

# Entrepreneurial orientation in an agricultural value chain in a transitional economy: a study in the beef value chain in the Central Highlands, Vietnam

by

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#### Abstract

Rapid urbanisation and trade globalisation are profoundly transforming the agricultural markets in transitional economies. The challenges of changing food tastes and preferences are motivating farmers and agricultural businesses to adopt a new perspective of business, the entrepreneurial orientation (EO). In addition, the locus of competition in those markets has shifted from competition between individual firms to competition between value chains. Therefore, it is critical for the actors in agricultural value chains to manage the cooperative and collective processes within their value chain to more effectively pursue competitive advantage. While EO is well recognised for its propensity to improve firm performance, little is known about EO within value chains. Thus, this research addresses this research gap through an empirical investigation of a smallholder agricultural value chain in a transitional economy.

A mixed methods explanatory design was used in this study to mitigate the challenges of applying a construct developed in a Western context to an Asian transitional economy. Specifically, an initial quantitative phase collected and analysed data from a survey on 233 actors in a beef value chain located in the Central Highlands of Vietnam. Then a qualitative follow-up phase in which 15 beef chain actors were purposively selected and interviewed was conducted. Results of the qualitative data analysis provided rich contextual explanations for the quantitative findings.

The examination found that the associations between EO and value chain management are positive and strong. Specifically, vertical information sharing enhances the value chain actor's performance of EO by reducing entrepreneurial risks. EO promotes knowledge acquisition by actors within a value chain and is strongest when a collaboration amongst chain members is maintained. Finally, EO improves the collaborative performance within the value chain, resulting in both operational and strategic benefits due to more efficient knowledge transfers, a more symmetrical power scheme and a stronger commitment the success of the value chain by its actors. The main contribution of this study is the application of EO research within the value chain management discipline. It is the first study examining EO as a strategic resource in the contemporary 'value chain vs. value chain' competition era in agriculture. This study also establishes the motives and rewards for entrepreneurial value chains that exist within the agricultural sectors of transitional economies. Therefore, it raises the farmers' managers', consultants' and policymakers' awareness of the importance of EO and can potentially improve the chance for the survival of smallholder agribusinesses in hypercompetitive markets.

#### **Chapter 1: Introduction**

#### 1.1. Introduction

This PhD examines the interrelationship between the EO of actors and value chain constructs within an agricultural value chain in a developing economy context. EO, as a firm-level strategic posture, employs proactive, risk accepting initiatives to gain competitive advantage through the innovation of products, processes, strategies and business models (Covin & Slevin, 1989; Covin & Miles, 1999). The purpose of this study is to explore the overall research question: "*How are the actors' levels of entrepreneurial orientation associated with value chain management practices in agricultural value chains?*". Chapter 1 introduces the research by providing background for the study, articulating the research problems and research questions and justifying the need for the research. This chapter also briefly describes the context of the study, explains core concepts as well as demonstrating the methodology in the research. The chapter ends with the determination of anticipated limitations and the outline of the thesis.

#### 1.2. Background to the research

Agricultural markets around the world are rapidly changing. From the 1950s to the 1990s, these changes happened mostly in matured economies such as North America, Europe or Australia (Boehlje, 1999; Dries, Germenji, Noev, & Swinnen, 2009). However, in the last three decades, transitional economies such as India, China and Vietnam have quickly emerged as the centre of the transformation (Bachewe, Berhane, Minten, & Taffesse, 2018; Gunderson, 2013; Jayne et al., 2019; Pica-Ciamarra & Otte, 2011; Reardon et al., 2014).

Rapid urbanisation and trade liberalisation and are the most influential forces which drive the market dynamics in transitional countries (Reardon et al., 2014). Specifically, the expansion of urban population increases the expenditures on agricultural products for household consumption due to changes in income, tastes and preferences and the household's constraints in producing food in an urban residential environment. Income rises caused by opportunities due to urbanisation also allows diets to change toward more expensive animal-based proteins such as meat, eggs and dairy products (Pica-Ciamarra & Otte, 2011). Additionally, consumers are becoming more concerned about the origins and safety of the products (Trienekens, Wognum, Beulens, & van der Vorst, 2012) as well as the sustainability of the production (Beske, Land, & Seuring, 2014). Concurrent with changes in consumer demand, trade liberalisation in emerging economies has changed some farms from a substance operation towards a commercial farm enterprise where the objective of agricultural production is to create profits from satisfying the food requirements of consumers. Therefore, agricultural industries which were traditionally homogeneous, commodity-based markets are shifting towards a heterogeneous market with differentiated products.

These changes in demand for food in transitional economies are causing agricultural value chains to focus on consumer needs and wants and to adopt innovation-based competitive strategies. Market power and competitive advantages are created by increasing the product value perceived by consumers. Therefore, as emerging economies like Vietnam develop, retailers, with the benefit of a better understanding of consumer demand have replaced suppliers as the dominant actor in agricultural value chains worldwide (Neven, Odera, Reardon, & Wang, 2009; Reardon, Timmer, & Minten, 2012). These market dynamics are transforming agricultural value chains from supply-push to demand-pull systems, which is evident across transitional economies with the emergence of modern food retailers being supplied by agricultural value chains composed of commercially driven, well-organised firms operating at economic scale (Anastasiadis & Poole, 2015; Jayne et al., 2019; Trienekens, 2011).

For smallholder agricultural value chains, these changes offer both opportunities and challenges. The expansion of consumer demand for animal proteins provides smallholder farmers and other value chain actors the opportunity to earn higher returns (Hazell & Rahman, 2014). Actors in these value chains often have valuable knowledge about unique and underutilised products that have the potential to create new markets (Devaux, Torero, Donovan, & Horton, 2018; Lewis et al., 2014). However, smallholder value chains are faced with a risk of being excluded from the markets which are hypercompetitive. Hypercompetition is a situation in which competitive advantage become very unsustainable due to the rapid escalation of rivalry (D'Aveni, 1994). Smallholder farmers and other actors often operate at a substance level with limited access to technical advice, market information and financial support (Wiggins, Kirsten, & Llambí, 2010). In line with the increased scarcity of raw materials caused by the market entrance of new competitors, there are many challenges for these actors to be able to successfully exploit these market opportunities (Reardon et al., 2012). Additionally, both governments and supermarkets are enforcing stringent food safety and quality standards that are hard for smallholder farmers to achieve.

Market dynamics create a pressing need for the actors in smallholder agricultural value chains to transform their way of doing business strategically. Instead of operational efficiency, these actors must develop strategies that focus on the renewal and rejuvenation of their business practices in response to environmental hostility (Miles, Arnold, & Thompson, 1993; Miles, Heeley, & Covin, 2000). One approach is that they could adopt EO as a renewal strategy. There have been increasing scholarly interest in the adoption of EO in the agribusiness sector (Dias, Rodrigues, & Ferreira, 2018; Fitz-Koch, Nordqvist, Carter, & Hunter, 2017). Most of the research indicates that adopting an EO enhances the performance of farms as well as other agricultural businesses (Ajayi, 2016; Campbell, 2014; Grande, Madsen, & Borch, 2011; Hosseini & Eskandari, 2013; Veidal & Flaten, 2014; Verhees, Kuipers, & Klopcic, 2011).

However, it is a huge challenge for any firm to cope with changes in consumer tastes and preferences, shopping habits, and consumption patterns by themselves. Instead, they must rely on a collective effort with their value chain partners. Therefore, competition in today's markets is no longer between firms but between value chains (Boehlje, 1999; Lambert & Cooper, 2000). Actors in a value chain must work in a coordinated and aligned manner to maximise the value delivered to consumers as well as the financial returns to the different actors in the value chain. The importance of coordination is even greater in agricultural value chains which market perishable and seasonally harvested products (Handayati, Simatupang, & Perdana, 2015). As a result, effective value chain management is critical in smallholder agricultural value chains in turbulent food markets. A turbulent market is characterised by strong dynamics such as technological advancements, new supplies or demands (D'Aveni, 1999). In this market, successful business models are unknown while competitors are unclear and rapidly shifting (e.g. the high-tech industry) (Eisenhardt & Martin, 2000).

There have been few studies on the relationship between EO and value chain management (Marshall, McCarthy, McGrath, & Claudy, 2015; Mishra & Mishra, 2019). Additionally, previous research that was conducted in developed countries is not always applicable to the role and effectiveness of EO to value chains operating in transitional economies. Using the Vietnam beef cattle industry as a case study, the purpose of this research is to begin to address the above research gap by an examination of the association between the value chain actor's EO and their practices and resulting performance in a smallholder agricultural value chain.

#### 1.3. The research problem, research questions and contributions

The survival of smallholder farmers and other agricultural business managerowners is threatened by the changes in the food market. Thus, these firms, as a potentially useful response, develop an EO. However, for EO to most effective, they also must coordinate throughout the value chain to better engage in 'value chain vs. value chain' market competition.

Agricultural value chains are complicated systems in which actors are highly interdependent; and, value chain management is driven by the actor's strategy, norms, beliefs and values. For example, a market orientation which is the actor's tendency to make decisions based on market intelligence has influences on governance (Grunert et al., 2005), capabilities (Tan, Bi, & Smyrnios, 2014) and knowledge management (Khanh, Chau, Adhikari, Miles, & Bonney, 2019) in value chains. Although EO is linked to strategic alliance success (Bouncken, Pluschke, Pesch, & Kraus, 2016; Jiang, Jiang, Pei, & Wang, 2014; Li, Jiang, Pei, & Jiang, 2017), little is known about the relationship between this strategic posture with the management of the whole value chain. Therefore, this research raised an overall research question which is "*How are the actors' levels of entrepreneurial*  orientation associated with value chain management practices in agricultural value chains?".

This study examines the relationship between the actor's EO and some value chain concepts encompassing collaboration, knowledge acquisition and collaborative performance (Figure 1.1). These constructs have been at the heart of value chain management research for decades and strongly relate to chain-level competitiveness (Swanson, Goel, Francisco, & Stock, 2018). Specifically, the overall research question is explored through four subsidiary research questions (SRQs) which are:

- SRQ1: How do value chain collaboration components affect the actor's level of EO in agricultural value chains?
- SRQ2: What is the relationship between the actor's level of EO and knowledge acquisition in agricultural value chains?
- SRQ3: How does value chain collaboration influence the linkage between EO and knowledge acquisition in agricultural value chains?
- SRQ4: How does the actor's level of EO influence collaborative performance in agricultural value chains?



Figure 1.1: Theoretical model of entrepreneurial orientation and value chain management

This research carries out an investigation between EO and the core value chain constructs in a smallholder agricultural value chain in a transitional economy. Its contributions are presented in Section 8.3. In summary, the study:

- extends the growing research agenda between entrepreneurship and value chain management;
- broadens the understanding of the role of EO as a strategic resource in a 'value chain vs. value chain' competition, especially in agriculture;
- applies the concept of dynamic capabilities to a value chain level which has not been done before; and
- provides evidence on the motives and rewards of entrepreneurship for the agricultural sector in transitional economies.

#### 1.4. Justification for the research

This research is important for integrating smallholder farmers into productive processes which increase their chances for improving performance in today dynamic food markets. Despite the recent transformations, smallholder-based agricultural production still prevails in global agricultural industries, especially in Asian, African and Latin American countries (Trienekens, 2011). This production is the main livelihood for millions of rural families who live in poverty. They are also adaptive systems which help these households survive shocks and uncertainty (Orr, Donovan, & Stoian, 2018). This is so important to human wellbeing globally that the United Nations has the inclusion of smallholder farmers in global agricultural value chains as a sustainable development goal (Gupta & Vegelin, 2016).

This study is of relevance to academics, policymakers and value chain consultants; specifically, those working with or in transitional economies. Research on entrepreneurship, as well as value chain management, has been primarily carried out in developed countries. Thus, refining, reimaging and adapting these concepts into a transitional economy which is culturally, socially and institutionally different is necessary for the development of a universal theory of strategic management (Jack et al., 2013; Makadok, Burton, & Barney, 2018). For policymakers and consultants, this study heightens their awareness of the benefits

of adopting an entrepreneurial way of doing business. Additionally, it suggests an appropriate process for facilitating the development of EO by smallholder farmer value chains.

#### 1.5. Context of the study

There has been a wave of entrepreneurship in Vietnam in the last three decades. Since the 1986 profound national economic reform (known as "Doi Moi"), the number of private enterprises has been increasing remarkably (Benzing, Hung, & Callanan, 2005; Nguyen, Sullivan Mort, & D'Souza, 2015). The continuous growth of Gross Domestic Product (GDP), the signing of several trade agreements as well as a young and skilled labour force are among the key factors creating business opportunities in this transitional country (Jones & Masters, 2016). In the past, the majority of new ventures were created in non-agricultural industries, mainly information technology (Huan, Hang, Hai, Nga, & Quyen, 2016). However, entrepreneurship related to agriculture is also increasing (Cuc, Frederick, & Huong, 2014; Sohns & Revilla Diez, 2017, 2018). In rural areas, new ventures are commonly created at a household level in which the majority of capitals (e.g., human, physical and financial) are taken from family resources (Chi & Nordman, 2017). Entrepreneurship has caused Vietnam's agricultural sector to begin to transition from subsistence agriculture towards the development of commercial agricultural value chains.

Despite these recent developments, a large part of Vietnamese agriculture still has many of the typical characteristics of a traditional agricultural industry composed of millions of smallholder farmers and agricultural business managerowners. These farms operate with minimal resources and market their product through long and very inefficient value chains (Collins, Dent, & Bonney, 2015).

Vietnam's beef cattle industry accounts for nearly 30% of the total output of the nation's agricultural sector. In addition, growing and trading cattle provide a source of food for the millions of smallholder farmers throughout the country (Le, Dinh, Markemann, Herold, & Zarate, 2013; Le, Herold, Markemann, & Zarate, 2011; Parsons et al., 2013). The beef market in Vietnam is increasingly dynamic (Figure 1.2); with annual per capita beef consumption increasing three-fold from

around 3 kg in 2007 to above 9 kg in 2018 (OECD, 2020). In the same period, the producer price has risen from 1,255 USD to 4,089 USD per ton (FAOSTAT, 2020). Market expansion has increased the importation of live cattle and attracted large companies into the market. For example, in 2012, Vietnam only imported 1.3 million tons of live cattle, while by 2016, Vietnam was importing nearly 100 million tons (UN Comtrade, 2017). Additionally, more and more feedlots owned by large organisations are being established that can supply a large number of cattle with consistent quality (Luong, Smith, & Hieu, 2015).



Source: FAOSTAT (2020) and OECD (2020)

#### Figure 1.2: Vietnam beef market dynamics

This study specifically examined a beef value chain in the Central Highlands, Vietnam. The smallholder value chain actors in this area used to be the primary beef cattle suppliers to Ho Chi Minh City, which is the largest city in Vietnam. However, these market arrangements were destroyed by the growth of large-scale feedlot suppliers and importers serving the profitable Ho Chi Minh City retail market (Karimov, Trinh, & Cadilhon, 2016). In response, these stakeholders now are focusing on niche markets located within 100 kilometres of their farms. Consumers in these markets prefer a low fat, tougher style of beef and are less willing to pay a high price for the product. Additionally, the beef cattle sector in the Central Highlands also transformed from a substance household-based cattlekeeping system into a more commercially oriented system (Stur, Khanh, & Duncan, 2013). Therefore, actors in the smallholder beef value chain in this region have a lot of experience with being forced by global competition to adopt EO as a strategic survival response and that makes the Central Highlands cattle sector a very appropriate case for this study.

#### 1.6. Methodology

A methodology which incorporates both quantitative methods and qualitative methods is employed in this research. This approach is justified based on the nature of the research questions and the rationale for the employment of multiple methods (Section 3.4.2). The primary purpose of this research is to examine the relationship between well-established constructs which is appropriate for quantitative methods. However, these constructs originated in Western developed countries and required adaptation and refinement to be most useful when applied in an Asian transitional economy context. These adaptations and refinements require a qualitative component to the study to facilitate interpretation of the findings. Therefore, a sequential explanatory mixed methods design is used in this study (Section 3.5.2); with quantitative data collection and analysis done first in the research process and qualitative data used to provide understanding and insights.

In the quantitative phase, a face-to-face survey of the actors in the beef cattle value chain in the Central Highlands, Vietnam was conducted. Participants were drawn from all stages of the chain, including those involved in producing, trading, slaughtering, wholesaling and retailing the beef. Participants self-reported their current business practices using adapted established constructs and scales. The collected quantitative data were analysed by factor analysis, regression and structural equation modelling. Follow-up interviews were conducted with some participants in an exploration of reasons underlying quantitative results. The actor EO scores, collected in the survey, were one of the criteria used to select interviewees. Information from the follow-up interviews was compared with the survey results to help explain the survey's findings. Finally, the quantitative and qualitative results were combined to provide a more comprehensive understanding.

#### 1.7. Explanation of core concepts

#### 1.7.1. Entrepreneurial orientation (EO)

EO is the construct that purports to measure how entrepreneurial an organisation is. Initiated in the 1980s, the concept has been defined under several perspectives (Basso, Fayolle, & Bouchard, 2009). Two perspectives of EO emerged: (1) EO as a 'managerial disposition'; and (2) EO as 'firm-level behaviours'. The former view is that EO is a dispositional construct and mindset of the firm's top management that influences strategy (Lumpkin & Dess, 1996), while the latter perspective defines EO as a firm-level behavioural pattern (Covin & Slevin, 1991; Miller, 1983).

The 'managerial disposition' conceptualisation is underpinned by the assumed adequacy of managers' dispositional traits for the strategic characteristics of the whole organisations. Nonetheless, this assumption is criticised by many scholars (Covin & Lumpkin, 2011). Therefore, the 'firm-level behaviours' conceptualisation is the most popular definition which is used in EO empirical studies (Wales, Gupta, & Mousa, 2013); and this study adopts this conceptualisation to be consistent with the majority of previous EO studies in agriculture (Grande et al., 2011; Micheels & Boecker, 2017). In this study, EO is defined as *a sustained propensity by the value chain's actors to strategically leverage innovation, accept risk and act proactively to gain competitive advantage over competitors.* 

#### 1.7.2. Value chain

The term "value chain" is often used interchangeably with the term "supply chain". Physically, both terms refer to a series of firms that perform different functions (e.g., production, distribution or retailing) in the marketing of a specific product. The main difference between them lies in the management perspectives adopted in the chain. "Supply chain management" emphasises the efficiency of the supply of products and services from producers to customers and consumers (Mentzer et al., 2001). Actors in a "supply chain" work together to ensure the efficient movement of products throughout the chain. Alternatively, "value chain management" emphasises bi-directional flows of information, strategies, innovations, and resources within the chain. Specifically, not only the downstream flow of materials but also the upstream flows of value (in the forms of money, knowledge or information) are the focus of the value chain management (Ramsay, 2005). Therefore, a "value chain" is a "supply chain" with actors who focus on the value which is delivered to downstream end-users (Bonney, Clark, Collins, & Fearne, 2007).

This study examines the association between EO and chain management practices beyond supply efficiency (Section 1.3). Therefore, the term "value chain" is used throughout the research. Specifically, in this study, *a value chain encompasses firms at each level of the chain that work together to effectively and efficiently deliver value to consumers and gain competitive advantage.* 

#### 1.7.3. Collaboration

Collaboration is at the heart of value chain management field of study. The definition of this concept was initiated at a dyadic level before being expanded to the whole-of-chain level. In a dyad, collaboration refers to a kind of agreements between the two parties in sharing information, risks and rewards (Ellram & Hendrick, 1995). However, when a whole-of-chain perspective becomes common in value chain management studies, the conceptualisation of collaboration is broadened. It encompasses *management processes through which all actors in a value chain act towards the achievement of mutual goals that are unachievable by an individual chain actor* (Cao, Vonderembse, Zhang, & Ragu-Nathan, 2010; Mentzer, Foggin, & Golicic, 2000). In this definition, value chain actors might coordinate with each other, both consciously and unconsciously. As the unit of analysis of this study is the whole value chain, it adopts the above chain-level definition.

#### 1.7.4. Knowledge acquisition

The term "knowledge acquisition" is defined very similarly to the concept of "information dissemination". However, they are still two distinct constructs and should be treated separately (Hult, Ketchen, & Slater, 2004). Information is often distributed on purpose and only to those who need it, whereas knowledge can be learned unconsciously. Stated differently, while information dissemination depends on the willingness-to-share of information sharers, the acquisition of knowledge is driven by learning capabilities (or absorptive capacity) of the receivers. In this study, the concept of 'knowledge acquisition' refers to *the transfer of skills and knowledge between value chain actor as an outcome of value chain processes*.

#### 1.8. Justification of the delimitation of the research

This PhD research examines "How are the actors' levels of entrepreneurial orientation associated with value chain management practices in agricultural value chains?". Section 1.3 and Section 1.5 establish the context of this study at a beef value chain in Vietnam. This value chain has characteristics sufficiently different from industrial value chains in which most of the previous studies are conducted that enables this PhD to contribute to theory, practice, and policy. Additionally, the smallholder, commodity-based nature of this value chain is prevailing in the agricultural sectors in many countries (Section 1.4). Therefore, while one might criticise the global generalisability of this study, its findings are still applicable in contexts with similar socio-cultural conditions. This generalisation is subject to 'naturalistic generalisation' (Stake & Trumbull, 1982) or 'temporal generalisation' (Tsang & Williams, 2012).

#### 1.9. Outline of the thesis

The thesis developed from this research comprises eight chapters of which contents are briefly described in the following sections.

#### Chapter 2 – Literature review

Chapter 2 provides a review of the extant literature relevant to the overall research question: "How are the actors' levels of entrepreneurial orientation

associated with value chain management practices in agricultural value chains?". The review draws from both the strategic management and value chain management disciplines. It provides an understanding of EO as well as value chain management concepts and processes. Starting with the conceptualisation of EO, this chapter goes through the current body of knowledge about the concepts to identify the research gap. Then the literature relevant to the theoretical relation between concepts is reviewed to formulate the conceptual model as well as the hypotheses of this study.

#### Chapter 3 – Methodology

Chapter 3 describes the methodology used to answer the research questions. This chapter discusses different research paradigms and justifies the choice of the research approach. Specifically, based on the nature of the study's research questions, the adaptation of a construct (EO) that was developed in a very different context, and the researcher's perspective, a sequential mixed methods approach is chosen to be the methodological philosophy of this research. Then, the procedure through which data are collected and analysed is described. This chapter also determines the potential ethical issues of this study and strategies for minimising the threats.

#### Chapter 4 - Analysis and Results: construct reliability and validity

Chapter 4 reports the preliminary analysis of quantitative data. Based on exploratory and confirmatory factor analysis, this chapter establishes the latent factor structure in the dataset then confirms the existence of the constructs theoretically defined in Chapter 2. Construct reliability and validity then are examined. Results in Chapter 4 validate the findings of the multivariate analysis of quantitative data reported in subsequent chapters.

#### Chapter 5 – SRQ1

Chapter 5 reports results to SRQ1: "How do value chain components affect the actor's level of EO in agricultural value chains?". Quantitative data analysis tests three hypotheses while qualitative data analysis helps explain the significant and non-significant paths in the beef value chain. The findings indicate that not all

components of value chain collaboration reduce risks and enhance the actor's EO. The only component demonstrating a positive influence on EO was information sharing while the remaining components (i.e., incentive alignment and decision synchronisation) did not enhance the benefits of EO in the studied beef value chain.

#### Chapter 6 – SRQ2 and SRQ3

Chapter 6 give answers to SRQ2: "What is the relationship between the actor's level of EO and knowledge acquisition in agricultural value chains?" and SRQ3: "How does value chain collaboration influence the linkage between EO and knowledge acquisition in agricultural value chains?". Quantitative data are used to test two hypotheses in relation to the above SRQs. Both hypotheses were supported. The actor's level of EO directly enhanced the acquisition of knowledge in the beef value chain and was strongest when collaborative partnerships were sustained in the value chain.

#### Chapter 7 – SRQ4

Chapter 7 responds to the final SRQ: "*How does the actor's level of EO influence collaborative performance in agricultural value chains?*". The analysis of quantitative data tested two hypotheses that confirmed the collaborative performance improvement brought by the actor's EO and the partial mediation of knowledge acquisition in this linkage. Qualitative data analysis explored other mechanisms transmitting EO into collaborative performance superiority. Improvements of governance in the value chain were the themes that emerged from qualitative data analysis.

#### Chapter 8 – Implications, limitations and suggestions for future research

Chapter 8 merges the results and findings in Chapters 4, 5,6 and 7 into a thesislevel response to the overall research question. It highlights the theoretical and managerial implications of this study. Additionally, the limitations of this research which include its generalisability, are discussed. The chapter concludes with suggested pathways for future research.

#### 1.10. Chapter summary

The agricultural sector is increasingly dynamic, and especially so in transitional economies. These changes create opportunities and pose threats to smallholder agricultural value chains. Therefore, smallholder farmers and agribusiness manager-owners are often advised by government, consultants and scientists to adopt an EO. However, as the nature of competition has profoundly shifted to a 'value chain vs. value chain' competition, there is a lack of understanding of how EO is associated with value chain processes. To partially fulfil this research gap, the study examines those relationships in a beef value chain in Vietnam. A mixed methods methodology is employed in this study to give answers to research questions. Limitations of the study may involve limited generalisability. The thesis developed from this research encompasses eight chapters sequentially reporting literature review, methodology, results, implications and suggestions for future research.

#### **Chapter 2: Literature review**

#### 2.1. Introduction

Chapter 1 described threats to traditional agri-food value chains in emerging economies in coping with increasing market dynamics. It also pointed out that while there are calls for actors to act entrepreneurially, little scientific evidence is available about the effectiveness of adopting an entrepreneurial orientation in agricultural value chain settings. Using Vietnam's beef sector as a typical case to illustrate these issues, the research was justified, and several research questions were developed. The previous chapter also briefly identified the knowledge gap in extant literature regarding concepts studied in the research from which intended contributions were highlighted.

'Being entrepreneurial' is one of the most important characteristics of today's high performing businesses. Over the past three decades, developing a strategic posture toward entrepreneurship has been acknowledged for improving a firm's performance across various contexts, industries and cultures (Rauch, Wiklund, Lumpkin, & Frese, 2009; Semrau, Ambos, & Kraus, 2016; Wales et al., 2013). Nonetheless, firms are no longer competing solely as individuals; but instead, entire value chains are the new unit of competition (Lambert & Cooper, 2000) particularly in agricultural industries (Boehlje, 1999). Meanwhile, little research has been conducted on the effectiveness of entrepreneurial orientation in agricultural value chain management. This gap provides an opportunity to examine the relationship between management practices in agri-food value chains. While recently, research on the use of EO in dyadic strategic alliances has been undertaken (Bouncken et al., 2016; Bouncken, Ratzmann, Pesch, & Laudien, 2018; Jiang, Yang, Pei, & Wang, 2016; Li et al., 2017); none of the research has taken the whole-of-chain approach. The whole-of-chain approach is able to capture the dynamics of complex value chains which are common in agricultural industries (Lazzarini, Chaddad, & Cook, 2001).

This chapter goes through an extensive review of the EO and value chain management literature to provide a knowledge base for the study. Initially, the conceptualisation, operationalisation and selected empirical investigations of EO are reviewed in identifying a research gap on EO studies in traditional agri-food chain settings. Some underpinning theories are then examined to determine the logic behind the study. At this point, what is known about associations between EO and value chain management practices is recapped and is linked to a number of subsidiary research questions. Finally, using the dynamic capability perspective, a conceptual model is developed which presents the theoretical associations among concepts studied.

#### 2.2. Entrepreneurial orientation

#### 2.2.1. EO conceptualisation

EO is a latent organisational-level construct which reflects how entrepreneurial an organisation is. Having been extensively used in strategic management literature, it is the concept most employed in measuring the firm's posture towards entrepreneurship (Covin & Lumpkin, 2011; Rauch et al., 2009; Semrau et al., 2016; Wales, 2016; Wales et al., 2013).

The concept was developed in the 1970s when strategic management scholars were interested in competitive organisational strategies in dynamic markets (Basso et al., 2009). Khandwalla (1972, 1973) argued that environmental uncertainty, heterogeneity and hostility significantly affect organisations. Thus, the success or failure of organisations depends on the appropriateness of the responses they make to surrounding changes. Miller and Friesen (1977, 1978) found that successful organisations are more entrepreneurial than failed ones. They proactively and continuously search for business opportunities and take more risks to seize those opportunities. As a result, several constructs to classify entrepreneurial and non-entrepreneurial firms have been developed. Mintzberg (1973) suggested the 'entrepreneurial strategy-making mode'; Khandwalla (1976/1977) used 'entrepreneurial management style'; while Covin and Slevin (1989) operationalised as an 'entrepreneurial strategic posture'. The term *entrepreneurial orientation* was first used by Ginsberg (1985, p. 50), who stated that the word 'orientation' is characteristic of organisations and helps distinguish them from individual characteristics.

The popularity of EO in empirical studies has led to the introduction of a variety of definitions resulting in a lack of consensus amongst scholars (George & Marino, 2011). However, as EO is a latent construct, there is no universally correct definition (Covin & Wales, 2011). Instead, there are two major schools of thought when defining EO, namely 'managerial disposition' and 'behavioural manner' (Covin & Wales, 2011). They conceptualise EO as either an attitude held by executives or a collection of firm behaviours, respectively. These schools have fundamentally different stances, and neither is superior to the other (Covin & Wales, 2011). The following sections review both schools of thought and justify the conceptualisation of EO used in this study.

#### 2.2.1.1. Managerial disposition

In the early days, the EO of an organisation was assessed by the temperaments of people who were influential in leading the organisation (Table 2.1). EO is a dispositional state favouring entrepreneurship held by the organisation's managers. These perspectives were based on the assumption that most of the organisational-level phenomena are heavily dependent on decisions made by key individuals (Dess & Lumpkin, 2001). Ginsberg (1985) stated: "the responses of an executive who is a key member of top management team are adequate for reflecting organisational characteristics" (p. 50). Entrepreneurial firms are those which have leaders who make leaps forward in the face of uncertainty (Mintzberg, 1973). These leaders are intrinsically entrepreneurial who commonly make bold, risky and aggressive decisions (Khandwalla, 1976/1977). Therefore, a firm's level of EO is reflected through the philosophy of the managerial board encouraging novel, brave and aggressive ideas (Ginsberg, 1985).

An entrepreneurial philosophical propensity demonstrates a risk-taking, proactive and innovative perspective in the mind of managers in coping with strategic issues (Morris & Paul, 1987). The above attributes present an entrepreneurial management style that favours organisational changes and innovation in pursuing competitive advantage (Covin & Slevin, 1988).

Definition	Author
"In the entrepreneurial mode strategy-making is dominated by the active search for new opportunities" and "dramatic leaps forward in the face of uncertainty."	Mintzberg (1973, p. 45)
"The entrepreneurial [management] style is characterized by bold, risky, aggressive decision-making."	Khandwalla (1976/1977)
"Entrepreneurial orientation is the propensity of a firm's top management teams to engage in decision-making behaviour that is aggressive, innovative, bold and expansive."	Ginsberg (1985, p. 51)
"Entrepreneurial orientation as the propensity of a company's top management to take calculated risks, to be innovative, and to demonstrate proactiveness in their approach to strategic decision making."	Morris and Paul (1987, p. 251)
"The entrepreneurial-conservation orientation of a firm is demonstrated by the extent to which the top managers are inclined to take business-related risks, to favour change and innovation in order to obtain a competitive advantage for their firm, and to compete aggressively with other firms."	Covin and Slevin (1988, p. 218)
"An EO refers to the processes, practices, and decision- making activities that lead to new entry" "It involves the intentions and actions of key players functioning in a dynamic generative process aimed at new-venture creation."	Lumpkin and Dess (1996, p.136)
"entrepreneurial proclivity as the organisation's predisposition to accept entrepreneurial processes, practices, and decision making, characterized by its preference for innovativeness, risk-taking, and proactiveness."	Matsuno, Mentzer, and Ozsomer (2002, p. 19)
"EO as a firm-level predisposition to engage in behaviours that lead to change in the organisation of the market place."	Voss, Voss, and Moorman (2005, p. 1134)

# Table 2.1: EO as a managerial disposition conceptualisation

Source: adapted from Covin and Wales (2011)

One of the most cited works in this school is the work of Lumpkin and Dess (1996) in which EO was defined as 'processes, practices, and decision-making activities that lead to new entry' (p. 136). 'New entry' can be developing new products, restructuring the organisation or entering new markets (Lumpkin & Dess, 1996). From this perspective, EO is seen as the domains of organisational renewal and rejuvenation. It involves the propensity, tendency and actions of 'key players' (terms used by the authors) who might be assumed to be top managers. In a corroboration, Matsuno et al. (2002); Voss et al. (2005) demonstrate EO as a managerial predisposition towards creating new ventures in dealing with market dynamics.

#### 2.2.1.2. Behavioural manner

The development of the behavioural approach was based on the criticism about the assumption that top managers are the only source of firms' new ventures (Table 2.2). Miller (1983) argued that the entrepreneurial role might be played by lower-level actors in decentralised organisations. Therefore, the entrepreneurial dispositions of managers are not sufficient to represent how entrepreneurial organisations are (Miller, 1983). What is important in driving organisations' successes is how well they perform actions responding to surrounding changes (Miller & Friesen, 1980). Thus, Miller (1983) suggested a definition of entrepreneurial firms that take calculated risks to introduce innovations to gain first-mover advantages over rivals proactively. His perspective stressed the concurrence in displaying innovative, risk-taking and proactive behaviours for firms to be entrepreneurial and the absence of any components would make them non-entrepreneurial.

Adapting Miller's definition, Covin and Slevin (1991) emphasised the vitality of behaviours in presenting the entrepreneurial characteristics of organisations. They stated: "Behaviour is the central and essential element in the entrepreneurial process" (p. 8). Furthermore, they defined EO as a firm strategic posture. Firms with entrepreneurial postures display risk-taking propensity, innovativeness and proactiveness evidenced in their activity log (Covin & Slevin, 1991). By treating EO as a posture, the authors added the temporal stability to
the EO definition. In particular, an entrepreneurial firm must perform entrepreneurial actions recurringly. As 'being entrepreneurial' is a characteristic, it must be presented through a pattern rather than a one-time action.

Definition	Author
"Entrepreneurial firms may become excessively entrepreneurial if they begin to move in that direction [reversals in the direction of evolution], just as stagnant bureaucratic firms can become excessively risk-averse and rigid."	Miller and Friesen (1980, p. 611)
"Entrepreneurial model which applies to firms that innovate boldly and regularly while taking considerable risks in their product- market strategies."	Miller and Friesen (1982, p. 5)
"An entrepreneurial firm is one that engages in product- market innovation, undertakes somewhat risky ventures and is first to come up with proactive innovations, beating competitors to the punch."	Miller (1983, p. 771)
"Firms with entrepreneurial postures are risk-taking, innovative, and proactive. They are willing to take on high- risk projects with chances of very high returns and are bold and aggressive in pursuing opportunities. Entrepreneurial organisations often initiate actions to which competitors then respond, and are frequently first- to-market with new product offerings."	Covin and Slevin (1991, p. 8)
"EO is conceptualized as a set of distinct but related behaviours that have the qualities of innovativeness, proactiveness, competitive aggressiveness, risk-taking, and autonomy."	Pearce, Fritz and Davis (2010, p. 219)
"EO as a sustained firm-level attribute represented by the singular quality that risk-taking, innovative, and proactive behaviours have in common."	de Clercq, Dimov, and Thongpapanl (2013, p. 507)

## Table 2.2: EO as a firm-level behavioural pattern conceptualisation

Source: adapted from Covin and Wales (2011)

Since then, the definition of Miller (1983) and its modification by Covin and Slevin (1991) have rapidly become the keystone of the stream of study capturing EO through a set of organisational behaviours. Some scholars have still been suggesting other definitions but did not gain as much agreement as the aforementioned authors. For example, Pearce et al. (2010) and de Clercq et al. (2013) defined EO as the set of behaviours which have qualities of innovativeness, proactiveness and risk-taking.

Despite the irreconcilability between perspectives, conceptualising EO as a behavioural construct possesses some advantages. First and most important, it is behaviours, not traits or the thinking of entrepreneurs which contribute to social wealth (Gartner, 1988). Unless entrepreneurial firms come up with a valuable product or service and commercialise it, they are not creating value. One might argue that dispositional factors such as norms, beliefs and values are critical antecedents of behaviours. However, psychologists have found gaps between the presence of dispositional factors and the performance of behaviours (Fishbein & Ajzen, 2010). Stated differently, having entrepreneurial dispositions does not guarantee a display of entrepreneurial behaviours. For instance, a study on 257 Dutch dairy farmers found that attitudes, subjective norms and perceived behavioural controls explained only 38% of the variance in entrepreneurial behaviour performance (Bergevoet, Ondersteijn, Saatkamp, van Woerkum, & Huirne, 2004). Secondly, conceptualising EO as a behavioural construct ensures its distinctiveness with similar phenomena. A drawback of treating EO as a dispositional construct is the difficulty to clearly distinguish it from other entrepreneurial attributes such as entrepreneurial culture or entrepreneurial mindset (Covin & Lumpkin, 2011). Thirdly, as the behavioural view is the most widely-accepted amongst scholars, this approach is promising for accumulating knowledge about the phenomenon (Wales, 2016). It is not to deny the usefulness of the remaining perspectives, but this point of view is superiorly potential in increasing the robustness of the concept of EO (Wales, 2016).

Because of the abovementioned advantages, this study has adopted perspectives suggested by Miller (1983) and Covin and Slevin (1991). Particularly, EO as a

latent construct manifests through a long-lasting behavioural manner of firms towards engaging innovations, deliberately taking risks and acting proactively to gain competitive advantages over competitors.

## 2.2.2. EO measurement

Due to the variety of definitions, many models have been employed to measure EO. They vary in components, relationships between EO and its components and correlations amongst components (Covin & Wales, 2011) and the most frequent debate is about what components should be incorporated into measurement models. Commonly, EO encompasses three components: innovativeness, proactiveness and risk-taking (Miller, 1983) or five components: innovativeness, proactiveness, risk-taking, autonomy and competitive aggressiveness (Lumpkin & Dess, 1996). However, Wales et al. (2013) in the review of 123 empirical papers indicated ten different combinations.

Regarding the relationship between EO and its components, the discussion is about whether EO should be measured through formative or reflective models (George & Marino, 2011). The former is based on the assumption that changes of observed measures give rise to the construct while the latter assumes the opposite direction of causality (Coltman, Devinney, Midgley, & Venaik, 2008). In a formative model, each observed item represents an idiosyncratic aspect through which the whole construct is measured by a summation. Meanwhile, in a reflective approach, the construct is reflected through the intersection or shared variance of measures. Although EO is theoretically defined as a *'composite weighting'* (Miller, 1983, p. 771) or *'combination'* (Lumpkin & Dess, 1996, p. 162) of components, it does not imply that a formative model is the best measurement (George & Marino, 2011). Covin and Wales (2011) stated that the EO construct has a nominal meaning that exists apart from and gives rise to its measures. Thus, they suggested that a first-order reflective model is the most appropriate approach despite the common criticism about the interchangeability of observed items.

Finally, measurement models are different in the assumption relating to the covariance among EO components. Some said they might be independent (e.g., Kreiser & Davis, 2010; Lumpkin & Dess, 1996) while others stated that they should co-vary (e.g., Covin & Slevin, 1989). This difference is rooted in the authors' perceptions of EO as a firm-level attribute or a domain of new venture creation. The former treat EO as an umbrella characteristic reflected in a firm's activities, whereas the latter consider EO as processes and routines resulting in entrepreneurship (Miller, 2011).

This study adopts the Miller/Covin and Slevin conceptualisations, thus EO is measured through three correlated components including innovativeness, proactiveness and risk-taking propensity. The research employed a reflective model because EO is an existent phenomenon, not created. Indeed, the existence of this latent construct has been confirmed by numerous studies across industries (George & Marino, 2011). Therefore, it is producing rather than produced by its measures. This operationalisation is also dominant in the EO literature (Covin & Wales, 2011; Wales et al., 2013). The three EO components are described in the following section.

