of the Value Chain to act collaboratively to create value for consumers through collaborative innovation;
 - Identify improvement projects to enable the <Industry> to embrace the principles of value chain management and work towards collaborative solutions;
- The benefit to you will be...
- **Have you read the Information Sheet?**

The interview

- The interview will be a fairly free ranging discussion of *one (1) hour or so*;
- The questions will *NOT be of a financial or personal* nature;
- You will *NOT be expected to answer any questions that make you feel uncomfortable*.

Confidentiality

- The project is subject to *stringent confidentiality arrangements*:
 - The <Chain> and University of Tasmania will be bound by the *Confidentiality Agreement*;
 - Individuals and commercial-in-confidence *information will not be divulged* to any unauthorised person;
 - The chain, the companies in it and the **interviewees will be coded** so that they cannot be identified and no contextual information will enable it to be identified;
 - You will have the opportunity to *review your interview transcript* and change it PRIOR to it being incorporated into the project data;
 - The CEO of <Lead Firm> will *authorise any public documents* before they are released;
 - That the information and *data obtained from will be held securely* and will be *destroyed* when no longer required.
- If you have any **problems** about how the interview is conducted that we can't resolve or you **wish to raise with an independent third party**, the phone numbers are at the end of your copy of the Consent Form.

The taping of the interview

- All *interviews will be typed up, aggregated* and put through *software for analysis*.
- *I would like to tape this interview which will allow us to have a free-ranging discussion BUT you are not obliged to do so*;
- **Are you willing to sign the interview consent form?**

Question Guide¹⁰⁴

1. Please tell me about your function and responsibilities in the business? (T.9)
2. How long have you been in the company? What is your background? (T.10)
3. What has been happening for you in this function in recent times?
4. How are necessary processes made efficient? How is waste identified and eliminated? (T.15)
5. How does this company determine what the consumers of your products value? (T.2) What do you do with that information? (T.14)
6. How would you describe the culture of this company/chain? (T.3)
7. Does your company have an innovation strategy? (T.1 & 3) How is it managed? (T.5) How does informal innovation occur? (T.12 & 13) Who participates? (T.11)
8. Is there any sharing of information about the operating environment? How is that done? Who is it shared with? (T.14 & 16)
9. Do you share operational experiences and lessons learned? Who is it shared with? (T.14 & 16)
10. How do you communicate with your partners? How often? What sorts of things do you share with your chain partners? How is it made available? (T.4, 5, 6 & 14)
11. How do you manage your boundary-spanners? (T.5)
12. Does this company collaborate with chain partners? (T.5) Have you or are you or chain members engaged in collaborative innovation projects with any chain partners? How successful have they been? What has made them successful/caused them to be unsuccessful? (T.3 & 11)
13. What behaviours by your chain partners encourage your company to collaborate with them? (T.3 & 9) What behaviours discourage your company from collaborating? (T.8)
14. How is co-innovation with chain partners and internal innovation supported by the company? (T.8 & 11)
15. Who drives collaboration and co-innovation within this chain? (T.3, 10 & 11) How do they do that? (T.6) What incentives are offered to suppliers? (T.7) Are the risks, costs and benefits of co-innovation shared?
16. How do you provide incentives to your suppliers to meet your needs? (T.7)
17. What incentives do your customers provide you to meet their needs? (T.7)
18. What are the incentives for employees and managers to collaborate? What are the incentives to innovate? (T.7)
19. How is that done? How effective are they? (T.7) What could be improved? (T.15 & 16) Do they work for you?
20. How are incentives aligned with firm strategy? With chain strategy? (T.1 & 10)

¹⁰⁴ The Question Guide has been derived from the 'Discussion Prompts' on the following two pages which in turn were derived from the Literature Review and structured according to the Co-innovation Roadmap (Bonney et al 2007) (Figure 2.1).

