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

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Submitted in fulfilment of the requirements for the degree of  
Doctor of Philosophy

**School of Accounting and Corporate Governance**  
**Faculty of Business**  
**University of Tasmania**

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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.

  
Mohd Shaari Abd Rahman

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Date

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Mohd Shaafi Abd Rahman

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PUSAT PEMBELAJARAN DIGITAL SULTANAH NUR ZAHIRAH

## ***Table of Contents***

Declaration .....	ii
Statement of authority of access.....	iii
Acknowledgements .....	iv
Table of Contents .....	vi
List of Appendices.....	ix
List of Figures .....	x
List of Tables.....	x
List of Acronyms and Abbreviations .....	xii
Glossary.....	xiii
Abstract .....	xiv

## ***Chapter One - Introduction***

PUSAT PEMBELAJARAN DIGITAL SULTANAH NUR ZAHIRAH

1.1	Introduction .....	1
1.2	Background .....	1
1.3	Research problem, objectives and research questions.....	3
1.4	Justification for this research.....	7
1.5	Research approach and methodology.....	8
1.6	Overview of the Dissertation.....	10
1.7	Conclusion.....	12

## ***Chapter Two - Literature Review: Data Mining Utilisation and the Accounting Information System***

2.1	Introduction .....	13
2.2	ICT Background: The Country.....	13
2.2.1	Information and Communication Technology (ICT) and its importance for the management of data in the Malaysian Public Sector.....	14
2.3	Utilisation of Data Mining Technologies within the public sector: some observations.....	17

2.4	The Malaysian Public Sector Accounting Information System (AIS) and potential uses of data mining.....	20
2.5	Data mining use within the Accounting Information System (AIS).....	22
2.5.1	What is the Accounting Information System (AIS)? .....	23
2.5.2	What is Data Mining?.....	24
2.5.3	Data mining in the Accounting Information System (AIS) .....	28
2.6	Conclusion.....	30

### ***Chapter Three - Development of a Data Mining Utilisation (DMU) research model***

3.1	Introduction .....	31
3.2	Influence factor in adopting Information and Communication Technologies (ICTs) .....	31
3.3	Data mining readiness <small>IBELAJARAN.DIGITAL.SULTANAH.NUR.ZAHIRAH</small> .....	38
3.4	Individual differences .....	42
3.5	Data Mining Utilisation (DMU) Research Model.....	43
3.5.1	Variables in the DMU research model .....	46
3.6	Research Hypotheses.....	47
3.7	Conclusion.....	56

### ***Chapter Four - Research Design and Methodology***

4.1	Introduction .....	57
4.2	Research Design .....	57
4.2.1	Participants in the study .....	59
4.2.2	Study Setting and Time Horizon .....	59
4.2.3	Purpose and justification .....	60
4.2.4	Research Paradigm and approach.....	60
4.2.5	Instrument design - questionnaire .....	63
4.2.6	Instrument design – the interview guide (Protocol) .....	69
4.3	Data collection.....	70
4.4	Rules on Ethics and Confidentiality .....	74



4.5	Data analysis techniques .....	75
4.5.1.	Quantitative data.....	75
4.5.2.	Qualitative data.....	79
4.6	Conclusion.....	81

### ***Chapter Five - Results, Findings and Narrative Analysis***

5.1	Introduction .....	82
5.2	Response Rate .....	82
5.3	Reliability and Validity of survey instrument .....	83
5.4	Data Characteristics.....	85
5.5	Analysis of Data .....	87
5.5.1	Satisfaction on current systems .....	87
5.5.2	Data mining usage within AIS .....	90
5.5.3	Factors influencing organisation’s decision to employ data mining .....	94
5.5.4	Reasons for not utilising data mining.....	98
5.5.5	Intention to adopt.....	101
5.6	Data Analysis-Research Question One .....	103
5.6.1	Is the concept of data mining accepted?.....	103
	a) Awareness of and knowledge of data mining techniques .....	104
	b) Data Mining Readiness .....	107
5.7	Data analysis-Research Question Two.....	112
5.8	Data analysis-Research Question Three.....	117
5.9	Data analysis-Research Question Four.....	121
5.10	Conclusion.....	125

### ***Chapter Six - Results, Findings and Hypotheses Testing***

6.1	Introduction .....	126
6.2	Data analysis: Hypothesis Testing .....	126
6.2.1	Influencing issues in decision to utilise data mining.....	126
6.2.2	Reasons in decision not to utilise data mining .....	133
6.2.3	Data Mining knowledge and intention to utilise .....	138

6.2.4	Data mining readiness between gender .....	139
6.2.5	Data Mining readiness and education .....	141
6.2.6	Data Mining readiness and job function.....	143
6.2.7	Data Mining readiness and experience in AIS .....	144
6.2.8	Data mining readiness and utilisation groups.....	146
6.2.9	Knowledge about data mining and perception of data mining impact.....	148
6.2.10	Ability to utilise data mining and performance of the AIS .....	151
6.3	Proposed Data Mining Model .....	152
6.4	Conclusion.....	158

## ***Chapter Seven - Conclusions, Limitations and Future Research***

7.1	Introduction .....	159
7.2	Summary of Hypothesis testing .....	161
7.3	Proposed data mining model .....	165
7.4	Contributions.....	166
7.5	Limitations.....	168
7.6	Further research opportunities.....	169