### 2.2.3. EO components

## 2.2.3.1. Innovativeness

Schumpeter (1942) described innovation as a source of social wealth. He outlined the 'creative destruction' which is the disruption of existing market structures because of the introduction of new goods, services or business models that push the economy forward (Schumpeter, 1942). Perhaps because of this definition, innovation has been commonly misunderstood when many people have equated it with only radical, new-to-world changes. Nonetheless, the position adopted in this thesis is that innovativeness should not be conceptualised in that way. Instead, innovations broadly range from small, incremental changes to bold, novel transformations of firm operations (Norman & Verganti, 2014). Damanpour (1991) states that innovation is an adoption of new practices such as products, services, policies, devices or processes which are internally generated or purchased. Therefore, innovation can be merely defined as the generation, development and implementation of anything new to firms (Hill, Jones, & Schilling, 2014). There are many ways of categorising innovations. The categorisations might be based on hierarchy (administrative vs. technical), stages (process vs. product) or radicalness of innovation (radical vs. incremental) (Damanpour, 1991). Recently, Kahn (2018) suggested a comprehensive lens to view the phenomenon. Specifically, innovation can be seen as an outcome, a process or a mindset. 'Innovation as an outcome' stresses the novel outputs such as new products, services, marketing strategies, business models, supply chain solutions or organisational structures. 'Innovation as a process' emphasises the procedure through which innovation is organised to bring the above outputs into reality. It includes actions such as environmental scanning, technical specification determination and the introduction of a market offering. Finally, 'innovation as a mindset' highlights the culture which supports individuals in organisations to develop new ways of thinking.

Innovativeness is a component of innovation, together with the capacity to innovate. It refers to the notion of 'openness to innovation' which is the willingness of organisations to consider the adoption of an innovation (Augusto & Coelho, 2009; Hult, Hurley, & Knight, 2004; Hurley & Hult, 1998; Menguc & Auh, 2006; Tsai & Yang, 2013). Innovativeness reflects a firm's inclination towards supporting new ideas which might lead to the introduction of new products, services or processes (Lumpkin & Dess, 1996; Rubera & Kirca, 2012). A firm with low innovativeness is change-resistant. Innovativeness not only encompasses mindfulness about innovation but also perceives it as the degree to which an individual or organisation adopts new ideas relatively early (Rogers, 2003). Therefore, innovativeness is commonly captured through the engagement of firms in the introduction of new products, services and new processes (Covin & Slevin, 1989; Lumpkin & Dess, 1996).

## 2.2.3.2. Proactiveness

Dynamic business markets continuously create new opportunities and firms must compete with each other to identify and capitalise on them. Thus, a proactive strategy to sense and seize these opportunities creates competitive advantages for firms (Zahra, 1991). The identification of changing market conditions when rivals have not yet recognised them allows firms to be in a favourable strategic position. Particularly, the first-mover advantages prevent rivals from accessing resources which are valuable and scarce (Lieberman & Montgomery, 1988). Being the first in the marketplace also helps firms gain a customer's first impression, which increases levels of demand and customer loyalty (Covin & Miles, 1999). Another advantage of being proactive is better chances of setting rules and standards that are beneficial for firms (Lumpkin & Dess, 2001; Smith & Cao, 2007).

Proactiveness refers to a perspective of acting to shape the environment based on the ability to anticipate future demand (Lumpkin & Dess, 2001). Instead of reacting to environmental changes, proactive firms initiate actions which force competitors to respond (Chen & Hambrick, 1995; Lumpkin & Dess, 1996; Miller & Friesen, 1978). They aim for a leadership position by being the first organisation formulating and implementing strategic approaches (Venkatraman, 1989). These firms are also the first to enter and develop new markets (Venkatraman, 1989). Therefore, proactiveness is determined by how quickly a firm introduces an innovation to the market (Covin & Slevin, 1991; Keh, Nguyen, & Ng, 2007; Lumpkin & Dess, 1996). To be proactive, firms must operate under a forwardlooking perspective in which they actively anticipate opportunities to fulfil future demand by new products or services (Grande et al., 2011). Therefore, the scanning of the environment, the initiation of innovation as well as the elimination of outof-date products are activities demonstrating proactiveness (Smith & Cao, 2007).

### 2.2.3.3. Risk-taking propensity

The concept of risk is at the centre of entrepreneurship studies as perceiving and handling risks are fundamental tests for entrepreneurs (Palmer, 1971). Knight (1921) distinguished between risks and uncertainty based on the ability to determine outcomes and their probabilities. In particular, risks are situations where possible consequences and their probabilities are known, while uncertainties are circumstances without this knowledge. However, in entrepreneurship studies, these concepts are commonly used interchangeably as one construct, 'risk' (Janney & Dess, 2006). Risk as a construct is more often associated with uncertainties as defined by Knight (Janney & Dess, 2006). Nelson and Winter (1977) stated that only non-definable downside risks matter in differentiating entrepreneurs from the rest of the world. Therefore, it is noticed that the construct 'risk' in entrepreneurial studies refers to situations with unknown subsequent events and probability which might cause financial loss (Shadbolt, Olubode-Awasola, Gray, & Dooley, 2010).

When launching a new venture, entrepreneurs face two typical types of risk, including 'sinking-the-boat' and 'missing-the-boat' (Dickson & Giglierano, 1986). The former refers to the likelihood that the venture fails to meet expectations of the entrepreneurs while the latter is associated with the overlooking of attractive opportunities. 'Sinking-the-boat' risks are often realised within a short time, while 'missing-the-boat' risks often become apparent only over the long run (Das & Teng, 1997). Regarding the causes of risks, Wu and Knott (2006) categorised risks into two types. 'Demand uncertainty' is risks associated with the incorrect assessment of the new venture's profitability while 'ability uncertainty' is risks caused by the lack of resources and skills to successfully capitalise on the opportunity (Wu & Knott, 2006).

A risk-taking propensity is defined as the tendency to take or avoid risks (Sitkin & Weingart, 1995). It reflects the inclination of firms towards dealing with uncertainty (Lumpkin & Dess, 1996). Entrepreneurial firms are not risk-averse (Covin & Slevin, 1989; Miller, 1983). However, they are not risk-seekers either; they are risk-neutral firms who take calculated risks (Miles & Arnold, 1991). The risk-taking inclination is revealed through strategic decision-making of executives in situations that the information about the future is inadequate (Anderson, Kreiser, Kuratko, Hornsby, & Eshima, 2015). Firms with high risk-taking propensity make strategic decisions quickly and decisively (Eisenhardt, 1989). They are also willing to commit considerable resources in projects which have a reasonably high chance of failure (Miller & Friesen, 1982). This commitment is shown through investments in new technology through a big loan or bringing new products into new markets (Lumpkin & Dess, 1996). Furthermore, a risk-taking propensity is manifested through a bold and aggressive posture in exploring the

environment and decision-making in the face of uncertainty (Covin & Slevin, 1989).

## 2.2.4. EO studies in agriculture

Initiated in industrial settings, EO has been primarily examined in high-tech companies (Rauch et al., 2009; Wales et al., 2013). Meanwhile, agricultural firms are treated as *'special cases'* (Alsos, Carter, Ljunggren, & Welter, 2011, p. 3). Fitz-Koch et al. (2017) brought only one paper about EO into their review of agriculture entrepreneurship studies. An update made by Dias et al. (2018) found nine studies about the construct on the Scopus database published in the period from 2013 to 2017.

Table 2.3. summarises sixteen empirical studies examining EO of firms included farming businesses in agri-food industries to date. EO are commonly investigated in large-sized and multi-functional farming businesses in developed countries (Campbell, 2014; Grande et al., 2011; Micheels & Boecker, 2017; Mirzaei, Micheels, & Boecker, 2016; Rodrigo-Alarcón, García-Villaverde, Ruiz-Ortega, & Parra-Requena, 2018; Veidal & Flaten, 2014). However, scholars have been paying attention to small-scale, non-employee farms operating in developing countries such as Indonesia (Etriya, Scholten, Wubben, Kemp, & Omta, 2018), Sri Lanka (Mahindarathne & Gunaratne, 2015; Wickramaratne, Kiminami, & Yagi, 2017), Ecuador (Gellynck, Cardenas, Pieniak, & Verbeke, 2015) and Uganda (Iza et al., 2019). The majority of these farms are controlled and run solely by a farmer and his family members without employees. This application is underpinned by great robustness of the EO construct when being investigated in firms of different sizes (Covin & Lumpkin, 2011). Recently, the construct has also been used at an individual level (Bolton & Lane, 2012; Koe, 2016).

In comparison to peers in other industries, agricultural firms seem to be less innovative and proactive while taking fewer risks. Regarding innovativeness, while scholars in industries or service regions seem to define innovation based on its newness to the sectors or even the world, researchers in agriculture consider it more narrowly. Specifically, agricultural innovation relates more to the adaptation to existing technologies than the adoption of newly introduced technical means or invention of their applications (van der Veen, 2010). The World-Bank (2012) defined innovation as "the process by which individuals or organisations master and implement the design and production of goods and services that are new to them, irrespective of whether they are new to their competitors, their country, or the world" (p.2). Therefore, innovativeness refers to the willingness of agricultural entrepreneurs to pursue changes in their business (included farming) operations (Micheels & Gow, 2015).

In terms of proactiveness, agricultural entrepreneurs are found to be less proactive than ones in other sectors (Pindado & Sánchez, 2017). As agriculture is heavily regulated with a low rate of innovation, business opportunities do not frequently arise in this sector (Alsos et al., 2011). As a result, proactive scanning of surroundings which is associated with additional cost might not bring many positive results (Green, Covin, & Slevin, 2008). This reactiveness is exhibited more popularly in established farmers who have worked in the sector for a while (Pindado & Sánchez, 2017).

Agricultural production and trade have many types of risks ranging from unpredicted weather conditions, epidemic diseases to dynamic markets. Thus, agricultural entrepreneurs face tremendous uncertainties which directly impact their property and income. Due to this high exposure to risks, farmers are often considered as being risk-averse (Bergfjord, 2013; Chavas & Holt, 1996) despite some recent criticisms (Pindado & Sánchez, 2017). They often passively handle risks by adopting a risk-absorbing activity (e.g., keeping cattle), secure off-farm jobs or cutting household expenditure in periods of hardship (van Winsen et al., 2016). One of the reasons for the risk aversion of farmers is family embeddedness which is more common in agriculture than other sectors (Jervell, 2011). Household resources and ties play a vital role in shaping entrepreneurial activities in farms (Alsos, Carter, & Ljunggren, 2014). These family roots, on the one hand, ensure the control of farmers but, on the other hand, increase their resistance to change (Lucia, Mattias, Karin, & Johan, 2007).

Author	EO components	Country	Product	Finding
Ajayi (2016)	Innovativeness, Risk-taking, Proactiveness	Nigeria	Unidentified	EO promotes export performance by improving networking capabilities.
Awang, Ahmad, Asghar, Subari, and Kassim (2011)	Innovativeness, Risk-taking, Proactiveness, Aggressiveness, Autonomy	Malaysia	Unidentified	EO is positively related to knowledge and networking capabilities.
Campbell (2014)	Innovativeness, Risk-taking, Proactiveness	The U.S.A.	Unidentified	EO – performance relationship was not significant.
Etriya et al. (2018)	Proactiveness, Risk-taking	Indonesia	Vegetable	EO enhances innovation adoption thereby increasing product innovation.
Gellynck et al. (2015)	Innovativeness	Ecuador	Banana	EO is positively associated with farmer's absorptive capacity.
Grande et al. (2011)	Innovativeness, Risk-taking, Proactiveness	Norway	Unidentified	Financial capacity, unique competence and EO positively influence performance.
Hosseini and Eskandari (2013)	Innovativeness, Risk-taking, Proactiveness	Iran	Mixed	There is a positive direct relationship between EO and performance.
Iza et al. (2019)	Innovativeness, Risk-taking, Proactiveness, Intention	Uganda	Coffee & Honey	Proactiveness and innovativeness play a role in the adoption and scaling of agricultural innovations.

# Table 2.3. EO research in agriculture

Author	EO components	Country	Product	Finding
Mahindarathne and Gunaratne (2015)	Innovativeness, Risk-taking, Proactiveness, Aggressiveness, Autonomy	Sri Lanka	Vegetable	The exhibition of EO dimension varies among farmer groups.
Micheels and Boecker (2017)	Innovativeness, Risk-taking, Proactiveness	Canada	Unidentified	EO is an important factor in determining rates of product and marketing innovations which improve farm performance.
Militaru (2012)	Innovativeness, Risk-taking, Proactiveness	Romania	Unidentified	Education, training, rural infrastructures and financial assistance are the key drivers of EO.
Mirzaei et al. (2016)	Innovativeness, Risk-taking, Proactiveness	Canada	Unidentified	EO increases new product sales and the number of marketing channels.
Rodrigo-Alarcón et al. (2018)	Innovativeness, Risk-taking, Proactiveness, Aggressiveness, Autonomy	Spain	Unidentified	Rational and cognitive social capital improve agri-food firm's EO through enhancing dynamic capabilities.
Veidal and Flaten (2014)	Innovativeness, Risk-taking, Proactiveness	Norway	Unidentified	EO showed a negative relationship with financial performance but a positive relationship with non-financial performance.
Verhees et al. (2011)	Innovativeness, Risk-taking, Proactiveness	The Netherlands and Slovenia	Unidentified	EO has a positive influence on the financial performance and satisfactory performance of farms.
Wickramaratne et al. (2017)	Innovativeness, Risk-taking, Proactiveness	Sri Lanka	Теа	External relationships are important antecedents of EO.

EO is operationalised in several ways in agricultural contexts. Similar to empirical studies in other sectors, the dominant approach is adopted from Miller's (1983) and Covin and Slevin's (1989) perspectives (Ajayi, 2016; Campbell, 2014; Grande et al., 2011; Militaru, 2012; Veidal & Flaten, 2014; Verhees et al., 2011); while few authors employed the five-dimensional models suggested by Lumpkin and Dess (1996) (Hosseini & Eskandari, 2013; Mahindarathne & Gunaratne, 2015). Some other combinations of dimensions have also been employed. Micheels and Boecker (2017) and Mirzaei et al. (2016) adopted models suggested by Covin and Covin (1990) measuring EO encompassing proactiveness, risk-taking propensity and competitive aggression. Etriya et al. (2018) used proactiveness and risk-taking propensity for their measurement, while Gellynck et al. (2015) equated EO with innovativeness.

## 2.2.5. EO and farming business performance

EO has been found to enhance firm performance in a wide variety of social and cultural contexts (e.g., Rauch et al., 2009; Saeed, Yousafzai, & Engelen, 2014; Semrau et al., 2016; Wales et al., 2013). This positive relationship has also been widely documented in various types of organisations ranging from multinational corporate (e.g., Williams & Lee, 2009) to small-and-medium-sized enterprises (e.g., Wiklund & Shepherd, 2003); from businesses to not-for-profit organisations (e.g., Lurtz & Kreutzer, 2017); from public companies (e.g., Miller & Le, 2011) to family firms (e.g., Lucia et al., 2007); and from product manufacturers to service providers (e.g., Rigtering, Kraus, Eggers, & Jensen, 2014).

Likewise, farms and agricultural businesses are also able to improve their performance by pursuing an entrepreneurial posture (Ajayi, 2016; Campbell, 2014; Grande et al., 2011; Hosseini & Eskandari, 2013; Veidal & Flaten, 2014; Verhees et al., 2011). The improvement of performance is achieved through increased adoption of innovation. Entrepreneurial farms demonstrate a willingness in adopting and seizing new ideas (Iza et al., 2019) which, in turn, enhance the product (Etriya et al., 2018; Micheels & Boecker, 2017) and marketing innovations (Mirzaei et al., 2016). Additionally, these entrepreneurial farm knowledge) which increases their knowledge base (Gellynck et al., 2015). Having an EO not only enhances the acquisition of resources but also improves the efficiency of resource utilisation through better recombination and reconfigurations (Grande et al., 2011).

Although EO expands the variety of outcomes (Wiklund & Shepherd, 2011), the potential benefits of adopting this strategic posture seem to outweigh associated costs and risks. Entrepreneurial farms, like other enterprises that incur risk by proactively introducing innovations, are likely to be successful in generating and exploiting new business opportunities (Covin & Miles, 1999; Wiklund & Shepherd, 2005). By boldly exploring and moving beyond the unknown, farms with a high degree of EO gain a positional advantage in the marketplace with outstanding new product/service differentiation and speed (Lisboa, Skarmeas, & Saridakis, 2016). Also, these farm enterprises can potentially achieve first-mover advantages over competitors from adopting a proactive posture (Zahra & Covin, 1995).

The relationship between EO and farm enterprise performance is strengthened by market turbulence (Covin & Slevin, 1991). In a current rapidly changing agri-food industry, product and business model lifecycles are significantly shortened, requiring firms to continuously figure out novel solutions addressing consumer needs (Beske et al., 2014). Hence, the capability of anticipating demand changes and aggressively offering new products/services commonly result in these entrepreneurial enterprises enjoying superior performance (Covin & Slevin, 1989; Ireland, Hitt, & Sirmon, 2003; Zahra & Covin, 1995). Additionally, dynamic markets which are intensely competitive keep competitors moving forward (Eisenhardt & Martin, 2000). Thus, farmers who are risk-averse and reactive are vulnerable to being beaten in the marketplace by more nimble rivals. In another extreme, an excessive risk-taking position might result in costly failures (Alvarez, 2007; Bhuian, Menguc, & Bell, 2005). Therefore, a propensity of taking calculated risks is linked to performance in markets which are in a state of flux (Kreiser, Marino, Kuratko, & Weaver, 2013).

### 2.3. An era of chain-vs-chain competition in agri-food industries

To date, EO has been well recognised as an antecedent of firm-level competitive advantage. Nonetheless, the competition in agri-food markets has changed dramatically. Consumer preferences and regulatory requirements are continually changing towards higher standards for food safety, animal welfare and ecological protection (Beske et al., 2014; Manning, Baines, & Chadd, 2005, 2006; Wiengarten, Pagell, & Fynes, 2012). Consumers are becoming more concerned about product traceability that incorporates the entire information about production history and subsequent 'farm-to-fork' processes (Aung & Chang, 2014). Additionally, globalisation is profoundly transforming all business processes from production to financing to marketing. Global food supply chains are becoming a threat to the existence of traditional food producers, wholesalers and retailers (Trienekens et al., 2012).

Geographically, these transformations are the most visible in emerging markets in Asia, Latin America and Africa (Neven et al., 2009; Reardon, Barrett, Berdegué, & Swinnen, 2009). Urbanisation and the growth of the middle class, especially in China and India, account for the majority of increased global food demand (Pica-Ciamarra & Otte, 2011). Also, the westernisation of Asian diets has shifted the consumption towards animal-based products (e.g., dairy and meat), vegetables and fruits (Pingali, 2007); while, growth in incomes has given rise to consumer concern about nutrition, hygiene and the environmental sustainability of foods (Reardon et al., 2014).

These rapid changes have shifted the level of competition in the agri-food marketplace from the firm level to a value chain system level; that is, competition as a network of linked suppliers, service providers, producers, processors and marketers involved in bringing a food product to consumers. Indeed, it is challenging for a single firm alone to fulfil all of the above requirements, and the emerging demand for traceability alone only increases the complexity (Doluschitz, Engler, & Hoffmann, 2010). The complex interdependencies require a relatively high level of vertical coordination within food value chains (Handayati et al., 2015); and now the competitive arena is between whole-of-chain groups of

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vertically integrated firms collectively pursuing competitive advantages over other groups (Boehlje, 1999).

Lambert and Cooper (2000, p. 65) stated: "individual businesses no longer compete as solely autonomous entities, but rather as supply chains". A highly collaborative value chain can maximise the value delivered to consumers by which all of the stakeholders can get competitive advantages (Stirling, 2013). In particular, a wellintegrated value chain outperforms competitors in responding to changes of consumer's needs, assuring quantity and delivery dates as well as new product development (Giménez & Ventura, 2003).

### 2.4. Research gap

Because of the increased importance of the value chain management, there are pressing concerns about relationships between firms' strategic orientations and the implementation of value chain management practices (e.g., Hsu, Tan, Laosirihongthong, & Leong, 2011). For instance, market orientation, a firm's tendency to apply marketing concepts in decision making (Slater & Narver, 1995), has been investigated as a mechanism improving chain governance (Grunert et al., 2005), supply chain capabilities (Tan et al., 2014) and knowledge management (Khanh et al., 2019). Firms with a strong market orientation also exhibit a strong EO (Miles & Arnold, 1991; Slater & Narver, 1995). However, there are only a few studies investigating EO per se in value chain settings. At an inter-firm level, EO was seen as an attribute which can be spread between partners who work together (Bouncken et al., 2016). It supports joint innovations when partners complementarily contribute assets and knowledge (Bouncken et al., 2018). Thus, market responsiveness (Tuan, 2017a) and flexibility (Mishra & Mishra, 2019) of value chains are subject to the partners' level and coordination of EO.

Table 2.4. summarises EO studies which have been conducted at an inter-firm level. The majority of previous works were conducted in industry or service areas, while few have been done in agriculture (Awang et al., 2011; Mishra & Mishra, 2019). Compared to other industries, agriculture is transitioning from homogeneous, commodity-based production towards heterogeneous and segmented markets (Reardon et al., 2009; Reardon et al., 2014). In differentiated markets, competition no longer relies on efficiency but the ability to produce a product that consumers value and deliver it to an appropriate market segment. Stated differently, the performance of value chains is dictated by the partners' capability of exploiting new opportunities and innovation to create new value offerings; i.e., the capability of undertaking entrepreneurial actions. However, there is a dearth of understanding of how actors' EO level is associated with value chain phenomena in agri-food value chains.

Approach	Industry/service sectors	Agriculture	
Dyadic	Li, Liu, and Liu (2011),	Awang et al. (2011).	
	Franco and Haase (2013),		
	Jiang et al. (2014), Bouncken		
	et al. (2016), Jiang et al.		
	(2016), Li et al. (2017), Tuan		
	(2017b), Bouncken et al.		
	(2018)		
Whole-of-chain	Marshall et al. (2015)	Mishra and Mishra (2019)	

Table 2.4.: EO studies at an inter-firm level

Regarding research approaches used, EO in more than one firm has mainly been studied in dyads such as strategic alliances (e.g., Bouncken et al., 2016; Li et al., 2017; Tuan, 2017b) but barely investigated at a whole chain level (Marshall et al., 2015; Mishra & Mishra, 2019). A value chain is composed of an interlocking set of exchange dyads. However, agricultural value chains are complex, comprised of a large number of horizontal dyads between producers and vertical ties amongst actors in different layers (Trienekens, 2011). Therefore, a whole-of-chain approach is more useful in capturing the complexities of networks (Choi & Wu, 2009).

The extant literature demonstrated early attempts to examine EO in inter-firm settings. Nonetheless, few studies take a whole-of-chain approach to investigate the construct in agricultural value chains where networks are complex. To partially fulfil this research gap, this study examines the associations between EO and a number of value chain management practices in an agri-food chain taking a whole-of-chain perspective. The research asks the following overall research question:

# Overall Research Question: How are the actors' levels of entrepreneurial orientation associated with value chain management practices in agricultural value chains?

The following section goes through definitions of key value chain concepts including value chain, collaboration and knowledge acquisition. Reviews of some theories used in inter-firm EO studies are then examined before a theory is chosen to be the reasoning logic of the research. Based on the chosen perspective, the literature about theoretical associations between the constructs is then reviewed to underpin the study's conceptual model.

## 2.5. Value chain

## 2.5.1. Value chain definition

The concept of 'value chains' is commonly used interchangeably with 'supply chains' in business literature (Collins et al., 2015). Therefore, the development of this term can be traced back to the initiation of the 'supply chain management' field of study. 'Supply chain management' was first developed as a critical business concern by Keith R. Oliver and Michael D. Webber in their 1982 paper titled 'Supply chain management: logistics catch-up with strategies' (Swanson et al., 2018). The idea was that fragmented functional areas such as purchasing, manufacturing, storage, distributions and sales, which might or might not be undertaken by different firms, should be managed as a single entity (Christopher, 2016). This systematic management strives for excellence in product flows by mitigating exaggerated order swings (also known as 'bullwhip effect') (Lee, Padmanabhan, & Whang, 1997) which then minimises total operating costs (Lambert & Cooper, 2000). However, the term gained widespread usage when Michael Porter took a new competitive perspective focusing on customer value creation to view the above multiple-functional management. In the well-known book: 'Competitive Advantage', he considered nine operating activities including

organisational structuring, personnel management, research and development, procurement, logistics (inbound and outbound), production, marketing and sales and post-sale services as value-added areas (Porter, 1985). In other words, these activities constitute a chain of value additions for products supplied by the chain. Fuller, O'Conor, and Rawlinson (1993) expanded the linkage beyond firms' boundaries when stating that logistics and other strategies (in different firms) should be well aligned to tailor customer value in market segments appropriately. This multi-firm approach has been widely adopted today in line with the increased popularity of outsourcing and interfirm collaborations which significantly blur firm boundaries (Baraldi, Proença, Proença, & de Castro, 2014).

As a multi-level discipline, value chain management has been defined from various perspectives. Indeed, a remarkable number of literature reviews have been carried out which showed that hundreds of definitions had been proposed (e.g., Burgess, Singh, & Koroglu, 2006; Chen & Paulraj, 2004; Esper, Defee, & Mentzer, 2010; Gibson, Mentzer, & Cook, 2005; Giunipero, Hooker, Joseph-Matthews, Yoon, & Brudvig, 2008; Mentzer et al. 2001; Shukla, Garg, & Agarwal, 2011). However, a rigorous definition has still not become consensus achieved (Swanson et al., 2018). Some are quite basic (e.g., Mentzer et al., 2001), while others are more comprehensive (Stewart, 1995). With roots in logistics, it is understandable that one of the most widely-agreed definitions is suggested by the Council of Supply Chain Management Professionals which was formerly known as the Council of Logistics Management:

Supply chain management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies. (Council of Supply Chain Management Professionals, 2018) However, many authors criticised this definition because it seemed to overemphasise the logistics component while supply chain management is a much more multi-disciplinary phenomenon (e.g., Larson, Poist, & Halldórsson, 2007). Cooper, Lambert, and Pagh (1997) stated that supply chain management far exceeds logistics management, which has a stronger engineering focus on material flows, by recognising the involvement of frequent information exchanges and close cross-firm relationships in chain governance. Mentzer, Stank, and Esper (2008) illustrated domains of supply chain management encompassing logistics management, marketing management and product management. Stock and Boyer (2009) analysed 173 definitions in an attempt to develop a consensus understanding of supply chain management, which resulted in three major themes. Activities refer to flows of materials, products, services and information and relationships among chain actors. Benefits consist of value creation, operational efficiencies and customer satisfaction. Constituents refer to the operations, business functions or processes to organise the above activities. As a result, they proposed an all-inclusive definition which is:

The management of a network of relationships within a firm and between interdependent organisations and business units consisting of material suppliers, purchasing, production facilities, logistics, marketing, and related systems that facilitate the forward and reverse flow of materials, services, finances and information from the original producer to final customer with the benefits of adding value, maximizing profitability through efficiencies, and achieving customer satisfaction. (Stock & Boyer, 2009, p. 706)

Stock and Boyer's definition seems to be appropriate for value chains of organisations when separately treating internal and external integrations. In this study, the beef cattle chain consists of one-person firms in which within-firm relationships do not exist. Most of the ideas of value chain management have been developed in Western countries. Thus, the application of this discipline to a new context like Vietnam needs refinements, reinforcement and reimagination (Jack et al., 2013). This study uses the Global Supply Chain Forum's definition of value

chain management as the organising of activities, functions and processes across firms along a chain to add value to end-users which then increases rewards for all actors, which is: "Supply Chain Management is 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" (as cited in Lambert & Cooper, 2000, p. 66).

Empirically, this definition has been previously used to analyse agricultural value chains in developing countries including Vietnam (Cadilhon, Moustier, Poole, Tam, & Fearne, 2006; Collins et al., 2015). Therefore, it is believed to be appropriate to guide this study.

### 2.5.2. Agricultural value chains in emerging economies

Agricultural value chains are referred to in the literature under various names such as food value chains (Aung & Chang, 2014), fresh produce value chains (Cai, Chen, Xiao, & Xu, 2010) or agri-business value chains (Kirsten & Sartorius, 2002). Generally, they encompass a series of activities and processes to satisfy end-user demands with agricultural products. Therefore, agricultural value chain management is defined as the acts of managing distribution channels of products which have plant-or-animal origins to achieve competitive advantages (Chandrasekaran & Raghuram, 2014). These activities might consist of farming, processing, packaging, transportation, distribution, marketing and retailing (Tsolakis, Keramydas, Toka, Aidonis, & Iakovou, 2014).

Due to product perishability, the interdependencies amongst actors in agricultural value chains are relatively higher than those in other chains (Handayati et al., 2015). Tsolakis et al. (2014) summarise ten characteristics of agri-food chains. Specifically, they deal with short life-cycle goods with strong seasonality in operations. Production, harvesting and marketing of agricultural products are long and dependent on various factors, including weather conditions. Thus, the logistics have specific requirements in terms of transportation, storage and material recycling. Besides the economic aspect, these chains must meet requirements about food safety, health quality and environmental protection that require entire chain management.

Since the beginning of the twenty-first century, research on agricultural value chains has increased (Routroy & Behera, 2017). Much attention has been focused on developing countries where millions of small-scale farmers are involved in the agricultural sector (e.g., Berti & Mulligan, 2016; Blandon, Henson, & Cranfield, 2009; Miyata, Minot, & Hu, 2009). Trienekens (2011) depicts three typical agricultural value chains in developing countries, namely, 'low income', 'middle income' and 'export value'. The 'low income' value chain is the traditional and most popular structure in emerging economies. In this system, a large number of small farmers are involved upstream of the chain before the product is marketed by a few actors downstream. These chains are often loosely connected and aim at local markets with a high volume of staple products. Actors in 'middle income' chains are often medium-sized producers, distributors, processors and retailers (e.g., supermarkets). Instead of volume, these chains focus on value-adding activities by following quality and safety standards. Finally, 'export value' chains are the most integrated type in which few actors work closely to serve foreign markets (Trienekens, 2011). Due to the context of this study (to be depicted in detail in Section 3.2), the term 'agricultural value chains' refers to the first structure, that of small farmers, in this thesis.

Agricultural value chains in emerging countries are characterised by large information asymmetries, asymmetric power relationships and low levels of trust between value chain actors (Anastasiadis & Poole, 2015). This leads to operational inefficiencies and low levels of market responsiveness and agility in these chains (Lorentz, Kittipanya-ngam, & Singh Srai, 2013), which pose a series of challenges for small-scale farmers. In particular, these farmers must bear a considerable amount of price risk because they are not able to predict the production quantities accurately before harvesting (Devaux et al., 2018). This causes a force-to-sell pressure that significantly reduces the farmers' bargaining power in discussions with buyers. Likewise, the absence or ineffectiveness of courts in transitional economies encourages cheating or contract breaking by buyers that harm small farmers and results in market failure (Ferreira, Goh, & Valavi, 2017). Salimonu and Falusi (2009) indicated that the price fluctuations and market failure are the two most major risks for farmers in developing countries, being even bigger than weather-related factors.

## 2.6. Collaboration

## 2.6.1. Value chain collaboration conceptualisation

Collaboration is at the heart of value chain management and is a construct which is often examined in value chain management research (Swanson et al., 2018). Collaboration within a value chain is the sharing of information and coordination of strategy and actions amongst chain actors to achieve mutually beneficial outcomes. The concept was emphasised by Ellram and Cooper (1990) for firms to successfully implement value chain management in an attempt to reduce risks and better meets customer needs. Since then, numerous perspectives and theories have been taken to examine value chain collaboration in different ways and different contexts (Soosay & Hyland, 2015). Table 2.5. summarises some of the notable conceptualisations.

In the 1990s, when the concept of supply chain management was not well distinguished from logistics, collaboration was commonly seen under firm-centric points of view. Accordingly, it was a foundation of inter-organisational relationships through which focal firms might improve logistics performance. It involves sustaining collaborative relationships with other firms (e.g., buyers and sellers) through time (Ellram & Hendrick, 1995). By sharing resources and capabilities, the chain actors aimed to reduce costs and better serve customers by reducing the bullwhip effect (Lee et al., 1997; Narus & Anderson, 1996). These relationships between actors in a collaborative value are considered as a valuable asset which can generate supernormal rents for firms (Dyer & Singh, 1998).

Obviously, the sharing of resources (e.g., information) requires a certain level of relational qualities of partnerships. Trust has emerged as an essential factor driving the success of value chain relationships (Sridharan & Simatupang, 2013). When partners trust each other, they are committed to the relationship that increases acquiescence, cooperation and beneficial conflict and decreases relationship uncertainty and their propensity to terminate the relationship (Morgan & Hunt, 1994). Therefore, this relational construct has been significantly used to conceptualise collaboration in value chains. For instance, Spekman Kamauff, and Myhr (1998) categorised relationships into arm's-length transaction, cooperation, coordination and collaboration. In these, collaboration is characterised by a high level of trust, commitment and information and vision sharing. Lambert, Emmelhainz, and Gardner (1999) also placed trust at the core of their definition, together with openness and risk and reward sharing. The trustbased conceptualisations then have been widely adopted by several authors who examined the phenomenon at a firm level (e.g., Duffy & Fearne, 2004; Jones, Fawcett, Wallin, Fawcett, & Brewer, 2014; Sheu, Rebecca Yen, & Chae, 2006; van Echtelt, Wynstra, van Weele, & Duysters, 2008; Yazici, 2012).

Definition	Author
"An on-going relationship between two firms that involves a commitment over an extended time period, and a mutual sharing of information and the risks and rewards."	Ellram and Hendrick (1995)
"Collaboration is a kind of cooperative agreement in which chain members share resources and capabilities to fulfil extraordinary needs at a lower cost than they could by acting alone."	Narus and Anderson (1996)
"A collaboration is a level of intensity among partners" "which requires high levels of trust, commitment and information sharing among supply chain partners. In addition, partners also share a common vision of the future."	Spekman et al. (1998)
"Partnership is a tailored business relationship based upon mutual trust, openness, shared risk, and shared rewards that yields a competitive advantage, resulting in business performance greater than would be achieved by the firms individually."	Lambert et al. (1999)
"Collaboration means that all companies in the supply chain are actively working together as one towards common objectives."	Mentzer et al. (2000)
"Collaboration is a process of decision making among interdependent parties. It involves joint ownership of decisions and collective responsibility for outcomes."	Stank, Keller, and Daugherty (2001)

## Table 2.5: Value chain collaboration definitions

Definition	Author
"Two or more chain members working together to create a competitive advantage through sharing information, making joint decisions, and sharing benefits which result from greater profitability of satisfying end customer needs than acting alone."	Simatupang and Sridharan (2002)
"Cross-enterprise collaboration emerges when two or more firms voluntarily agree to integrate human, financial or technical resources in an effort to create a new, more efficient, effective or relevant business model."	Bowersox, Closs, and Stank (2003)
"A collaborative relationship based on information exchange in support of joint strategic, tactical and operational planning, forecasting and demand fulfilment processes."	Barratt (2004)
"Demand collaboration is generally characterised as cooperative behaviour or joint decision-making between companies and represents a willingness, versus a requirement, to engage in organisational efforts."	Kahn, Maltz, and Mentzer (2006)
"Collaboration describes the overall willingness of organisations to seek and implement customer-based solutions using shared resources and producing shared benefits."	Walters (2008)
"A long-term partnership process where supply chain partners with common goals work closely together to achieve mutual advantages that are greater than the firms would achieve individually."	Cao et al.,(2010)
"A long-term relationship where participants generally cooperate, share information, and work together to plan and even modify their business practices to improve joint performance."	Whipple, Lynch, and Nyaga (2010)
"Collaboration is a mutually shared process where two or more firms display mutual understanding and a shared vision, and the firms in question voluntarily agree to integrate human, financial, or technical resources with the aim of achieving collective goals."	Richey, Adams, and Dalela (2012)
"We advocate that collaboration involves multiple firms or autonomous business entities engaging in a relationship that aims to share improved outcomes and benefits."	Soosay and Hyland (2015)

Source: Adapted from Soosay and Hyland (2015)

As the value chain management field has matured and become distinctive from logistics, many scholars have taken a whole-of-chain perspective to view collaboration. It is considered as a platform or a business process whereby chain actors work together to achieve chain-level successes which are unachievable if working alone. Thus, instead of relational qualities collaboration is exhibited through actual supply chain operations when actors voluntarily and actively work together towards mutual goals (Cao et al., 2010; Mentzer et al., 2000). Specifically, firms make their own decisions with consideration to achieve outcomes for upstream and downstream partners (Stank et al., 2001). Operationally, actors integrate resources, making joint decisions and share benefits and risks when collaborating (Kahn et al., 2006; Richey et al., 2012; Simatupang & Sridharan, 2002; Walters, 2008). They are also in support of joint strategic processes such as planning and demand forecasting (Barratt, 2004). In some cases, participants are even willing to modify their business models or practice to maximise collaboration performance (Bowersox et al., 2003; Whipple et al., 2010).

This study adopts the whole-of-chain approach to define collaboration. The relational view relying on dispositional qualities normally requires an acquaintanceship among partners. As actor perceptions of their partners' integrity and ability are critical antecedents of trust (Duffy & Fearne, 2004), direct contacts seem to be indispensable for collaboration. As a result, this approach has been commonly used for examining dyads, where partners meet each other frequently (e.g., Andersen & Kumar, 2006; Dung & Ariyawardana, 2015; Selnes, 1998). In this study, the analysis is performed at a chain-level (Section 3.7.3) in which actors are working together, although they might not know each other. Indeed, farmers are indirectly collaborating with unknown retailers when getting market information transmitted through intermediaries (Kottila & Rönni, 2008). Therefore, the whole-of-chain approach, which is capable of incorporating all of the chain actors into the analysis, can better answer the research questions in this study.

#### 2.6.2. Value chain collaboration measurement

The measurement of value chain collaboration has been developed by several authors. Stewart (1997) proposed a Supply Chain Operation Reference model (SCOR) which was the first cross-discipline framework supporting collaboration. He suggested a unified structure that links performance metrics, processes, best practices and people in value chains. Adopting SCOR, Simatupang and Sridharan (2002) identified fundamental conflicts which make value chains less collaborative, including an inappropriate measure of performance, asymmetric information, outdated policies and incentive misalignment. Therefore, they suggested a conceptual model for supply chain collaboration encompassing information sharing, decision synchronisation, incentive alignment, collaborative performance system, and shared supply chain processes in sequential papers (2004b, 2005b). The first three, then, became the components of the collaboration index developed by the authors (Simatupang & Sridharan, 2005a). Cao et al. (2010) expanded Simatupang and Sridharan's dimensions when deriving a model of value chain collaboration attributed for information sharing, decision synchronisation, incentive alignment, collaborative resource sharing. communication, goal congruence and joint knowledge creation. Ramanathan, Gunasekaran, and Subramanian (2011) developed performance metrics of collaboration which consisted of seventeen items categorised into two groups, namely 'functional drivers' and 'enhancers'. The former measure the similarity of objectives and processes of actors in value chains such as mutual agreements and business strategy similarity. The latter refers to collective actions undertaken by the actors such as joint decision-making and information sharing. More recently, Kumar and Banerjee (2014) argued that collaboration should be exhibited through six dimensions. These include joint planning for executing schedule, joint planning for increasing market share, collaborative culture, operational resource sharing, joint problem solving and performance measurement and market-based information sharing.

So far, there has not been a wide agreement amongst scholars on how value chain collaboration should be measured. Ma, Pal, and Gustafsson (2018) in a meta-

analysis found the three components proposed by Simatupang and Sridharan (2005a) - information sharing, incentive alignment and decision synchronisation – to be used as the core constructs in the majority of studies (Ma et al., 2018). Likewise, information sharing, incentive alignment and decision synchronisation have also been used to measure value chain collaboration in an agricultural context (e.g., Naspetti, Lampkin, Nicolas, Stolze, & Zanoli, 2011; Rota, Pugliese, Hashem, & Zanasi, 2016). Hence, this study adopts the perspective of Simatupang and Sridharan (2005a) that value chain collaboration encompasses information sharing, incentive alignment and decision synchronisation

#### 2.6.3. Value chain collaboration components

#### 2.6.3.1. Information sharing

Information sharing refers to the access of actors to timely, accurate, relevant and complete data to plan, control and coordinate supply chain operations (Kumar & Pugazhendhi, 2012). This dimension has been described as the essential component of value chain collaboration (Cao et al., 2010; Min et al., 2005; Simatupang & Sridharan, 2002, 2005a). It is recognised for improving chain efficiency and reducing the "bullwhip effect" which often leads to poor customer service, lost revenue and ineffective transportation (Lee et al., 1997; Moyaux, Chaib-draa, & D' Amours, 2007). An effective data-exchanging system also helps actors save a significant amount of money, especially in extraordinary circumstances such as large orders or low inventory (Elofson & Robinson, 2007). Furthermore, information sharing is needed for achieving the mutual goals of a chain, reducing decision-making complexity and preventing opportunistic behaviours (Barratt, 2004).