Discussion Prompts

Question Topic		Sub-topics
Vision, Culture & Leadership	T.1. Company vision & strategy (Lit Review Section 2.5)	<ul style="list-style-type: none"> • Industry context (growth/stagnation/decline), market structure, competitive interaction Is vision/strategy shared by the chain partners? • Is chain/firm strategy discussed regularly? • Is vision & strategy clear, open, attainable with explicit expectations
	T.2. Strategic posture of the firm (Lit Review Section 2.7.2)	<ul style="list-style-type: none"> • Market orientation • Supply chain orientation • Value orientation
	T.3. Leadership for innovation (Lit Review Sections 2.7.2 & 2.7.4)	<ul style="list-style-type: none"> • Appropriate management of partners • Clear, articulated vision and goals • Development of reciprocal relationships • Participative decision-making • Strategic understanding and thinking • Stretch goals and growth orientation • Long term orientation (Foresight) • Management of internal bounded rationality boundaries of the firm) • Firm/chain has sufficient internal complexity to deal with the complexity of its environment • Innovation strategy and breadth of definition of innovation; Innovative culture • Resource availability for innovation
Trust & Commitment	T.4. Who holds the power in the chain? How is it exercised? (Lit Review Sections 2.3, 2.8, 2.12.1)	<ul style="list-style-type: none"> • Use of power in the chain: Coercive or Influencing? Chain benefit or individual firm benefit? • Type: <ul style="list-style-type: none"> ○ Adversarial arms-length ○ Non-adversarial arms-length ○ Adversarial collaboration ○ Non-adversarial collaboration • What form of justice exists: <ul style="list-style-type: none"> ○ Distributive justice or fairness of the outcomes received ○ Proc justice is the fairness & transparency of policies, procedures & decision-making ○ Interactional justice for individual (inter-personal & informational)
	T.5. Collaboration and the management of relationships with chain partners (Lit Review Sections 2.4 & 2.7.1, 2.8)	<ul style="list-style-type: none"> • TYPE: Arms-length → communication → coordination → intensive collab → partnership • How are partners for collaboration selected? Not all relationships can be collaborative. • Effective management of inter-organisational relationships requires: <ul style="list-style-type: none"> ○ Development of trust and commitment ○ Development of interdependence ○ Shared vision and values ○ Communication and information ○ Sharing of risks, costs and benefits ○ Building of mutual capacity ○ The exercise of power, equity & justice that benefits the chain
Structure & Processes	T.6. Gov architecture (Lit Review Sections 2.7.3 & 2.12)	<ul style="list-style-type: none"> • Collaborative performance system • Information exchange through tangible and intangible relationship-specific assets • Decision synchronisation • Integrated supply chain processes
	T.7. Incentivation (Lit Review Sections 2.10, 2.11 & 2.12)	<ul style="list-style-type: none"> • CEO performance KPIs • Incentivising firm-level co-innovative behaviour along the chain • Multi-level approach to incentivitation (chain, firm, CEO & individual) • Balanced extrinsic/intrinsic incentivitation strategies for individuals • Individuals incentivised to collaborate (boundary-spanners) • Individuals incentivised to co-innovate/innovate • Alignment of incentives with strategy and desired firm and individual behaviour • Interaction of incentivitation
	T.8. Sharing benefits (Lit Review Sections 2.5 & 2.9 & 2.12.3)	<ul style="list-style-type: none"> • Sharing risk, costs and benefits

	T.9. Work design supportive of innovation <i>(Lit Review Sections 2.7.3, 2.7.4, 2.8 & 2.10)</i>	<ul style="list-style-type: none"> • Diffusion of power and delegation • Individual autonomy • Removal of organisational impediments
	T.10. Aligning CEO & top management interest <i>(Lit Review Sections 2.5, 2.11)</i>	<ul style="list-style-type: none"> • Education, experience and social background of CEO • Linkage of executive incentives to external results outside their control • Align responsibility for achieving targets with operational control • Align incentives with organisational model and ability to measure performance • Apply incentives in a way that promotes desirable behaviours • Frequently review incentives due to the dynamism of the environment
Co-innovation	T.11. Governance of innovation <i>(Lit Review Sections 2.7.3 & 2.12)</i>	<ul style="list-style-type: none"> • Good communication, information flows & innovation metrics • Middle management support • Resourcing of innovation • Reward & recognition of innovation & risk-taking • Supportive of personal development • Agile, responsive organisation • Task orientation • Team orientation
	T.12. Co-innovation facilitators <i>(Lit Review Section 2.7)</i>	<ul style="list-style-type: none"> • Relational • Cultural • Innovation leadership • governance
	T.13. Co-innovation inhibitors <i>(Lit Review Section 2.8)</i>	<ul style="list-style-type: none"> • Corporate culture • Barriers to information & knowledge flows • Design & governance of the value chain • Poor chain relationships • Poor management
Communication, Continuous Imp, Learning, & Mutual Benefits	T.14. Communication <i>(Lit Review Section 2.7 & 2.8)</i>	<ul style="list-style-type: none"> • Existence of multi-level boundary-spanners • Multi-level communication: <ul style="list-style-type: none"> ○ Interpersonal communication ○ Group communication ○ Organisational level communication ○ Inter-organisational communication • Type of informational exchange (strategic, operational, level of confidentiality) • Nature of communications <ul style="list-style-type: none"> ○ Level of formality or informality ○ Amount of information ○ Credibility and accuracy ○ Comprehensibility ○ Timeliness ○ Adequacy and relevance ○ Availability of information • Information exchange through shared systems, processes and assets (e.g. ITC systems) • Nature of conflict resolution and disagreement
	T.15. Continuous improvement <i>(Lit Review Section 2.9)</i>	<ul style="list-style-type: none"> • Ability to identify constraints through performance metrics and monitoring • Focus on identification of the priority of chain constraints • Existence of collaborative improvement projects
	T.16. Collaborative learning <i>(Lit Review Section 2.7)</i>	<ul style="list-style-type: none"> • Systematic sharing of knowledge with chain partners • Systematic management of knowledge • Learning approach <ul style="list-style-type: none"> ○ Innovation thinking: value system versus value chain ○ Collaborative knowledge versus competitive innovation ○ Management: knowledge networks versus business units ○ Solutions: human technology versus machine based ○ Process improvements: bottom-up versus top-down ○ Customer focus: success

