

**Utilisation of Data Mining Technology within the Accounting  
Information System in the Public Sector:  
A Country Study - Malaysia**

by

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## **Declaration**

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other institution, and to the best of my knowledge, this thesis contains no material previously published or written by another person, except where due reference is made in the text of this thesis.

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## *List of Acronyms and Abbreviations*

ICT	Information and Communication Technology
DM	Data Mining
AIS	Accounting Information System
DW	Data Warehousing
ERP	Entreprise Resource Planning
ACL	Auditing Common Language
CAATs	Computer Assisted Audit Tools
KM	Knowledge Management
DMRI	Data Mining Readiness Index
DMR	Data Mining Readiness
TAM	Technology Acceptance Model
DMU	Data Mining Utilisation
DAA	Data Access and Analysis
GFMAS	Government Financial and Management Accounting Systems
BW	Business Warehouse
CIS	Central Information Systems
SQL	Structured Query Language
SAD	Self Accounting Department
TRI	Technology Readiness Index
BAS	Branch Accounting System
e-SPKB	Electronic Budget Planning and Control System
LAN	Local Area Network
HRMIS	Human Resources Management Information System
EG-AG	Electronic Government – Accountant General
GOE	Generic Office Environment
PMS(SETIA)	Project Monitoring System
SPSS	Statistical Package for the Social Sciences
Nvivo7	Qualitative data analysis software
NITA	National Information Technology Agenda
MSC	Multimedia Super Corridor
MAMPU	Malaysian Administrative Modernization and Management Planning Unit
DOD	Department of Defence
GAO	General Accounting Office
NASA	National Aeronautics and Space Administration
FBI	Federal Bureau of Investigation
CIA	Central Intelligence Agency
JPJ	Road Transport Department
PDRM	Royal Police of Malaysia
PAY	Payroll System
ILS	Investment and Loans System
SLAS	Subsidiary Ledger Accounting System
FMAS	Financial and Management Accounting System
AGO	Accountant General Office
MIS	Management Information Systems
AI	Artificial Intelligence
IT	Information Technology
UTAS	University of Tasmania
ANOVA	Analysis of Variance

## Glossary

<b>Accounting Information System (AIS)</b>	An integrated system developed and adopted within department including the accounting systems, payment systems, investment and loans, and financial management.
<b>Data Mining</b>	The process adopted to undertake a thorough analysis of the data, in particular financial data, available to the firm to select the information (identifying patterns and relationships amongst data) to allow the provision of information required by users and, in so doing enhance information available to the decision-making process. A data mining approach will use a variety of technological techniques and tools to explore (summaries, comparison, analysis, forecast, estimate) the data.
<b>Information and Communication Technology (ICT)</b>	Technologies that enable to record, capture, store, process, extract, retrieve, manipulate, transmit, distribute and receive any form of information
<b>Knowledge Management (KM)</b>	Knowledge management is a tool to react to or acquire new knowledge which involves acquisition, storage, dissemination and application.
<b>Data Warehousing (DW)</b>	A data warehouse system is a repository of integrated information, which can be utilized for query or analysis
<b>Data Mining Readiness</b>	The possession by the individual worker of a positive attitude, reflecting both optimism and innovativeness toward adoption or use, strong positive perceptions toward learning new skills and ease of use and to the perceived usefulness of data mining technologies.

## **Abstract**

This study reports on the readiness to implement and the extent of utilisation of data mining technologies within the accounting information systems in the Malaysian public sector. Few studies have investigated the implementation of data mining technology in Malaysia. These studies have been within the private sector. In the public sector there have not been any. This study assists in filling this gap by exploring the role of technology, organizational, human resources and external issues such as political intervention are explored. The characteristics of those who choose to, or would be keen to adopt this technology as compared to non-adopters is also investigated. A data mining utilisation model is constructed combining information and communication technologies (ICTs), knowledge management (KM), data warehousing (DW) and data mining (DM) for application in the Malaysian public sector and the benefits of adopting such a model are considered. The study is triangulated adopting both mail survey and interview techniques. In the mail survey a response rate of 39% was achieved and 9 semi structured interviews were undertaken. Issues explored included the respondents' views of the importance of and factors significant in evaluating the accounting information system, the level of understanding of, perceptions of and readiness to implement data mining technologies within the public sector. Analysis was undertaken using SPSS, and for interview data, Nvivo7.

The results of this study revealed that 25 out of 133 respondents were adopters and had knowledge about the implementation of such technology within their departments. The majority of respondents were not aware of the existence of data mining technology. Results further indicated that while respondents were generally positive about the existing accounting information system they identified improvements and changes that could valuably be made. For both the existing adopters of data mining technologies and non-adopters issues such as technological, organisational and human resources were significant and had played a role in the decision to, or not to utilise such technology. In terms of the non-adopters significant

reasons for not adopting data mining technology included a lack of top management support, constraint on available finance to set up the necessary infrastructure, human resource issues including knowledge of the technology. The study found no difference in gender, job function or utilisation groups in terms of readiness to implement data mining technology but did for the level of education and experience in working with the AIS. The ability to use this type of technology was found to be related to the performance of the AIS. It was found the best model to apply data mining technologies within the public sector would include a centralised data repository linked to a well managed data warehouse integrating a number of existing systems with data mining technology.