There are many types of information that can be shared upstream and downstream. They might relate to different levels of decisions ranging from strategic (e.g., pricing) through tactical (e.g., production planning) to operational (e.g., ordering) (Huang, Lau, & Mak, 2003). Lotfi, Mukhtar, Sahran and Zadeh (2013) summarised seven types of sharing data including inventory level, sales data, sales forecasting, ordering information, production ability information, new products development and others. In agriculture, regularly shared data includes production practices and schedules, on-hand inventory, price and price changes, source of market and required volumes, (Hilary, Sseguya, & Kibwika, 2017; Rota et al., 2016). Particularly in the livestock industry, cattle growers often share information relating to feed, diseases, droughts and quantity of traded animals and receive market data such as price, customer requirements and demands (van der Merwe, Kirsten, & Trienekens, 2017).

### 2.6.3.2. Incentive alignment

Actors within value chains often share mutual goals and maximise their benefit when these goals are achieved (Cao et al., 2010). However, actions of one actor might result in costs (or benefits) for other actors in the value chain which are known as externalities, spillovers or neighbourhood effects (Simatupang & Sridharan, 2005b); therefore, sustaining collaborative relationships requires actors to consider the possible consequences for their partners. Incentive alignment is defined as processes through which this consideration is taken into account (Cao et al., 2010; Simatupang & Sridharan, 2005b). When incentives are aligned, actors are self-motivated to make individual decisions to improve the total profits of the chain because they know that their benefits will also be maximised (Simatupang & Sridharan, 2005b). By contrast, incentive misalignment is a circumstance in which parties act regardless of the consequences for other chain members. It is often caused by differences in the motivations amongst actors when participating in value chains. For instance, buyers tend to focus on cost reduction, source of supply security and lead time reduction while sellers expect to enhance revenue and improve strategic position (Spekman et al., 1998).

Incentives in value chains can be aligned by the equitable sharing of revenues, costs, profits and risks (Lee, 2004). The sharing of revenues can be undertaken by royalty payments which enhance the involvements of manufacturers in marketing effort (Kunter, 2012). Costs can be shared through subsidy agreements or promotional activities (Tsao & Sheen, 2012). Meanwhile, different types of contracts are used to implement profit sharing (Leng & Parlar, 2009) and risk distribution (Inderfurth & Clemens, 2014).

### 2.6.3.3. Decision synchronisation

Decision synchronisation is defined as the extent to which the value chain members, together, carefully organise mutual plans to optimise chain profitability (Simatupang & Sridharan, 2002). As actors have different expertise, this process consists of activities appropriately reallocating decision rights in the chains aiming to match supply with demand (Simatupang & Sridharan, 2005b). Therefore, the effectiveness of this process is judged by how well customer demands are fulfilled and chain profitability is enhanced (Corbett, Blackburn, & van Wassenhove, 1999).

Synchronised decisions are often made in relation to demand management, production planning and inventory strategy. The participation of partners into discussions about order quantity, required quality and pricing is essential to guarantee the interests of actors to sustains value chain partnerships (Harland, Zheng, Johnsen, & Lamming, 2004). Meanwhile, integrated planning helps reduce the 'makespan', or the time difference between the start and the finish of manufacturing (Glock, 2012). Also, inventory replenishment and delivery time which are jointly decided by buyers and sellers can minimise logistics cost in value chains (Kreng & Chen, 2007).

#### 2.7. Knowledge acquisition

The terms 'knowledge acquisition' and 'information dissemination' are very commonly used interchangeably in the value chain literature (Cerchione & Esposito, 2016). Nonetheless, despite the strong correlations, they are still two distinct constructs and should be treated separately (Hult, Ketchen, et al., 2004). Information is often distributed on purpose and only to those who need it whereas knowledge can be learned unconsciously. For instance, retailers often do not want to share the data about their margins; however, other actors might still learn this fact by doing a calculation on retained revenue. Hence, while information refers to pieces of data consciously distributed within value chains, knowledge is the outcomes of the processing (i.e., the learning) of both shared and unshared data (Grant & Baden-Fuller, 1995). Codifiability is another criterion to classify knowledge and information. Information is codifiable, which allows it to be shared easily and completely. However, knowledge which can be declarative, procedural or conditional must be learned through a period and requires a cognitive effort of learners (Paris, Lipson, & Wixson, 1983). Stated differently, while information dissemination depends on the willingness-to-share of sharers, the acquisition of knowledge in value chains is also driven by learning capabilities (or absorptive capacity) of receivers. In this study, the concept of 'knowledge acquisition' refers to the transfer of skills and knowledge as an outcome of cognitive processes of chain actors.

Overall, "knowledge acquisition is the process by which knowledge is obtained" (Huber, 1991, p. 90). This process includes several activities such as congenital learning, experimental learning, vicarious learning, grafting and searching (Huber, 1991). Huber's definition is comprehensive when encompassing both internal (e.g., employees) and external (e.g., partners) sources of knowledge. In the value chain context, more attention is paid to external acquisition. Fuentes-Fuentes, Bojica, and Ruiz-Arroyo (2015) state that knowledge acquisition is the capacities of identifying and acquiring externally generated knowledge to improve firm operations. The identification and acquisition are carried out through direct or indirect contact with knowledge sources (He, Ghobadian, & Gallear, 2013). The sources might be next-tier and further-tier partners. For instance, manufacturers acquire market intelligence which is sourced not only from wholesalers but also retailers working further down the chain (Grunert et al., 2005).

The acquisition of knowledge is subject to learning activities and cooperating contexts. Bessant, Kaplinsky, and Lamming (2003, p. 171) developed a simple matrix indicating effective learning mechanism categorised by modes of partnerships and knowledge complexity. For instance, the transmission of information is sufficient when members of dyads want to announce a new specification or regulations. However, more strategic learning activities are needed when the network wants to establish a whole-of-chain management scheme. Raisinghani and Meade (2005) indicated three components of value chain learning including action learning (i.e., learning from actual actions), systematic

problem solving (i.e., learning from thinking at a system level) and experience learning (i.e., learning from successes and failure of partners).

There are many types of knowledge which can be acquired vertically. They can vary from being explicit (e.g., production schedule) to tacit (e.g., marketing knowhows) (Schoenherr, Griffith, & Chandra, 2014). Based on purposes, knowledge can be categorised into four types, including technological, organisational, manufacturing and marketing knowledge (Almuiet & Salim, 2013). Of these, technological knowledge pertains to the physical attributes of products; organisational knowledge includes understanding the value chain actors; manufacturing knowledge consists of information about material and production processes; while marketing knowledge is understanding the customers' needs and context.

### 2.8. Theoretical development

## 2.8.1. Review of theories for examining EO in strategic alliances

Scientific theories are explanations of the how and the why of natural and social worlds (Suppes, 1967). A theory encompasses many hypotheses that can be repeatedly tested and verified by scientific methods (Suppes, 1967). EO has been investigated from various theoretical perspectives (Wales, 2016; Covin & Lumpkin, 2011; Miller, 2011). The theoretical perspectives commonly employed to understand or predict interfirm organisations include transaction cost economics, social embeddedness theory and resource-based/dynamic capabilities view (Table 2.6).

## 2.8.1.1. Transaction cost economics

Transaction cost economics investigates transactions (or exchanges) in the economy and attempts to explain why they perform. Grounded on the relaxation of neoclassical assumptions about the perfect mobilisation and costlessness of information, transaction cost economists argue that every transaction (e.g., between retailer and consumers or suppliers and buyers) on the market incurs certain costs (Williamson, 1985). Thus, transaction costs are merely defined as 'the costs of carrying out any exchange' (Hobbs, 1996, p. 17). They might be categorised

into three types: information costs, negotiation costs and monitoring costs (Hobbs, 1996). The performance of an economic agent significantly depends on how they can minimise the sum of production and transaction costs (Williamson, 1996).

Theory	Premise	Discussants
Transaction cost economics	Strong vertical integrations which reduce information, negotiation and monitoring costs may lead to greater EO.	Zacharakis (1997), Michael (2007), Everaert, Sarens and Rommel (2010)
Social Embeddedness Theory	The structural, relational and cognitive aspects of networks in which firms are embedded are associated with the manifestation of EO.	Simsek, Lubatkin, and Floyd (2003), Hoang and Antoncic (2003), Welter (2011), Ferguson and Hansson (2015)
Resource- based/dynamic capabilities view	Resource and capabilities shared amongst partners may lead to greater EO; Possessing EO may enhance the acquisition of external resources and capabilities within value chains.	Barringer and Bluedorn (1999), Teng (2007), Bouncken et al. (2016), Jiang et al. (2016), Kim, Steensma, and Park (2017), Jiang, Liu, Fey, and Jiang (2018), Rodrigo-Alarcón et al. (2018)

## Table 2.6: Theories to examine EO in value chains

Under the transaction cost economics lens, entrepreneurs offer the opportunity for a transaction when introducing a new product or service to customers (Zacharakis, 1997). Hence, it causes the buyers to make a 'buy or make' decision. However, a new product requires an adaptation to changes which might considerably increase the cost of exchanges (Michael, 2007). A new transaction is associated with uncertainties about the quality of the product/service, presence of opportunism, supply continuity and entrepreneur's identity (Michael, 2007). Therefore, customers bear the risks that the product/service might not perform as promised. Thus, to recruit buyers, it is an essential task for entrepreneurs to minimise transaction costs (Everaert et al. 2010).

Vertical coordination is an effective way to reduce uncertainties which are the primary sources of transaction costs (Buvik & Andersen, 2002). Many authors suggest that shared goals, mutual understanding and frequent exchange history might prevent opportunistic behaviours in value chains (Crosno & Dahlstrom, 2008; Everaert et al., 2010; Hobbs, 1996; Williamson, 1979, 2008). For instance, frequent transactions provide firms with an understanding of partners which significantly reduce information costs. Also, trust might be developed through increasing exchange frequency which saves time, effort and resources for monitoring (Morgan & Hunt, 1994).

## 2.8.1.2. Social embeddedness theory

Firms exist in a relation network with their suppliers, customers, competitors and other actors. Therefore, their actions are heavily constrained or powered by social structure (Granovetter, 1985). Embeddedness refers to the position of firms in its relation network by which their behaviours are affected by other actors and institutions (Granovetter, 1985, 2005). The structure of the relational web that a firm is in drives the flow and quality of information decides the rewards and punishment for activities and affects the trust level with partners (Granovetter, 2005).

Social context is increasingly important in building knowledge about when and why entrepreneurship happens and how some new ventures succeed while others fail (Hoang & Antoncic, 2003; Welter, 2011). The embeddedness in the social structure shapes new ventures when creating opportunities and improving performance (Ferguson & Hansson, 2015; Jack & Anderson, 2002). Kim, Choi, and Skilton (2015) link typologies of embeddedness to different types of innovation in value chains. For instance, a relationship with high levels of trust and commitment is often an antecedent for a systemic innovation while a transactionoriented relationship is likely to result in a modular innovation. Simsek et al. (2003) argue that entrepreneurial behaviours at inter-firm levels are outcomes of inter-organisational sensemaking associated with cognitive, relational and structural embeddedness. Formal and informal communications in social networks might facilitate the sharing of information about material costs, consumer needs and competition, which is vital for the feasibility assessment of new ventures. Not only driving patterns of entrepreneurship, but vertical embeddedness is also of critical importance for new ventures' survival. At earlydevelopment stages when most of the new ventures face liabilities of newness and smallness, firms depend heavily on external supplies of information, financial capital and access to clients (Aldrich & Kim, 2007; Greve & Salaff, 2003). Particularly for small entrepreneurial firms, social ties have positive effects on a wide range of performance indicators including growth, sales and profit (Stam, Arzlanian, & Elfring, 2014).

## 2.8.1.3. Resource-based/dynamic capabilities view

The resource-based view (RBV) considers firms as bundles of resources including physical and financial assets, capabilities and processes, information and knowledge and other attributes (e.g., reputation) (Barney, 1991). The ability to create sustained competitive advantage in the marketplace depends on the amount of valuable, rare, inimitable and non-substitutable resources which they can control and develop (Barney, 1991, 2002). This perspective is based on the heterogeneity of firms in regard to resources and capabilities which are not always freely moved or copied between firms (Dierickx & Cool, 1989). Therefore, resource endowments differing among firms drive their strategies and ultimately impact competitive advantage (Newbert, 2007). The capabilities of effectively using resources are important in gaining and sustaining competitive advantage, where different performance outcomes occur under different resource management strategies in similar business contexts.

Firm resources and capabilities have two-way interactions with EO. On the one hand, some of the firm resources and capabilities are critical in enhancing EO as well as boosting EO – performance linkage (Wales, 2016). Engaging in entrepreneurial activities is resource consuming (Covin & Slevin, 1991). Thus, very often, entrepreneurial firms are faced with a lack of resources, especially

pursuing rapid growth or at early stages of development (Barringer & Bluedorn, 1999; Teng, 2007). Therefore, the level of firms' EO is bounded by the capacity to control and manage resources (Covin & Slevin, 1991). In today's hypercompetitive business environments, vertical partnering is such a vital capability to overcome strategic vulnerability by combining partners' resources (Eisenhardt & Martin, 2000; Eisenhardt & Schoonhoven, 1996). Therefore, they can quickly sense and seize opportunities as well as maintain competitiveness (Teece, 2007).

On the other hand, adopting an entrepreneurially oriented posture gives rise to firm resource and capabilities (Covin & Lumpkin, 2011; Covin & Miller, 2014). As the accumulation of resources is a critical task for entrepreneurial firms, they are commonly masterful at external resource seeking and acquisition (Kim et al., 2017; Shane, 2003). They have a stronger motivation than conservative firms to engage in resource-acquiring activities such as learning (Jiang et al., 2018). Also, they are more likely to gain the trust and priority to access resources from partners, especially buyers and sellers, due to the high future potential (Jiang et al., 2018).

Dynamic capabilities view (DCV) is derived from RBV. Many scholars criticised RBV as it is the ownership of resources but the capabilities of effectively using them that results in creating competitive advantage. Notably, to outperform competitors requires firms to be more effective in congregating, combining and redistributing their resources (Grant, 1991; Ray, Barney, & Muhanna, 2004). Superior economic returns rest on administrative skills, operational routines or talents which are too costly for competitors to imitate (Miller, 2003). Capabilities are very hard to imitate because they are complex (Dierickx & Cool, 1989) and untradeable (Teece, Pisano, & Shuen, 1997) so early capabilities-centric perspectives are built on a relatively static view. This approach might have been appropriate in the 1990s and early 2000s when market demand was more stable, and the competition was less intense. However, today's markets are hypercompetitive, global and continuously restructured, even in agriculture which was previously considered as the least dynamic sector (Berdegue, Balsevich, Flores, & Reardon, 2005; Garcés, 2002; Hall, Ehui, & Delgado, 2004; Pica-

Ciamarra & Otte, 2011; Reardon et al., 2009; Reardon & Berdegué, 2002; Reardon, Timmer, Barrett, & Berdegué, 2003; Reardon et al., 2014). Rapidly changing consumer needs and advanced technologies significantly shorten product life cycles and date innovations more quickly than ever (Teece et al., 1997). Also, new competitors keep appearing while existing rivals aggressively introduce innovations to create competitive advantage. Firms need to be capable of continuously creating temporary advantages to stay ahead of competitors to survive and develop in such turbulent business environments (Teece & Pisano, 1994). These capacities are called dynamic capabilities.

Dynamic capabilities have been defined in several ways. In the ground-breaking paper of Teece et al. (1997), they are defined as the firm-level capacity of timely and appropriately renewing existing competencies in the compatibility with variations of business settings. The authors stressed the key role of strategic management as "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments" (p. 516). As capabilities are bundles of resources (Miller, 2003), the concept was also seen through an operational lens as processes (Eisenhardt & Martin, 2000) or pattern of activity (Zollo & Winter, 2002) through which firms acquire, combine, reconfigure and deploy resources to match surrounding changes. Under a hierarchy approach, dynamic capabilities are distinct from static ones which consist of all existing skills, resources and competencies at a specific moment (e.g., administration, quality management or marketing) (Winter, 2003). They are considered as higher-order capabilities extending, modifying or creating static capabilities over time (Zahra, Sapienza, & Davidsson, 2006). Thus, dynamic capabilities determine how quickly firms can stretch and re-organise their current capabilities and competencies following requirements and opportunities of business environments (Teece, 2012).

This study adopted a process approach because it allows direct, identifiable and specific investigations into dynamic capabilities while the others seem to be vague, repetitious and non-operational (Eisenhardt & Martin, 2000). Accordingly, dynamic capabilities encompass routines allowing firms to establish new resource
reconfigurations. They include processes assisting the sensing and seizing of opportunities and the maintenance of the competitiveness over competitors (Teece, 2007). Some examples of these processes are research and development, resource acquisition, product innovation, learning, alliances and organisational structure reconfiguration, to name a few (Ambrosini & Bowman, 2009; Eisenhardt & Martin, 2000; Teece, 2007).

#### 2.8.2. The theory used in this study

This study employs the dynamic capabilities view to investigate EO in the beef value chain in the Central Highlands, Vietnam. This employment is for two reasons:

- Firstly, as discussed in Section 1.5, the beef industry in Vietnam poses characteristics of a 'high velocity' market (Eisenhardt & Martin, 2000, p. 1111). Hence, to create competitive advantages requires value chain actors to be capable of quickly and appropriately introducing new capabilities.
- Secondly, resource and capability-based approaches have been previously used in a study of a beef cattle value chain in the Central Highlands, Vietnam (Khanh et al., 2019). This work revealed that a resource and capability-based approach might provide an insightful understanding of the management of the focal value chain.

Therefore, the use of dynamic capabilities view is not only appropriate and feasible but also likely to bring insightful new knowledge to the literature.

In current business environments which are in a state of flux, being operationally efficient is no longer enough for value chains to compete. Instead, they are now required to be capable of promptly handling demand changes and appropriately adjusting chain designs by market requirements while maintaining incentives for stakeholders (Lee, 2004). Stated differently, a value chain, as a single entity, must develop dynamic capabilities. Chain actors need to look beyond their gates and work collaboratively with upstream and downstream partners to quickly understand customer requirements, communicate them throughout the chain and

develop customer satisfying responses (Handfield, Cousins, Lawson, & Petersen, 2015).

To date, the majority of studies on the dynamic capabilities view have been firmcentric; only a few have been carried out in value chains, but the attention has been recently increasing (e.g., Aslam, Blome, Roscoe, & Azhar, 2018; Eckstein, Goellner, Blome, & Henke, 2015; Beske et al., 2014; and Defee & Fugate, 2010). This is because value chains provide favourable conditions for developing dynamic capabilities which are challenging for any firms to accomplish alone (Dierickx & Cool, 1989). The dynamic capabilities view emphasises the configuration and reconfiguration, not the control of resources, as the source of competitive advantages (Teece et al., 1997). In the extreme case, using without-owning valuable, rare, inimitable and non-substitutable resources is the best way for firms to build competitive advantages. This principle aligned with the essential idea behind value chain management is the combination of resources of different firms without unnecessary transfers by which inter-organisational competitive advantages are created (Dyer & Singh, 1998). Cooperation allows chain actors to access and even acquire others' resources at a very low (or zero) cost (Rungtusanatham, Salvador, Forza, & Choi, 2003). Therefore, working collaboratively helps chain actors enhance the dynamic capabilities of themselves and the whole chain.

There are numerous approaches to investigate dynamic capabilities in value chains. An early work of Lee (2004) suggested 'Triple-A' characteristics in which chains must be agile, adaptable and aligned to survive in dynamic markets. This idea has been widely accepted by several authors who considered chain agility and adaptability as dynamic supply chain capabilities (Aslam et al., 2018; Blome, Schoenherr, & Rexhausen, 2013; Whitten, Green Jr, & Zelbst, 2012; Eckstein et al., 2015; Swafford, Ghosh, & Murthy, 2006). Essentially, this research stream examined the flexibility in procurement, manufacturing and logistics of 'chain captains' (who control key chain flows and set chain strategy) to reduce the bullwhip effect (Lee et al., 1997). Therefore, it considered dynamic supply chain capabilities as a firm's internal capabilities relating to supply chain management tasks.

In another approach, some researchers argued the efficient movement and access to resources (especially knowledge and information) within chains and the collaborative relationships amongst actors as chain-level dynamic capabilities. One of the best-known papers in this stream is by Defee and Fugate (2010) who proposed a model of dynamic supply chain capabilities including two components, namely, knowledge accessing and co-evolving. The former is similar to knowledge acquisition when focusing on increasing the accessing and understanding of knowledge resources possessed by chain actors. Meanwhile, the notion of the latter implies that collaborative relationships are a means to create new capabilities. The idea of firms working throughout value chains to create superior capabilities has been adopted rapidly. Soosay, Hyland, and Ferrer (2008) and Ju, Park, and Kim (2016) considered collaborations amongst actors as dynamic capabilities enhancing continuous innovations. This capability helps actors access, reconfigure and leverage chain resources to quickly respond to changing environments (Fawcett et al., 2011) which results in competitive advantage (Allred, Fawcett, Wallin, & Magnan, 2011). In an attempt to link dynamic capabilities to sustainable supply chain management, Beske et al. (2014) extended Defee and Fugate's (2010) model with the additions of supply chain re-conceptualisation, supply chain partner development and reflexive supply chain control. Reconceptualisation refers to the routines through which chain members search and select the right partners; partner development refers to the sharing of resource and knowledge to improve the performance of the weakest link in the chains; while reflexive control refers to the management ensuring the match between chain functionality and its needs.

Beske et al.'s (2014) conceptualisation seem to be more suitable for this study, and the reasons are as follows. Firstly, most of the food chains in developing countries are often constituted of many actors who operate at a small scale and lack supporting services (e.g., logistics) (Lorentz et al., 2013). These chains are long with a high number of small producers and intermediary parties aiming at local low-income markets (Trienekens, 2011). Very often, these small-scale actors are driven by shortsighted motives rather than maintaining comprehensive relationships throughout the chain (Arend & Wisner, 2005). Therefore, the approach of examining the value chain from the perspective of a dominant actor managing the entire value chain is not applicable. Secondly, the agility and adaptability approach emphasises how well the focal chain reacts and adapts to market changes but does not explicitly consider how dynamic capabilities can change the business environment (Eisenhardt & Martin, 2000). Likewise, Beske et al.'s (2014) conceptualisation seem to be more consistent with the process view of dynamic capabilities, evidenced by studies linking collaboration with innovations (Ju et al., 2016; Soosay et al., 2008). Therefore, this study adopts Beske et al.'s (2014) framework considering value chain collaboration and learning as dynamic capabilities in traditional beef cattle value chains in Vietnam.

#### 2.9. Value chain collaboration and actor's EO level

Developing new capabilities is a painstaking, time- and resource-consuming process (Dierickx & Cool, 1989) as new capabilities commonly encounter two issues namely 'technical' and 'evolutionary' fitness (Helfat et al., 2007). The former is defined as the extent to which the new capability can perform functionally; meanwhile, the latter refers to how well it can make a living (Helfat et al., 2007). Value chain collaboration claims to improve fitness, thereby easing the development process. Frequent communications help chain members detect dysfunctional routines and unseen inefficiencies, where current chain practices can be rethought and redesigned (Teece et al., 1997). Meanwhile, co-evolving routines (e.g., information sharing) allow partners to efficiently generate resource combinations by which consumer value is improved (Defee & Fugate, 2010).

As a result, vertical collaboration has been considered as a unique dynamic capability. Porter (1996) stated that partnering is among the critical strategic management tools and techniques that help firms pursue the quest for speed. Ettlie and Pavlou (2006) and Teng (2007) highlighted a great role for strategic partnerships in fulfilling resource gaps when firms stretch their capabilities regularly. Thus, Soosay et al. (2008) stressed the importance of collaborative relationships in developing innovation capabilities. Similarly, Richey et al. (2012) found positive associations between collaboration and technical innovativeness in value chains. Allred et al. (2011) and Fawcett et al. (2011) argue that collaboration

promotes the reconfiguration of inter-organisational resources and competencies, which are valuable, unique and hard to replicate. Meanwhile, Hartmann and De Grahl (2011) stress the linkage between collaboration and flexibility, which is the willingness of chain members to adapt, change and adjust interactive situations.

Value chain collaboration as a dynamic capability is theoretically associated with EO as suggested by Zahra et al. (2006, p. 944) who stated that: "Over time, some firms may develop dynamic capabilities that stimulate and foster an entrepreneurial orientation throughout their operations". As vertical relationships give rise to a firm's resources and capabilities, they expand the boundary of the firm's EO (Teece, 2007). When firms possess a higher ability to stretch their resource and capability bases, they can better sense and seize new opportunities (Helfat & Martin, 2015). Nonetheless, it seems that not all of the collaboration components have the same effects on EO.

In value chains, collaboration might be a favourable mechanism for gathering resources, especially information which is essential for entrepreneurial processes. The complementarity of data owned by chain actors is valuable in constantly identifying and fulfilling consumer needs. Retailers often control market information that helps to quickly sense opportunities and evaluate the profitability of new ideas (Anastasiadis & Poole, 2015). Meanwhile, producers who understand the technical features of the product are sources of novel solutions for consumer demands (Corsten & Felde, 2005). Therefore, effective information sharing mechanisms enable chain actors to innovate on a more frequent basis (Soosay et al., 2008). Additionally, the shared information also enhances a firm's proactiveness with a provision of understanding about competitors (Liao, Welsch, & Stoica, 2003). Finally, entrepreneurial risks are mitigated by informational resources gathered from entrepreneurs' networks (Janney & Dess, 2006). Vertical information sharing is largely determined to promote entrepreneurship within strategic alliances (Hargadon, 2002; Kraatz, 1998; Soosay et al., 2008; Teng, 2007; Zahra & George, 2002)

Meanwhile, the effects of incentive alignment and decision synchronisation on the actor's level of EO seem to be mixed. Contracting, which is a common coordinating

mechanism, might improve the risk-taking propensity of chain actors. By reducing 'sinking the boat' risks, risk-sharing (Inderfurth & Clemens, 2014) and costsharing (Lee, 2004) contracts possibly encourage actors to commit resources into entrepreneurial activities. This effect might be significant in emerging economies where farmers are highly vulnerable thus, often risk averse (Bishu, O'Reilly, Lahiff, & Steiner, 2018). Contract farming is a noticeable coordinating scheme that has rapidly risen over the last three decades (Barrett et al., 2012). This scheme is found to promote indigenous entrepreneurship through provision of cheaper labour and natural resources as well as reduction of transaction costs and risks (Morrison, Murray, & Ngidang, 2006). However, other studies warned that long-term, over-regulated contracts might constrain innovations, thereby lessening the entrepreneurial abilities of parties (Scriboochitta & Wiboonpoongse, 2008). Indeed, a strict joint decision-making mechanism is claimed to possibly restrict actors' autonomous actions (Rowley, 1997). The dependency and reciprocity in a long-term relationship might cause a lock-in effect for parties in which one's actions need to be allowed by others (Axelsson, Rozemeijer, & Wynstra, 2005). As a result, there might be a case where strategic renewals or rejuvenation cannot take place because of the customers' or suppliers' unsupportive attitudes.

In sum, value chain collaboration can be conceptualised as a dynamic capability that is positively associated with the EO of all actors in the value chain. However, the literature review on the effects of each component brings mixed results. In line with the lack of empirical research about EO origins (Wales et al., 2013), particularly those examining the role of social capital (Stam & Elfring, 2008), this research proposes the following research question:

# Subsidiary Research Question 1 (SRQ1): How do value chain components affect the actor's level of EO in agricultural value chains?

#### 2.10. EO and knowledge acquisition in value chains

EO represents an internal capability of absorbing external information and converting it into useful knowledge (de Clercq, Dimov, & Thongpapanl, 2010). Meanwhile, partnerships in value chains provide favourable conditions for learning (Spekman, Spear, & Kamauff, 2002). These conditions are critical, which might complementarily drive the efficiency of knowledge transfers in value chains (Grant & Baden-Fuller, 1995).

Knowledge is the boundary of dynamic capabilities (Zahra et al., 2006). Because of strong inclinations towards changing and refining ordinary capabilities, enterprising firms are always hungry for knowledge (Easterby-Smith & Prieto, 2008); and EO is strongly associated with a firm's absorptive capacity (Gellynck et al., 2015). Firms with a high level of EO actively search, participate and contribute to exchanges of knowledge-based resources (Lans, van Galen, Verstegen, Biemans, & Mulder, 2014; Seuneke, Lans, & Wiskerke, 2013). These firms regularly scan the environment for unexploited information and then seek to exploit these opportunities (Wang, 2008). For instance, innovative sellers are found less likely than conservative ones to perform opportunistic behaviours thereby promoting the transfer knowledge (Schiele, Veldman, & Huttinger, 2011). Also, they are open to diverse information that facilitates the acquisitive learning (Slater & Narver, 1995). Furthermore, entrepreneurial firms are willing to take more risks to leverage opportunities to acquire valuable knowledge (Yang & Dess, 2007). For instance, young, entrepreneurial high-tech firms often cooperate with large companies in pursuit of rapid growth despite significant risks of losing the 'learning race' (Alvarez & Barney, 2001, p. 142). Through this cooperation, the smaller entrepreneurial firms often share critical business intelligence with partners who are larger, more resourceful and complex. However, these interactions also provide the opportunity for entrepreneurial firms to obtain knowledge, experience, and business networks from their interactions with larger corporations that otherwise might take years to accumulate.

Besides regular searches for learning opportunities, firms with a high level of EO might enhance the value associated with exchanged knowledge and motivate others to join exchanges (Bierly, Damanpour, & Santoro, 2009; Hughes, Hughes, & Morgan, 2007). They enthusiastically perform joint activities (Bouncken et al., 2016) and introduce hybrid innovations (Bouncken et al., 2018) which might convert information into new products or services. These collective actions are

important in facilitating the learning of tacit information. Also, these attempts improve the partner's perceptions of the potential profitability of cooperation. When performance-related benefits are achieved, value chain actors are motivated to take advantages of additional knowledge exchanges repeatedly. This receptivity encourages future interactions, thereby increasing the chances of knowledge acquisition (Yli-Renko, Autio, & Sapienza, 2001).

Specifically, all the components of EO seem to promote the acquisition of knowledge in value chains. Innovativeness creates an environment in which all chain actors can benefit from innovations due to the open-mindedness of new information (Bouncken et al., 2016). A deliberate risk-taking propensity increases the willingness to commit time, effort and resources to the learning activities (Kreiser, 2011). Especially, proactiveness has positive impacts on knowledge transfers. Proactive actors act in anticipation of the future, thus producing demand for external knowledge (Wang, 2008). Therefore, they are self-motivated to place themselves into situations from which they can learn most. Also, the pursuit of firstmover advantages encourages proactive firms to translate obtained knowledge into new ventures which enhances the value of the learning (Kreiser, 2011).

Despite the promising association, few studies have examined the relationship between EO and knowledge acquisition in a value chain setting. In agriculture, entrepreneurial farmers are found engaging themselves in learning activities (Gellynck et al., 2015; Lans et al., 2014; Micheels & Gow, 2015; Seuneke et al., 2013). However, no study has conceptualised EO as a strategic resource that promotes learning effectiveness in agri-food value chains. Therefore, this research proposes the following research question:

# Subsidiary research question 2 (SRQ2): What is the relationship between the actor's level of EO and knowledge acquisition in agricultural value chains?

Value chain actors enable distribution and receipt of expertise and skills through collaborative activities (Whitehead, Zacharia, & Prater, 2019). The complementarity of expertise held by upstream and downstream value chain actors encourages them to engage in knowledge exchange behaviours (Kim, Umanath, Kim, Ahrens, & Kim, 2012). These activities might be explicit information sharing (Spekman et al., 1998), collective product development (Cousins, Lawson, & Squire, 2008) joint problem solving (Kotabe, Martin, & Domoto, 2003), supplier co-design (Handfield, Ragatz, Petersen, & Monczka, 1999) or joint ventures (Inkpen, 2000). As a result, a large amount of information which is a vital input for learning is efficiently transferred along well-integrated chains (Spekman et al., 2002).

Collaboration is characterised by high levels of trust, commitment, power symmetry and durational history (Spekman et al., 1998). Trust and commitment are well-recognised elements in promoting the transfer of knowledge in value chains (Modi & Mabert, 2007). In a trusting relationship, the need to verify the information is significantly reduced, so that knowledge acquisition is less costly (Kim et al., 2012). Additionally, the symmetrical distribution of power enables knowledge sharing activities through enhancing the sense of equality (He et al., 2013). Another mechanism through which collaboration improves knowledge acquisition is the mitigation of risks. The risk of sharing is a prevalent concern as opportunistic behaviours might be undertaken to harm sharer's benefits (Rajendran & Rajagopal, 2015). However, a collaboration in which parties' goals are congruent significantly reduces the appearance of opportunism (Kang & Jindal, 2015). Finally, members in a long-term relationship develop a memory of their partners that improves learning effectiveness (Hult, Ketchen, et al., 2004).

The extent of knowledge transfers in inter-firm partnerships relies on the interaction between receivers' absorptive capabilities and distributors' disseminative capabilities (Grant & Baden-Fuller, 1995; Whitehead et al., 2019). EO motivates internal learning desires and vertical collaboration, as an environmental factor, provides favourable conditions for learning. Therefore, there might exist a moderate effect of collaboration on the relationship between EO and knowledge acquisition in value chains. When entrepreneurial firms participate in highly integrative value chains, they are capable of effectively leveraging external sources of information to acquire knowledge and know-how. Nonetheless, there is

no empirical study examining this moderating effect. Thus, this research proposes the following research question:

Subsidiary research question 3 (SRQ3): How does value chain collaboration influence the linkage between EO and knowledge acquisition in agri-food value chains?

#### 2.11. EO and agri-food value chain performance

In a value chain context, performance is indicated in several ways. It might represent the entire chain's capability of meeting the needs of end-users (Bowersox, Closs, & Cooper, 2010). A wide range of chain-level performance indicators such as 'charging time', 'days in stock', 'breaking stock', 'number of damaged goods', or 'total amount of purchases' have been suggested (Aramyan, Ondersteijn, van Kooten, & Lansink, 2006; Dinu, 2016). Nonetheless, this measurement has been barely employed in smallholder agri-food value chains where farmers - the main primary actors - operate at the household level without recording information. Another approach identifies chain performance as the total of benefits perceived by actors when participating in value chains (e.g., Bourlakis, Maglaras, Aktas, Gallear, & Fotopoulos, 2014). This approach suggests that a well-performing value chain must present a capacity of maximising benefits of every actor; thereby boosting the performance of the whole system (Lee, 2004). If actors perceive inequality in the appropriation of the benefits of enhanced performance, the competitiveness of the whole chain will diminish. The perceived performance incentivises actors to commit time and resources into creating and maintaining value chain relationships (Simatupang & Sridharan, 2004a) which is a critical goal of agri-food value chain management in emerging countries (Fayet & Vermeulen, 2014; Gold, Hahn, & Seuring, 2013). Hence, the performance of a value chain in this study is an aggregation of each actor's individual firm performance.

Specifically, the performance of value chains encompasses financial and nonfinancial aspects (Beamon, 1999; Wu, Chuang, & Hsu, 2014). The former refers to gains for financial health; meanwhile, the latter mainly concern strategic benefits when actors maintain vertical collaboration (Simatupang & Sridharan, 2004a). The positive influences of EO on performance are broadly acknowledged (discussed in Section 2.2.5.). Enterprising firms are willing to spend more time and resources on searching and seize new ideas (Iza et al., 2019) and adopt more product innovations than their competitors (Etriya et al., 2018). Also, entrepreneurial farm enterprises are more efficient than conservative ones in combining and reconfiguring resources that lead to higher financial performance (Grande et al., 2011). The strategic and operational benefits from adopting EO in a value chain can cross firm boundaries. Firms with a high degree of EO focus on not only 'hard' innovations (e.g., new products) but also 'soft' innovations (e.g., new approaches to customer services) (Micheels & Boecker, 2017). With entrepreneurial values, these firms proactively seek solutions to minimise waste for customers and forecast the variations in market demand which significantly reduce inventory cost and order cycle time (Tuan, 2017b). The improved logistics performance then increases the customer's psychological attachment, thereby activating co-value creation activities (Tuan, 2017b). Also, EO is closely linked to the competencies of managing and leveraging resources and gives rise to dynamic capabilities (Griffith, Noble, & Chen, 2006). Thus, ideas and resources shared in value chains can be used most efficiently by entrepreneurial actors. For instance, Bouncken et al. (2016) found a positive relationship between EO for joint innovation in vertical alliances. As a result, value chains constituted by entrepreneurial actors can deliver more innovative products at a lower price than competitors (Tuan, 2017a). This market responsiveness improves the collaborative performance of the chain when successfully strengthening market positions, reaching strategic goals and enhancing the performance of all actors through the partnership (Li et al., 2017).

The association between EO and performance in inter-firm alliances mostly accounted for the sharing of "valuable resources from surrounding network actors" (Jiang et al., 2018, p. 47). In sharing resources with surrounding value chain actors, knowledge, and skills are often the most critical resources (Grant, 1996). As a result, knowledge acquisition was claimed to be the intermediary mechanism transmitting entrepreneurial posture onto superior strategic alliance performance (Jiang et al., 2016).

Due to the rapid development of knowledge-based economies, value creation is less and less dependent on tangible assets and explicit knowledge. Instead, expertise and skills are vital inputs for decision-making processes in less predictable markets (Eisenhardt & Martin, 2000). Thus, the importance of knowledge acquisition in improving value chain performance is widely documented. Hult, Ketchen, et al. (2004) stated that an increase in knowledge acquisition reduces the cycle time. Meanwhile, Wagner (2012) and Liao and Marsillac (2015) link between the flows of know-how and new product development as well as other types of innovation. Lee and Song (2015) expand the list of outcomes with the addition of logistical performance. More comprehensively, He et al. (2013) indicated a positive influence of the acquisition on supply chain performance measured through five operation areas comprising planning, sourcing, production, delivery and customer service.

In agriculture, the sectoral restructuring towards mass scale in all stages of chains has significantly reduced the contribution of physical and financial resources (Pomar & Pomar, 2005). Instead, knowhow and skills have emerged as key drivers of profit margins and competitiveness (McElwee, 2006). In agricultural value chains, complex interdependencies require a relatively high level of collective learning mechanisms (Handayati et al., 2015). Therefore, effective knowledge acquisition can enhance the performance of these chains by improving traceability, quality assurance (Doluschitz et al., 2010) and logistical performance (Marcus & Anderson, 2006).

Therefore, the actors' strategic posture of entrepreneurship is potential in improving collaborative performance in value chains. Despite this potentiality, none of the studies empirically examined this relationship in agri-food value chains. Therefore, this research proposed the following research question:

# Subsidiary research question 4 (SRQ4): How does the actor's level of EO influence collaborative performance in agri-food value chains?

#### 2.12. Conceptual model and research hypotheses

In social science, a conceptual model represents a system of concepts and their relationships that help people understand a subject (Bryman, 2016). The above

literature review has provided an overview of what is known about EO and its potential connections with value chain management concepts. Figure 2.1 depicts the conceptual model used in this study which is is adapted from Zahra et al. (2006) and grounded on the dynamic capability view. Specifically, value chain collaboration is a dynamic capability which is possibly associated with the actor's level of EO, and EO helps facilitate knowledge transfers within the value chain. This improvement can be obtained directly or interactively between EO and collaboration. Finally, EO is linked to the performance improvement of the value chain regarding both collaborative benefits. Knowledge acquisition might be one of the transmitting mechanisms for this linkage.



Figure 2.1: Conceptual model

A research hypothesis is a specific testable proposition about the outcome of a scientific research study (Bryman, 2016). Planning research hypotheses is the most commonly seen in studies examining relationships between concepts. Thus, based on the above subsidiary research questions, this study formed five hypotheses:

- H1: The actor's level of EO is positively related to the value chain collaboration in the beef value chain.
- H2: Knowledge acquisition is positively related to the actor's level of EO in the beef value chain.