Appendix 7: An overview of the status of co-innovation facilitators in the three case study value

Co-innovation Facilitators	CS1: Heritage Co - Processed Meats	CS2: Battel - Decloid	CS3: Greenfresh - Saladcorp
Relational competence			
<i>Trust</i>	<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> High – Very high
<i>Interdependence</i>	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> Very high but variable based on relationship
<i>Commitment</i>	<ul style="list-style-type: none"> Nil – transactional only 	<ul style="list-style-type: none"> Moderate to high 	<ul style="list-style-type: none"> Very high but variable based on relationship
<i>Communication</i>	<ul style="list-style-type: none"> Transactional 	<ul style="list-style-type: none"> Low to moderate 	<ul style="list-style-type: none"> High but variable based on relationship
<i>Exercise of power, equity, justice</i>	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Buyer dominance with supply side contestation 	<ul style="list-style-type: none"> Asymmetry used benevolently
Compatible cultures			
<i>Management culture & leadership style</i>	<ul style="list-style-type: none"> Retailer conservative, ethical, heritage bound, culturally open but low adaptivity Upstream conservative, ethically variable with little strategic thinking 	<ul style="list-style-type: none"> Retailer profit-oriented & autocratic Processor egalitarian, team-oriented Suppliers conservative, resistant to change 	<ul style="list-style-type: none"> Variable based on relationship, values-based, innovation & performance oriented
<i>Market orientation (detection & fulfilment of consumer needs)</i>	<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> High
<i>Learning & knowledge mgt (KM)</i>	<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> Low to moderate 	<ul style="list-style-type: none"> Moderate
Co-innovation architecture			
<i>Collaborative performance system (CPS)</i>	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Low to moderate 	<ul style="list-style-type: none"> Low to moderate
<i>Information sharing</i>	<ul style="list-style-type: none"> Nil strategic, operational only 	<ul style="list-style-type: none"> Low to moderate 	<ul style="list-style-type: none"> Moderate but variable based on relationship
<i>Decision synchronisation</i>	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Low to moderate 	<ul style="list-style-type: none"> High but variable based on relationship
<i>Incentive alignment</i>	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Low, price-based 	<ul style="list-style-type: none"> Moderate, but not explicitly managed
<i>Integrated supply chain processes</i>	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> Low to moderate
<i>Shared vision & goals</i>	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> Moderate but variable based on relationship
<i>Boundary spanning roles/objects</i>	<ul style="list-style-type: none"> Nil strategic, operational only 	<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> High, multi-level but variable based on relationship
Innovation competence			
<i>Innovation leadership</i>	<ul style="list-style-type: none"> Low, follower mentality 	<ul style="list-style-type: none"> Moderate by processor, transactional followership 	<ul style="list-style-type: none"> High
<i>Foresight & bounded rationality</i>	<ul style="list-style-type: none"> Low, information constrained 	<ul style="list-style-type: none"> Low to adequate (processor) 	<ul style="list-style-type: none"> Moderate
<i>Innovation strategy</i>	<ul style="list-style-type: none"> Low, follower mentality 	<ul style="list-style-type: none"> Narrow definition, moderate NPD to poor 	<ul style="list-style-type: none"> High
<i>Innovative culture</i>	<ul style="list-style-type: none"> Highly variable, nil to low 	<ul style="list-style-type: none"> Low, risk averse (upstream) 	<ul style="list-style-type: none"> High
<i>Resource availability</i>	<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> Moderate, variable
<i>Requisite complexity</i>	<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> Moderate
Note: Ratings are			
Low		Moderate	High

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