<b><i>Bibliography</i></b> .....	170
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## ***List of Appendices***

Appendix One: Covering Letter and Questionnaire.....	179
Appendix Two: Interview covering Letter and interview protocol.....	192
Appendix Three: Interview Schedule (Brief Version) .....	197
Appendix Four: Consent form.....	198
Appendix Five: Statistical Analysis Decision Tree.....	199
Appendix Six: Testing of Assumption (T-Test, ANOVA) and Normal Plot.....	200
Appendix Seven: Reliability Statistics .....	212
Appendix Eight: Association Analysis (Crosstab and Correlation).....	214

## List of Figures

Figure	Title	Page
2.1	Computer system data flow process	21
2.2	Data mining use within accounting information systems	22
2.3	Data mining definition constructs	27
3.1	Theoretical model-Spanos <i>et al.</i> , 2002	32
3.2	A Model for open systems adoption, adapted from Chau and Tam (1997)	33
3.3	Research model adapted from Hwang <i>et al.</i> , (2004)	34
3.4	Research framework adapted from Chang <i>et al.</i> , (2003)	35
3.5	The square route framework adapted from Nemati and Barko (2003)	36
3.6	Theoretical framework adapted from Ang <i>et al.</i> , (2001)	37
3.7	Conceptual framework adapted from Syed-Ikhsan and Rowland (2004a)	38
3.8	Data mining readiness framework adapted from Dahlan <i>et al.</i> , (2002)	39
3.9	Technology acceptance model adapted from Legris <i>et al.</i> , (2003)	41
3.10	Data mining utilisation research model	43
4.1	Modelling the research design adopted in this Study	58
4.2	Approaches taken in data collection and analysis	63
4.3	Flowchart in conducting survey and interviews	71
5.1	Classification of respondents by intention to adopt data mining	102
5.2	Data mining utilisation model	122
6.1	GFMAS capabilities	153
6.2	Public sector data mining utilisation model	155
7.3	Framework for understanding the relationships between variables in the utilisation of data mining	164

## List of Tables

Table	Title	Page
2.1	Data mining uses within e-government initiatives	18
2.2	Data mining defined throughout the literature	25
2.3	Common elements of data mining definitions	26
4.1	Categories and variables in questionnaire	65
4.2	Coding of measurement scale	67
5.1	Respondents and response rate	82
5.2	Reliability test	84
5.3	Validity test between groups of respondents	85
5.4	Demographic characteristic of respondents	86
5.5	Profiles of interviewees	87
5.6	Satisfaction with the current accounting information system	87

5.7	Analysis of importance and performance	88
5.8	Use of analytical/data mining software	91
5.9	Primary job function vs utilisation	91
5.10	Factors influencing decision to employ data mining	95
5.11	Reasons for not utilise data mining	99
5.12	Frequency on awareness of and knowledge of data mining	105
5.13	Readiness toward data mining technology	109
5.14	Frequency use of accounting data from AIS in decision making	112
5.15	Perceived impact of data mining	113
5.16	Important factors for evaluating the performance of AIS	118
5.17	Descriptive statistics: Factors representing the ability to utilise Data Mining	119
6.1	Factors influencing decision to utilise data mining-% of agreement	127
6.2	Individual t-test: Technological influences	128
6.3	Transformed Technological issues in decision to utilise data mining	128
6.4	Individual t-test: Organisational influences	129
6.5	Transformed Organisational issues in decision to utilise data mining	129
6.6	Individual t-test: Human Resources influences	130
6.7	Transformed Human Resources issues in decision to utilise data mining	130
6.8	Individual t-test: External influences	131
6.9	Transformed External issues in decision to utilise data mining	131
6.10	Influencing factors in the decision to utilise data mining technologies	132
6.11	Reasons for not utilise data mining-% of agreement	133
6.12	Individual t-test: Technological reasons	135
6.13	Transformed Technological reasons for not utilise data mining	135
6.14	Individual t-test: Organisational reasons	136
6.15	Transformed Organisational reasons for not utilise data mining	136
6.16	Individual t-test: Human Resource reasons	137
6.17	Transformed Human Resources reasons for not utilise data mining	137
6.18	Reasons in the decision not to utilise data mining technologies	138
6.19	Strength of association: Data mining knowledge and intention to utilise	139
6.20	Descriptive Statistics, levene's test and t-test of readiness vs gender	141
6.21	ANOVA: Data mining readiness vs. level of education	142
6.22	Tukey post -hoc test for level of education mean of readiness	143
6.23	ANOVA: Data mining readiness vs. job function	144
6.24	ANOVA: Data mining readiness vs. experience in AIS	146
6.25	Tukey post -hoc test for experience in AIS mean of readiness	146
6.26	ANOVA: Data mining readiness vs. utilisation	147
6.27	ANOVA: Data Mining knowledge vs. perception of data mining impacts	149
6.28	Tukey post -hoc test: Perception of impact and the level of data mining knowledge	150

## *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	Cental 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>	<small>PUSAT PEMBELAJARAN DIGITAL SULTANAH NUR ZAHIRAH</small> 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.