- H3: Value chain collaboration moderates the relationship between EO and knowledge acquisition in the beef value chain.
- H4: Collaborative performance is positively related to the actor's level of EO in the beef value chain.
- H5: The knowledge acquisition mediates the relationship between EO and collaborative performance in the beef value chain.

The first hypothesis is examined through three subsidiary hypotheses on the relationships between the components of value chain collaboration and EO, which are:

- H1a: The actor's level of EO is positively related to the information sharing in the beef value chain.
- H1b: The actor's level of EO is positively related to the incentive alignment in the beef value chain.
- H1c: The actor's level of EO is positively related to the decision synchronisation in the beef value chain.

#### 2.13. Chapter summary

The theoretical foundations and empirical investigations of EO were examined in this chapter. The work of Miller (1983) and Covin and Slevin (1991) stimulated a growing literature about the firm's strategic posture towards renewal and rejuvenation. In particular, firms develop an EO through time by repeatedly taking calculated risks to engage in innovations proactively. These entrepreneurial firms are capable of gaining competitive advantages over competitors through the development of dynamic capabilities which allow them to continuously stay ahead in a changing marketplace. Therefore, adopting an EO has been found to result in superior firm performance in many industries including agriculture (Ajayi, 2016; Campbell, 2014; Grande et al., 2011; Hosseini & Eskandari, 2013; Veidal & Flaten, 2014; Verhees et al., 2011).

An era of 'value chain vs. value chain' competition has quickly emerged in which competition in the global market is between value chains. Hence, while a few studies have examined EO at the strategic alliance level (Bouncken et al., 2016; Bouncken et al., 2018; Jiang et al., 2016; Li et al., 2017); no study to date has been done at a whole-of-chain level. This gap has raised the overall research question of this study which is: 'How are the actors' levels of entrepreneurial orientation associated with value chain management practices in agricultural value chains?'. The research is grounded on the dynamic capability view which perceived the partnering as a dynamic capability which is strongly associated with EO (Eisenhardt & Martin, 2000; Teece, 2007). Specifically, collaboration, knowledge acquisition and performance in value chains are theoretically linked in a conceptual model which presents subsidiary research questions.

This research is to fill the above research gap by examining the studied concepts in the beef value chain in the Central Highlands, Vietnam. In this chain, smallholder producers market their products through traditional commoditybased channels. The next chapter describes the methodology used in this study before reports on results and discussion are presented in later sections of the thesis.

#### **Chapter 3: Methodology**

#### 3.1. Introduction

EO has been well recognised as a strategic posture for firms pursuing competitive advantages. As the nature of competition has shifted from 'firm vs. firm' to 'value chain vs. value chain', the efficacy of EO in vertical inter-firm linkages are of increasing interest. Chapter 2 explored the adoption and implications of EO in vertical inter-firm relationships in research from strategic management, value chain management, collaboration, entrepreneurship and innovation. It identified an increase of scholarly attention on the implications of EO in strategic alliances and value chains (Bouncken et al., 2016; Bouncken et al., 2018; Li et al., 2017; Tuan, 2017b). However, while investigations have been undertaken in industrial sectors, none has been done in agriculture. This gap gave rise to the overall research question of: "How are the actors' levels of entrepreneurial orientation associated with value chain management practices in agricultural value chains?" along with four subsidiary questions.

Chapter 3 describes and justifies the research paradigms, methodology and research methods adopted in this study. It communicates the methodological philosophy, how data were collected and analysed as well as how findings and conclusions were developed in this research. The chapter begins with a description of the value chain studied in this research. Then the research paradigm is justified based on the researcher' worldview, the nature of research problems and the study's objectives. At this point, research design and procedure which outlined the order of research stages were determined. The collection and analysis of data were then described before research findings and conclusions were validated. Finally, research ethics process considerations are reported.

#### 3.2. Description of the beef value chain in the Central Highlands, Vietnam

The Central Highlands region is located at the southern centre of Vietnam, about 350 km away from the largest beef market in the country, Ho Chi Minh City (Figure 3.1). It is one of the most concentrated areas of small-scale beef cattle farmers in Vietnam, accounting for approximately 50% of the national herd (Karimov et al., 2016). The Central Highlands area is one of the most rapidly evolving areas in the transformation from traditional cattle keeping practices market-oriented cattle production to enterprises. Before 1986, cattle in this region had been kept for draught purposes and only unhealthy animals were killed. However, since the national



Figure 3.1: Map of the Central Highlands, Vietnam

economic reform towards a market-based economy (known as 'Doi Moi'), profound changes have taken place. Farmers started to increase the cattle population, use farm-grown fodder, change cattle breeds and adopt advanced management practice (e.g., artificial insemination) (Stur et al., 2013). This modernisation of cattle production processes greatly enhanced the quality of smallholder Central Highland cattle, providing access to urban markets – previously inaccessible prior to the quality enhancements (Stur et al., 2013). Indeed, small Central Highland farmers were the primary source of cattle to Ho Chi Minh City in the 2000s before recently being overtaken by lower-cost imports (Karimov et al., 2016). The cost disadvantages faced by domestic traditional small-scale farmers forced the local beef value chains (e.g., traders) to switch from a mass-market strategy to targeting niche markets, located within one hundred kilometres of the farm, that prefer a lower-fat style of beef. Thus, the value chain actors of the traditional beef value chains in the Central Highlands have experienced both market dynamism and entrepreneurial transformations which make the study of this value chain very useful for this research.

The structure of the beef value chains studied in the Central Highlands of Vietnam is consistent with an "A-system value chain" as described by Trienekens (2011) or a net-chain depicted by Lazzarini et al. (2001). This is the dominant structure for agri-food chains in transitional economies (Reardon et al., 201). In these chains,



Source: Adapted from Lazzarini et al.

### Figure 3.2: Description of traditional beef value chains in the Central Highlands, Vietnam

the middlemen actors exercise great power controlling the flow of products, funds and information (Cox & Chicksand, 2007). Traditional beef value chains in the Central Highlands comprise four primary actors (Figure 3.2). They are cattle farmers, middlemen including commune-level collectors and district-level traders. meat wholesalers (some are also abattoirs) and retailers. These traditional chains are characterised by great diversity fragmentation the and at manufacturing and retailing stages while concentrated into an oligopsony in its middle stages. This study investigates the beef value chain from Eakar District, Dak Lak Province to

Buon Ma Thuot city, the capital of the Province. In this chain, hundreds of farmers supply about twenty commune-level collectors with live cattle. These cattle then are sold to only five district-level traders before being slaughtered in three abattoirs. These abattoirs are wholesalers, but they also sell carcasses (i.e., the product of the slaughtering process) to other wholesalers to butcher and trim the beef. Taken together, fifteen wholesalers distribute beef to about fifty small retailers.

#### 3.3. Research paradigm

Choosing and justifying a research paradigm is important for research because it decides how the researcher will see the world. An appropriate choice of paradigm is crucial for successful research. Tudor (1982, p. 1) stated:

Having rightly concluded that philosophy was of some importance to sociological enterprise, sociologists (as I am one) have used that discipline much as the military might use a guided missile.

Working as a methodological philosophy of the whole research, paradigms guide researchers through fundamental questions such as 'what should be studied?', 'how should it be studied?' and 'how should the results be interpreted?' (Burrell & Morgan, 1979). It philosophically underpins all stages of research including theory and hypothesis development, data collection and analysis as well as result interpretation (Mackenzie & Knipe, 2006). Furthermore, the position of researchers in the research is also shaped by the paradigm stances (Kuhn, 1970).

The following section reviews traditional research paradigms and discusses why a mixed methods approach that integrates alternative perspectives was selected for this study.

#### 3.3.1. Traditional research paradigms

There is no widely agreed definition for research paradigms. Since the landmark conceptualisation initiated by Thomas Kuhn in the book *The Structure of Scientific Revolutions (1962)*, the term's clarity has been and is still under debate. Morgan (2007, p. 51) reviewed four schools of thought about what paradigms are, namely, "Paradigms as worldviews", "Paradigms as epistemological stances", "Paradigms as shared beliefs in a research field" and "Paradigms as model examples". These schools define paradigms as panoramic outlooks on the world from the researcher's perspective and articulate the shared beliefs within the school pertaining to research questions, approaches, and processes. While the first school is too broad

to focus the researchers' attention on what is worth being studied, the last two seem to be too narrow to foster fruitful studies of complex, inter-disciplinary fields such as value chains. Thus, in social science, the most common research paradigm is the 'epistemological stance' (Morgan, 2007). Because this study is involved in social issues, it conceptualises that research paradigms represent different belief system about the nature of human knowledge and what are appropriate ways to expand that knowledge (Guba & Lincoln, 1994).

The 'epistemological stances' conceptualisation relies on philosophical elements of knowledge production, namely, ontology, epistemology, axiology and methodology (Babbie, 2016; Lincoln & Guba, 1985). Each element comprises assumptions, belief, norms of researchers about certain aspects of social reality. Ontology concerns the assumptions about the nature of reality. The key question of ontological assumptions is "Are the existence and meanings of social phenomena objective or subjective to social actors?" (Blaikie, 2000). Two ontological positions are 'objectivism', which assumes the independent existence and meaning of social phenomena, and 'constructivism', which assumes the key role of social actors in accomplishing and revising reality (Bryman, 2016).

Epistemology concerns the assumptions about the way in which a researcher can obtain knowledge about social phenomena. Hence, epistemological assumptions are about responding to the questions: "What counts as knowledge?" and "How do we know the truth?" (Guba, 1990). Two possible positions are "positivism" and "interpretivism". While the former advocates the employment of natural science methods, the latter requires human interpretations to understand social phenomena (Bryman, 2016). This suggests that positivist researchers aim to explore objective knowledge, whereas the interpretivist ones try to construct a subjective understanding of reality. Axiology concerns the role of human value and its implications in the research. One researcher might assume that his/her research is value-free or guided by some certain values depending on how he/she considers himself/herself as deterministic or voluntarist to the surrounding, respectively (Putnam, 1983). Finally, methodology comprises assumptions about how the researcher will go about gathering data and coming up with conclusions. It commonly falls into one or two positions: 'nomothetic' or 'ideographic' (Putnam, 1983). The former uses quantitative methods to collect data before examining the relationships and regularities of studied objects through a logical-deduction process. Meanwhile, the latter collects information by qualitative methods then seeks human reasons for studied objects through inductive reasoning.

The above four paradigm elements are strongly correlated. Hay (2002, p. 8) stated: "Ontology logically precedes epistemology which logically precedes methodology". Specifically, researchers who take an objectivist ontological position often take a positivist epistemological position followed by quantitative methodology on a value-free axiological assumption. By contrast, a constructivist ontology is often accompanied by interpretivist epistemology, value-laden axiology and qualitative methodology (Collis & Hussey, 2003; Denzin & Lincoln, 1994; Easterby-Smith, Thorpe, & Jackson, 2002) (Table 3.1). These interrelations are so strong that many writers have used the terms 'quantitative research' and 'qualitative research' interchangeably with 'objectivist-positivist research' and 'constructivistinterpretivist research', respectively (Howe, 1992).

The epistemological stances of positivism and its amended version, post-positivism have dominated empirical research for centuries. The key difference between the versions is the incorporation of human values and social context into the research process. While the former assumes that all social phenomena can be directly measured in numeric formats and results are context-free, the latter takes into account non-numeric data as well as influences of surroundings (Clark, 1998). However, they are both founded on core notions of the objective measurability of social phenomena (Denzin & Lincoln, 1994). Positivist/post-positivist researchers structurally design the research process, collect and analyse data in a repeatable procedure to refute or confirm research hypotheses (Easterby-Smith et al., 2002). They commonly use deductively logical methodologies. In particular, experiments, longitudinal or cross-sectional surveys, are often used to collect quantitative data, by which the 'regularities', 'associations' or 'patterns' of reality are investigated (Pawson & Tilley, 1997).

Assumption	Assumption Question		Constructivist- interpretivist	Pragmatic
Ontological	What is the nature of reality?	The existence and meaning of phenomena are objective, apart from social actors.	The existence and meaning of phenomena are regularly accomplished and revised under the eyes of social actors.	Social phenomena are both objective and subjective
Epistemological	What counts as knowledge?	Knowledge is to be searched by researchers.	Knowledge is to be constructed by researchers.	Knowledge exists in reality or human minds
Axiological	What is the role of the researcher's values?	Unbiased	Biased	Biased and unbiased
Methodological	How shall researchers go about obtaining desired data, knowledge and understanding?	Quantitative method Deductive reasoning	Qualitative methods Inductive reasoning	Combining quantitative and qualitative methods Back-and- forth reasoning

Table 3.1: Traditional epistemological stances and pragmatic worldview

Source: Adapted from Morgan (2007) and Tashakkori and Teddie (2010)

Alternatively, constructivism-interpretivism criticises the objectivity of reality when positing that humans are constructing and continually revising meanings of social phenomena. It is the cultural and historical interactions between humans (e.g., participants and participants, participants and researchers) which will decide the meaning of studied objects (Schwandt, 1994). Researchers are leaving their naturalistic positions to become one part of the research by maintaining broad, general and open discussions with a small number of participants (Patton, 1990). Being led by inductive logic, constructivist-interpretivist researchers attempt to interpret how and why phenomena occur in the minds of local populations (Creswell, 2014). Therefore, they often use qualitative methods which are less structured than positivist scholars such as case studies, ethnography, grounded theory or participatory inquiry (Creswell, 2014).

Because of the above significant distinctiveness, many scholars asserted that mixing paradigms is not appropriate, and research must be conducted by either qualitative or quantitative methods. These purists actively claimed this irreconcilability in the 1980s under several terms such as *incompatibility thesis* (Howe, 1988) or *paradigm war* (Gage, 1989). They strongly argued that the combination of two distinctive research orientations might break the philosophical backbone of the study. Guba (1990) warned that the consequences of mixing qualitative and quantitative methods could be fragmented research results, lacking in cohesion. He stated: "accommodation between paradigms is impossible ... we are led to vastly diverse, disparate, and totally antithetical ends" (p. 81). Sieber (1973) criticised the combinability of two types of data into a single study when one is hard and generalisable while the other is deep and richly observational.

#### 3.3.2. The 'mixed methods' school of thought

Currently, in social science, there is a trend towards a paradigm for incorporating qualitative and quantitative methods in a single study. Studies employing this integrative perspective are called mixed methods research. Alise and Teddlie (2010) and McKim (2017) reported a remarkable increase in mixed methods research in educational science in the last twenty years. There now even exist several journals exclusively for mixed methods studies in social science (e.g., 'Journal of Mixed Methods Research', 'Quality and Quantity', 'Field Methods', 'International Journal of Multiple Research Approaches'). Scholars who support a mixed approach argue that the ultimate purpose of the research is to seek answers for questions rather than confirm researcher's worldviews (Johnson & Onwuegbuzie, 2004; Tashakkori & Teddie, 2010). Thus, research that starts with the researcher's philosophical assumptions and convictions is strongly criticised by these scholars. Instead, the research questions should be used as the compass guiding the research designs and methods (Biesta, 2010). Therefore, researchers should not be tied to any philosophical or methodological systems; rather, they should choose methods that are capable of answering the research questions (Creswell, 2014). Johnson and Onwuegbuzie (2004) summarised the philosophy of mixed methods research as "choos[ing] the combination or mixture of methods and procedures that work best for answering your research questions" (p.17).

Regarding the philosophical foundation, pragmatism is widely claimed to be the 'best' philosophy for mixed methods research (Greene, 2008; Tashakkori & Teddie, 2010) although many worldviews have been debated (Creswell & Clark, 2011). Table 3.1 also summarises the philosophical assumptions of pragmatism in comparison to traditional paradigms. The pragmatic rule indicates the meaning of a phenomenon through either its practical consequences or human experiences about it (Murphy, 1990). Stated differently, reality might either objectively exist when it causes something to subjectively exist when humans can experience it. This approach rejects the traditional dualisms and gives support to a pluralism perspective based on how researchers answer research questions (Johnson & Onwuegbuzie, 2004). In terms of epistemology, the truth is what happens in reality or the minds of humans (Creswell, 2014). Thus, knowledge can be both searched in the world and constructed by researchers. Researchers use a practical approach to generate knowledge drawn on multiple ideas. They value both objective and subjective knowledge. The axiology of pragmatism consists of multiple stances. Accordingly, researchers might have both biased and unbiased perspectives when giving answers to researcher questions. Finally, pragmatist researchers use both qualitative and quantitative data to obtain knowledge. They move backwards and forwards between deductive and indicative logics until getting the desired understanding (Morgan, 2007).

#### 3.3.3. Strengths and weaknesses of qualitative, quantitative and mixed methods research

Due to different philosophical assumptions, each type of research has its pros and cons (Table 3.2). Strengths of quantitative research lie on the structure of the research. Its logical design, precise data and statistically derived results allow the conclusion to potentially be generalisable from the sample to the population. Using natural science research methods, this paradigm is appropriate in testing and validating constructed theories by formulating hypotheses before the data collection (Johnson & Onwuegbuzie, 2004). This approach saves time and effort spent on data collection as it keeps researchers away from irrelevant issues. Not only collection but the analysis of data is also relatively quicker and easier because of the numeric format of data and the help of statistical software. Another considerable advantage of post-positivism derives from the large size of its studied population. If a random sampling design is used, and the statistical analysis is sound, the results are generalisable and enhance the study's credibility and usefulness. Nonetheless, being too focused on the task of confirming hypotheses can cause confirmation bias (Nickerson, 1998) which might blind researchers to unpredicted, exciting information. Thus, its greatest weakness is the limited flexibility that prevents research from studying complex phenomena with many layers of meaning. Numeric, large scale information often fails to answer 'why' and 'how' questions which are subjective in research contexts.

The weaknesses of quantitative methods are the advantages of qualitative methods and vice versa. In comparison with survey or experiments, in-depth interviews or participatory inquiry provide more scope for new issues to emerge (Johnson & Onwuegbuzie, 2004). The consideration of various aspects of the topics brings a detailed, deep understanding of the problem to the researchers. Therefore, qualitative methods are useful to investigate context-embedded, complex and dynamic phenomena. However, the small number of participants limits the generalisability of research results. In addition, the openness to new information forces researchers to continuously revise the research design and methods that increase the time and effort spent on data collection. The data analysis is also challenging as researchers must go through pages of text (or audio recordings) to interpret meanings of information. This procedure cannot be done with a 'click' in statistical software.

	Quantitative	Qualitative	Mixed methods
Strengths	<ul> <li>The research is structured by testing and validating constructed theories.</li> <li>Results are generalisable</li> <li>Data is precise and numeric</li> <li>Data collection and analysis are less time and effort consuming.</li> <li>Findings are credible because of the involvements in a large population</li> </ul>	<ul> <li>The research is flexible, which is useful to describe complex and dynamic phenomena.</li> <li>Data is rich and deep which can provide multilayered reasoning for phenomena</li> <li>Much room for new phenomena to occur.</li> </ul>	<ul> <li>The combination of qualitative and quantitative data might simultaneously broaden and strengthen the research.</li> <li>The research may be able to answer more comprehensive questions.</li> <li>The strength of a method might help overcome the weaknesses of another one.</li> <li>Findings are credible because of both corroboration and convergence.</li> <li>Results can be both generalisable and insightful.</li> </ul>
Weaknesses	<ul> <li>Constructed</li> <li>theories might</li> <li>mislead researchers</li> <li>when applying to</li> <li>new settings.</li> <li>Researchers might</li> <li>miss out new</li> <li>phenomena because</li> <li>of confirmation bias</li> <li>Knowledge might</li> <li>be too abstract to</li> <li>use in a particular</li> <li>situation.</li> </ul>	<ul> <li>Results may not be generalisable.</li> <li>It is hard to test hypothesis and theories.</li> <li>Data collection and analysis are time and effort consuming.</li> <li>Findings might be of low credibility due to the researcher's biases.</li> </ul>	<ul> <li>Researchers require a broad understanding of research methods.</li> <li>Research design, data collection and analysis are time and effort consuming.</li> </ul>

### Table 3.2: Strengths and weaknesses of research approaches

Source: Johnson and Onwuegbuzie (2004)

The unique and most important strength of the mixed methods approach is the possibility of expanding the scope of the study and exploring hidden issues. Yin (2006) stated: "using mixed methods within the confines of a single study can simultaneously broaden and strengthen the study" (p.41). These benefits are achieved through balancing the persuasiveness and generalisability (accounted for by quantitative methods) with the nuances and complex reasoning (accounted for by qualitative methods) of collected data (Jacobs, 2003). A mixed methods design is also helpful in overcoming the weaknesses inherent in qualitative or quantitative methods which can increase the credibility of findings (Johnson & Onwuegbuzie, 2004). For instance, a survey can efficiently confirm the occurrence of a phenomenon but be unable to explain why it occurs, but follow-up in-depth interviews can help provide the explanation which validates the quantitative findings. However, when combining methods, the research design becomes more complex and time-consuming, and the data collection and analysis are more difficult; it requires researchers to have expertise in both quantitative and qualitative methods.

#### 3.4. Selection of research approach

The research approach should be selected in accordance with the researcher's experiences, norms and beliefs, nature of the research problem and targeted audience for the report (Blaikie, 2007; Creswell, 2014). Consistent with the above suggestions, a mixed methods approach was chosen in this study, based on the perspective of the researcher when inquiring for scientific knowledge, the research problem and rationale for combining multiple methods.

#### 3.4.1. My research perspective

I am an academic with seven years' experience in conducting studies in economics and business. I obtained a bachelor's qualification in agricultural economics before undertaking a master's degree in business management. At this point, I was involved in three research projects about rural household economics and agri-food chain management in Vietnam. My main duty was to analyse the participation of small farmers into advanced management mechanisms. To do that, I needed to know the economic conditions (e.g., income and household expenditure) of farmers to understand the barriers preventing them from improving their livelihoods. Furthermore, I also needed to understand why they were making economic decisions.

From my experience, I believe that there is neither entirely objective nor entirely subjective reality (my ontology). Humans constitute society so that we are undoubtedly, to some extent, constructing and revising social phenomena by our behaviours which are significantly driven by our norms, beliefs and values. However, there are also many aspects of reality which are independent of human mindsets. For example, the demand for houses is mainly created by two components which are its ability to fulfil consumer expectations for living conditions and the price. As the former is strongly driven by the values, culture or religion of consumers, the latter is significantly affected by the supply capacity which to some extent is bounded by land availability, building supply availability, or construction technology.

Therefore, my epistemology stands between positivism and interpretivism and is driven by need-to-solve problems. I believe that social sciences in general and management discipline are so multifaced that any single set of philosophical assumptions can help us to understand fully. With respect to warnings proposed by the purists, I still support a pragmatic research approach that uses the methods that can best answer the research questions.

#### 3.4.2. Research problem and rationale for a mixed methods approach

This study investigates EO – an organisational construct first studied in Western markets (Basso et al., 2009). The review in Chapter 2 indicates a well-developed body of literature on its significance for firm-vs-firm competition and demonstrates the deficiencies about its roles in contemporary chain-vs-chain competition. Also, there is a lack of knowledge about the manifestation and implications of this strategic posture in developing economies, and specifically agri-businesses. To address these research gaps, the study aims at examining the relationships among EO and critical value chain management practices (i.e., collaboration and learning) to shed light on the underlying interrelationships between actors in an agri-business value chain in Vietnam, one of the most vibrant emerging developing economies.

The examination of relationships between robustly developed constructs (i.e., EO, value chain collaboration and knowledge acquisition) undoubtedly fits a quantitative approach (Johnson & Onwuegbuzie, 2004). However, the results of a purely quantitative study are not sufficient to provide a complete understanding of a complex phenomenon like EO, particularly in the context of agri-businesses in a developing economy. Entrepreneurship is a complex process which is conditioned by many contextual factors such as space, industry, culture and governance (Welter, 2011; Zahra, Wright, & Abdelgawad, 2014). Therefore, it is hard for a questionnaire with a necessarily limited number of questions to capture the heterogeneous characteristics of entrepreneurs in a market where the construct was not initially developed. Jack et al. (2013) suggested that Westernrooted constructs need to be refined, reinforced or reimaged when applied to developing Asian economies. These refinements, reinforcement or reimagination are only able to be undertaken through collection and analysis of qualitative information. Thus, many scholars have recently emphasised the need for qualitative research to deepen our understanding of this construct (Miller, 2011; Wales, 2016). Indeed, the use of a mixed methods approach in this study is in line with an increase of similar approaches in entrepreneurship research (Molina-Azorín, López-Gamero, Pereira-Moliner, & Pertusa-Ortega, 2012).

#### 3.5. Research design

#### 3.5.1. A review of mixed methods designs

The research design illustrates logical connections amongst research questions, collected data and drawn conclusions. Gorard (2010) defined research design as "a way of organizing a research project or program from inception to maximise the likelihood of generating evidence that provides a warranted answer to the research questions for a given level of resource." (p. 239). Due to the justification in Section 3.4, this study is mixed methods research in which the design will be a mix of qualitative and quantitative methods. An appropriate research design is

important for every research, but its importance is much more obvious with a mixed methods one.

The noteworthy point is that mixed methods research is not providing an ultimate approach to replace qualitative or quantitative research. It is just extending options for social scientists to best answer research questions (Johnson, Onwuegbuzie, & Turner, 2007). Stated differently, instead of seeing research as a binary choice, mixed methods scholars consider research design as a continuum with purely quantitative and purely qualitative at the extremes (Johnson et al., 2007) with much of the middle ground covered by mixed methods (Figure 3.3).

There is no single approach to the mixing of methods. Parylo (2012) indicated four typologies suggested by well-known theoretical developers in the period 1998 -2008. In a more comprehensive work, Hitchcock and Brown (2010) summarised six mixing criteria: 'strand/phases of research', 'method/data', 'stage of research process', 'integrated/interactive', 'iterative' and 'synergic'. 'Strand/phases of research' typology classify mixed methods types based on the number of strands the research has. 'Methods/data' is the most popular mixed methods typology in which the mixing is based on types of methods, mixing manner and the priority given to methods. Accordingly, the designs might be based on timing (concurrent vs sequential), dominance (equal vs unequal), and level of integration (fully vs partially). 'Stage of research process' typology relies on the stages where the mixing occurs to classify mixed methods designs. The mixing might be across the research process or at certain stages such as sampling data collection, data analysis or data representation. "Integrated / interactive' typology encompasses combinations of the above basic typologies. At a higher level of complexity, 'iterative' designs are dynamic and evolving during the research process as findings of earlier phases influence or determine activities in the latter stages. The most complex mixed methods designs are 'synergic' typology which presents a deep mixing throughout at both conceptual and implementation levels.

Based on the above criteria, researchers have suggested several possible designs for a mixed methods study in the literature (Table 3.3). Greene, Caracelli, and Graham (1989) recommended designs under the purposes of mixed methods research. Triangulation design is suggested for increasing validity of constructs by counteracting sources of information; complementarity is for increasing interpretability and meaningfulness of results; development is for increasing validity of constructs by capitalising on inherent method strengths; initiation is for increasing breadth and depth of results, and expansion is for an increasing scope of inquiry.



Source: Johnson et al. (2007)

#### Figure 3.3: Research design continuum

Tashakkori and Teddie (1998) suggested three designs based on the priority of employed data: equivalent status (qualitative and quantitative data are equally important), dominant-less dominant (where one type of data is more important) and multilevel use (data from various levels of an organisation is used comprehensively regardless of its importance). Eight years later, they added a strand and integration stage to mixing criteria. Accordingly, a mixed methods approach can be in either quasi-mixed mono-strand or mixed methods multistrand (Teddie & Tashakkori, 2006). In this, the former refers to a mono-strand conversion design while the latter encompasses four specific designs: concurrent mixed, sequential mixed, multi-strand conversion and fully integrated. Leech and Onwuegbuzie (2009) used variations in the dominance of data, timing and level of mixing to eight suggested mixed methods designs.

Authors	Year	Criteria	Mixed methods design		
Greene et al.	1989	Mixing Purpose	Triangulation		
			Complementarity		
			Development		
			Initiation		
			Expansion		
Tashakkori	1998	Priority	Equivalent status		
and Teddie			Dominant-less dominant		
			Multilevel use		
Crooswoll	1000	Priority and integration stage	Convergence		
Oreswein	1555		Sequential		
			Instrument huilding		
			Instrument-bunding		
Creswell,	2003	Implementation, priority,	Sequential-explanatory		
Clark, Gutmann, and Hanson		integration stage and theoretical perspective	Sequential-exploratory		
			Sequential-transformative		
			Concurrent-triangulation		
			Concurrent-nested		
			Concurrent-transformative		
Teddie and	2006	Strand, priority, integration	Quasi-Mixed mono-strand		
Tashakkori		stage	Mixed methods multi-strand		
Creswell and	2006	Implementation. priority	Triangulation		
Clark		integration stage and theoretical perspective	Embedded		
			Explanatory		
			Exploratory		

# Table 3.3: Suggested mixed methods research designs

Authors	Year	Criteria	Mixed methods design	
Leech and Onwuegbuzie	2009	Integration level, timing, priority	Partially concurrent equal	
			Partially concurrent dominant	
			Partially sequential equal	
			Partially sequential dominant	
			Fully concurrent equal Fully concurrent dominant Fully sequential equal	
			Creswell	2014
Explanatory sequential				
Exploratory sequential				
	Embedded			
	Transformative			
		Multiphase		

Finally, Creswell (1999) suggested various designs for mixed methods studies. In 1999, he advised three designs: a convergence model in which the mixing occurs in data inferences, sequential model in which data is sequentially collected and instrument-building model in which initial qualitative phase is followed by a quantitative phase. Later, Creswell (2003, 2006) expanded the typology with the additions of both an implementation and a theoretical perspective. Creswell (2014) most comprehensively advocated for a six designs classification framework: convergent parallel, explanatory-sequential, exploratory-sequential, embedded, transformative and multiphase.

Among the above perspectives, the designs suggested by Creswell (2014) seem to be the most concise when minimising term diversification and the amount of overlapping. Also, these designs are the most compatible with the comprehensive list of criteria reported by Hitchcock and Brown (2010). Thus, Creswell's classification is used as the basis to discuss the most appropriate design for this study.

#### 3.5.2. Appropriate research design

The choosing of a mixed methods design is based on expected outcomes, data integration mechanism, data collection time, the emphasis of data, suitability for a field and number of researchers (Creswell, 2014) (Table 3.4).

"Convergent parallel" is the most straightforward design. In this approach, researchers assume that quantitative and qualitative data will produce the same results; thus, a combination will strengthen the research credibility. Therefore, qualitative and quantitative data are collected and analysed separately (and often simultaneously) before being merged into inference stages. At this point, (qualitative and quantitative) results are compared to each other to produce convergent or divergent interpretations. Follow-up activities might be undertaken to explain the divergence further if necessary. The main advantage of this design is its simplicity and the low level of integration (only at the data inferences stage) requiring the least time for collecting and analysing data. It is very helpful for research which has limited time or budget. However, starting with an assumption about information convergence is a significant weakness of this design, especially when divergences occur. Further data collection to explain the divergences, eventually, damages its strength of simplicity. Also, the simultaneous collection of data requires considerable effort and is more suitable for a team of researchers.

Sequential designs stress the timing order of method implementation and unequal priority of data in interpretations. The logic of sequential designs is to use the strengths of the additional method to overcome the weaknesses of the dominated one. The *explanatory sequential* design is quantitatively dominated, starting with a quantitative phase followed by a qualitative phase to explain quantitative findings. This design serves the purpose of providing insightful and contextual understandings about phenomena which are commonly located in a quantitatively-oriented field (e.g., the causal relationship between constructs). Therefore, quantitative data are at the core of inferences while the qualitative information is the supplement.

Criteria	Convergent Parallel	Explanatory Sequential	Exploratory Sequential	Embedded	Transformative	Multiphase
Expected outcomes	Merging of data showing convergence and divergence	In-depth understanding of the relationship between constructs	Well- established measures	Fruitful views about a program or experiment	A call for action	A summative evaluation
Data integration mechanism	QUAN and QUAL	QUAN -> qual	QUAL -> quan	QUAN, QUAL	QUAN, QUAL	QUAN, QUAL - > QUAN, QUAL
<i>Time for data collection</i>	Short	Long	Long	Very long	Very long	Extremely long
Emphasis of data	Equal	Quantitative domination	Qualitative domination	Equal or unequal	Equal or unequal	Equal or unequal
Suitability for a field	Either qualitatively or quantitatively oriented	Quantitatively- oriented	Qualitatively- oriented	Either qualitatively or quantitatively oriented	Either qualitatively or quantitatively oriented	Either qualitatively or quantitatively oriented
Number of researchers	Team	Individual	Individual	Team	Team	Team

## Table 3.4: Research design selection criteria

Source: Adapted from Creswell (2014)

By contrast, the *exploratory sequential* design is dominated by qualitative methods. It begins with a qualitative phase and ends with a quantitative phase to generalise qualitative findings. This design helps improve the researcher's understanding about the studied object before developing hypotheses. Therefore, it is useful to explore early-developed constructs. The most significant advantage of sequential designs belongs to the separation of phases, making the research more manageable. Thus, this design is suitable for early-career researchers who have limited capacity in multiple data collection and analysis. However, the order of data collection increases the amount of time and effort required for data collection.

The remaining three 'advanced' designs (i.e., embedded, transformative and multiphase) incorporate elements of the above approaches differently. *Embedded* design is primarily based on an intervention program or experiment to guide the whole research. The qualitative and quantitative data will be collected (either concurrently or sequentially) before, during and after the program/experiment to provide fruitful views about it. Therefore, this design is commonly used in the health sciences. *Transformative* design employs social justice theory in which researchers combine qualitative and quantitative data at all stages of a study to justify a need for changes. Hence, it is often used in studies with disabled or minority-group populations. *Multiphase* design encompasses several mixed methods phases in a single study. In this, one phase provides inputs for the next ones in multi-year projects. Regarding the advantages of the three 'advanced' designs, they are capable of bringing a broad and deep understanding of the research questions due to their high level of integration. However, these designs require a considerable amount of time, effort, and expertise to conduct.

The key expected outcome of this study is an examination of relationships between established constructs while the contextual insights are complemented (previously discussed in Section 3.4.2). Therefore, the priority of inferences was given to quantitative information. Additionally, this study is conducted by a solo researcher; thus, complex approaches (e.g., convergent parallel, embedded, transformative and multiphase) which require the simultaneous implementation
of research stages are, to some extent, unmanageable. Regarding time and resources required for multiple field visits, this research was partially funded by the Australian government which paid for up to three return flight tickets between Australia and Vietnam (where the data were collected). Other fieldwork costs were covered by the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA). Also, the researcher has experience in working with beef cattle chain actors so that the time required for data collection only took three months. For the above reasons, in this study, the explanatory research design was chosen.

# 3.6. Research procedure

Figure 3.4 depicts the process of inquiring responses to research questions in this study. Starting with the research questions, a review of the body of literature about studied constructs was conducted. Then the research design (i.e., explanatory sequential mixed methods approach) was determined. The research process consists of two sequential phases in which a quantitative phase was conducted before a qualitative one. Quantitative data were collected through preset instruments in a face-to-face survey. These data then were analysed to test the research hypotheses.

The qualitative phase was conducted based on the results of quantitative findings. Aims of this stage were contextual and insightful explanations for previous quantitative results. Therefore, qualitative data were gathered by semi-structured interviewing. As qualitative data were analysed, the results would be integrated with quantitative findings in response to the overall research question.

The following sections describe in detail the collection and analysis of quantitative and qualitative data in sequential order.



Figure 3.4: Overall research procedure

### 3.7. Quantitative phase

The quantitative phase is designed to examine the relationships between EO and value chain phenomena (i.e., collaboration and knowledge acquisition) in the beef cattle chain in the Central Highlands, Vietnam. Based on the hypotheses (Section 2.12), the phase begins with data collection before being followed by descriptive and inferential statistics.

### 3.7.1. Data collection

# 3.7.1.1. Methods

There are several methods to collect quantitative data, including observations, experiments or sample survey (Gorard, 2003). The observation method, which is particularly common in behavioural studies, collects data by objectively watching the objects. The experimental design is often used to assess the influences of a treatment on an outcome under controlled conditions. Meanwhile, a survey is often used to describe behavioural trends, attitudes or opinions of the studied population (Creswell, 2014). In studies which involve a large population, a sample survey is the best method because of the accuracy and the capability for collecting detailed and personal information. Therefore, Rea (2005) summarised the advantages of this method which consist of high generalisability, and low cost and time requirements. When conducted properly, a sample survey is capable of collecting data which can reveal characteristics of the whole population.

This study involves the investigation of behavioural trends and attitudes of beef cattle chain actors (i.e., EO) rather than one-time actions (see Section 2.2.1). Therefore, an experiment is not an appropriate approach. Observing a series of behaviours to detect EO might be a possible method, but it requires either a considerable amount of time and effort (probably years) or the availability of longitudinal data. Indeed, this approach has been used with large companies which keep records over time (e.g., Miller & Le, 2011). However, objects of this research which included household-level farmers rarely recorded their operating or financial data. Thus, observations might take years to collect sufficient information. As a result, in this research, a survey was used in gathering data.

A survey might be conducted by many forms such as mail (postal or email), online (web-based), telephone or in-person (face-to-face) (Fink, 2012; Fowler, 2009). Key advantages of mail and web-based formats are cost-saving, convenience, anonymity and complexity and visual aids (Rea, 2005). Online forms also have an additional advantage of time-saving (Sue & Ritter, 2012). In terms of telephone surveys, they can maintain anonymity and cheapness. However, the above forms require participants to have access to specific technological devices and services. For instance, participants need to know how to access and use computers to respond to an online survey, or they need to have cell phones to receive calls from researchers. Although the anonymity might ensure the unbiasedness of data, it might also cause misunderstandings of questions, especially when dealing with unfamiliar terms. In this study, the terms 'entrepreneurship' and 'entrepreneurial orientation' are based on Western language, and there is not a concise word to express them in Vietnamese. Therefore, anonymous approaches might confuse participants leading to their hesitance to participate in the research or creating considerable stress for them in giving responses. An in-person survey (which is chosen to collect quantitative data in this research), can overcome the above weaknesses by providing a flexible and human-interactive approach (Fink, 2012). In this particular research, this flexibility is of extreme importance because some participants are from an ethnic minority whom other formats are unable to reach. Furthermore, as this research is the first one examining the EO phenomenon in the studied site, direct interactions between interviewers and participants assure the accuracy of term expressions. The main obstacles for face-to-face surveys are high cost and time requirements, but they should not be a problem for this study.

Therefore, this study gathered quantitative data through an in-person survey. Stages of the survey process followed instructions of Rea (2005) which are described in the following sections.

# 3.7.1.2. Sampling frame and sample size

Sampling frame determination is a process to select a subset of the studied population from which data can be representatively collected. A probability sampling scheme is commonly assigned to qualitative research while a nonprobability (or purposeful) approach is often used in qualitative studies (Creswell & Clark, 2007). However, this default association is often criticised by mixed methods researchers who argue that both sampling schemes might be used in either study (Creswell & Clark, 2007; Onwuegbuzie & Collins, 2007; Onwuegbuzie & Leech, 2005). The sampling scheme is appropriate as long as it helps researchers produce best responses to research questions. This study attempts to apply Western constructs into an Asian emerging market context. Its initial goal is to seek refinement, reinforcements or reimagination of the constructs, which can contribute to a universal understanding of management (Jack et al., 2013). In other words, rather than aiming at generalisability, the study gives priority to insightful information. Therefore, non-probability sampling is employed to select the participants of the survey in this study.

The sample size was decided following the multivariate technique intended to be used in the analysis as the small sample might lead to unreliable results (Hair, Black, Babin, & Anderson, 2014). A minimum sample size is vital to ensure that the results of the analysis are robust and generalisable. Structural Equation Modelling (SEM) using maximum likelihood methods was one of the analytical techniques used in this study (this will be further discussed in Section 3.7.3.1). In SEM, the requisite sample size is driven by the strength of latent constructs (determined by the number of indicators loading on the factors) and the complexity of the model (determined by the number of estimated parameters) (Dawn, 2010; Nevitt & Hancock, 2004). The number of observed indicators loading on latent constructs would be compensatory for sample size (Jackson, 2003). Particularly, the small sample size is arguably sufficient for a model in which factors are explained by a large number of indicators (Nevitt & Hancock, 2004; Wolf, Harrington, Clark, & Miller, 2013). Meanwhile, the more parameters the model estimates, the larger sample size is required (Tanaka, 1987). Bentler and Chou (1987) suggested ten observations for every estimated parameter. In line with the fact that SEM is commonly used to examine models with many layers of variables, it generally requires a large number of observations (Kline, 2011). Many scholars suggested that a minimum sample size of 200 is sufficient for most SEM models to ensure its reliability and validity (Boomsma, 1985; Hair et al., 2014; Kline,

2011). Therefore, this study used these criteria to determine the minimum sample size of the survey at 200.

In this study, the targeted sample involved owners within business entities working in beef value chains in the Central Highlands, Vietnam. Specifically, they are beef cattle growers, cattle traders (communal middlemen and district-level traders), wholesalers (abattoirs and meat wholesalers) and retailers. These businesses operate at a household scale (most of them are non-employer businesses) so that owners are fully in charge of deciding the strategic orientation of businesses (Le et al., 2013; Le, Herold, & Zarate, 2010). In these small businesses, the characteristics of the whole company are equal to those of the owners (Lyon, Lumpkin, & Dess, 2000; Miller, 2011). Therefore, the data in this study were gathered by interviewing owners of agri-businesses in the focal value chain.

The data were collected through a survey in Eakar district, Dak Lak province, which is the largest area of small beef farms in the Central Highlands, Vietnam. Specifically, the stratified sampling technique was employed (Rea, 2005) framed by chain structure. Strata encompassed 'cattle farmers', 'traders', 'wholesalers' and 'retailers' in which participants were selected purposefully. The local beef cattle chain is fragmented at manufacturing and retailing stages (i.e., farmers and retailers) while concentrated in middle stages (i.e., traders and wholesalers). Therefore, the identification of the sample started at middlemen with five districtlevel traders. At this point, downstream and upstream actors were selected through a snow-balling process. Specifically, 14 commune-level collectors (out of 20 invitations), 12 meat wholesalers (15) and 40 beef retailers (50) were interviewed. Regarding farmers who constitute the majority of chain actors, participant selection was made with the help of the local authority. Based on the initial list of 352 local cattle farmers, telephone contacts were then made to update their farming practice and invite them to undertake the survey. Sixty-three were excluded due to either migrating to the city or entirely quitting the industry while another 50 were not involved in the focal chain. The remaining 239 farmers were informed about the objectives, procedure and ethics of the research and 162 agreed

to attend interviews. Overall, the survey was implemented on 233 beef chain actors comprising 162 farmers, 19 traders (14 at commune-level and five at district-level), 12 wholesalers (included two abattoirs) and 40 retailers.

### 3.7.1.3. Survey instrument design

A questionnaire had been designed to gather information of participants in the survey. In the main parts, the interviewees were asked to determine their level of agreement with a series of statements relating to their business (including farming) operations. The levels were designed by 5-point Likert scales which range from 1 - "totally disagree" to 5 - "totally agree" (Likert, 1932). Additional information such as the number of cattle (with farmers), input and output prices (non-farmer actors) and knowledge about current supply chain (all actors) was also gathered before the collection of demographical details including gender, age, education level, experience in the beef industry.

The employment of rating scales to measure psychological and behavioural phenomena is widely witnessed in various scientific fields. Since the 1930s, which was marked by Likert's (1932) and Thurstone and Chave's (1929) works, the scaling of thinking, feelings and actions has been commonly used in social, educational, health and marketing research (Dawes, 2008; Joshi, Kale, Chandel, & Pal, 2015). The scales have been recognised as a useful tool for researchers to investigate 'latent' variables which are unable to be directly measured (Wuensch, 2005). By asking for the opinions of participants about statements which manifest 'latent' variables, this instrument provides a validated and reliable solution for the quantification of subjective manners (Joshi et al., 2015). The literature review in Chapter 2 draws three core investigated phenomena in this research: EO, value chain collaboration and knowledge acquisition. All of them are only detectable through both attitudes and behavioural manners of participants. For instance, EO encompasses beliefs of favouring innovation and proactive behavioural manners. Therefore, rating scales have been employed in most of the research on these constructs (Cao et al., 2010; Covin & Wales, 2011).

Rating scales come in a variety of formats. They may have from two to more than 100 points, either negative or positive wording, 'zero' midpoint (e.g., 1 to 5 or -2 to

+2) or ascending or decreasing numbers (i.e., 1 to 5 or 5 to1) (Hartley & Betts, 2010). In this, one of the most debated issues has been the appropriate number of points (Dawes, 2002, 2008; Krosnick & Presser, 2010). Since the 'original' 5-point Likert scale, both shorter and longer versions have been suggested because of the non-existence of strict rules in designing scales (Krosnick & Presser, 2010). However, shorter formats (i.e., fewer than 5 points) are not very useful as providing too few options (Matell & Jacoby, 1971) while above-7-point scales seem not to distinguish meanings of points enough (Krosnick & Presser, 2010). Therefore, the two most common formats of scales are five- and seven-points (Malhotra & Peterson, 2006). Both of them are capable of providing accurate measurements of the actual attitudes of participants (Dawes, 2008) while maintaining the clarity of scale points (Krosnick & Presser, 2010).

Although seven-point scales are common in measuring EO (Covin & Wales, 2011), this study used a five-point format because of its explanatory simplicity with farmers' literacy levels ranging from illiterate to basic (primary school level literacy). A five-point format saves interview time in reading out loud all options, which might reduce participants' frustration level and ultimately improve response rate and information quality (Dawes, 2008). The objects of this research are family businesses and farms, which are primarily controlled by the attitudes and traits of the owner/leader (Feltham, Feltham, & Barnett, 2005). Therefore, the EO of the whole business might be adequately determined through the assessment of the owner's EO, which uses five-point scales (Bolton & Lane, 2012; Koe, 2016). Not only EO but also other phenomena such as collaboration or learning were measured by this scale format when researching small-scale farmers in developing countries (e.g., Gellynck et al., 2015; Rota et al., 2016).

# 3.7.1.4. Survey instrument translating and pretesting

The original questionnaire was in English, but the targeted participants were Vietnamese. Therefore, the questionnaire went through a double-blind translation process to ensure the consistency between the original and translated version. Specifically, the researcher, who is a Vietnamese PhD student in Australia, translated the original questionnaire into Vietnamese. This version was then translated back to English by another Vietnamese student who was doing a PhD study on social sciences in Australia (Appendix 1.4). The original and translated versions were compared and contrasted to identify mismatches.

All aspects of a questionnaire (e.g., contents, wording and instructions) must undergo a pilot test before the implementation of the survey (Rea, 2005). The purpose is to identify as many problems as possible which might arise during the actual survey that would damage the quality of collected data (Bryman & Bell, 2015). Also, the pilot test is to assess the reliability and validity of measures in the questionnaire (Bryman & Bell, 2015). Based on obtained feedbacks, the questionnaire can be appropriately fine-tuned so that respondents will be able to provide the required data without any difficulties (Saunders, Thornhill, & Lewis, 2007).

The pilot test in this research was conducted on June 2017 with 13 participants, including six farmers, two collectors, one slaughterhouse, one meat wholesaler and three beef retailers. The time required for each pre-testing interview was around 60 minutes and exceeded the expected length of 40 minutes. This expected length ensured the quality of responses as well as complying with the ethics requirements for the study. After the pilot test, amendments were made to wording and sequencing of questions. Two questions were also dropped due to inappropriateness with local business culture. Eventually, the output of the pretest was a questionnaire encompassing 61 questions (Appendix 1.3).

### 3.7.1.5. Interviewers selection and training

A team of interviewers was needed in this study to overcome the main constraints of face-to-face interviewing, which is time-consumption. With an expected sample size of 200, three facilitators were hired to help the researcher conduct the survey. The facilitators were academics working at Tay Nguyen University<sup>1</sup>. All of them

<sup>&</sup>lt;sup>1</sup> Tay Nguyen University is located in Buon Ma Thuot – the largest city of the Central Highlands, Vietnam. The institute is well-known for agriculture and husbandry research, particularly in the Central Highlands area.

had Master of Science degrees and at least five years' experience in researching the local livestock industry.

A two-day training course was given to familiarise the facilitators with the studied concepts. During training, the study's goals, concept definition, possible ethical issues, survey schedule and expected survey outputs were expressed to the facilitators. Also, the meanings of items and rating scales in the questionnaire were explained to them in detail. At this point, the facilitators practised the questionnaire on each other before going into the field. To ensure the quality of the interviews, each facilitator did not conduct more than five interviews per day.

### 3.7.2. Measured variables

Variables (or items) which were used to measure studied constructs (i.e., EO, collaboration, knowledge acquisition, collaborative performance and financial performance) have been drawn from the literature (Table 3.5).

### 3.7.2.1. EO

EO was initiated in the organisational field of study; thus, the sampling frame of empirical studies has been dominated by large companies for a long time. Nonetheless, there are recent extensions of application levels to small and medium-sized enterprises (e.g., Semrau et al., 2016), agricultural farms (e.g., Grande et al., 2011; Mirzaei et al., 2016) or even individuals (e.g., Bolton & Lane, 2012). This evidence assured the adoption of EO operationalisation into an agricultural commodity industry in developing countries where most of the businesses are operated by few people (sometimes just one). As this study used the conceptualisation suggested by Miller (1983) and Covin and Slevin (1991), the main items are based on Covin and Slevin's (1989) instruments. Specifically, EO would be measured through its dimensions, including innovativeness, proactiveness and risk-taking propensity. This operationalisation was previously used in an agricultural context with acceptable reliability and validity (Grande et al., 2011; Mirzaei et al., 2016; Veidal & Flaten, 2014). Additional items which have been used previously in beef (Micheels & Gow, 2012) and other agricultural productions (Verhees et al., 2011) were also considered to be used in this study.

The original list of items contained 14 items. Further consideration has been undertaken to eliminate ones which are only suitable for organisations as they are not suitable for most of the Vietnamese beef farmers. Specifically, items: 'Individuals on our farm are penalised for new ideas that don't work' and 'On our farm, we tend to talk more about problems than opportunities' (Micheels & Gow, 2012) are inappropriate for farmers who are the only owner and have no employees, thus, were eliminated. Eventually, 11 items measuring EO were used in this study.

### 3.7.2.2. Value chain collaboration

The measurement of value chain collaboration has a long history of development with several perspectives. Based on firm boundaries, Stank et al. (2001) measured this construct through internal and external collaboration practices. On the other hand, Vereecke and Muylle (2006) took a chain structure viewpoint with a method separately considering collaborative relationships with suppliers and buyers. Focusing on collaborative processes, Simatupang and Sridharan (2005) developed a range of measure items categorised into three dimensions. Information sharing is measured by the degree to which data about demand forecast, price change, inventory and supply schedules are being exchanged with chain partners. Decision synchronisation is measured by the integration level in decision-making on production assortment, pricing policy, optimal order quantity, promotional events and inventory requirements. Incentive alignment is measured by the mutuality of parties' motivations shown by a guarantee for peak demand, subsidies for price falls, allowance for product defects, and flexibility for order changes. This processbased measurement has been widely adopted by scholars in empirical studies in various contexts including agriculture (Despoudi et al., 2018; Naspetti et al., 2011; Rota et al., 2016); thus, it was employed in this study. In short, value chain collaboration in this study was measured by three dimensions including information sharing, incentive alignment and decision synchronisation. Items were adapted from previous studies, especially ones undertaken in agriculture (Despoudi et al., 2018; Naspetti et al., 2011; Rota et al., 2016).

Latent factor	Item	Source
EO	<ul> <li>Emphasis on innovation and leadership.</li> <li>Frequent seeking for innovative ideas.</li> <li>Frequent adoption of innovations.</li> <li>New product lines and ranges marketed in the last five years.</li> <li>The extensiveness of product/service changes.</li> <li>The initiation of actions that force competitors to imitate.</li> <li>First-movers in introducing product/service to market.</li> <li>The adoption of a competitive posture.</li> <li>Preference of top manager for high-risk projects.</li> <li>Implementation of fast and bold strategies to explore environments</li> <li>Being the first people who deal with uncertain situations.</li> </ul>	Covin and Slevin (1989); Grande et al. (2011); Micheels and Gow (2012); Mirzaei et al. (2016); Veidal and Flaten (2014)
Information sharing	<ul> <li>Sharing information related to on-hand inventory.</li> <li>Sharing information related to current problems of business.</li> <li>Sharing information related to supply schedule.</li> <li>Sharing information related to purchasing plan.</li> <li>Sharing information related to medical history (quality records).</li> <li>Sharing information related to the market price.</li> <li>Sharing information related to the reason for price changes.</li> <li>Sharing information related to the forecast of market demand.</li> <li>The quality of shared information</li> <li>The relevance of shared information</li> </ul>	Despoudi, Papaioannou, Saridakis, and Dani (2018); Naspetti et al. (2011); Rota et al. (2016); Simatupang and Sridharan (2005)

# Table 3.5: Measurement of constructs used in the questionnaire

Latent factor	Item	Source		
Incentive	- Provision of financial assistance when production declines.			
alignment	- Existence of price guarantee.			
	- Sustaining of collaboration commitment.			
	- On-credit selling of product.			
	- Provision of inputs during production			
	- Sharing of production cost			
	- Congruence of the goal of the whole value chain			
	- Agreement on the importance of a collaborative relationship.			
Decision synchronisation	- Joint decision-making on the product price			
	- Joint decision-making on product quality requirement			
	- Joint decision-making on product quantity.			
	- Joint decision-making on payment method.			
	- Joint forecasting of market demand.			
	- Joint decision-making on the type of product should be produced.			
Knowledge	- Acquisition of technical expertise by collaborating with partners.	Jiang et al. (2016); Li		
acquisition	- Acquisition of new product development skills by collaborating with partners.	et al. (2011); Tsang,		
	- Acquisition of manufacturing knowledge by collaborating with partners.	Nguyen, & Erramilli (2004)		
	- Acquisition of managerial knowledge by collaborating with partners.			
	- Acquisition of marketing knowledge by collaborating with partners.			
	- Acquisition of problem-solving skills by collaborating with partners.			
Collaborative	- Sales enhancement due to collaboration.	Ariño (2003);		
performance	- Cost reduction due to collaboration.	Simatupang and		
	- Strategic goal achievement due to collaboration	Sridharan (2004)		
		Kale, Dyer, and Singh $(2002)$		

### 3.7.2.3. Knowledge acquisition

There are two main methods to measure knowledge acquisition in value chains. Firstly, it can be assessed through the engagement of individuals or organisations in learning activities (He et al., 2013; Hult, Ketchen, et al., 2004). Another method stresses outcomes of learning processes by evaluating what and how well knowledge is being acquired (Griffith, Zeybek, & O'Brien, 2001; Jiang et al., 2016; Li et al., 2011; Norman, 2004; Shenkar & Li, 1999; Tsang et al., 2004; Yli-Renko et al., 2001). In this study, the second approach was used because the target of this study is the efficiency of knowledge flows in beef value chains. This approach also prevented the possible overlapping between knowledge acquisition and value chain collaboration which were measured by activities. Drawn from literature, six items measuring knowledge acquisition consist of technical, new product development, managerial, marketing, manufacturing and problem-solving expertise gained from value chain partnerships (Jiang et al., 2016; Li et al., 2011; Tsang et al., 2004).

## 3.7.2.4. Collaborative performance

Collaborative performance can be measured by the endurance of relationships (Harrigan, 1988) or financial improvements achieved by the formation and sustaining of the partnership (Ariño, 2003). Also, some scholars place strategic goal achievements at the core of the construct (Kale et al., 2002). This study employed both monetary added value and objective fulfilments brought by relationships to measure the degree of collaborative performance. Nonetheless, objective financial data are unavailable in the studied chain; thus, participants were asked to self-assess these changes before and after the formation of alliances with current chain partners. Regarding items, financial improvements including cost reduction and sales increase (Ariño, 2003) and overall assessment about goal achievement (Kale et al., 2002) constitute measurements of collaborative performance in this study.

### 3.7.3. Quantitative data analysis

The quantitative component is dominant in this mixed methods study. Data collected from the survey would be used to respond to the majority of research questions. The following section discusses the choice of the analysis tool and depicts the quantitative data analysis plan in this study.

### 3.7.3.1. Statistical analysis tool

In social science, there are many phenomena, termed constructs, which are unable to be observed or measured directly (e.g., EO, trust and beliefs). Statistical analysis of latent variables which represent these phenomena is a great concern of the social researcher. Two generations of multivariate analytical tools have been developed (Hair et al., 2014). The first generation includes methods such as factor analysis, cluster analysis, variance analysis and regression analysis. The second generation which was introduced in the 1990s encompasses different types of structural equation modelling. Each generation has its pros and cons.

Regarding the first-generation tools, particularly regression analysis, key advantages are the robustness and simplicity. Regression analysis is a robust technique that has been widely used in social science for decades. By an aggregation (summing or averaging), scales of the construct can be easily generated from measures of corresponding items. These construct-level scales can then be treated as continuous data in regression models (Harpe, 2015). This simplicity is considerably useful in examining the moderating effects of explanatory variables on the predicted variable. The most substantial disadvantage of regression analysis lies in its assumption about the exact measurement of variables (de Veaux, Velleman, & Bock, 2014). However, latent variables are measured directly through the measurement of a series of other observable variables (called 'items'). This indirectness of measurement causes two types of errors, 'item omitting' or 'item measurement errors' (Dunn, Seaker, & Waller, 1994) which are arguably included when measuring latent constructs.

By contrast, structural equation modelling (SEM) is advantageous in accounting measurement errors into its model, making it more realistic in analysing latent variables (Grewal, Cote, & Baumgartner, 2004). Using the maximum-likelihood method, this tool is more flexible when dealing with rating-scale data which often violate assumptions of ordinary least squares regression such as the normal distribution of residuals (Hair et al., 2014). Furthermore, SEM allows an examination of multiple-layout models which is impossible for linear regression analysis (Anderson & Gerbing, 1988). In this model, a variable might be predicted and explanatory at the same time, presenting a more comprehensive picture of the relationships amongst variables (Hox & Bechger, 1998; Schumacker & Lomax, 2004). However, structural equation models can become over-complex when examining interactions between latent variables (Holger, Eldad, & Peter, 2011; Marsh, Wen, & Hau, 2004). As a result, few studies have employed this technique for interaction or moderation analyses.

In short, SEM provides a more flexible, systematic and realistic approach while regression analysis is a more useful tool for investigating interactive effects between constructs. In entrepreneurship studies, both tools have been widely used. Thus, this study employed both tools in analysing quantitative data. The employment of each tool depended on the research questions. Specifically, to answer the first and fourth research questions, SEM was used while hierarchical regression modelling was used to respond to the second and third research questions.

# 3.7.3.2. Quantitative data analysis plan

The analysis of quantitative data was carried out through the following steps:

# Step 1: Data entry and screening

An electronic codebook was prepared in which variables were appropriately labelled, defined and formatted. Answers of survey participants were entered into this codebook by the researcher to create the data set of the study. The data were preliminarily checked for accuracy by randomly comparing the entered data and the answer sheets of twenty respondents. Furthermore, descriptive statistics were carried out on items to detect any non-sense data (i.e., values of rating items were below 1 or above 5).

# Step 2: Preliminary analysis

As the data were accurately entered, descriptive statistics were then conducted on both demographic and construct variables. The statistics provide basic descriptive information about variables in the data set such as frequencies, means or standard deviation. For the demographic variables, frequencies, mean and percentage were provided to describe respondents of the survey. For the latent construct items, normality of distribution and outliers were checked. The distribution normality was assessed by a histogram graph as well as the Kolmogorov-Smirnov test while the outliers were detected based on Boxplots.

# Step 3: Factor analysis

Factor analysis was done to investigate the factor structure in the data set. It examined whether observed items significantly loaded into latent constructs as proposed by the literature. Specifically, the reliability and validity of the studied (EO. information incentive constructs sharing, alignment, decision synchronisation, knowledge acquisition, collaborative performance and financial performance) were assessed in this step. In this study, the analysis follows the procedure suggested by Symeonaki, Michalopoulou, and Kazani (2015) in which both exploratory factor analysis and confirmatory factor analysis were performed. The coefficient alpha (or Cronbach Alpha) was used to determine the internal reliability of the constructs, whereas the average variance extracted (AVE) was employed to indicate convergent and discriminant validity.

# Step 4: Path analysis

Once the constructs were validated, hypotheses about relationships amongst constructs would be tested. Two structural equation models were examined. The first model (see Chapter 5) examined the paths from value chain collaboration components to EO in a test of H1a, H1b and H1c hypotheses. The second one (see Chapter 7) presented the paths from EO to knowledge acquisition to performance. This model was to test H4 to H5 hypotheses. The use of multiple models instead of a single, comprehensive one was appropriate. If a single model was used, it might need to estimate many parameters that often reduce the goodness-of-fit of the model.

# Step 5: <u>Moderation analysis</u>

The H2 and H3 hypotheses concern the interactive effect of value chain collaboration and EO on knowledge acquisition. Hierarchical regression modelling was used to examine this interaction. This employment is consistent to many previous studies on the moderation between EO and social network phenomena (e.g., de Clercq et al., 2010; Jiang et al., 2018; Song, Min, Lee, & Seo, 2017; Veidal & Flaten, 2014).

Firstly, scales of latent constructs (i.e., EO, information sharing, incentive alignment, decision synchronisation and knowledge acquisition) were produced by regressing measures of corresponding items. The collaboration index was computed as the average of the components (i.e., information sharing, incentive alignment and decision synchronisation) (Simatupang & Sridharan, 2005). The interaction variable was then created by multiplying the collaboration index and the EO scales. A four-step hierarchical regression modelling was carried out at this point. Model 1 only contained constrained variables which were age, education level and experience of respondents. Model 2 and Model 3, respectively added collaboration index and EO as explanatory variables. Model 4 was a full model which encompassed constrained variables, explanatory variables and interaction. The goodness-of-fit of the regression models was assessed through R<sup>2</sup> and F-value statistics.

# 3.8. Qualitative phase

In the explanatory mixed methods design, the qualitative phase was conducted after the findings of the quantitative phase had been revealed. This stage aimed to shed light on quantitative results by giving the contextual explanations for those findings.

## 3.8.1. Qualitative research questions

Not all quantitative results need to be explained in the qualitative phase. Instead, researchers might just choose surprising or interesting findings to follow up

(Creswell & Clark, 2011). Chosen criteria might be demographic characteristics, important variables or outlier cases (Creswell & Clark, 2011). Based on the analysis of the data collected in the survey, the researcher in this study decided to investigate risks within the beef value chain as they are a major concern for the actors when undertaking entrepreneurial actions. Additionally, mechanisms transmitting EO into superior collaborative performance were not revealed by quantitative results. Thus, the qualitative phase would shed more light onto this linkage.

Therefore, in this study, two explanatory research questions (Ex-Q) were proposed, which are:

Ex-Q1: What are the risks encountered by actors in the beef value chain?

Ex-Q2: Besides through enhancing knowledge acquisition, how does the actor's level of EO improve collaborative performance in the beef value chain?

### 3.8.2. Qualitative approaches to inquiry

A qualitative inquiry approach is the design of a qualitative study that presents the structure of the study (Eriksson & Kovalainen, 2008). It offers proper ways of collecting, organising and interpreting information through which a researcher can respond to research questions (Denzin & Lincoln, 1994). Creswell (2013) summarised five common qualitative approaches, namely, narrative research, phenomenological research, grounded theory research, ethnographical research and case-study research (Table 3.6).

Narrative research delivers messages through stories. These stories might be told to researchers or co-constructed by both researcher and participants to underpin a point of view. Through interviewing, observing, documenting or picturing participants' lives, the narrative approach enables the revelation of their identity and experiences. Rather than the emphasis on personal experiences, the phenomenological approach seeks the common meaning of a phenomenon shared by many individuals. A 'phenomenon' might be a concept or an idea. Individual or group interviewing is the conventional method to collect data in this approach. Through the discussions, both the subjective experiences of participants and the objective experiences they have in common with other people can be revealed. Beyond descriptions, grounded theory research seeks explanations for some processes or actions from perspectives of participants. These studies attempt to develop theories 'grounded' in the data. Again, interviews are the common method to collect data in which researchers constantly compare participants' responses with the emerging theory to assess how it works. Ethnographic research investigates issues about culture. In particular, the studies using an ethnographical approach aim at descriptions and interpretations of values, behaviours, language and beliefs of a group of people who share cultural backgrounds. The researchers in these studies look for temporal patterns in mental and material activities through observations of and interviews with a group of participants. Unlike ethnographic research, case study research analyses data at a unit of one or multiple cases. A case is an entity that has a clear boundary with other entities such as an individual, a company or a value chain. To provide in-depth understanding about a case or compare across cases, researchers might use data from different sources such as participant interviews, documents or observations. Results of a case study research are themes which have emerged in the case and cross-case themes.

This mixed methods research concerns a specific phenomenon which is EO. This concept originated in Western science and has been rarely investigated in Asian emerging market contexts (Wales et al., 2013). The aim is to refine, reimage and reinforce this phenomenon in a new setting that may help develop universal and indigenous theories about EO (discussed in Section 3.4.2).

Hence, the qualitative phase of this study looked for lived experiences of business owners in the studied site (i.e., the Central Highlands, Vietnam) with the idea of 'being entrepreneurial'. As a result, a phenomenological approach was chosen to design the qualitative phase. The following sections describe in detail the collection and analysis of qualitative data in this study.

Chanastanistics	Narrative	Phenomenological	Grounded	Ethnographical	Case-study
Characteristics	Research	Research	Theory Research	Research	Research
Focus	Lives of an individual or a small number of individuals	The essence of the lived experience	The theory in the views of participants	Culture of a group	Case(s) within a real-life context
Purpose	To tell stories or experiences of individuals	To describe the common meaning of a phenomenon shared by several individuals.	To ground a theory using data collected from the field	To describe and interpret patterns of culture shared by a group of individuals	To provide an in- depth understanding of a case or some cases
Discipline Background	Humanities	Philosophy, psychology and education	Sociology	Anthropology and sociology	Psychology, law, political science
Data collection	Interviews, observations, pictures and documents	Interviews with individuals	Interviews with 20-60 participants	Observation and interviews	Interviews, observations and documents
Data analysis	Using a chronology to shape stories	Analysing significant statements and description of the 'essence'	Open coding, axial coding and selective coding	Description of the culture shared by the group	Analysing case and across cases to determine themes.

# Table 3.6: Qualitative approaches to inquiry

Source: Creswell (2013)

# 3.8.3. Qualitative interviewing as the data collection tool

Qualitative interviewing is a typical method to gather information in phenomenological research (Moustakas, 1994). Compared with survey interviews which must strictly follow pre-set questions, qualitative interviews are less (or non-) structured, interactive and continuous (Rubin & Rubin, 2005). These talks are often smooth and natural, which encourages the expression of deep insights. Therefore, this method is appropriate to deeply explore participants' beliefs, values and attitudes about the studied phenomenon.

Procedures for a qualitative interviewing process have been suggested by several researchers (Creswell, 2013; Kvale & Brinkmann, 2015; Rubin & Rubin, 2005). This study followed the steps advised by Creswell (2013). In particular, the following sections would sequentially go through type-of-interview determination, participant identification, interview guide and interview setting and record those used in the field.

# 3.8.3.1. The type of interviews: semi-structured

The qualitative phase seeks for contextual explanations for the findings of the previous research phase. Specifically, the objective was to describe the perspectives of actors in the beef value chain, which might be diversified. Nonetheless, comparisons among respondents are also needed to determine the common meaning of being entrepreneurial at the studied site. Thus, qualitative interviews simultaneously require both structure and flexibility. Unstructured interviews might lead to massive information that is incomparable. By contrast, a structured interview that pre-determines the answers might limit the richness of collected data (Creswell, 2013).

Hence, one-on-one semi-structured interviews were conducted to gather qualitative data in this study. The semi-structured format was used because of its suitability for studying complex human perspectives while ensuring the focus of the whole research (Barriball & Alison, 1994). It maintains the research solidity while providing sufficient room for flexibility (Rubin & Rubin, 2005). Semistructured interviews use a pre-planned set of open-ended questions but might not strictly follow them (Kallio, Pietilä, Johnson, & Kangasniemi, 2016). The guide establishes a structure of the interview, helping set necessary boundaries for the talk but should not limit or determine a respondent's answers. Rather, the pre-set questions are used appropriately to sustain reciprocity between the interviewer and interviewee; by which, the inquirer can smoothly adjust the questions, and the respondent can express his/her viewpoints (Galletta & Cross, 2013). A semistructured format also provides enough room for probing questions (e.g., 'can you tell me more about this?') used by interviewers to encourage respondents to give more answers. Therefore, it gives interviewers sufficient control of talk directions without limiting interviewees' comfort.

### 3.8.3.2. Participant identification

In phenomenological research, participants should be those who have prior knowledge and experience with the studied phenomenon (Bryman, 2016). The sample is commonly purposefully selected before the start of the data collection and may be adjusted when the research progresses (Emmel, 2013). Regarding sample size, Morse (1994) suggested the lowest requirement of six participants, while Creswell (2013) advised a range of from three to 15. Additionally, as this qualitative phase is a part of a mixed methods study, its participants should be those who had been involved in the quantitative phase (Creswell, 2014). This allows the researcher to obtain a deep understanding of quantitative data (Creswell & Clark, 2007).

Therefore, fifteen interviewees were purposefully selected from the list of survey participants to attend qualitative interviews in this study. They were heterogeneous in occupation, age, experience, education level and the level of EO. Specifically, five farmers, three commune-level collectors, two district-level traders, two slaughterers and three retailers were contacted and invited to the interviews. They were the participants who had said they would be happy to be contacted again by the researcher after the survey interviews. Their EO score (determined by the average score of the corresponding items) varied from 1.36 to 4.27, indicating that they possessed different levels of being entrepreneurial. This characteristic variation was expected to reveal diversified perspectives about the EO of the actors in the studied beef value chain.

# 3.8.3.3 Interview protocol and guide

This qualitative phase aimed to understand the perspectives of the beef value chain actors about 'being entrepreneurial'. Furthermore, the researcher sought practical explanations about relationships between constructs studied in the quantitative phase. Therefore, qualitative questions went sequentially through three parts: the first included a basic description about participant's business, the second asked for participant's definition about being an entrepreneur, and the final part encompassed questions about benefits of undertaking entrepreneurial actions (Appendix 2).

Phrases and terms used in the guide had been consulted on with rural extensionists and academics who know local languages and culture. The protocol was also pre-tested with a farmer on July 31<sup>st</sup> 2018 to determine linguistic, logical and culture-sensitive problems. The body language and comments of the respondent during the pre-test were used to determine possible confusion about the questions. In the end, adjustments to order and wording of questions were made. Overall, the feedback of the respondent showed that the question guide helped reflect his business and the occurrences in the studied beef value chain.

# 3.8.3.4 Interview procedure and recording

The procedure of qualitative interviews was made for the convenience of the interviewees. Times of the interviews were set to ensure that their daily schedules were not interrupted (Table 3.7). Interviews were conducted in the period from the 5<sup>th</sup> to the 16<sup>th</sup> August 2018. Appointments were made by telephone. Places of the interviews were decided to be where respondents felt comfortable to give answers. Nine participants wanted to be interviewed at their houses, two preferred a public place (e.g., coffee shop), and four asked the researcher to go to their workplaces.

Interviewee	Occupation	Date	Time
Interviewee #1	Farmer	05-Aug-2018	8:00 - 9:42
Interviewee #2	Farmer	05-Aug-2018	10:00 - 11:23
Interviewee #3	Farmer	06-Aug-2018	13:15 - 14:30
Interviewee #4	Farmer	07-Aug-2018	10:45 - 11:50
Interviewee #5	Collector	07-Aug-2018	14:00 - 15:45
Interviewee #6	Farmer	09-Aug-2018	16:30 - 17:25
Interviewee #7	Collector	10-Aug-2018	8:00 - 10:00
Interviewee #8	Trader	10-Aug-2018	13:00 - 14:10
Interviewee #9	Trader	11-Aug-2018	14:30 - 15:25
Interviewee #10	Collector	11-Aug-2018	14:30 - 15:50
Interviewee #11	Slaughterer	13-Aug-2018	18:00 - 18:57
Interviewee #12	Slaughterer	14-Aug-2018	10:00 - 10:45
Interviewee #13	Retailer	15-Aug-2018	13:00 - 13:48
Interviewee #14	Retailer	15-Aug-2018	14:00 - 14:45
Interviewee #15	Retailer	16-Aug-2018	14:00 - 15:02

### Table 3.7: Qualitative interviews

The researcher was the only interviewer. Each interview lasted approximately one hour. Before starting the interviews, each interviewee was provided with a participant information sheet (Appendix 1.1) and reminded of the voluntary nature of their participation. They were also asked if they would allow an audio recording of the conversations. Only two of them agreed to record their interviews while the rest declined. Thus, only two audio recordings were made. The remaining conversations were noted with the help of a student from Tay Nguyen University who sat in on the interviews. These notes were revised by the researcher immediately after every interview to assure that no important point was missed. Identities of participants were code-assigned before being removed and kept confidential.

### 3.8.4. Qualitative data analysis

There are many ways of analysing qualitative data, and there is not a standardised approach. Overall, an analysis process involves organising, reading, coding and representing qualitative information to uncover underlying meanings and patterns (Huberman & Miles, 1994; Leech & Onwuegbuzie, 2007; Saunders, Lewis, & Thornhill, 2009; Wolcott, 1994). Regarding this phenomenological study, expected results of the data analysis meant clusters of studied phenomena developed from significant statements of respondents. The constant comparison analysis, which is the most commonly used analysis method in a qualitative study (Leech & Onwuegbuzie, 2007), was applied in this study. By continually comparing respondent answers, important experiences, ideas, perspectives, beliefs and values of beef value chain actors relating to EO were discovered.

Recorded conversation was transcribed verbatim and handwritten notes were typed into text files. Nvivo 11 software, which is a popular qualitative data management tool (Bazeley & Jackson, 2013), then was used to manage these files. Although this software is useful for data management, it is constrained in performing conceptual analysis of the information which relies heavily on human comprehensive reading capability (Bringer, Johnston, & Brackenridge, 2006). Therefore, in this study NVivo 11 software assisted the management of the data while the analysis was performed by the researcher himself.

At first, the researcher read through the entire set of data to chunk it into smaller meaningful parts. Each chunk was given a code that represented its key concept or meaning. The coding process in this study was undertaken iteratively to ensure that chunks with similar meaning were given the same codes (Leech & Onwuegbuzie, 2007). In Nvivo, each code is represented by a 'node'. Nodes with family meaning were then grouped into higher-order nodes referred to as 'themes'. Thus, a 'theme' is a key point confirmed by or emerging from the data. This consolidation improved the legitimacy of the analysis by increasing the explanatory power of qualitative data (Goulding, 1998). These 'themes' were the units of analysis rather than linguistic evidence (see Chapters 5 to 7).

### 3.9. Integration of quantitative and qualitative data

The integration of quantitative and qualitative strands is the most crucial step in mixed methods research (Teddie & Tashakkori, 2009). The ultimate purpose of a mixed methods study is to synergistically improve the reader's understanding of the studied phenomena. Thus, findings of qualitative and quantitative strands must be integrated in a logical, practical and coherent way. Each mixed methods research design requires a different strategy of connecting these results. In an explanatory sequential design, quantitative results should be the backbone of the whole analysis, while qualitative results are selectively presented in a way that helps explain them (Creswell & Clark, 2011). This further explanation enriches the answer to the whole study for researcher questions.

Therefore, the analysis and discussion sections in this thesis are structured following the study's research questions. This approach is different from other mixed methods PhD studies (e.g., Kusumawardhani, 2013; Naidu, 2016), which reported quantitative and qualitative results separately. However, it is believed to be a better way to interpret mixed methods results, especially in a sequential approach. Specifically, in each chapter from 5 to 7, the results of both quantitative and qualitative data analysis are revealed and connected. In this, the quantitative results are presented first as they predominantly accounted for the study's responses to the research question, whereas the qualitative results are reported subsequently.

### 3.10. Research validity

Validity is the most important criterion to assess the quality of social research. It is concerned with the integrity of the conclusions that are made by the study (Bryman, 2016). Discussions about validity issues have been well documented in quantitative and qualitative research (Babbie, 2016; Bryman, 2016) while being "in their infancy" in mixed methods research (Onwuegbuzie & Johnson, 2006, p. 48). The validation of a mixed methods study is related to the design and stages of the research process. In particular, issues which might threaten the rigour of a mixed methods study can occur in the data collection, data analysis and result interpretation stages (Creswell & Clark, 2011; Onwuegbuzie & Johnson, 2006;

Teddie & Tashakkori, 2009). In this study, potential threats and strategies employed to minimise them were summarised in Table 3.8.

Potential validity threat	Strategies for minimising the threat
Selecting inappropriate participants to be involved in the quantitative phase.	Participants are those who have experience and are currently involved in the focal beef value chain.
Selecting inappropriate participants to be involved in the qualitative phase.	Participants are those who had participated in the previous quantitative phase.
Data collection instruments are not psychometrically sound.	Employment of a rigorous procedure to validate the instrument.
Choosing weak quantitative results to follow qualitatively.	Weighting the options to follow up and choose the results that need further explanation.
Comparing the data sets instead of combining them.	Quantitative and qualitative results were combined and built rather than compared.
Interpreting results in reverse order.	Quantitative results were presented before qualitative results in each chapter.
Displaying results in an uninterpretable format.	Quantitative and qualitative results were displayed simultaneously rather than separately
Not discussion mixed methods questions	Result sections are structured based on research questions.

# Table 3.8: Validity threats and minimisation strategies employed in this research

Source: derived from Creswell and Clark (2011)

When collecting data, threats might come from the inappropriateness of participants or unsoundness of collection tools. Specifically, the rigour of this study might deteriorate if respondents of the survey and qualitative interviews were not appropriately selected (Creswell & Clark, 2011). Therefore, phone contacts were

made with survey respondents before the interviews to assure their current participation in the focal beef value chain (Section 3.7.1.2). Regarding the validity of quantitative data collection instruments, measurement items were adopted from empirical studies previously conducted in agricultural settings. This adoption ensured that the items were capable of capturing contents of intended constructs. A pilot study was conducted to make sure of the utility of the items in the studied context (Section 3.7.1.4). Beyond item content validity, construct validity was addressed by a rigorous procedure suggested by Symeonaki et al. (2015) before multivariate analysis was conducted (Section 3.7.3.2). Results of the test for construct validity are reported in Chapter 4. The validity of qualitative research was established by the trustworthiness and credibility of the participants' knowledge about the studied phenomena (Creswell, 2013; Rolfe, 2006). Interviewees in the follow-up interviews were those who had participated in the previous survey. Thus, their knowledge about the beef value chain was guaranteed (Section 3.8.3.2). Additionally, informational accuracy was guaranteed by the verbatim transcriptions of the interview records and notes taken in the unrecorded conversations (Section 3.8.3.4).

In the data analysis and interpretation stages, the possible issues were the inability of the qualitative follow-up phase to improve understanding about quantitative results. To minimise this threat, the qualitative phase was designed to seek the answers to important questions which emerged during the analysis of quantitative data (Section 3.8.1). Finally, interpretation issues are often related to choosing a wrong interpretation strategy leading to illogical inferences. Consistent with this sequential design, the integration of quantitative and qualitative results was accomplished through combining, not comparing. In particular, for each research question, quantitative results were followed by supplementary qualitative findings to provide a merged response.

# 3.11. Research ethics

Ethical issues are concerned with the 'code of conduct' when conducting research (Sekaran & Bougie, 2016). They identify proper and improper ways of carrying out a scientific inquiry. Ethical considerations ensure that data are morally collected,

accurately analysed and anonymously reported. In social science, researchers must consider the awareness of the voluntary nature of participation, employment of a harm-free approach, data accuracy and integrity, anonymity and confidentiality of participants (Babbie, 2016).

Participants of this research were actors in a beef value chain in Vietnam. They were invited to attend the research voluntarily. Specifically, phone calls had been made before the survey implementation as well as follow-up interviews to give them the option of refusal. The voluntary nature of the participation was also verbally expressed again by the survey facilitators and mentioned in information sheets (Appendix 1.1) and consent forms (Appendix 1.2) were given to respondents before every interview. The participants were informed that they could withdraw from the research at any time without explanation. The collected information would be eliminated from the data set and not be used in the research. Thus, at no point were participants limited in their choice to participate in this research. Additionally, survey and follow-up interviews were conducted at places and times, which were the most convenient and comfortable for participants. No interview which interrupted the daily schedule of participants was conducted.

To ensure data accuracy and integrity, the researcher was the only person who entered the survey responses into a computer, transcribed interview records and typed handwritten notes. These data were stored in a STATA file (for survey data) and an NVivo file (for semi-structured interview data). Names and contact details of respondents were coded and separately stored in an Excel file. Passwords were used to protect these files, and only the researcher could access the contents. Regarding anonymity, no name of any participant was reported in this thesis.

This study was designed to comply with the *Australian Code for the Responsible Conduct of Research, 2007* and the requirements of the Tasmanian Health and Medical Human Research Ethics Committee. The ethical protocol of this study was established and approved by the Tasmanian Social Sciences Human Research Ethics Committee, the University of Tasmania, on 16<sup>th</sup> May 2017 (Ethics Approval No: H0014675). The design and implementation procedures were approved and monitored by those Committees.

### 3.12. Chapter summary

Chapters 1 and 2 identified a research gap in the relation between EO and value chain management practices and developed the research questions. This chapter explicated the link between data and the research concepts through which methodological practices of this study were determined. A mixed methods approach was chosen to be a methodological philosophy of this research. The justification was based on the nature of the research problems and the rationale for the employment of many methods taking into account the researcher's worldviews. Regarding the research procedure, a sequential explanatory mixed methods design was used in which a primary quantitative phase was followed by a supplementary qualitative phase. In the quantitative phase, data were collected by a survey of 233 participants in the studied beef value chain. Quantitative data were analysed by structural equation modelling and hierarchical regression models. The qualitative follow-up phase was designed to supplement significant explanatory findings of the previous phase. Qualitative interviews were conducted with fifteen value chain actors who had attended the survey. The constant comparison method was used to analyse qualitative data.

Potential threats to research validity were identified, and strategies were implemented to minimise them. The chapter also considered ethical issues arising from the research process and developed an assurance protocol approved by the Tasmanian Social Sciences and Human Research Ethics Committee.

The following four chapters (Chapters 4 - 7) will report the analysis of the data gathered by this methodology. The resulting chapters are organised under research questions consistent with the explanatory purpose of the employed mixed methods design. In particular, Chapter 4 presented a preliminary analysis of quantitative data which provides the basis for following multivariate analysis. At this point, Chapters 5, 6 and 7 report and discuss findings of subsidiary research questions.

Findings of Chapters 5 to 7 will be used again in Chapter 8 for a thesis-level discussion. This final chapter does not repeat what has been concluded previously but provides a discussion of the overall research questions.

# Chapter 4: Analysis and results – construct reliability and validity

### 4.1. Introduction

This study aims to broaden the understanding of farmers, policymakers and scholars on the role of EO in this era of 'value chain vs. value chain' competition in the context of agribusiness value chains in emerging economies. Agricultural value chains are complex systems that need to be investigated as a whole entity rather than a series of dyads. Nonetheless, most of the previous studies have employed dyadic strategic alliances as the unit of analysis (Chapter 2). This research, by taking a whole-of-chain approach, offers further insights into the strategic management of agricultural value chains. The review of the extant literature gave rise to the overall research question, which is: "How are the actors' levels of entrepreneurial orientation associated with value chain management practices in agricultural value chains?", and four subsidiary research questions:

- SRQ1: How do value chain collaboration components affect the actor's level of EO in agricultural value chains?
- SRQ2: What is the relationship between the actor's level of EO and knowledge acquisition in agricultural value chains?
- SRQ3: How does value chain collaboration influence the linkage between EO and knowledge acquisition in agricultural value chains?
- SRQ4: How does the actor's level of EO influence collaborative performance in agricultural value chains?

Chapter 3 described the methodology and methods employed in this research. By considering the nature of the research questions and the research perspective of the researcher, the previous chapter justified the employment of a mixed methods approach in this study. Specifically, an explanatory mixed method design in which a major quantitative phase was followed by a qualitative follow-up phase was employed. Quantitative data were gathered by a face-to-face survey, while qualitative data were collected through a series of semi-structured interviews. The analysis of the qualitative data helped explain the findings derived from the quantitative survey. Therefore, the analysis and results chapters (Chapters 4,5,6 and 7) largely report quantitative results while findings from qualitative data are complementarily integrated to provide additional insights for farmers, policymakers and scholars.

Chapter 4 focuses on the preliminary analysis of quantitative data. The chapter examines latent factors existing in the data set as well as their descriptive statistics. The establishment of the latent factors is a critical condition for further multivariate analysis (Hair et al., 2014). The chapter starts with the demographic characteristics of survey respondents before going through the data screening process. Factor analysis is then reported, by which the reliability and validity of constructs were examined. The final section summarises the established constructs in the quantitative data set of this study and their descriptive statistics.

### 4.2. Description of respondents

Demographic characteristics of the survey participants are described in Table 4.1. Consistent with the funnel-shaped structure of the studied beef value chain (Figure 3.2), farmers accounted for the majority of the sample (nearly 70%). The second largest group (17%) were small retailers who work downstream in the chain; meanwhile, actors working in concentrated stages constituted less than 10% of the sample (8% for the middlemen and 5% for the wholesalers). There was a balance in the gender of participants as half of the answers were given by women. Regarding age, participants posed a wide range (19 to 70 years) with an average value at 44 years old. They also had long experience in the local beef industry. On average, each participant had worked in the industry for 14 years. In terms of education level, the majority of participants had completed secondary school (44%) or high school (40%). Some had dropped out after finishing primary school (15%) while only a few had gone to college or university (1%). The studied beef value chain was comprised of 'Kinh' people (the largest ethnicity in Vietnam) and people from other ethnicities. In the survey, 80% of participants were from the former, while 20% were from the latter ethnic groups.

		Count	Table N %	Mean (range)
Actors	Farmers	162	69.5%	
	Middlemen	19	8.2%	
	Wholesalers	12	5.2%	
	Retailers	40	17.2%	
Condon	Female	116	49.8%	
Gender	Male	117	50.2%	
Age				44
nge				(19 - 70)
Experience				14
				(1 - 45)
Education		0 4	1 5 00/	
	Primary school (Years 1 - 5)	35	15.0%	
	Secondary school (Years 6 - 9)	102	43.8%	
	High school (Years 10 - 12)	93	39.9%	
	Higher	3	1.3%	
Ethnicity	Other ethnic	45	19.3%	
	Kinh people	188	80.7%	

# Table 4.1: Demographic characteristics of participants (N=233)

# 4.3. Preliminary data screening

Data screening is a process for detecting erroneous or out-of-range variables and is conducted before the main data analysis (Heeringa, West, & Berglund, 2017). Errors existing in the dataset might significantly distort analytical results so that corrections are critical to ensure the results' reliability (Heeringa et al., 2017). A screening of the data set also develops a basic understanding by researchers about patterns and possible relationships amongst variables (Heeringa et al., 2017). As suggested by Pallant (2016), the data screening in this study was undertaken through the examination of the data distribution and outliers.

### 4.3.1. Data distribution

Normality describes a pattern of data distribution which has a symmetrical bellcurved shape (Sekaran & Bougie, 2016). In a normal distribution, the majority of observations cluster around the central peak, and the smaller frequencies are equally towards extremes (Sekaran & Bougie, 2016). The normality assumption asserts that the distribution of the collected data does not deviate significantly from this bell curve.

In this study, the normality of data distribution was examined by both statistical tests and graphical plots (Heeringa et al., 2017). Firstly, the Kolmogorov-Smirnov test for all variables was undertaken, and the resulting p-value below 0.05 indicated a violation of the assumption of normality for the variables (Pallant, 2016). Also, the visual presentation of the histograms showed a departure from the normal distribution of the survey data. Nonetheless, because SEM is a nonparametric technique, a normal distribution is preferred but not required (Hair, Hult, Ringle, & Sarstedt, 2016). Additionally, the distribution of a variable is considered to be too far from normality when the absolute values of skewness are greater than 3.0 or kurtosis greater than 8.0 (Kline, 2011). In this study, these values ranged from -0.348 to 0.890 for skewness and from -0.960 to 0.042 for kurtosis, implying that the assumption of normality was not substantially violated.

## 4.3.2. Outliers

Outliers are data points that are significantly different from other observations (Heeringa et al., 2017). Outliers in this study were detected through boxplots of variables which are those data points beyond the 1.5 box-lengths from the edges (Pallant, 2016). Some outliers were identified. However, the comparison between the original means and the 5% trimmed means for all variables showed little differences (the largest difference was 0.16). This similarity implied that the outliers did not significantly distort the representativeness of the ordinary mean values. Hair et al. (2016) suggested that to increase the generalisability of the research, outliers should be retained where possible. As a result, no further action was undertaken.

The above screening results implied that assumptions for further multivariate analysis were not violated. Therefore, quantitative data used in this study were appropriate for factor analysis, structural equation modelling and multihierarchical linear regression.

### 4.4. Factor analysis

As discussed in Section 3.7.3.2, factor analysis in this study was conducted following a procedure suggested by Symeonaki et al. (2015). Initially, exploratory factor analysis was conducted to investigate the latent factor structure in the survey data. Then confirmatory factor analysis which examined the fit between the gathered data and theoretical constructs was carried out.

### 4.4.1. Common method bias

In particular behavioural research which uses self-reporting data is commonly subjective to common method bias. This bias is caused by measurement errors which originated from the homogeneity of method or data sources (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003); i.e., it is attributed to the measurement method rather than constructs. Therefore, prior to factor analysis, a test for common method variances has been conducted in numerous studies (e.g., Bouncken et al., 2016; Rodrigo-Alarcón et al., 2018; Tuan, 2017b).

In this study, Harman's single factor method (Harman, 1960) was employed to test for common method bias. Specifically, all of the measure items were loaded into a model in which a single latent factor explaining all observed variables. Model fits were determined by Chi-square ( $\chi^2$ ), adjusted chi-square by degrees of freedom ( $\chi^2$ /df), the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA) and the standardised root mean square residual (SRMR) (Dawn, 2010). A good fit is claimed when  $\chi^2$ /df is 3 or below, CFI and TLI are 0.90 or above, RMSEA and SRMR are 0.08 or below (Dawn, 2010; Kline, 2011; Schreiber, Nora, Stage, Barlow, & King, 2006). In this study, the single-factor examination resulted in a poor fit between the latent construct and collected data with  $\chi^2$ /df = 4, CFI = 0.569, TLI = 0.550, RMSEA = 0.108 and
SRMR = 0.108. Therefore, common method variance was not substantial in this study.

#### 4.4.2. Exploratory factor analysis (EFA)

As common method bias was not an issue, EFA using maximum likelihood method and varimax rotation were conducted on sets of items measuring the studied constructs. Regarding assumption testing, a Kaiser-Mayer-Olkin (KMO) test was carried out to examine sampling adequacy (Kaiser, 1974) while Bartlett's test (Bartlett, 1954) was employed to investigate the sphericity. The sampling is adequate when the KMO is above 0.8 (Cerny & Kaiser, 1977), while a display of sphericity is confirmed with a significant Bartlett's test result (Bartlett, 1954). Statistical significance of the EFA was investigated by factor loadings; a factor loading at 0.4 and above can be considered significant for a sample size between 200 and 250 (Hair et al., 2014). Therefore, this study used the threshold at 0.4 for suppressing items with low coefficients. The number of factors can be determined through various criteria such as priority (i.e., fixed factor number), latent root (i.e., eigenvalue), commonality (i.e., cumulative percentage of variance), scree plot examination or respondent heterogeneity (Hair et al., 2014). Combinations of conditions are recommended to avoid extractions of too few or too many factors. In this study, the number of factors was identified based on eigenvalues and percentage of variance. Specifically, only factors with eigenvalues higher than 1 were considered. Hair et al. (2014) suggested a threshold for cumulative variance at 60%. However, the items in this study originated in Western heterogenous industries while being used in a homogenous Asian market. Therefore, the collected information is understandably much less precise. Therefore, the study used a lower threshold at 50%. It means the factoring process would be stopped when extracted factors accounted for 50% of the variance of data.

The results of EFA indicated a multi-dimensional factor pattern in the quantitative data of this study (Table 4.2). The KMO value was 0.928, and the significance value of Bartlett's test was below 0.05, implying that all of the EFA assumptions were met. The analysis revealed eight factors with eigenvalues exceeding 1. However, six of them cumulatively accounted for 54.5% of the

variance. Thus, only six factors were extracted from the EFA. Specifically, 11 EO items loaded onto one factor, 19 value chain collaboration items loaded onto three factors (five were suppressed), five knowledge acquisition items loaded onto one factor (one was suppressed) and three collaborative performance items loaded onto one factor.

Variable	$\lambda_1$	$\lambda_2$	$\lambda_3$	$\lambda_4$	$\lambda_5$	$\lambda_6$
Pro[agressiveness]	0.736					
Inn[innovation.5.years]	0.732					
Inn[new.idea.trial]	0.710					
Inn[innovative.focus]	0.696					
Risk.taking[bold.exploring]	0.691					
Pro[first-mover]	0.688					
Inn[radical.innovation]	0.671					
Pro[activeness]	0.669					
Risk.taking[solution.trial]	0.666					
Risk.taking[high.risk.projects]	0.647					
Inn[new.idea.search]	0.594					
Info.Share[history]		0.717				
Info.share[inventory]		0.696				
Info.Share[price]		0.672				
Info.Share[relevance]		0.642				
Info.Share[problem]		0.639				
Info.Share[plan]		0.618				
Info.Share[schedule]		0.615				
Info.Share[price.explanation]		0.575				
Info.Share[forecast]		0.568				

Table 4.2: Exploratory factor analysis result

Variable	$\lambda_{1}$	$\lambda_2$	$\lambda_3$	$\lambda_4$	$\lambda_5$	$\lambda_6$
Incen.Align[purchase.priority]			0.646			
Incen.Align[price.guarantee]			0.620			
Incen.Align[finance]			0.615			
Incen.Align [transportation]			0.604			
Incen.Align [material]			0.603			
Incen.Align [credit]			0.573			
De.Sync[exchange.quantity]			0.474			
Collab.Perform[income]				0.810		
Collab.Perform[sale].				0.782		
Collab.Perform[goal.achievement]				0.773		
Know.Acq[technical.expertise]					0.737	
Know.Acq[new.product]					0.721	
Know.Acq[marketing]					0.697	
Know.Acq[management]					0.591	
Know.Acq[manufacturing]					0.591	
Know.Acq[problem-solving]						
De.Sync[payment]						0.702
De.Sync[price]						0.544
De.Sync[product.range]						0.452
De.Sync[forecast]						0.430
Info.Share[quality]						
De.Sync[quality.requirements]						
Info.Share[goal.agreed]						

Thus, the EFA uncovered a structure about the latent factors onto components which was consistent with the constructs defined in Chapter 2. Factors extracted by EFA mainly derived from statistical results rather than theory. This technique determines the latent factors by underlining patterns of data without a preconceived notion of the number or structure of the factors. However, a factor can only be established if it has both empirical and conceptual support (Hair et al., 2014). Therefore, confirmatory factor analysis was conducted to assess how the collected data fitted the theoretically defined constructs.

## 4.4.2. Confirmatory factor analysis (CFA)

All observed variables were subjected to a designed CFA model. The model encompassed six theoretically defined constructs in the research and their pair correlations (i.e., "EO", "Information sharing", "Incentive alignment", "Decision synchronisation", "Knowledge acquisition" and "Collaborative performance"). Table 4.3 summarises the results of the CFA.

Variable	Loading	Communality	Acceptable
EO			
- Inn[innovation.focus]	0.652	0.425	Yes
- Inn[new.idea.trial]	0.696	0.484	Yes
- Inn[new.idea.search]	0.692	0.479	Yes
- Inn[innovation.5.years]	0.829	0.687	Yes
- Inn[radical.innovation]	0.771	0.594	Yes
- Pro[activeness]	0.618	0.382	Yes
- Pro[first-mover]	0.745	0.555	Yes
- Pro[agressiveness]	0.762	0.581	Yes
- Risk.taking[high.risk.projects]	0.718	0.516	Yes
- Risk.taking[bold.exploring]	0.790	0.624	Yes
- Risk.taking[solution.trial]	0.709	0.503	Yes
Information sharing			
- Info.share[inventory]	0.776	0.602	Yes
- Info.Share[problem]	0.689	0.475	Yes
- Info.Share[schedule]	0.668	0.446	Yes
- Info.Share[history]	0.843	0.711	Yes
- Info.Share[price]	0.838	0.702	Yes
- Info.Share[price.explanation]	0.672	0.452	Yes
- Info.Share[forecast]	0.516	0.266	No

Table 4.3: Confirmatory factor analysis results

Variable	Loading	Communality	Acceptable
- Info.Share[plan]	0.777	0.604	Yes
- Info.Share[quality]	0.305	0.093	No
- Info.Share[relevance]	0.351	0.123	No
Incentive alignment			
- Incen.Align[finance]	0.776	0.602	Yes
- Incen.Align[price.guarantee]	0.656	0.430	Yes
- Incen.Align[purchase.priority]	0.807	0.651	Yes
- Incen.Align[credit]	0.722	0.521	Yes
- Incen.Align[material]	0.688	0.473	Yes
- Incen.Align[transportation]	0.595	0.354	Yes
- Incen.Align[goal.agreed]	0.216	0.047	No
Decision synchronisation			
- De.Sync[product.range]	0.705	0.497	Yes
- De.Sync[price]	0.722	0.521	Yes
- De.Sync[exchange.quantity]	0.758	0.575	Yes
- De.Sync[payment]	0.761	0.579	Yes
- De.Sync[forecast]	0.744	0.554	Yes
- De.Sync[quality.require]	0.114	0.013	No
Knowledge acquisition			
- Know.Acq[tech.expertise]	0.701	0.491	Yes
- Know.Acq[new.product]	0.708	0.501	Yes
- Know.Acq[management]	0.746	0.557	Yes
- Know.Acq[marketing]	0.714	0.510	Yes
- Know.Acq[manufacturing]	0.622	0.387	Yes
- Know.Acq[problem.solving]	0.213	0.045	No
Collaborative performance			
- Collab.Perform[sales increase].	0.874	0.764	Yes
- Collab.Perform[cost reduction]	0.884	0.781	Yes
- Collab.Perform[goal.achievement]	0.896	0.803	Yes

It was revealed that the data fitted quite well hypothesised constructs with  $\chi^2/df$ = 1.81, CFI=0.892; TLI = 0.883; SRMR = 0.07 and RMSEA = 0.059. Communality is calculated by the square of the factor loadings. This parameter represents the share variance between observed variables and corresponding factors (Fabrigar & Wegener, 2012). In a reflective model, it determines how much of the variation in an observed variable is explained by its latent factor. This study used the rule-ofthumb that a variable is valid when its communality is at least 0.4 (Hair et al., 2014). There were nine items which failed to meet this condition: Pro[activeness], Info.Share[forecast], Info.Share[quality], Info.Share[relevance], Incen.Align[transportation], Incen.Align[goal.agreed], De.Sync[quality.require], Know.Acq[manufacturing] and Know.Acq[problem.solving]. However, the retaining or suppression of these variables does not solely rely on the communality. Hair et al. (2016) said that a variable should only be suppressed if the suppressing leads to an increase in the latent factor's composite reliability. In this study, the construct reliabilities did not increase when suppressing Pro[activeness], Incen.Align[transportation] and Know.Acq[manufacturing]. Thus, these items were retained while the others were suppressed.

Taken together, both EFA and CFA showed consistent results about the latent factor structure in the quantitative data set of this study; thereby confirming the validity of the subscales (Symeonaki et al., 2015). Particularly, there were six firstorder constructs extracted by factor analysis included "EO", "Information sharing", "Incentive alignment", "Decision synchronisation", "Knowledge acquisition" and "Collaborative performance". Items establishing the constructs were those being retained in both EFA and CFA; i.e., their loadings were empirically achieved and theoretically supported. In the next sections, construct reliability and validity are examined before the description of the constructs.

#### 4.5. Construct reliability

Reliability of a construct is demonstrated by the internal consistency amongst items measuring it (Hair et al., 2014). The two popular measures diagnosing this consistency are Cronbach's alpha and composite reliability. Cronbach's alpha (Cronbach, 1951), which is the result of a tau-equivalency reliability test, is the most popular diagnostic measure for factor reliability (Cho, 2016). Meanwhile, composite reliability is commonly used in structural equation models (Bagozzi & Yi, 1988). A construct is reliable when its Cronbach's alpha or composite reliability is 0.7 or above (Hair et al., 2014).

Table 4.4 records the reliability of the extracted constructs.

Construct	Cronbach's	Composite
	alpha	reliability
ЕО	0.926	0.925
Information sharing	0.900	0.899
Incentive alignment	0.877	0.878
Decision synchronisation	0.833	0.846
Knowledge acquisition	0.817	0.827
Collaborative performance	0.913	0.915

## Table 4.4: Reliability of constructs

Based on the results of CFA and EFA, items which loaded onto each of the constructs (i.e., EO, information sharing, incentive alignment, decision synchronisation, knowledge acquisition, collaborative performance and financial performance) are separately subjected to computations of the Cronbach's alpha and composite reliability. It appears that the alphas ranged from 0.817 to 0.926, and composite reliabilities ranged from 0.827 to 0.925, which suggests that both surpass the suggested threshold. Therefore, all the constructs in this study were reliable.

#### 4.6. Construct validity

Construct validity refers to the degree to which indicators measure the constructs they intend to measure (Hair et al., 2014). There are two types of validity which are commonly used in behavioural sciences, namely convergent validity and discriminant validity. Regarding the former, it is established when measures which are theoretically related are related in reality. The average variance extracted (AVE) is one of the most popular indices to examine convergent validity. It is a ratio between the variance captured by a construct and the amount of variance caused by its measurement errors (Fornell & Larcker, 1981). The AVE was determined by the formula:

$$AVE = \frac{\sum_{i=1}^{k} \lambda_i^2}{\sum_{i=1}^{k} \lambda_i^2 + \sum_{i=1}^{k} Var(e_i)}$$

\*: *k* is the number of items while  $\lambda_i$  is the factor loading and  $Var(e_i)$  is the variance of the error of item *i* 

The minimum required value of AVE is 0.5, which shows that the construct explains more than half of the total variance of the data (Fornell & Larcker, 1981). In this study, most of the AVE of the constructs exceeded this threshold except the "Knowledge acquisition" which fell slightly below (Table 4.5).

Discriminant validity demonstrates the distinctness between two concepts which are similarly conceptualised (Hair et al., 2014). It represents the degree to which a measure is more correlated to its factors than other constructs. This validity displays when the square root of the AVE of every construct is larger than its correlations with other constructs (Fornell & Larcker, 1981). In this study, the discriminant validity is established as shown in Table 4.5. These tests suggest that the constructs in this study were valid.

	AVE	[1]	[2]	[3]	[4]	[6]	[7]
EO [1]	0.530	0.732					
Information sharing [2]	0.532	0.476	0.729				
Incentive alignment [3]	0.510	0.436	0.668	0.714			
Decision synchronisation [4]	0.545	0.460	0.632	0.685	0.747		
Knowledge acquisition [6]	0.489	0.387	0.298	0.359	0.282	0.700	
Collaborative performance [7]	0.782	0.503	0.498	0.403	0.412	0.456	0.885

#### Table 4.5: Construct validity

\* Values in the bold diagonal line presented the square root of factors' AVE.

## 4.7. Extracted constructs

Since the factor analysis and subsequent examinations displayed the reliability and validity of the latent factors in the quantitative data, the next section describes the six constructs successfully established in this study.

## 4.7.1. EO

There existed a single EO factor which caused changes in 11 indicators in this study. These observed variables represented innovativeness, proactiveness, and risk-taking propensity of the actors in the beef value chain (Table 4.6). Specifically, items purporting to measure innovativeness include the inclination to change current business practices, the search for and acceptance of novel ideas and the adoption of innovations which significantly changed the actor's business in the last five years. Items purporting to measure proactiveness consisted of the initiation of competitive actions, the early adoption of innovations and the undertaking of aggressive activities. Risk-taking items reflected the concurrent investment in projects having high levels of risks, fast and bold explorations of business environments and introducing solutions when facing uncertainty.

Variable	Item
Inn[innovation.focus]	A focus on innovative ways of doing business
Inn[new.idea.trial]	Acceptance of innovative ideas
Inn[new.idea.search]	New ideas search
Inn[innovation.5.years]	Innovation adoption in the last five years
Inn[radical.innovation]	Adoption of radical innovation
Pro[activeness]	Initiation of actions forcing competitors to respond
Pro[first-mover]	The first introducer of innovations
Pro[agressiveness]	The undertaking of competitive actions
Risk.taking[risky.plans]	Investment in high-risk plans
Risk.taking[bold.exploring]	Fast and bold surrounding exploration
Risk.taking[solution.trial]	Conduct first trials in uncertain situations

Table 4.6: EO	measures
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#### 4.7.2. Information sharing

Out of 24 items measuring value chain collaboration, five were found to have either low correlations with or cross-loadings onto latent factors. The remaining 19 observed variables loaded onto three constructs. This pattern implies that value chain collaboration in the beef cattle value chain encompassed three dimensions: information sharing, incentive alignment and decision synchronisation.

Specifically, seven measures loaded onto the "Information sharing" construct (Table 4.7). They presented the flows of different types of data within the beef value chain. Shared information consisted of inventory status, product quality, current business difficulties, plans and market intelligence.

Variable	Item
Info.share[inventory]	Share of inventory information
Info.Share[problem]	Share of business problems
Info.Share[schedule]	Share of schedule
Info.Share[history]	Share of product quality information
Info.Share[price]	Share of market price
Info.Share[price.explanation]	Share of reasons for price changes
Info.Share[plan]	Share of long-term plans

Table 4.7: Information	sharing measures
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#### 4.7.3. Incentive alignment

Incentive alignment was reflectively measured by six items (Table 4.8). They were agreements between the beef chain actors on some aspects encompassing the provisions of assistance (financial and non-financial), guarantees on appropriate pricing and commitments to the partnership. These compromises indicated the willingness of the beef chain parties to act towards mutual goals as their incentives are aligned.

Variable	Item
Incen.Align[finance]	Agreement on financial assistance
Incen.Align[price.guarantee]	Agreement on price guarantees
Incen.Align[purchase.priority]	Agreement on sustaining partnership
Incen.Align[credit]	Selling product on credit
Incen.Align[material]	Agreement on input provision
Incen.Align[transportation]	Agreement on sharing the cost

## Table 4.8: Incentive alignment measures

## 4.7.4. Decision synchronisation

Decision synchronisation was loaded by four items (Table 4.9) representing a collective mechanism of the decision-making in the beef value chain. The degree of synchronisation of decisions by value chain actors was indicated by how decisions about the product range, price, payment method and demand forecast were made jointly by all parties.

Variable	Item
De.Sync[product.range]	Joint decision on the product range
De.Sync[price]	Joint decision on price
De.Sync[payment]	Joint decision on payment method
De.Sync[forecast]	Joint forecasting of market demand

Table 4.9: Decision synchronisation measures

## 4.7.5. Knowledge acquisition

Knowledge acquisition was measured by five items in this study (Table 4.10). These items were the degree to which actors in the beef value chain acquired technical expertise, product development skills, managerial methods, marketing knowledge and manufacturing skills from their partners. These measures indicated how the actor's knowledge base was broadened when collaborating in the value chain.

Variable	Item
Know.Acq[tech.expertise]	Acquisition of technical expertise
Know.Acq[new.product]	Acquisition of new product development skills
Know.Acq[management]	Acquisition of managerial techniques
Know.Acq[marketing]	Acquisition of marketing expertise
Know.Acq[manufacturing]	Acquisition of manufacturing skills

## Table 4.10: Knowledge acquisition measures

## 4.7.6. Collaborative performance

Finally, three collaborative performance items significantly loaded onto a single construct (Table 4.11). They are benefits achieved when actors in the studied value chain sustained collaborative relationships. The benefits consisted of increases in sales, reductions of cost and achievement of strategic goals.

Variable	Item	
Perform[sale.increase].	Sales increases due to collaboration	
Perform[cost.reduction]	Cost reduction due to collaboration	

Strategic goal achievement due to collaboration

## Table 4.11: Collaborative performance measures

#### 4.8. Descriptive statistics

Perform[goal.achievement]

The scales of the constructs extracted from the factor analysis were computed by averaging the corresponding item scores. This aggregation transformed the observed ordinal scores into continuous construct scales (Harpe, 2015) which allowed the use of parametric analysis (i.e., hierarchical regression modelling in Chapter 6) (Hill, Griffiths, & Lim, 2017). Then, the collaboration index was generated as the average of the scales of the three components (i.e., information sharing, incentive alignment and decision synchronisation) as suggested by Simatupang and Sridharan (2005).

Table 4.12 describes the descriptive statistics of the construct scales. Overall, all of the mean values were between 2 and 3. The standard deviations below 1 (expect for collaborative performance) indicated strong concentrations of data around the mean values. Additionally, there were wide data ranges for all constructs showing a relatively big difference among respondents. Some people reported very low scores, whereas some others scored at the opposite extreme.

Construct	Mean	S.D.	Range
EO	2.49	0.69	1.36 - 4.27
Information sharing	2.61	0.85	1.00 - 4.43
Incentive alignment	2.44	0.71	1.17 - 4.33
Decision synchronisation	2.69	0.78	1.00 - 4.50
Collaboration index	2.58	0.68	1.33 - 4.37
Knowledge acquisition	2.08	0.67	1.00 - 3.80
Collaborative performance	2.69	1.06	1.00 - 5.00

Table 4.12: Descriptive statistics of the construct scales

#### 4.9. Chapter discussion

The main objective of Chapter 4 is to establish the reliability and validity of the constructs studied in this research. Overall, it revealed that the latent factor structure in the collected data is consistent with theoretically defined constructs.

Specifically, the loading mechanism of EO was consistent with Miller (1983) and Covin and Slevin (1991) who measure the construct as a reflective first-order construct (Covin & Wales, 2011). This result is also consistent with the majority of previous EO studies across industries including agriculture (Grande et al., 2011; Micheels & Boecker, 2017; Mirzaei et al., 2016; Veidal & Flaten, 2014). Thus, entrepreneurial beef value chain actors in the Central Highlands, Vietnam pose similar characteristics to a typical enterprising firm.

In the studied beef value chain, it appears that collaboration was constituted by three components, namely information sharing, incentive alignment and decision synchronisation. This loading pattern corroborates the propositional measure suggested by Simatupang and Sridharan (2005). It is consistent with a large number of empirical research studies modelling value chain collaborations (Ma et al., 2018), particularly in agriculture (Naspetti et al., 2011; Rota et al., 2016).

Regarding knowledge acquisition, the establishment of the construct in this study is consistent with that found in previous studies in emerging economies (Jiang et al., 2016; Tsang et al., 2004). In these countries, many types of knowledge could be acquired through value chain cooperation such as technical expertise, marketing intelligence and managerial skills.

Finally, collaborative performance was successfully established in this study which is consistent with Ariño (2003); Kale et al. (2002). Benefits which actors could obtain from value chain collaboration are at both operational and strategic levels. They might range from profit margin increases to goal achievements.

#### 4.10. Chapter summary

This chapter reported the demographic characteristics of surveyed participants as well as the psychometric analysis of the quantitative data. Overall, the data were collected from actors participating in all stages of the studied beef value chain. Assumptions about the normality of distribution as well as outliers were not substantially violated. Exploratory and confirmatory factor analysis revealed a multi-dimensional latent variable structure. Notably, there existed six constructs in the data set as suggested by the literature, namely, "EO", "Information sharing", "Incentive alignment", "Decision synchronisation", "Knowledge acquisition" and "Collaborative performance". All the constructs were found to be reliable and valid.

Based on the above, multivariate analysis was carried out and is reported in the sequential chapters ( Chapters 5,6 and 7). Each of these examines the data analysis and results for one or two SRQs. Particularly, Chapter 5 demonstrates the analysis and results responding to SRQ1; Chapter 6 provides answers to SRQ2 and SRQ3, and Chapter 7 presents findings on SRQ4.

# Chapter 5: Analysis and results – value chain collaboration and entrepreneurial orientation

## 5.1. Introduction

Chapter 5 depicts the data analysis and results in a response to the SRQ1 in this study which is 'How do value chain collaboration components affect the actor's level of EO in agricultural value chains?'.

EO was defined as a strategic posture of firms towards favouring renewals and rejuvenations (Covin & Slevin, 1991). The performance consequences of this enterprising posture are widely recognised, but its antecedents are still relatively ambiguous (Wales et al., 2013). Social capital, particularly business networks, have been a commonly-studied antecedent of EO (Rodrigo-Alarcón et al., 2018; Stam et al., 2014; Stam & Elfring, 2008). Under the dynamic capability view, vertical partnerships that promoted the reconfiguration of resources (Allred et al., 2011; Fawcett et al., 2011) is theoretically associated with firms' EO (Teece, 2007). However, the effects of value chain collaboration components on EO were not empirically examined (Chapter 2).

Using quantitative data collected from the beef value chain in the Central Highlands, Vietnam, this chapter tested the hypotheses, which are:

- H1a: The actor's level of EO is positively related to the information sharing in the beef value chain.
- H1b: The actor's level of EO is positively related to the incentive alignment in the beef value chain.
- H1c: The actor's level of EO is positively related to the decision synchronisation in the beef value chain.

Likewise, qualitative data analysis offers insights into the first explanatory question:

Ex-Q1: What are the risks encountered by actors in the beef value chain?

#### 5.2. Data analysis and results

#### 5.2.1. Quantitative results

The relationships between the collaboration components and EO were examined by structural equation modelling. Goodness-of-fit indices indicated that the quantitative data in this study fitted the model well. Specifically, the  $\chi^2/df$  was 1.8, much lower than the suggested benchmark of 3.0. The CFI and TFI were 0.920 and 0.912, respectively, which exceeded the minimum required value of 0.90. Also, the RMSEA (0.059) and SRMR (0.062) were under 0.08.

Regarding path analysis, Table 5.1 indicates the standardised coefficients of the path from the collaboration components to EO. It appears that there was a significant positive relationship between information sharing and EO ( $\beta = 0.265$ , p-value = 0.013). Actors who received more information from buyers and sellers demonstrated a greater level of EO. Meanwhile, the path from incentive alignment and EO was not found significant ( $\beta = 0.148$ , p-value = 0.296). In the study's value chain, the incentive-aligning agreements did not influence the actor's level of EO. Finally, the relationship between decision synchronisation and EO were significant with  $\beta = 0.237$  and p-value = 0.070. This p-value indicated a relative association (at 10% significance level) between the synchronised decision-making mechanisms in the beef value chain and the level of EO demonstrated by the actors.

Hypothesis Path			Std.	p-	Conclusion
	From	То	β	value	
H1a	Information sharing	EO	0.265	0.013	Supported
H1b	Incentive alignment	EO	0.148	0.296	Rejected
H1c	Decision synchronisation	EO	0.237	0.070	Weakly
					supported

Table 5.1: Value chain collaboration	components and EO	path analysis
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#### 5.2.2. Qualitative results

All participants of the follow-up interviews indicated that risks were their primary concern when undertaking entrepreneurial actions. Specifically, they identified three major types of risks which, in descending order of severity, were market turbulence, natural factors and family issues. Table 5.2. summarises these entrepreneurial risks categorised by reporter groups.

The unpredictability of beef price and demand was the biggest risk faced by chain actors when investing in new ventures. This type of risk was reported by 13 out of 15 interviewees ranging from smallholder farmers to large wholesalers. Natural factors were the second-largest uncertainty that was mentioned by more than half of the total respondents. Finally, six out of 15 interviewees indicated that family issues might also affect the outcomes of entrepreneurial actions.

	Market turbulence	Natural factors	Family issues
Farmers	5 (5)	4 (5)	4 (5)
Middlemen	4 (5)	2 (5)	1 (5)
Wholesalers	1 (2)	1 (2)	0 (2)
Retailers	3 (3)	1 (3)	1 (3)
Total	13 (15)	8 (15)	6 (15)

Table 5.2: Risks faced by beef value chain actors<sup>2</sup>

#### a. Market turbulence

The fluctuation of beef price in the studied site occurred both seasonally and unexpectedly. For instance, the Lunar New Year holiday was often the time when

<sup>2</sup> Numbers outside the brackets indicate the number of respondents mentioned the risk; the numbers inside parentheses indicate the total number of interviewees.

the price increased by 20% while typically the period from July to September experienced beef prices dropping by approximately 15%. In addition, sudden price falls had been happening more regularly as large companies established feedlotscaled farms to supply Buon Ma Thuot city, the primary market of the studied value chain. A retailer said:

"It is much harder to predict the price now than in the past. Beef used to be one of the most stable-priced products. However, I don't know what happened in the last three years. The price goes up and down on a daily basis. Even in Lunar New Year, the price usually went up but for last year, it was unchanged" – Interviewee #13

For upstream actors (i.e., farmers), price changes were perceived over a longer period (e.g., months or years). The reason was that a beef farmer often sells cattle every two to three months. Thus, they might not keep track of market prices as regularly as other actors. A farmer said:

"Before 2015, the average price of live cattle was around 70 thousand VND per kg. However, the price was dropped to below 50 thousand VND per kg from 2015 to 2017. Since 2017, the price has slightly risen to 55 – 60 thousand VND per kg" - Interviewee # 1.

Beef price volatility caused both sinking-the-boat (or bankrupting the enterprise) and missing-the-boat (or losing market position due to not acting on emerging opportunities) risks (e.g., Dickson & Giglierano, 1986). The former risk pertains to financial losses when value chain actors could not rapidly reduce their output of beef to react to a decrease in prices. The latter occurred when actors were unable to increase their production to seize opportunities brought by price rises. Amongst actors, farmers were more sensitive to market turbulence risks than others due to a longer capital return cycle. On average, a farmer needed three months to fatten cattle to the minimum required weight (around 300kg). During this time, they invested a considerable amount of money and other resources. Meanwhile, other actors (e.g., traders) only kept the cattle from one to two days before selling them, which significantly reduced their exposure to price risk. Even if these actors lost money, they also had a higher capacity for recovering. A farmer said: "I know some of my neighbours bought more cattle in September and October in preparation for Lunar New Year. But I don't. Last time I did it, the price did not increase. Thus, now I decided to keep my production stable. That chance is not worth it for me to invest more money." -Interviewee # 3.

Meanwhile, a trader said:

"That is a part of my job to predict when and how strongly the price falls and rises. If I lose today, I can earn back tomorrow. Obviously, I don't want the price to fall, but I am not too worried. I have lost a lot but also earned a lot." -Interviewee # 8.

## b. Natural factors

"Natural factor" risks involved unfavourable (and extreme) weather conditions that might interrupt forage supply or cause diseases in cattle. The farmers in the value chain studied largely have free-range grazing where most farmers do not intensively grow and store forage. Thus, the supply of cattle feed is considerably dependent on natural conditions such as temperature, rainfall and humidity. The uncertainty in forage due to a dependency on grazing can lead to the failure of popular entrepreneurial initiatives such as cattle breed enhancements or increasing the scale of production. However, these actions usually required more feed for cattle. In addition, some of the cattle breeds grazed were not suitable for the local conditions and caught diseases easily. A farmer said:

"Many scientists have come and introduced new, potential cattle breeds. However, just a few of us [farmers] could provide enough forage, especially in drought years. Also, these cattle easily got the disease when vaccines were not always available." - Interviewee # 2.

Another farmer said:

"The biggest reason that I could not raise more cattle is the lack of forage. You can see that I am not growing forage so that I am not sure how I can feed more cattle." - Interviewee # 6. Not only farmers but also downstream actors perceived that extreme weather might prevent the success of their new ventures. For traders and wholesalers, unfavourable weather that interrupted the supply of cattle might constrain their new marketing initiatives. The supply interruption often resulted in a decrease in both the quantity and the quality of cattle. A wholesaler said:

"I wasted my money and time working with hotels when I did not know that my traders could not provide enough [of the] required amount of beef due to lack of forage [caused by a severe drought]." - Interviewee #12.

#### c. Family issues

Finally, 'family issues' risk referred to large, unexpected expenditures occurring in the actors' households. This risk was mostly perceived by farmers while being less common for downstream actors. It was caused by a deep attachment of cattle production to farmers' households. More than just a business, growing cattle is a source of status and wealth of most farmers. It was the only or the largest source of their family income. Therefore, farmers used a majority of their household budget on feeding and caring for the cattle. Additionally, they lived in poverty and had little or no access to emergency savings or health insurance. Hence, financial shocks (e.g., member hospitalisation) significantly reduced the available resources for new ventures. This strong tie between cattle production and the family also increased the farmers' fear of failure, preventing them from undertaking entrepreneurial actions. A farmer said:

"It is too risky for me to change. If I fail, my family will be in big trouble." - interviewee # 3.

#### 5.2.3. Mixed methods inferences

Overall, the quantitative results showed that components of value chain collaboration influenced the actors' level of EO to different extents. Specifically, information sharing was found to have a significant effect while incentive alignment and decision synchronisation had no or weak influences on the actor's level of EO. The qualitative findings shed light on the quantitative piece by revealing three types of risks encountered by the beef value chain actors when undertaking entrepreneurial actions.

An increase in the amount of vertically-shared information can reduce price variations and natural factor risks - the two most considerable uncertainties. Information from other value chain partners enhanced actors' confidence in changing their current business practices. All of the interview participants indicated their reliance on data shared by their buyers and sellers when creating a new venture. Among actors in the beef value chain, farmers benefitted most from market information shared by buyers. It reduced the potential loss caused by incorrect market timing. The average production cycle for farmers was approximately three months, during which they were relatively cut off from information on market supply and demand. Thus, it was very challenging for them to predict future market prices without help from downstream actors who were more aware of market dynamics.

Furthermore, farmers also reduced the 'natural factors' risk with the help of traders who, due to their travel, have a much more extensive professional network. For example, some farmers stated that their trader helped them contact veterinary officers for getting their cattle vaccinated. This information about the quality of cattle and supply capacity shared by farmers helped traders, wholesalers and retailers avoid marketing failures or unnecessary facility investments. For instance, traders relied on data about the size and quality of cattle to decide destinations of cattle transportation. Meanwhile, slaughterers needed to know about the supply capacity (provided by traders) and the market price (provide by wholesalers) when deciding on investing in infrastructure (e.g., housing).

Incentive alignment did not affect risk reduction for actors in the beef value chain in the Central Highlands, Vietnam. In the studied chain, mutual agreements among actors were done verbally, and parties could break them without penalties. Paper-based contracts did not exist even between traders and slaughterers, the closest partnership in the chain. Meanwhile, verbal agreements are unusable for legal disputes in Vietnam. Thus, there were no guarantees, especially when an entrepreneurial action failed. Combined with loose legal contracts, low levels of trust significantly decreased the confidence of parties about the undertaking of agreed duties. Most of the interviewed participants said they had little trust in their partners' integrity. Therefore, they brought a win-lose mindset to the cooperation and competed against other value chain partners to gain as many benefits as they could. A consequence of this benefit-driven mechanism was the regular occurrence of agreement breaking. In such a situation, market turbulence, the most concerning risk, was barely reduced. When the prices fell, all actors were affected directly so that they became defensive and refused to help other actors cope with the price decreases.

Regarding decision synchronisation, it reduced risks of market turbulence but might raise the risk of losing autonomy for actors. The involvement of multiple parties in decision-making processes significantly decreased the chance of incorrect market timing because of the combination of expertise. Also, the capability dependence among chain actors was the reason why getting chain partners is necessary when undertaking entrepreneurial actions in the beef value chain. For instance, a trader only purchased more cattle when his partners were able to slaughter them all. If the trader kept cattle without feed on trucks overnight, the meat quality would deteriorate. Nonetheless, the domination of a partner in decision-making processes might threaten others' autonomy, and that would prevent the creation of new ventures. This risk was mostly experienced by farmers and small retailers. They were holding the weakest power positions in the value chain and were often forced to follow their partners' decisions. Therefore, their novel ideas were often not pursued, especially if they conflicted with their more powerful partner's interests.

#### 5.3. Chapter discussion

This chapter reported the analysis of quantitative and qualitative data regarding relationships between collaboration components and the actor's level of EO.

The quantitative phase revealed the importance of vertical information sharing in value chains in promoting a strategic posture of actors towards entrepreneurship. Consistent with findings of Anastasiadis and Poole (2015) and Wickramaratne et

al. (2017), information received from alliancing partners is useful for agricultural value chain actors to sense and seize opportunities. A value chain is a complex and interconnected system; thus, it is hard for any actors to go through the whole entrepreneurial processes alone. Rather, they need informational support from their buyers and sellers. Taking a whole-of-chain perspective, this finding implies that the configuration of complementary information held by upstream and downstream actors is critical for the implementation of the strategic renewal or rejuvenation of a value chain.

previous research explained this linkage by enhancements of While innovativeness (Soosay et al., 2008) or proactiveness (Liao et al., 2003), this study particularly looks at the risk-reduction mechanism of vertical information distribution in the qualitative phase. Beef chain actors in the Central Highlands, Vietnam, encountered common risks faced by agricultural businesses including farms in emerging countries such as price fluctuations (Salimonu & Falusi, 2009), natural factors (Bishu et al., 2018) and family issues. However, two out of the three above risks were reduced by the gathering of information from value chain partners. This finding corroborates the work of Janney and Dess (2006) about the role of external informational resources in reducing entrepreneurial risks. Risks were reduced as a result of vertical information distribution. Firstly, the configuration of technical know-how and market intelligence considerably improve both 'technical' and 'evolutionary' fitness of new capabilities (Helfat et al., 2007; Teece et al., 1997). Therefore, vertical information sharing maximises the consumer value provided by innovations which helps all actors in the value chain perform better. Secondly, the distribution of informational resources helps reduce the chances of overlooking profitable opportunities. Frequent information sharing assists value chain partners to continuously compare market trends and their capability of providing appropriate products – the two elements comprising business opportunities.

Regarding the incentive alignment and decision synchronisation, the quantitative results indicated that these processes have either no or little influence on the actors' level of EO. These findings are consistent with Rowley (1997); Scriboochitta

and Wiboonpoongse (2008) that, in some circumstances, the involvement of an alliance partner is not helpful to the performance of entrepreneurial activities. Nonetheless, unlike the above authors' arguments suggesting that extreme dependency and reciprocity ameliorated performance, this study indicated that a lack of trust and lack of enforceable agreements contribute to lower overall value chain performance. Unfortunately, both the lack of trust in the other value chain partners and the inability to efficiently enforce contacts are prevailing characteristics of smallholder commodity-based value chains (Anastasiadis & Poole, 2015; Trienekens, 2011). Actors in these chains often cooperate in shortsighted, transactional governance (Arend & Wisner, 2005); thus, it follows that they will engage in rent-seeking behaviour within their value chain. Likewise, due to ineffective commercial regulations and contracts typical of many emerging countries, agreements amongst smallholder business parties in the agricultural sector can be broken without consequences. The breaking of these verbal contracts is especially likely to happen when parties are faced with financial loss resulting from a venture failure.

It is worth noting that this study does not negate Rowley (1997)'s and Scriboochitta and Wiboonpoongse (2008)'s points of view. Instead, it strengthens their perspectives by the addition of situations in which vertical cooperation fails to encourage entrepreneurial actions. Value chain actors' EO might not be promoted by either over-restricted or over-loose vertical relationships. Thus, all is about the balance, with mechanisms to ensure agreement enforcement and decision synchronisation set at appropriate levels that provide both sufficient support for contact enforcement, but room for autonomous actions. Both extremes of the restriction continuum might limit the EO of the actors and the EO of the whole value chain.

### 5.4. Chapter summary

The chapter reported the data analysis and results for SRQ1 and initially discussed the findings. The results indicated that the distribution of information in value chains is positively associated with the entrepreneurial posture demonstrated by actors. The qualitative data provide explanations for this association through a risk-reduction mechanism. Accordingly, actors in agricultural value chains often encounter entrepreneurial risks caused by market turbulence, natural factors or family issues. Vertical information sharing reduced the entrepreneurial risks in value chains, thereby facilitating the development of EO. However, aligning incentives and synchronising decisions to develop EO had no or weak support in the studied transaction-based value chain. In combination with the previous studies (Rowley, 1997; Scriboochitta & Wiboonpoongse, 2008), the research suggests a balance in which value chain collaboration can be helpful for EO enhancement.

Since this chapter has investigated the origins of EO, the next chapters explore its consequences at a value chain level. Chapter 6 will explore the effects of actors' EO on the acquisition of knowledge in value chains, while Chapter 7 examines the impacts of the posture on collaborative performance.

## Chapter 6: Analysis and results – entrepreneurial orientation and learning in value chains

#### 6.1. Introduction

Chapter 6 explores the relationship between EO and learning in agricultural value chains. The chapter particularly responds to SRQ2 and SRQ3:

SRQ2: What is the relationship between the actor's level of EO and knowledge acquisition in agricultural value chains?

SRQ3: How does value chain collaboration influence the linkage between EO and knowledge acquisition in agricultural value chains?

Knowledge acquisition in value chains relies on both actors' desires for learning and the distribution of knowledge in the system (Whitehead et al., 2019); in this study, the actor's eagerness to acquire knowledge plays a decisive role. EO is strongly related to the enthusiasm for learning (Kreiser, 2011). Meanwhile, value chain collaboration is a great mechanism for distributing information which is the core input of a learning process (Spekman et al., 2002). Thus, when entrepreneurial firms participate in value chains, they might leverage collaboration linkage and acquire a substantial amount of knowledge (Chapter 2). Using data gathered by the survey on actors in the beef value chain in the Central Highlands, Vietnam, this chapter tests the two following hypotheses:

H2: Knowledge acquisition is positively related to the actor's level of EO in the beef value chain.

H3: Value chain collaboration moderates the relationship between EO and knowledge acquisition in the beef value chain.

#### 6.2. Data analysis and results

The direct influence of EO on knowledge acquisition as well as its moderating effect of value chain collaboration on this linkage were examined through hierarchical regression analysis.

The analysis was carried out through four sequential regression models using ordinary least square methods (Table 6.1.). Knowledge acquisition was the dependent variable regressed by casual, control and moderating variables. Casual variables consisted of EO and collaboration index. Meanwhile, control variables were the actors' characteristics which might affect their learning capacity. The models controlled for age (years old), experience (number of years working in the beef industry) and education level (number of schooling years) of participants. The moderating variable was generated by the EO multiplied by collaboration index.

Model 1 only regressed control variables to knowledge acquisition. In Models 2 and 3, EO and collaboration index were respectively added. Finally, Model 4 entirely encompassed the control, the causal variables and the moderation term.

The validity of coefficients produced by the models relies on the compliance of data with a number of assumptions. They include the 'zero' mean of residuals, the constant variance of errors (i.e., the assumption of homoscedasticity) and the normality in error distribution (Hill et al., 2017).

The above assumptions were tested in this study. The existence of intercepts across the four models indicated that the residuals had an average of 'zero' in all of the models. The White test for heteroscedasticity resulted in a not significant test statistic (F-value = 1.97; p-value = 0.14) which implied that the regression models have constant variances of errors (White, 1980). The Shapiro-Wilk test for normality resulting in a p-value below 0.05 indicated a non-normal distribution of disturbances (Shapiro & Wilk, 1965). However, the visual investigation by histograms showed that the actual distribution of errors was not too divergent from a normality curve. The difference might be caused by the relatively small sample size of this study. Therefore, it is reasonable to conclude that no assumptions of the regression models were "best linear unbiased estimators" (i.e., BLUE) according to the Gauss-Markov theorem.

Another concern when using regression models is multicollinearity. In this study, the multicollinearity was detected through variance inflation factors (VIFs). In all of the four models, the highest VIF was around 1.74, which was much lower than the suggested rule-of-thumb threshold of 10 (Hair et al., 2014). Thus, multicollinearity was not substantial in this study.

	Knowledge acquisition <sup>3</sup>			
	Model 1	Model 2	Model 3	Model 4
Intercept	0.971*	0.715*	0.699*	0.698*
Age	0.002	0.003	0.003	0.004
Experience	0.027*	0.021*	0.018*	0.018*
Education	0.058*	$0.037^{+}$	0.036+	0.042*
EO	-	0.228*	0.197*	0.204*
Collaboration index	-	-	0.128	0.181
[EO x Collaboration index]	-	-	-	0.224*
<i>F-value</i>	12.82*	13.43*	10.96*	10.51*
$R^2$	0.144	0.190	0.194	0.218
$Adjusted \ R^2$	0.133	0.178	0.177	0.197
$R^2change$	-	0.047*	0.004	0.024*

#### Table 6.1: Hierarchical regression model results

Results of the hierarchical regression analysis are presented in Table 6.1. The significance of R<sup>2</sup> changes (except between Model 2 and Model 3) indicated that the addition of variables helped improve the variance of the dependent variable explained. Regarding hypothesis testing, it appears that the direct effect of EO on knowledge acquisition was significant (Model 2:  $\beta = 0.228$ , p-value < 0.05; Model 3:  $\beta = 0.197$ , p-value < 0.05; Model 4:  $\beta = 0.204$ , p-value < 0.05). Therefore, H2 was supported. Entrepreneurial actors in the beef value chain demonstrated higher learning capabilities than conservative actors. Additionally, the relationship between the moderating variable and knowledge acquisition was significant

 $<sup>^3</sup>$  (\*): coefficients were significant at 95%. (+): coefficients were significant at 90%.

(Model 4:  $\beta = 0.224$ , p-value < 0.05); supporting H3. Vertical collaboration strengthened the linkage between EO and knowledge acquisition. Stated differently, when sustaining a vertical collaborative partnership, actors with high EO in the beef value chain demonstrated the highest learning capabilities. To further present this moderation, a simple plotted graph is shown in Figure 6.1. following the procedure suggested by Preacher, Curran, and Bauer (2006).



Figure 6.1: Moderating effect of collaboration on EO - knowledge acquisition relationship

In terms of control variables, age was found to have no relationship with knowledge acquisition. Meanwhile, the relationships of experience and education were significant in all of the models. It appears that actors who had either worked longer in the beef industry or had higher education levels were able to acquire more knowledge when collaborating in the value chain.

### 6.3. Chapter discussion

This chapter examined the relationship between EO and knowledge acquisition in agricultural value chains and the moderating role of collaboration on this linkage.

It appears that the value chain members' entrepreneurial posture directly increases the amount of knowledge they acquired from buyers and sellers. This finding is consistent with previous studies (Gellynck et al., 2015; Micheels & Gow, 2015) that enterprising agricultural owner-managers (including farmers) learn

more effectively than conventional ones. With a strong belief in the value of new expertise and skills, entrepreneurial value chain actors create and engage in learning activities (Lans et al., 2014). Specifically, they might raise several questions, actively discuss ideas, as well as purposely repeat the interactions. Moreover, these actors are more willing to spend time and effort on broadening their networks. Compared with conservative actors, they more commonly establish and maintain connections with value chain actors beyond the next tiers. This networking brings excellent opportunities for learning, especially about the operation of the whole value chain. Another big difference between entrepreneurial and conservative chain actors is the amount of knowledge they gain from learning-by-doing. Entrepreneurial firms are also more willing to do experiments due to their higher risk-taking propensity (Bierly et al., 2009; Hughes et al., 2007). Thus, they are usually in the group who proactively try out the information received from value chain partners and change current practices. They might fail many times, but they also have chances to learn from the failures. Eventually, the enterprising actors are more able to obtain in-depth know-how, whereas conventional ones just have a basic understanding.

A positive moderating effect of value chain collaboration on the EO - knowledge acquisition relationship was found. The results suggested that entrepreneurial firms learn most effectively when maintaining collaborative partnerships with their buyers and sellers. It is consistent with Kreiser (2011) that the effectiveness of EO on acquisitive learning is proportional to the firm's network closure. However, the finding of this study is slightly different from Jiang et al. (2018) who claimed that a moderate level of business ties is the most favourable antecedent for the acquisition of external resources including knowledge. The difference might be because of the different scopes of the two studies. While Jiang et al. (2018)'s work took into account a number of intangible resources included finance, technologies and information; this research only examines knowledge. The most critical boundary for the learning of any firms regardless of entrepreneurial levels is the data availability; and vertical collaboration, consciously and unconsciously, enhances informational exchange. In a collaborative partnership communication occurs repeatedly and regularly, and firms are able to access the knowledge base of their partners (Inkpen & Tsang, 2005; Pagell, 2004; Spekman et al., 2002). These frequent contacts promote the transfer of both explicit and tacit information. The former is provided by talks and negotiations, whereas the latter is revealed through agreement implementations and joint ventures. Firms with high EO use this external informational resource to learn in a more efficient way than ones with low EO. An explanation can be found in Teng (2007) as entrepreneurial firms demonstrate a higher inner motivation for filling their knowledge gap through creating alliances. They demonstrate a higher ability to integrate enterprising strategic approach and external information distributed within their networks, therefore, learning better.

#### 6.4. Chapter summary

The chapter examined the relationship between EO and knowledge acquisition as well as the influence of value chain collaboration in the beef value chain in the Central Highlands, Vietnam. Using hierarchical regression modelling, a positive relationship was revealed between the firm's level of EO and knowledge acquisition in the value chain. Furthermore, value chain collaboration has a positive moderating effect on this linkage. Overall, in this study, EO demonstrated an enhancement for the transfer of knowledge; and this enhancing impact is greatest when a high level of collaboration is maintained in agricultural value chains.

## Chapter 7: Analysis and results – entrepreneurial orientation and collaborative performance in value chains

#### 7.1. Introduction

Chapter 7 reports the data analysis and discusses the findings of the fourth subsidiary research question, which is:

SRQ4: How does the actor's level of EO influence collaborative performance in agricultural value chains?

In a dynamic competition era, a successful value chain must be capable of establishing sufficient incentives for the actors to commit themselves to the improvement of the whole system (Lee, 2004). These incentives are maximised when actors can maximise the collaborative performance, the returns and benefits derived from the partnership (Simatupang & Sridharan, 2004). As outlined in Chapter 2, EO demonstrated positive performance implications at various levels ranging from firm to strategic alliances. Enterprising firms that regularly undertake innovative actions are likely to obtain operational and strategic benefits from an alliance (Micheels & Boecker, 2017; Tuan, 2017b). These outcomes might improve the performance of the partnership and the value chain as a whole.

The EO-performance positive relationship at the value chain level was largely accounted for by the sharing of resources, especially knowledge (Jiang et al., 2018). Efficiencies derived from expertise and know-how collaborative information flows were important for value chain performance improvements (He et al., 2013; Hult, Ketchen, et al., 2004). Chapter 6 revealed the positive relationship between EO and knowledge acquisition. This chapter further explores whether this enhancement eventually leads to improvements in collaborative performance.

Using data gathered from actors working in the beef value chain, the quantitative data analysis in this chapter tested two hypotheses which are:

H4: Collaborative performance is positively related to the actor's level ofEO in the beef value chain.

## H5: The knowledge acquisition mediates the relationship between EO and collaborative performance in the beef value chain.

The qualitative data analysis further sheds light on the relationship between EO and collaborative performance by answering Ex-Q2:

Ex-Q2: Besides through enhancing knowledge acquisition, how does the actor's level of EO improve collaborative performance in the beef value chain?

#### 7.2. Data analysis and results

#### 7.2.1. Quantitative results

Based on the construct verification (Chapter 4), a structural equation model using maximum likelihood method was employed to examine the hypothesised direct paths. Goodness-of-fit indices indicated that the quantitative data of this study fitted the model well. In particular, the  $\chi^2/df$  was 2.33 (below 3), RMSEA was 0.058 (below 0.08), SRMR was 0.059 (below 0.08), CFI was 0.934 (above 0.9) and TFI was 0.923 (above 0.9).

Results of the structural equation modelling were presented in Table 7.1. All of the direct paths were found significant with p-values below 0.05. Regarding size and sign of effects, there was a positive relationship between EO and collaborative performance ( $\beta = 0.456$ ). Therefore, H4 was supported. The more entrepreneurial the beef value chain actors were, the more benefits could they obtain from vertical collaboration. A significant positive association between EO and knowledge acquisition was shown in the model ( $\beta = 0.364$ ) that strengthened the findings in Chapter 6. Finally, the path analysis revealed a significant positive influence of knowledge acquisition on collaborative performance ( $\beta = 0.277$ ). The amount of knowledge acquired by beef value chain actors was positively associated with their level of success when collaborating.

At this point, mediation analysis was undertaken through a Sobel test (Sobel, 1982). This test employed the delta method (Sobel, 1982) to estimate an indirect effect between EO and collaborative performance. It appears that the indirect effect of EO on collaborative performance carried by knowledge acquisition was

significant ( $\beta = 0.101$ ; p-value = 0.02). In combination with the above significant direct effect, the result implies that knowledge acquisition partially mediated the relationship between EO and collaborative performance (Baron & Kenny, 1986), supporting H5.

Table 7.1: EO, knowledge acquisition and collaborative performanceSEM results

Path	Std.β	SE	p- value
$EO \rightarrow Collaborative performance$	0.456	0.155	< 0.05
$EO \rightarrow Knowledge acquisition$	0.364	0.079	< 0.05
Knowledge acquisition $\rightarrow$ Collaborative performance	0.277	0.154	< 0.05

In sum, quantitative data showed that EO had a strong positive association with collaborative performance in the beef value chain in the Central Highlands, Vietnam. A part of the influence was indirectly transmitted through the enhancement of knowledge acquisition. Specifically, this indirect path accounted for 21.7% (0.101 / (0.101+0.456)) of the variation of the total effect. Stated differently, knowledge acquisition explained 21.7% of the effect of EO on collaborative performance. Hence, the remaining 78.3% needed supplementary explanations.

## 7.2.2. Qualitative results

Because nearly four-fifths of the variation of the total effect of EO on collaborative performance was explained by reasons other than knowledge acquisition, followup interviews explored benefits for entrepreneurial actors which might lead to superior collaborative performance. The major benefits emerging in the talks included *Increased negotiating power*' and *Improved owner-manager brand*'. Discussed issues, codes and themes revealed by the interviews are summarised in Table 7.2.

<u>Increased negotiating power</u>. Actors who continually pursued the renewal and rejuvenation of their business practice often had more power in the relationship

than actors who did not. The higher power positions were due to product differentiation, less financial pressure and flexibility when collaborating.

Firstly, with a propensity for innovativeness, entrepreneurial actors in the beef value chain were more able to differentiate their product/service. The differentiation mainly resulted from product uniqueness and superior product quality. Actors with high EO were recognisable with unique products/services, and they were confident that their offerings could bring considerable value to their partners. Hence, they pursued and often got a higher price and more compromises from partners than their conservative peers.

Issue discussed	Code	Theme
Supply the product that competitors do not		
have	Product	
Able to provide better quality product/services	differentiation	
Able to provide product on time		Increased
Forced to sell/buy the product	Financial	negotiating
Willingness to borrow money	absorber	power
	Choice	
Proactively seek other buyers/suppliers	flexibility	
Continuously generate ideas	Intelligence	Improved
First come with a solution for problems	Intemgence	owner-
Willing to devote themselves to developing	Diligence	manager
businesses		brand

Table 7.2: Reasons for improving collaborative performance

A trader admitted that he had given more respect to the opinions of farmers who frequently had new products. He said:

"I have no reason to treat them [farmers] equally. I am more willing to give a high price to those who can provide new breed, high-quality cattle as I can earn more money from them. With ones unable to improve their cattle quality, I make a little money as slaughterers pay me less. So why should I give them a good price?" - Interviewee #9.

A farmer who demonstrated a relatively high score of EO in the survey said:

"I know that my cattle have better quality than other farmers so that I do not accept an equal price to them. I always require traders to pay me a higher price and they often accept. Through time, now they usually offer me a higher price than what they offer my neighbours." - Interviewee #1.

Secondly, it appears in the studied beef cattle value chain that actors with a relatively high level of EO had enhanced financial performance. Thus, they faced less forced-to-sell pressure because of better financial shock absorbers. As a result, they could give themselves more time when negotiating with buyers and sellers. Moreover, these actors were willing to borrow money if needed, while others stayed away from debt. Thus, they could avoid extreme financial conditions when they had to sell their cattle at any price. A farmer whose EO score was relatively low (1.8) stated:

"No, I never borrow money because I am too scared ... Also, where can I borrow? ... Banks are not kind to me. Sometimes I must sell my cattle at a price lower than my expectation but it was fine. Having debts would interrupt my life and I would be unable to sleep at night."- Interviewee #3.

Thirdly, the proactiveness of entrepreneurial actors helped reduce their dependence on the main partner. These actors often maintained more connections with buyers or sellers than conservative ones. This diversification assisted them not only to gather more information but also to refuse inappropriate requests from partners. A relatively conservative farmer stated in the interview:

"My trader is always unfair to me. He tries to lower the price as much as possible every time and never accepts my suggestion. One day I tried to be consistent with my requested price, but he just walked away.
*Eventually, I must accept their offer as I do not know anyone else* [other traders]." – Interviewee #5.

<u>Improved owner-manager brand</u>. The majority of actors of the beef value chain have no employees; hence, the owner's brand was the brand of the whole business. It was revealed that entrepreneurial actors in the beef value chain were likely to be seen as intelligent and diligent. These characteristics were perceptively linked to success so that these actors were more likely to achieve the psychological attachments of partners. As a result, their partners would spend more time and effort on building the connections with them. Beyond ordinal buyer-seller transactions, informal contacts such as drinking out or taking coffee regularly took place. For instance, a commune-level trader said:

"Mr. A [a farmer whose EO score was 3.3] and I drink beer together every week. He is a smart man who usually has interesting (sometimes funny) ideas. But some of them actually worked well that earned money for us. .... We are friends so that I always go to his farm first when I need cattle." – Interviewee #9

Likewise, the largest slaughterer (and also meat wholesaler) in Buon Me Thuot city said about his partnership with a beef retailer with an EO score at 3.5 in the interview:

"I like to work with her because she takes care of her business the most. She is hardworking and not afraid of trying new ways of selling her beef. I believe she will be successful soon. When she has developed her business, I can improve mine too." – Interviewee #11.

# 7.2.3. Mixed methods inferences

Taken together, quantitative and qualitative data supplementarily identified benefits for enterprising actors when collaborating in the beef value chain in the Central Highlands. Quantitative data analysis revealed that when adopting an entrepreneurial way of business, actors in the studied value chain achieved superior collaborative performance. Stated differently, entrepreneurial actors outperformed conservative ones regarding the number of benefits obtained from vertical partnerships. The quantitative results also indicated that the enhancement of the knowledge transfer was a transmitting mechanism which partially accounted for the influence.

Qualitative data analysis added two explanations for the EO: a collaborative performance positive linkage including an increase in negotiating power, and improvement of owner-manager brand. Regarding the former, entrepreneurial actors in the beef value chain were more likely to achieve a power symmetry with partners than conservative actors. This symmetric scheme allowed them to maintain a long-term relationship and maximise the rewards of the partnership. In terms of the latter, the brands of businesses in the studied beef value chain were, per se, the owner-manager's images as they are one-person enterprises. The people who successfully expressed entrepreneurial characteristics (i.e., innovative, proactive and risk-taking) marked themselves with intelligence and diligence. Therefore, they were successful in communicating their potential for long-term success to their buyers and sellers. As a result, the partners were more willing to sacrifice short-term financial benefits to sustain cooperation.

## 7.3. Chapter discussion

The analysis in this chapter aims at the performance implication of EO in the beef cattle value chain in the Central Highlands, Vietnam.

It appears that EO has a positive influence on a firm's collaborative performance when working in agricultural value chains. This finding is consistent with the majority of empirical EO studies (Rauch et al., 2009; Semrau et al., 2016) and particularly in agriculture (Grande et al., 2011; Veidal & Flaten, 2014; Verhees et al., 2011) which linked EO to firm performance enhancements. Although agricultural industries are relatively regulated and constrained (Beske et al., 2014), enterprising farms and businesses are still promisingly rewarded. This assertion seems to be true even in emerging economies where the majority of farms operate at household scales with very few or no employees. Environmental dynamism requires small-scale business owners (including farmers) to adapt their practices quickly; thus, those who can think behave business and entrepreneurially will have more chances to survive and develop.

This study corroborates explicitly the arguments of Jiang et al. (2014) and Li et al. (2017) that the level of EO exhibited by parties has impacts on the success of alliances. At inter-firm levels, actors' entrepreneurial strategic postures might spread out of firm boundaries and give rise to the performance of the system. The participation of actors with high EO gives rise to the total value delivered to end-users by a value chain, thereby improving the benefits gained by each actor. With entrepreneurial beliefs and values, these actors constantly search and commit resources to innovations in partnerships in response to demand changes (Bouncken et al., 2016; Bouncken et al., 2018; Tuan, 2017b). These innovations might increase the responsiveness of the whole chain, hence, increase the number of benefits shared by chain actors. Therefore, the involvement of enterprising actors improves the value chain's capabilities of combining and reconfiguring resources to enhance its cost efficiency and market responsiveness. As a result, the value chain becomes more agile and better aligned (Lee, 2004).

Consistent with Jiang et al. (2016), this study emphasises the importance of knowledge acquisition in transmitting EO to superior value chain performance. Chain actors with high EO value knowledge so that they invest time and effort to gather as much knowledge as they can (discussed in Chapter 6). Meanwhile, knowhow is critical in agricultural value chains who market short shelf-life products which are produced, harvested and even consumed seasonally. This level of perishability requires an effective logistics system to minimise cycle time while the seasonality demands the transfers of forecasting information. As a result, effective mechanisms to manage and transfer knowledge-based resources throughout the chains certainly produce improvements in outcomes (Khanh et al., 2019; Whitehead et al., 2019).

Two other explanations for EO – collaborative performance linkages in agricultural value chains were also provided by this research. Firstly, the adoption of EO especially by small scale farmers may help ameliorate the power asymmetry which is the root cause of the poor governance commonly seen in agricultural value chains in emerging countries (Cox & Chicksand, 2007; Trienekens, 2011). The capability of adding superior value to the product helps entrepreneurial actors

gain respect and, as a result, an advantageous position in negotiations. Secondly, a firm's strategic posture influences how others perceive the firm. In today's dynamic markets which continually require innovative solutions for business problems, a display of EO demonstrates a high potential for profits. An expression of EO-related characteristics improves customer-organisation identification (Tuan, 2017b). Thus, the adoption of an entrepreneurial strategic posture promotes the perception of suppliers and customers of the actor's capabilities by which collaborative performance within the value chain is improved.

## 7.4. Chapter summary

This chapter has examined the relationship between EO and collaborative performance in agricultural value chains. Using data gathered from 233 participants of the beef value chain in the Central Highlands, Vietnam, it was shown that the level of actor's EO is also positively associated with their collaborative performance. The improvement of collaborative performance caused by EO was partially through the enhancement of knowledge acquisition. Nonetheless, the mediation only accounted for about one-fifth of the variation of the total effect, leaving the remaining nearly four-fifths for unknown reasons. Qualitative data revealed two possible explanations, including an increase of negotiating power and improvement of the owner-manager brand that could lead to better governance in agricultural value chains.

In sum, Chapters 4 to 7 reported the data analysis in this study as well as preliminarily discussed findings. The above discussions separately responded to subsidiary research questions. The final chapter will merge the results previously presented in Chapters 5, 6 and 7 to give a unified response to the overall research question. Through this, theoretical and practice implications and suggestions for future research will be given.

# **Chapter 8: Conclusions and implications**

### 8.1. Introduction

Transitional economies are witnessing a profound restructuring in the agricultural industry caused by rapid urbanisation and trade globalisation. The market dynamics bring many opportunities but also increase competitive threats with an increasing focus on 'value chain vs. value chain' competition. Farmers and other actors in smallholder agricultural value chains are facing the threat of exclusion unless they adopt a more entrepreneurial way of doing business.

This PhD, in addressing these threats to smallholder farmers in developing economies, contributes to the development of value chain theory, practice, and policy in three important ways. Firstly, the construct of entrepreneurial orientation, developed for firms operating in highly developed Western economies was adapted and then applied to the context of agribusinesses in a transitional Asian economy. The second contribution is the application of the entrepreneurial orientation construct to competition at the whole of value chain level of analysis. The third contribution is articulating the critical role of knowledge-sharing between the actors within a value chain pursuing entrepreneurial orientation as a competitive strategy. These, along with additional minor contributions, are discussed with implications throughout the remainder of this chapter.

The literature review indicated that the adoption of EO by a firm commonly leads to higher performance. However, little is known about the role of this strategic resource when the competition is between whole value chains. Therefore, the research aims at the association of EO with value chain constructs. It proposed the overall research question, which is: "*How are the actors' levels of entrepreneurial orientation associated with value chain management practices in agricultural value chains?*". A conceptual model (Figure 2.1) was developed based on the previous inter-disciplinary studies between strategic management and value chain management.

To answer the above question, this study used a mixed methods approach (Chapter 3). A sequential explanatory mixed methods design was employed to design the research procedure. Specifically, a quantitative phase which collected and analysed data from a survey on 233 actors in the beef cattle chain in the Central Highlands, Vietnam was done first. Then a qualitative phase in which 15 participants were purposively selected and interviewed was carried out to give explanations to significant quantitative results.

The next four chapters undertook the data analysis. While Chapter 4 established the constructs, Chapters 5 to 7 reported and initially discussed results for each subsidiary research question.

The objective of Chapter 8 – this final chapter in this thesis - is to integrate the separate findings from the previous chapters to articulate the interrelationships between EO, dynamic capabilities, and the performance of agricultural value chains. Rather than repeat the discussion sections from the previous chapters, the final chapter references previous works to underpin conclusions drawn from this study. It also includes the theoretical, practical, and policy implications of the findings. Additionally, Chapter 8 integrates the study's arguments about the research context and methodology, along with considering the limitations of the research as well as paths for future research.

This chapter starts with explicit conclusions about research questions and the research problem. The theoretical and practical implications of the study are then presented. Theoretical implications consist of scientific arguments developed in this study, while managerial implications encompass recommendations to smallholder farmers, rural business manager-owners, value chain practitioners, and policymakers. Finally, the limitations of the research and suggestions for future research are offered.

## 8.2. Conclusions

#### 8.2.1. Conclusions about research questions

This research examines the relationships between EO and several value chain constructs encompassing value chain collaboration, knowledge acquisition, and collaborative performance in the context of smallholder agriculture in a transitional economy. Based on the data collected from a beef cattle value chain in Vietnam, the study gives answers to four SRQs (Table 8.1). This section draws explicit conclusions about each SRQ.

# 8.2.1.1. Collaboration as a dynamic capability that influences EO in agricultural value chains (SRQ1)

Using the dynamic capabilities view (Teece et al., 1997), value chain collaboration was treated as a dynamic capability that enhanced EO throughout the whole value chain in this study. Therefore, the three collaboration components (i.e., information sharing, incentive alignment, and decision synchronisation) were hypothesised to be related to the actor's level of EO. In the studied beef cattle value chain, only one out of the three hypothesised links was empirically supported (Section 5.2.1). Specifically, information sharing significantly enhanced EO in the value chain. Meanwhile, neither incentive alignment nor decision synchronisation has significant effects on the value chain actors' levels of EO. To conclude, this study showed that the components of collaboration have different effects on the exhibition of EO in a value chain.

The findings of this study are consistent with the previous studies linking vertical coordination to EO in other contexts. Informational dissemination is a critical process for agricultural value chain actors in pursuing entrepreneurial strategic postures. This result is consistent with findings in Greece (Anastasiadis & Poole, 2015) and Sri Lanka (Wickramaratne et al., 2017).

An efficient flow of informational resources throughout the value chain enables the sensing and seizing of opportunities. The interaction of the market intelligence from downstream actors combined with the technical know-how held by upstream players provide fertile sources of business ideas (Teng, 2007); and vertical information synchronisation might trigger the development of new capabilities. When a value chain is well-governed, information becomes inexpensively (or freely) accessible to all actors and product, process, strategic, and business model innovations are more likely to take place.

Subsidiary research question	Hypotheses	Quantitative result	Qualitative result
<b>SRQ1:</b> How do value chain components affect the actor's level of EO in agricultural value chains?	H1a: The actor's level of EO is positively related to information sharing in the beef value chain.	Supported	"Market turbulence" and "Natural factor" risks are the two biggest risks faced
	<ul> <li>H1b: The actor's level of EO is positively related to incentive alignment in the beef value chain.</li> <li>H1c: The actor's level of EO is positively related to decision synchronisation in the beef value chain.</li> </ul>	Rejected Weakly supported	by beef chain actors. Information sharing helped reduce these risks while incentive alignment and decision synchronisation did not.
<b>SRQ2:</b> What is the relationship between the actor's level of EO and knowledge acquisition in agricultural value chains?	H2: Knowledge acquisition is positively related to the actors' level of EO in the beef value chain.	Supported	Not applicable

Table 8.1: Summary of findings

Subsidiary research question	Hypotheses	Quantitative result	Qualitative result
SRQ3: How does value chain			
collaboration influence the	H3: Value chain collaboration moderates the		
linkage between EO and	relationship between EO and knowledge	Supported	Not applicable
knowledge acquisition in	acquisition in the beef value chain.		
agricultural value chains?			
	H4: Collaborative performance is positively		Besides knowledge
SRQ4: How does the	related to the actors' level of EO in the	Supported	acquisition, the actor's EO
actor's level of EO	beef value chain.		improved power symmetry
influence collaborative			and customer-organisation
performance in	H5: The knowledge acquisition mediates the relationship between EO and collaborative performance in the beef value chain.	Supported	identification in the beef
agricultural value			value chain that enhanced
chains?			the collaborative
			performance

Risk reduction is a major benefit when information is efficiently distributed in the beef value chain (Section 5.2.2). The more efficiently information is shared, the more remarkably entrepreneurial risks are reduced (Janney & Dess, 2006). In a smallholder beef value chain, actors typically operate at the household level with inadequate resources (Stur et al., 2013). These resource constraints limit smallholders from doing market and R&D research so that they are vulnerable competitive risks and market uncertainties. In this study, risks were mainly associated with market turbulence, natural disasters, and family shocks, which are commonly seen in the agricultural sector (Salimonu & Falusi, 2009). The sharing of intelligence in the value chain helps reduce these entrepreneurial risks. The flow of market information from retailers to producers helps ameliorate "missing-the-boat" risk by appropriately scheduling new product introductions, production, promotion initiatives, and distribution. Meanwhile, the sharing of technical specifications in a reverse direction helps avoid the loss of customers caused by quality issues or the inaccurate specifications for the product (i.e., "sinking-the-boat" risks, e.g., Dickson & Giglierano, 1986).

Incentive alignment and decision synchronisation do not have significant effects on the beef chain actors' levels of EO because of the domination of verbal agreements in the value chain (Section 5.2.2). The absence of enforceable written contracts resulted in a low level of trust, which is typical in agricultural value chains (Anastasiadis & Poole, 2015; Trienekens, 2011). Thus, the performance of risk-sharing behaviours is not guaranteed. Combining with arguments of Rowley (1997), Scriboochitta and Wiboonpoongse (2008), this study concludes that the restriction of autonomy needs to be sustained at an appropriate level to enhance EO.

## 8.2.1.2. EO and knowledge acquisition in agricultural value chains (SRQ2 and SRQ3)

Knowledge is critical for creating and exploiting dynamic capabilities such that entrepreneurial firms are learning organisations (Slater & Naver, 1995). As a result, EO was theoretically associated with the transfer of knowledge in value chains, and value chain collaboration was hypothesised to moderate this association. This study empirically found these linkages in the beef value chain in Vietnam (Section 6.2). It appears that the actor's strategic posture toward entrepreneurship has a positive influence on knowledge acquisition in agricultural value chains. The facilitation of EO and knowledge acquisition in the value chain is maximised when a high level of vertical collaboration is maintained.

Each value chain actor is a unique repository for expertise, skills, and know-how, and the involvement of actors with high levels of EO improves the transfer of this knowledge throughout the chain. With an internal desire for changes, entrepreneurial actors are actively involved in learning activities such as communication or joint ventures (Lans et al., 2014; Micheels & Gow, 2015). Also, when a value chain is made up of individual actors with high levels of EO, the effectiveness of learning in the chain is increased by absorptive capacity (Gellynck et al., 2015). They enthusiastically gather information from value chain partners and experiment with novel ideas that enhance the value of learning. As a result, repetitions of learning activities are encouraged by the outcomes (i.e., knowledge transfer) through a feedback loop. When a high level of vertical collaboration is maintained, entrepreneurial actors are provided with enormous information by frequent communication, as well as collective activities. This rich source of information considerably gives rise to the frequency of acquisitive learning in value chains (Kreiser, 2011).

Under a whole-of-chain point of view, it appears that knowledge acquisition is a function of the harmony between the actor's inner strategic orientation and the level of collaboration between actors. This result corroborates Grant (1996) and Whitehead et al. (2019) that the effectiveness of the learning is complementarily dependent on the informational distribution (through collaboration) and actors' absorptive capabilities (derived by EO). The interplay of these forces amplifies the value of learning in value chains. Working as an environmental factor, collaboration encourages a wide spread of information within the chain. Meanwhile, EO improves the processing and converting data into useful knowledge.

### 8.2.1.3. EO as a strategic resource driving performance of agricultural value chains (SRQ4)

In this study, EO is seen as a dynamic strategic posture that may expand outwards from a firm to also give rise to enhanced competitiveness of the whole value chain. Thus, EO was hypothesised to improve the collaborative performance of agricultural value chains. Empirical findings in this study support this hypothesised linkage in the beef value chain in the Central Highlands, Vietnam (Section 7.2.1). Actors with high EOs are likely to add value to the product that increases the pool of benefits shared by chain members (Bouncken et al., 2016). The results of an entrepreneurial action by one actor can impact the entire chain, as it is a system of interrelated actors driven by the business processes adopted by each member. Stated differently, the interdependence among actors also connects their performance. Therefore, when an actor acts entrepreneurially, it benefits not only him/herself but also potentially his or her upstream and downstream partners. This association is relatively significant in agricultural value chains where actors are strongly interdependent (Handayati et al., 2015). To conclude, an agricultural value chain that encompasses actors with higher levels of EO might also enjoy a higher level of collaborative performance.

The result is consistent with previous research about the impacts of EO on the success of inter-firm dyadic alliances (Jiang et al., 2014; Li et al., 2017). Better governance accounts for the performance-enhancing mechanism of EO in value chains (Section 7.2.2). Actors with high EO value their linkages with buyers and sellers; thus, they are less likely to perform opportunistic behaviours (Schiele et al., 2011). The vigorous pursuit of growth encourages a value chain actor to sacrifice potential short-term firm-specific benefits to build long-term relationships with actors that enhance whole-of-chain competitiveness. At a value chain level, this propensity facilitates the maintenance of efficient management in several ways. Firstly, EO promotes the knowledge flows in value chains. The

dissemination of this critical resource is of importance to an actor's performance and chain performance. Know-how and skills which determine the actor's capability of using physical and financial assets can help drive profitability in a dynamic agricultural market. Secondly, EO incentivises the member's contribution to the performance of the whole chain. The research indicates asymmetric power relationships as well as enhanced identification of two results of EO in the studied value chain. The potential for profits brought by EO is wellrecognised in today's dynamic environment. Therefore, the participation of actors with this strategic posture might enhance the attitudinal and behavioural commitment of all members to the value chain.

## 8.2.2. Conclusions for the research problem

This research is placed in the context of a dynamic, 'value chain vs. value chain' agricultural market. Its main objective is to improve the understanding of the associations between the value chain actors' EO and management processes. From a dynamic capabilities theoretical perspective, value chain processes are dynamic capabilities that can create and modify the initial capabilities of actors. Drawn from the beef value chain in the Central Highlands, Vietnam, it is concluded that the actor's strategic posture toward entrepreneurship has positive relationships with value chain practices as well as collaborative performance. Specifically, collaborative capabilities, especially the ones disseminating information throughout the value chain, can promote the engagement of actors in entrepreneurial activities. Meanwhile, the adoption of EO by actors improves the transfer of knowledge in agricultural value chains. Finally, the participation of actors with high EO improves the collaborative performance of agricultural value chains.

## 8.3. Implications

Overall, the research found that the level of the value chain actor's EO is associated with enhanced performance of the value chain. The finding gives rise to several theoretical and practical insights.

## 8.3.1. Theoretical implications

This study empirically connects EO, a firm-level strategy, to the practices and performance of a multi-firm value chain in a transitional economy. It contributes to the entrepreneurship field by exploring the rewards and motives for adopting EO throughout a value chain in industries like agriculture. The study also contributes to both the dynamic capabilities and value chain management literature by responding to a growing interdisciplinary research agenda (Beske et al., 2014; Hsu et al., 2011). The research expands the scope of empirical examinations of EO from a dyad to a whole of value chain perspective. Beyond a buyer-seller dyad, EO demonstrates a positive association with value chain dynamic capabilities, including collaboration and knowledge management. As a strategic resource, it enhances the alignment, which is a source of competitive advantage in a 'value chain vs. value chain' competition era. Finally, the study reinforces the effectiveness of qualitative approaches when researching EO.

## 8.3.1.1. Implications for the entrepreneurship field of study

The findings of this study highlight the importance of EO in a dynamic 'value chain vs. value chain' market. This study expands the well-acknowledged positive performance implications of EO (Rauch et al., 2009; Semrau et al., 2016) from the level of an individual firm to the value chain. Not only can individual firms benefit from adopting EO, but entire value chains operating as a collaborative economic unit can improve their competitiveness through a pervasive whole-of-chain entrepreneurial strategic posture.

This research investigates EO in smallholder agricultural value chains operating in an Asian transitional economy, where EO is manifested through actions that rarely change the business practices of farmers profoundly. Entrepreneurs in this region face significant risks caused by rapid market changes, unpredictable natural conditions, and family livelihood issues. Some of these risks are not as substantial as in other industries. Compared with other sectors, agriculture is typically more homogenous and more regulated, which significantly reduces the emergence of profitable opportunities.

Despite the above constraints, the adoption of EO within agricultural value chains still can lead to enhanced performance. This study found that the benefits outweighed the risks of taking entrepreneurial actions in the agricultural sector, which is in line with a growing research stream on agriculture entrepreneurship (Grande et al., 2011; Veidal & Flaten, 2014; Verhees et al., 2011). Beyond financial performance, an entrepreneurial strategic posture enhances the operational and strategic achievements of agricultural firms when collaborating in value chains.

Additionally, the establishment of a single EO factor in this study confirms the existence of this construct across context. Therefore, this study helps to contribute to the development of a universal strategic management theory by refining and applying EO to a new context (Jack et al., 2013; Makadok et al., 2018). The loadings of innovativeness, proactiveness, and risk-taking indicators onto the EO construct implies that entrepreneurs in agricultural markets might have characteristics similar to actors in other industries.

# 8.3.1.2. Implications for the dynamic capabilities - value chain management research agenda

The study empirically examines Beske et al.'s (2014) and Defee and Fugate's (2010) perspectives that dynamic capabilities might occur not only in an individual firm but also across multiple firms in a value chain. The research expands the number of previous works arguing that collaboration is a chain-level dynamic capability (Allred et al., 2011; Fawcett et al., 2011; Soosay et al., 2008). Through collaborating, value chain actors are capable of efficiently developing new capabilities. Therefore, collaboration can develop a behavioural pattern toward changes and renewals (i.e., EO) in value chains. The contribution of this study lies in its findings of the different effects of collaboration components on EO. Specifically, the capability of sharing information throughout the value chain demonstrates a constant and positive relationship with the actor's EO. Meanwhile, other collaborative capabilities (i.e., incentive alignment and decision

synchronisation) which present a level of behavioural interdependence between actors need to be maintained at a moderate level.

Besides collaborative capabilities, the study also indicates a positive relationship between EO and value chain knowledge management capabilities (Schoenherr et al., 2014). The involvement of enterprising actors gives rise to the value chain competence of pooling and using knowledge resources. Thus, the research contributes to the advancement of the value chain knowledge management field. While the previous studies stress inter-firm environmental processes such as communication and technology (Cerchione & Esposito, 2016), this study emphasises the importance of the actors' EO in knowledge acquisition within the value chain. This orientation is a crucial driver of the internal learning orientation, which mainly decides the effectiveness of a learning process. It significantly influences how well value chain actors process disseminated information and convert it into useful knowledge. The study also strengthens arguments of Grant and Baden-Fuller (1995) and Whitehead et al. (2019) by a determination of the interactive effect between actor's absorptive capacity and the vertical informational distribution on knowledge acquisition.

The knowledge-based view is also advanced by this research. Consistent with Grant (1996), the study highlights knowledge as a critical competitive resource. Expertise, skills, and know-how are sources of competitive advantages, especially for agricultural business owners (McElwee, 2006). The study claims that effective management of this resource is vital for not only a firm but also a value chain to succeed. Capabilities of managing knowledge are directly linked to the operational and strategic performance of a value chain in today's hypercompetitive markets.

# 8.3.1.3. Implications for EO study methodology

Finally, this research is among the early attempts to employ a mixed methods approach in EO studies. It partially responds to the call for qualitative investigations on EO (Miller, 2011; Wales, 2016). The use of multiple methods helps with the contextualisation of the EO studies, which is essential in advancing the field (Zahra et al. 2014). Thus, the qualitative follow-up phase brings contextual explanations that enrich the quantitative findings. Indeed, the concept of EO is better understood when being placed in a specific context that is linked to contextually meaningful activities. Although a purely quantitative approach might improve the robustness and generalisability of findings, it may not provide the insights useful for understanding the construct in its context. Therefore, the main methodological discussion of this study is consistent with Molina-Azorín et al. (2012) that mixed methods approaches have great promise to add value to EO studies.

## 8.3.2. Managerial and policy implications

The findings of this study have implications for smallholder farmers and agricultural business owners who are facing dynamic markets. They should be aware that their chances of survival can be improved through the adoption of EO. Thus, a more entrepreneurial strategic posture needs to be developed by farmers and other stakeholders in agricultural value chains in Vietnam. Nonetheless, the development of risk-taking behavioural manner in the agricultural sector is, to some extent, contradictory to the Vietnamese culture, which traditionally supports a stable and safe lifestyle (Tuan, 2017b). Also, unlike companies that have abundant resources, most of the farmers in Vietnam and other transitional economies operate at household levels with minimal resources (Le et al., 2013; Parsons et al., 2013). This limited resource base is consistent with a strong attachment by the household to farming and limits the adoption of what may be perceived by the household as risky innovations. This effect is magnified due to the lack of a social safety net in many transitional economies that make them reluctant to innovate or take on additional risk.

Another implication of this study is that although external networks are essential for entrepreneurship in rural areas in Vietnam (Chi & Nordman, 2017), an internal desire for changes is critical for a farm to adopt an EO. Farmers and rural business manager-owners should be aware that social networks are necessary but not sufficient to develop an entrepreneurial posture. In some specific circumstances, external dependency and reciprocity might even prevent farmers from undertaking strategic changes. Therefore, value chain stakeholders must be self-motivated to conduct their business in an entrepreneurial way. Entrepreneurship training or talks to successful entrepreneurs might be effective in developing an entrepreneurial mindset of farmers.

Value chain practitioners should take appropriate approaches to raise the awareness of EO within agricultural value chains. An entrepreneurial posture cannot be built by a one-time action but only through long-lasting behaviour. Thus, practitioners should encourage the repetition of actions that change farming practices. Perhaps, they might introduce small, incremental entrepreneurial changes that are easy for farmers to adopt. The key to this stepwise approach is motivating farmers to gradually go out of their comfort zones toward an entrepreneurial approach to business while still maintaining their household livelihoods. In the area in which the study took place, a number of those changes have been implemented, including grazing system transformation (Stur et al., 2013) and the establishment of cattle clubs (Karimov et al., 2016). Nonetheless, it is important to emphasise that the main focus of extension activities is not the change itself but the development of the farmers' mindset that underpins their production with knowledge, entrepreneurial skills and know-how.

For policymakers, the study reinforces the necessity for building supportive environments for entrepreneurship in micro-businesses. Specifically, government, institutional, socio-cultural, and business environments should be improved toward an entrepreneurship-friendly setting (Nguyen et al., 2015). In the agricultural sector, improvements might be regulatory reforms or funding to assist entrepreneurial farmers. Support to enhance socio-cultural values about entrepreneurs might be helpful to encourage agricultural business managerowners to take an entrepreneurial career.

## 8.4. Limitations of the research

This research has limitations. Firstly, the data were only collected from core value chain actors while there might be other stakeholders who are also involved in management practices (e.g., veterinary medicine and service suppliers). These stakeholders are also a source of information that could facilitate EO in the beef value chain. Secondly, the main limitation of this study lies in the limited generalisability of findings. The nonprobability sampling frame employed does limit the application of the results to other contexts. The usefulness of the study's findings is limited to similar socio-economic contexts, producers, and sampling frames. Because of high rates of growth and development, Vietnam has been regularly used as an exemplar by studies examining agricultural value chains in transitioning economies (Cadilhon et al., 2006; Reardon et al., 2014; Stur et al., 2013). Therefore, the study's findings are most useful in Asian, African, and Latin-American countries where smallholder agriculture systems prevail.

#### 8.5. Suggestions for future research

The implications of this study provide four suggestions for future research as follows.

Firstly, this study is among early empirical research about the relation between EO and value chain management. Future research might develop this research stream by taking other value chain phenomena into examination. In agricultural value chains, some emerging constructs that could be the focus of future EO studies include traceability, safety and quality management (Aung & Chang, 2014), the sustainability of value chain management (Beske et al., 2014), value chain competitiveness and resilience (Swanson et al., 2008), and value chain co-innovation (Bonney et al., 2007). Research that examines these topics would enrich the understanding of the role that EO can play in today's dynamic agricultural markets.

Secondly, to increase the robustness of findings, future research might examine other types of produces. Beef cattle production is not just a source of income in Vietnam's rural areas; instead, these cattle are also a long-term saving that helps a farmer overcome shocks in life (Le et al., 2013). Therefore, besides a pursuit of growth and income, the farmer's behaviours are also to ensure household livelihood security. The saving function of other products such as vegetables or poultry is not as strong due to their greater perishability. As a result, the exhibition of EO by farmers who grow vegetables might be different from those by farmers who raise cattle. Thus, the diversification of focused products would advance the EO field by contextualising the study.

Thirdly, this study confirms the applicability of dynamic capability view (Teece et al., 1997) in EO and value chain management studies. Therefore, future testing and reasoning EO as a dynamic capability can broaden the knowledge about this construct (Miller, 2011; Wales, 2016). Besides, dynamic capabilities are manifested not only in firm processes but also in inter-firm practices (Defee & Fugate, 2010). Therefore, future examinations about dynamic capabilities at a value chain level would be promising.

Finally, future research could provide more insights by integrating actors at all stages of agricultural value chains. These chains are complicated systems in which actors are heavily interdependent (Handayati et al., 2015). Thus, an examination of collective management processes would need information gathered throughout the chain. Therefore, a whole-of-chain approach is strongly suggested for future studies.

## 8.6. Chapter summary

To conclude, this chapter has provided an overview of the relationship between EO and some management practices in agricultural value chains by drawing findings in the previous chapters. Overall, EO was positively associated with collaboration and learning, which are dynamic capabilities in value chains. Therefore, EO is a valuable strategic resource that drives the performance of a value chain in dynamic agricultural markets. Furthermore, arguments about the research context and methodology were made. Transitional economies are a useful context for EO studies, where a mixed methods approach might provide insightful findings. Stakeholders, such as farmers and policymakers, should be aware of the benefits of the adoption of EO. The main limitation of this research was the limited generalisability of the findings due to the nonprobability sampling. It is suggested that future research should examine other value chain constructs, involve other kinds of produces, integrate actors from all stages of a value chain, and employ dynamic capability as an underlying philosophy.

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# **Appendices**

**Appendix 1: Survey materials** 

Appendix 1.1: Information sheet for participants



Participant Information Sheet

# PhD research project

# Entrepreneurial orientation in an agricultural value chain in a transitional economy: a study of the beef cattle value chain in the Central Highlands, Vietnam

Dear Mr./Mrs.

I am Quang Dung Truong, a PhD student at Tasmanian Institute of Agriculture, the University of Tasmania, Australia. I am conducting this research as a fulfilment of my PhD degree under the supervision of Associate Professor Lawrence Bryan Bonney.

This research is conducted to understand how beef smallholders gain benefits from collaborating with their buyers and seller as well as acting like entrepreneurs. In particular, It investigates the (1) relationship between beef smallholders and their partners in the current value chain and (2) their attitude, inclination in adopting an entrepreneurial orientation.

Because you are currently a member of local beef cattle value chain, I would like to invite you to participate in this research. Your involvement is completely voluntary, and you are free to be not involved. If you agree to participate, you will be asked to answer a set of questions about your current beef cattle business. The questions are about the way how you are operating your cattle business and your relationship with current buyers/seller. Questions might ask for some personal information such as age, income or level of education but you do not need to give answers if you do not want to.

There is no direct benefit by participating in this research. However, you will help me inform the local authority about the current situation of local beef cattle value chain. This information might be useful for them to introduce policies on developing local cattle production. Although there is no foreseeable risk, you can contact me at any time during or after the interview if you do not want your information being used in my study. My contact details are provided at the end of this Information Sheet.

In case you are happy for me to use your provided information, it will be kept for five years from the date of first publication. Your name will not be shown in the research report without your permission. The results of this study will be incorporated into the reports of the project LPS/2012/062 funded by Australian Center for International Agricultural Research which is currently conducting in your district. Simple versions of project reports will be sent to the authority of your district.

Regarding ethics of this study, it has been approved by the Tasmanian Social Sciences Human Research Ethics Committee. If you have concerns or complaints about the conduct of this study, please contact the Executive Officer of the HREC (Tasmania) Network on +61 3 6226 6254 or email <u>human.ethics@utas.edu.au</u>.

If you have further enquiry, please do not hesitate to contact me.

Mailing address: Private Bag 98, Hobart TAS 7001.

Email: <u>qdtruong@utas.edu.au</u>

Phone number: +61 4.....

Thank you for taking your time to read this Information Sheet and I hope that you feel you can participate into this research project.

Quang Dung Truong

Ph.D candidate in Agriculture Value Chain Management

School of Land and Food, University of Tasmania, Sandy Bay campus.

Email: qdtruong@utas.edu.au;

T: (+61) 4.....

Appendix 1.2: Consent form for survey participants.



Participant Information Sheet

# PhD researh project

# Entrepreneurial orientation in an agricultural value chain in a transitional economy: a study of the beef cattle value chain in the Central Highlands, Vietnam

This consent form is for participants who agree to participate in the survey.

I agree to take part in the research study named above.

I have read and understood the Information Sheet for this study.

The nature and possible effects of the study have been explained to me.

I understand that as a participant, I will be asked to provide information relating my cattle business. I am also aware that the researcher might takes photos about my cattle.

I understand that participation involves the risk that I will be asked for personal information.

I understand that all research data will be securely stored on the University of Tasmania for five years from the publication of the study results, and will then be destroyed.

I agree to have my study data archived. Yes 🗌 🛛 No 🗌

Any questions that I have asked have been answered to my satisfaction.

I understand that the researcher(s) will maintain confidentiality and that any information I supply to the researcher(s) will be used only for the purposes of the research.

I understand that the results of the study will be published so that I cannot be identified as a participant. I agree to be identified as a participant in the publication of the study results.

Yes No No

I understand that my participation is voluntary and that I may withdraw at any time without any effect. If I so wish, I may request that any data I have supplied be withdrawn from the research until 2019.

Participant's name: \_\_\_\_\_

Participant's signature:

Date: \_\_\_\_\_

Statement by Investigator



I have explained the 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.

If the Investigator has not had an opportunity to talk to participants prior to them participating, the following must be ticked.



The participant has received the Information Sheet where my details have been provided so participants have had the opportunity to contact me prior to consenting to participate in this project.

Investigator's name: \_\_\_\_\_

Investigator's signature:

Date: \_\_\_\_\_

#### Appendix 1.3: Survey questionnaire (English)



UNIVERSITY of TASMANIA TASMANIA TASMANIA

#### SURVEY QUESTIONNAIRE

Part A. Cattle business pra	actices	
A1. How many cattle do you h a. Bulls:he b. Cows:he c. Calves:he	nave? ads eads eads	
A2. How are you growing catt □ Stall-fed	le? □Free-grazing	□Mixed (semi stall-fed)
A3. Last year, how many catt	le did you sell? cattle.	
A4. How much do you often g	et paid for your cattle?	VND/kg.
A5. How many buyers do you	often work with? buye	er(s).
A6. Who is your most importa	ant buyer?	
A7. How long have you worke	d with this person?	
A8. Why have you worked wit	th this person?	
A9. How often do you change	the buyer of your cattle?	
□Never change	□Every transaction	□Every 6 months
□Every year	□Every 2 years	$\Box$ More than 2 years
A10 Other there your hypere	do vou brow opvoro who is ou	months portion of ing in the velue of

A10. Other than your buyers, do you know anyone who is currently participating in the value chain of your product?

 $\Box Yes \Box No$ 

If yes, please list out their name, roles and your level of understanding about them.

Name	What do they do?	How well do you know him/her? (Only name, a little, well and very well)

A11. Between two statements below, which is the better description about the importance of the cattle production for you and your household?

 $\Box$  "I keep the cattle as a saving and sell them when I need money".

 $\Box$  "I see the cattle as a business investment through which I can create wealth"

# Part B. Value chain collaboration, Entrepreneurial Orientation, Knowledge Acquisition, Firm Performance

To what extent do you agree with these statements as true to the relationship between you and your above-mentioned most important buyer?  $1 = \text{strongly disagree (SD)}, 2 = \text{Disagree } 3 = \text{Neutral} \qquad 4 = \text{Agree} \qquad 5 = \text{Strongly agree (SA)}$ 

#	Statement		SD <	> S	SA	
	Information sharing					
B1	I and my partners often share the information about the <b>number</b> of cattle/ amount of beef we are having.	1	2	3	4	5
B2	I and my partners often share the information about <b>problems</b> when doing business	1	2	3	4	5
B3	I and my partners often share the information about the <b>schedule</b> for product supply.	1	2	3	4	<b>5</b>
B4	I and my partners often share the information about <b>quality record</b> of the product	1	2	3	4	5
B5	I and my partners often share the information about <b>updated market price</b> .	1	2	3	4	<b>5</b>
B6	I and my partners often share the information about the <b>reasons</b> for price changes (if any).	1	2	3	4	<b>5</b>
B7	I and my partners often share with the information about the <b>forecast of market demand.</b>	1	2	3	4	<b>5</b>
B8	I and my partners often share the information about their <b>purchasing plan</b> .	1	2	3	4	<b>5</b>
B9	The information that we share to each other is accurate	1	2	3	4	<b>5</b>
B10	The information that we share to each other is <b>relevant</b>	1	2	3	4	<b>5</b>
	Incentive alignment					
B11	My buyer gives <b>financial assistance</b> to me when production declines due to environmental problems.	1	2	3	4	5
B12	My buyer gives <b>price guarantee</b> to me when market price falls.	1	2	3	4	5
B13	My buyer gives <b>purchase priority</b> to me when the supply increase.	1	2	3	4	<b>5</b>
B14	I give my buyer a <b>buying priority</b> when market demand increases.	1	2	3	4	5
B15	I supply product to my buyer <b>on credit</b> .	1	2	3	4	<b>5</b>
B16	My buyer gives <b>technical assistance</b> to me during production.	1	2	3	4	<b>5</b>
B17	My buyer supplies <b>inputs</b> to me during production.	1	2	3	4	<b>5</b>
B18	My buyer shares the transportation cost of beef product with me.	1	2	3	4	<b>5</b>
	Decision synchronisation					
B19	I and my buyer jointly decide the <b>mixture</b> of products should be produced.	1	2	3	4	<b>5</b>
B20	I and my buyer jointly decide the <b>optimal quality</b> of the product.	1	2	3	4	<b>5</b>
B21	I and my buyer jointly decide a <b>price</b> that is affordable for both.	1	2	3	4	5
B22	I and my buyer jointly decide <b>minimum quantity</b> for each trade.	1	2	3	4	5
B23	I and my buyer jointly decide the <b>payment method</b> .	1	2	3	4	5
B24	I and my buyer jointly forecast market demand.	1	2	3	4	5

#	Lowest edge       Scale         Innovativeness         25       I focus on the marketing of my current products.       1       2       3       4       5       I focus on finding movative ideas are too risky and always resisted in my business operation.         26       New ideas are too risky and always resisted in my business operation.       1       2       3       4       5       Innovative ideas are ideas are ideas to operate my cattle business.       1       2       3       4       5       Innovative ideas are ideas are ideas to operate my cattle business.       1       2       3       4       5       I usually seek not ideas ideas ideas in the ideas ideas ideas ideas ideas in the ideas idea						Highest edge
	Inno	vat	ive	nes	s		
B25	I focus on the marketing of my current products.	1	2	3	4	5	I focus on finding new ways to improve my business.
B26	New ideas are too risky and always resisted in my business operation.	1	2	3	4	5	Innovative ideas are readily accepted in my business operation.
B27	I never look for new ideas to operate my cattle business.	1	2	3	4	5	I usually seek new ideas to improve my business operation.
B28	In last five years, I have not adopted any innovation.	1	2	3	4	5	In last five years, I have adopted many innovations.
B29	I only adopt innovations which are minor.	1	2	3	4	5	I regularly adopt innovations which are dramatic.
	Proa	acti	vei	nes	5		
B30	I always respond to my competitors' actions.	1	2	3	4	5	I always initiate actions to which my competitors have to respond.
B31	I never be the first person who introduce innovations.	1	2	3	4	5	I am always the first person who introduce innovations.
B32	I avoid competing with my competitors.	1	2	3	4	5	I always compete with my competitors.
	Ris	sk-t	aki	ng			
B33	I only invest my money in plans when I am very certain that it will work.	1	2	3	4	5	I invest my money in plans which might bring a high return despite high chance of failure.
B34	I believe that the best strategy to explore the environment is slow but safe.	1	2	3	4	5	I believe that the best strategy to explore the environment is fast and bold.
B35	When facing an uncertain situation, I just wait to see how other people deal with it first.	1	2	3	4	5	When facing an uncertain situation, I am the first person who deals with it.

At what position do you place your business operation on following scale.

To what extent do you agree with these statements as true to your benefits when collaborating with the above-mentioned most important buyer

1 = strongly disagree (SD),

2 = Disagree

3=Neutral 4 = Agree 5 = Strongly agree (SA)

		17 1 1					
		Knowledge acquisition					
B36	I have learned technica	al expertise from my buyer.	1	2	3	4	5
B37	I have learned new pr my buyer.	roduct development skills from	1	2	3	4	5
B38	I have learned manage	rial techniques from my buyer.	1	2	3	4	5
B39	I have learned market	ing expertise from my buyer.	1	2	3	4	5
B40	I have learned manufa	cturing skills from my buyer.	1	2	3	4	5
B41	I have learned problem	n-solving skills from my buyer	1	2	3	4	5
		Firm performance					
B42	Sales of my products ha with the buyer.	as increased since I collaborated	1	2	3	4	5
B43	The return on investm increased since I collab	nent of beef cattle business has porated with the buyer.	1	2	3	4	5
B44	The overall performa improved since I collab	nce of my business has been porated with the buyer.	1	2	3	4	5
Part	C. Demographic Inform	mation					
C1. Na	ame of respondent (optio	nal):					
C2. Aş	ge of respondent:						
C3. Ge	ender of respondent:	$\Box$ Male		□Fe	male		
C4. Et	hnicity: DMinorit	y □Kinh people					
С5. Но	ow many years have you	worked in beef cattle industry?	yea	ars			
C6. W	hat is your level of educa	ation?					
	□No schooling	□Primary school	□Secon	ndary s	chool		
	□High school	□Bachelor/Engineering	□High	er			

C7. Is beef cattle business the most important source of income of your household?

□Yes □No

#### Thank you for your information!

In case we want to meet you again to ask more questions about this topic, do you agree for a follow-up meeting? Yes / No, If yes, could you please give us your phone number: .....

#### Appendix 1.4: Survey questionnaire (Vietnamese)



Phd research project Entrepreneurial Orientation in smallholder agricultural value chains: a study of the beef cattle value chain in the Central Highlands, Vietnam

#### Bảng hỏi phỏng vấn

(Sử dung cho hô nuôi bò)

#### Phần A. Hoat đông kinh doanh bò hiên nay

A1. Hiện nay ông bà đang nuôi bao nhiêu con bò?

- a. Bò đưc: .....con
- b. Bò cái: .....con
- c. Bê: .....con

A2. Phương pháp nuôi bò của ông bà?

□ Nuôi nhốt

□Nuôi thả

A3. Năm ngoái, ông bà bán bao nhiêu con bò thit? ...... con.

A	4.	Năm	ngoái,	giá b	ò thịt r	nà ông l	bà được	trả là	bao nhiêu?	۰۱	/ND/kg t	thịt xô.

A5. Ông bà thường bán bò cho bao nhiêu thương lái? ...... người.

A6. Ai là thương lái thường xuyên mua bò của ông/bà? ..... A7. Ông/bà bán bò cho người này được bao lâu? .....

A8. Tại sao ông/bà thường xuyên bán bò cho người này? .....

.....

A9. Bao lâu thì ông bà thay đổi thương lái?

□Không bao giờ	□Sau mỗi lần mua bán	□6 tháng/lần
□1 năm/lần	□2 năm/lần	□Lâu hơn 2 ı

□Lâu hơn 2 năm

□Hỗn hợp

A10. Ngoài thương lái hiện nay, ông bà có biết người nào khác tham gia vào chuỗi giá trị bò thit của mình hay không?

#### □Có □Không

Nếu có, xin ông bà kể tên là mức độ quen biết giữa ông/bà với những ngừoi này

Tên	Nghề nghiệp	Ông/bà biết họ như thế nào? ("Chỉ biết tên",
		"quen biết", "biết rõ" và "thân thiết")

A11. Trong 2 câu dưới đây, câu nào mô tả chính xác hơn về tầm quan trọng của việc chăn nuôi bò đối với gia đình ông/bà?

🗆 "Tôi giữ bò như một tài sản trong gia đình và thường chỉ bán bò khi cần tiền"

🗆 "Tôi xem bò là một khoản đầu tư để kinh doanh và tôi có thể làm giàu từ nuôi bò"

Phần C. Hợp tác chuỗi giá tri, đinh hướng kinh doanh, trao đổi kiến thức và kết quả kinh doanh.

Dưới đây, chúng tôi sẽ liệt kê một số nhận xét về mối quan hệ giữa ông bà và thương lái thường xuyên mua bò của ông bà. Xin ông bà cho biết mức độ đồng ý của ông bà với các nhận định này.

1 = Rất không đồng ý (SD),2 = Không đồng ý3=Trung lâp 4 =Đồng ý 5 = Rất đồng ý(SA)

#	Nhận xét		SD	<>	SA	
	Chia sẻ thông tin					
B1	Tôi thường xuyên trao đổi với thương lái số lượng bò mà tôi đang nuôi.	1	2	3	4	5

B2	Tôi thường xuyên trao đổi với thương lái về các vấn đề mà tôi gặp phải trong quá trình chăn nuôi bò.	1	2	3	4	5
B3	Tôi thường xuyên trao đổi với thương lái về thời gian mà tôi sẽ cung cấp bò cho anh ta.	1	2	3	4	5
B4	Tôi thường xuyên trao đổi với thương lái về bệnh tật hoặc các vấn đề sức khoẻ của bò.	1	2	3	4	5
В5	Thương lái thường xuyên trao đổi với tôi về giá thị trường của bò thit.	1	2	3	4	5
B6	Thương lái thường xuyên giải thích với tôi lý do mà giá thị trường thay đổi (nếu có sự thay đổi giá).	1	2	3	4	5
B7	Thương lái thường xuyên trao đổi với tôi về các dự báo về khả năng tiêu thụ thịt bò trên thị trường	1	2	3	4	5
B8	Thương lái thường xuyên nói với tôi về kế hoạch mua bò của anh ta.	1	2	3	4	5
В9	Các thông tin mà tôi và thương lái chia sẻ với nhau là chính xác.	1	2	3	4	5
B10	Các thông tin mà tôi và thương lái chia sẻ với nhau có liên quan đến hoạt động chăn nuôi bò của tôi.	1	2	3	4	5
	Thống nhất động lực					
B11	Thương lái hỗ trợ tiền cho tôi trong trường hợp thiên tai.	1	2	3	4	5
B12	Thương lái đảm bảo giá cho tôi khi giá thị trường giảm.	1	2	3	4	5
B13	Thương lái ưu tiên mua bò của tôi khi nguồn cung bò dư thừa.	1	2	3	4	5
B14	Tôi ưu tiên bán bò cho thương lái cho khi có nhiều người đến hỏi mua.	1	2	3	4	5
B15	Tôi bán chịu bò cho thương lái.	1	2	3	4	5
B16	Thương lái cho tôi vay tiền trong quá trình nuôi bò.	1	2	3	4	5
B17	Thương lái hỗ trợ vật tư cho tôi trong quá trình nuôi bò.	1	2	3	4	5
B18	Thương lái chia sẻ chi phí vận chuyển bò với tôi.	1	2	3	4	5
	Đồng nhất quyết định					
B19	Tôi và thương lái thảo luận để quyết định giống bò cần nuôi.	1	2	3	4	5
B20	Tôi và thương lái thảo luận để quyết định các yêu cầu về chất lương mà bò cần đat được.	1	2	3	4	5
B21	Tôi và thương lái thảo thuận về giá nhằm đảm bảo giá bò làm hài lòng cả 2 bên.	1	2	3	4	5
B22	Tôi và thương lái thảo luận để quyết định số lượng bò cần cung cấp cho mỗi lần mua bán.	1	2	3	4	5
B23	Tôi và thương lái thảo luận để quyết định phương pháp thanh toán.	1	2	3	4	5
B24	Tôi và thương lái cùng nhau dự đoán nhu cầu thị trường trong tương lai.	1	2	3	4	5

#	Ngưỡi dưới						Ngưỡng trên
	Tinh t	hầr	ı đớ	ổi n	nới		
B25	Tôi chỉ quan tâm đến việc làm thế nào để bán được số bò đang có trong chuồng.	1	2	3	4	5	Tôi tập trung vào việc tìm ra cách để đổi mới việc chăn nuôi bò của mình trong tương lai.
B26	Đối với tôi, các ý tưởng mới là quá mạo hiểm và không nên thử.	1	2	3	4	5	Tôi thường xuyên áp dụng các ý tưởng mới trong việc chăn nuôi bò của mình
B27	Tôi không bao giờ tìm các ý tưởng mới để thay đổi việc chăn nuôi bò của mình.	1	2	3	4	5	Tôi luôn luôn tìm các ý tưởng mới để thay đổi việc chăn nuôi bò của mình.
B28	Trong 5 năm qua, việc chăn nuôi bò của tôi không có gì thay đổi.	1	2	3	4	5	Trong 5 năm qua, việc chăn nuôi bò của tôi đã thay đổi rất nhiều lần.
B29	Tôi chỉ áp dụng những thay đổi nhỏ trong quá trình chăn nuôi của mình	1	2	3	4	5	Những thay đổi mà tôi áp dụng trong chăn nuôi bò đã thay đổi hoàn toàn việc kinh doanh của mình.
Tír		ı ch	ů đ	lộn	g		
B30	Tôi thường làm theo những người nông dân khác trong việc chăn nuôi bò.	1	2	3	4	5	Những người nông dân khác thường làm theo thôi trong việc chăn nuỗi bò.
B31	Tôi không bao giờ là người đầu tiên áp dụng những cải tiến trong việc chăn nuôi bò.	1	2	3	4	5	Tôi luôn luôn là người đầu tiên áp dụng những cải tiến trong việc chăn nuôi bò
B32	Tôi luôn tránh né cạnh tranh với các đối thủ cạnh tranh.	1	2	3	4	5	Tôi luôn sẵn sàng cạnh tranh với các đối thủ của mình
	Chấp	nhă	ân 1	rủi	ro		
B33	Tôi chỉ đầu tư tiền nếu biết chắc kế hoạch đó sẽ thành công	1	2	3	4	5	Tôi đầu tư tiền vào những kế hoạch rủi ro lớn vì như vậy sẽ mang lại lợi nhuận cao
B34	Tôi tin rằng việc tìm hiểu môi trường kinh doanh cần được thực hiện cần thận và chậm rãi	1	2	3	4	5	Tôi tin rằng việc tìm hiểu môi trường kinh doanh cần được thực hiện nhanh và táo bạo
B35	Khi đối mặt với các trường hợp rủi ro, tôi luôn chờ xem người khác làm gì rồi mới quyết định	1	2	3	4	5	Khi đối mặt với các trường hợp rủi ro, tôi luôn là người đầu tiên thử nghiệm các giải pháp.

Nhìn chung, ông bà đánh giá như thế nào về cách ông/bà nuôi bò hiện nay.

Những câu dưới đây liệt kê các lợi ích mà ông bà nhận được khi hợp tác lâu dài với thương lái thường xuyên mua bò của ông/bà. Xin ông bà cho biết mức độ đồng ý của mình.

$1 = R\tilde{a}$ 5 = F	t không đồng ý (SD), 2 = Không đồng ý 3=1 ất đồng ý(SA)	Frung lập	)		4 =	Đồng
	Thu nhận kiến thức					
B36	Tôi học được kiến thức về chăn nuôi bò khi hợp tác với thương lái.	1	2	3	4	5
B37	Tôi học được các kiến thức về các giống bò mới khi hợp tác với thương lái.	1	2	3	4	5
B38	Tôi học được kỹ năng quản lý đàn bò khi hợp tác với thương lái.	1	2	3	4	5
B39	Tôi học được kiến thức về thị trường khi hợp tác với thương lái.	1	2	3	4	5
B40	Tôi học được kỹ năng bán hàng khi hợp tác với thương lái.	1	2	3	4	5
B41	Tôi học được kỹ năng giải quyết các vấn đề phát sinh khi hợp tác với thương lái.	1	2	3	4	5
	Kết quả kinh doanh					
B42	Số lượng bò mà tôi bán được đã tăng lên nhờ hợp tác với thương lái.	1	2	3	4	5
B43	Thu nhập  của tôi từ việc nuôi bò đã tăng lên nhờ hợp tác với thương lái.	1	2	3	4	5
B44	Nói chung, tôi kết quả nuôi bò của tôi đã tăng lên nhờ hợp tác với thương lái.	1	2	3	4	5
Phần	C. Thông tin hộ					
C1. Tê	n người phỏng vấn:					
C2. Tư	ıői:					
C3. Gi	ới tính: □Nam □Nữ					

C4. Kinh nghiệm nuôi bò?.....Năm

C5. Trình độ học vấn: .....

C6. Nuôi bò có phải là thu nhập chính trong gia đình không?

□Đồng bào

$\Box$ Có	□Không
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C7. Dân tộc:

□Kinh

Xin chân cám ơn các thông tin của ông bà!

Trong trường hợp chúng tôi muốn quay trở lại để phỏng vấn ông bà thêm 1 lần nữa, ông bà có vui lòng cung cấp thêm thông tin cho chúng tôi hay không? Có / không

Nếu có, xin ông bà vui lòng cung cấp số điện thoại liên lạc của mình .....



SUNIVERSITY of Entrepreneurial Orientation in smallholder agricultural value chains: a study of the beef cattle value chain in the Central Highlands, Vietnam

# Semi-structured interview guideline

## Thank you!

- Thank you again for your participation into the survey, your information is very helpful for my research.
- So far, I have analysed the quantitative data I collected from the survey and come up with some interesting findings.
- Thus, today interview is to help me explain the above findings.
- The interview is expected to last about an hour.
- In this interview, I will ask for your perspective about one concept which is "being entrepreneurial".
- If possible, I would like to hear about your own experience when performing entrepreneurial actions.
- Do you have any questions about me, my research, the survey data or the interview we are taking?

### **Follow-up questions**

- 1. Have you heard the term "being entrepreneurial"? Where? What does it mean to you?
- 2. Why do you think you should/should not become more entrepreneurial?
- 3. Lets talk about one of your partners who you think he/she is highly entrepreneurial. How you see his/her potential for success?
- 4. Do you collaborate with him/her in different ways than other people?
- 5. When you perform an entrepreneurial action, what events might cause the financial loss for beef cattle farms?

For each event:

a. How frequently does it occur?

- b. What consequences does it cause for beef cattle farming?
- c. How severely does it impact farmer's business? If possible, can you quantify the impact?
- d. Please think back the last time it occurred, how did farmers manage it?
- e. Why did they choose that strategy?
- f. Can the collaboration with traders help farmers to manage this risk? If yes, how?
- 6. What events might cause a breakdown of your farming operation for a while or forever?

For each event:

- a. How frequently does it occur?
- b. What consequences does it cause for beef cattle farming?
- c. How severely does it impact farmer's business? If possible, can you quantify the impact?
- d. Please think back the last time it occurred; how did farmers manage it?
- e. Why did they choose that strategy?
- f. Can the collaboration with traders help farmers to manage this risk? If yes, how?

#### Appendix 3: Published work relevant to the thesis

Dung, T., Bonney, L., Adhikari, R. & Miles, M. (2020). Entrepreneurial orientation, knowledge acquisition and collaborative performance in agri-food value-chains in emerging markets. Supply Chain Management: An International Journal, 25(5), 521-533. doi: 10.1108/SCM-09-2019-0327