CASE MANAGEMENT SYSTEM (CMS): AN EVALUATION AMONG USERS

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By

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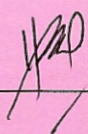
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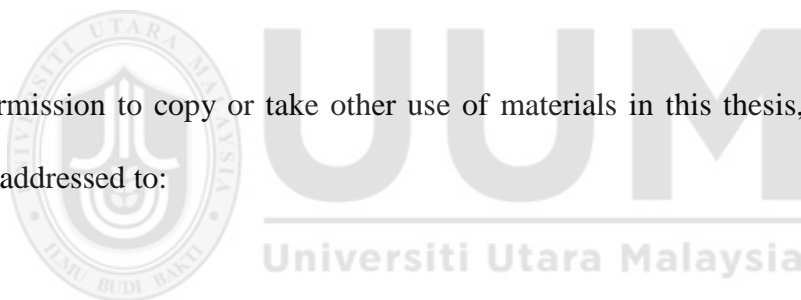
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ABSTRAK

Pelaburan yang dibuat ke atas sistem maklumat yang baru boleh membantu pekerja untuk memperbaiki kerja-kerja seharian dan meningkatkan produktiviti. Ia boleh juga mengakibatkan bencana jika tidak dikendalikan dengan baik. Lembaga Hasil Dalam Negeri Malaysia (LHDNM) telah melabur bagi membangunkan *Case Management System* (CMS) untuk membantu juruaudit dalam menguruskan fail kes audit mereka dan membuat laporan audit secara atas talian. CMS adalah sistem mandatori yang wajib digunakan oleh pegawai audit walaupun mereka mempunyai sedikit keraguan terhadapnya. Oleh itu, kajian ini dijalankan untuk menilai faktor kejayaan CMS di LHDNM dari sudut pandangan juruaudit atau pengguna individu CMS. *DeLone and McLean Information System Success Model (D&M ISSM)* digunakan bagi menentukan hubungan diantara enam faktor utama, iaitu kualiti sistem, kualiti servis, kualiti maklumat, penggunaan sistem, kepuasan pengguna, dan faedah bersih. Sebanyak 338 kaji selidik telah diedarkan secara atas talian dan 105 responden telah memberikan maklumbalas. Responden terdiri daripada pegawai audit yang bertugas di unit-unit seperti audit meja, audit luar, profiling, audit Potongan Cukai Berjadual (PCB), dan cawangan siasatan. Hasilnya menunjukkan bahawa hanya kualiti maklumat yang mempengaruhi penggunaan sistem. Walau bagaimanapun, kualiti sistem dan kualiti perkhidmatan tidak signifikan. Di samping itu, kualiti perkhidmatan dan penggunaan perkhidmatan mempengaruhi kepuasan pengguna. Penggunaan CMS dan kepuasan pengguna juga didapati memberi pengaruh positif kepada manfaat bersih (*net benefit*) CMS. Penemuan kajian ini menunjukkan pegawai-pegawai audit LHDNM lebih mementingkan kualiti maklumat yang diberikan oleh CMS dan kualiti perkhidmatan yang diterima daripada *Help-Desk* CMS. Oleh itu, LHDNM perlu memberi lebih perhatian untuk meningkatkan ciri-ciri seperti kualiti maklumat dan kualiti perkhidmatan semasa menaik taraf atau membangunkan sistem yang wajib bagi pengguna atau mempunyai ciri-ciri yang sama seperti CMS. Perhatian tambahan kepada kedua-dua ciri ini akan membantu sistem mencapai kejayaan seperti yang diperincikan oleh manfaat bersih CMS.

ABSTRACT

Investments made in a new information system can help employees to improve their daily task and increase productivity. It can also lead to disastrous result if not managed well. Inland Revenue Board of Malaysia (IRBM) has invested in developing Case Management System (CMS) to help the auditors in managing their audit case files and reports online. CMS is a mandatory system that the auditors needed to use even though they have some reservations about it. This study, therefore, aimed to assess the success factors of CMS in IRBM from the auditors or the individual users' point of view. The DeLone and McLean Information System Success Model (D&M ISSM) was used to determine the relationship between its six constructs, namely, system quality, service quality, information quality, use, user satisfaction, and net benefit. Three hundred and thirty-eight (338) questionnaires were distributed online, and 105 responded. The respondents were officers from the desk audit, field audit, profiling, Monthly Tax Deduction (PCB) audit and investigation branches. The results indicated that only information quality influenced system use. System quality and service quality were, however, not significant. In addition to that, service quality and use influenced user satisfaction. Use and user satisfaction were also found to positively influence net benefit of CMS. The findings show that the auditors of IRBM care more in the quality of information provided by CMS and the service quality received from the CMS Help-Desk. Hence, IRBM should pay more attention to enhance features, such as information quality and service quality, when upgrading or developing a system that is mandatory for the users or has similar features as CMS. Extra attention to both features will help the system to attain success as described by the net benefits of CMS.

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LIST OF ABBREVIATIONS

ACCA	:	Association of Chartered Certified Accountants
AVE	:	Average Variance Extracted
B2C	:	Business To Customers
C	:	Company
CMS	:	Case Management System
CRM	:	Customer Relationship Management
D&M ISSM	:	DeLone and McLean Information System Success Model
DWA	:	Data Warehouse Application
e-HRM	:	e-Human Resource Management
EIS	:	Enterprise Information System
EUCS	:	end-user computing satisfaction
FAIS	:	Financial and Accounting Information System
G2C	:	Government to Customer
G2E	:	Government to Employees
HRIS	:	Human Resource Information System
ICT	:	Information Communication and Technologies
IRBM	:	Inland Revenue Board of Malaysia
IS	:	Information System
IT	:	Information Technology
IQ	:	Information Quality
KMS	:	Knowledge Management System
NB	:	Net Benefit
OG	:	Business Income
PCB	:	*Potongan Cukai Berjadual/* Monthly Tax Deduction

PLS	:	Partial Least Squares
REMS	:	Revenue Management System
RMK-9	:	*Rancangan Malaysia Ke* 9
SEM	:	Structural Equation Modelling
SerQ	:	Service Quality
SERVQUAL	:	Service Quality
SG	:	Employment Income
SMUP	:	*Sistem Maklumat Unit Pengesanan*
STSC	:	Company Self-Assessment System
SUse	:	System Use
SQ	:	System Quality
TAM	:	Technology Acceptance Model
TPB	:	Theory of Planned Behaviour
US	:	User Satisfaction
TRA	:	Theory of Reasoned Action
UTAUT	:	Unified Theory of Acceptance and Use of Technology
UUM	:	Universiti Utara Malaysia

CHAPTER 1   INTRODUCTION

1.1   Background of the Study

Inland Revenue Board of Malaysia (IRBM) is one of the focal departments under the Ministry of Finance (MOF). IRBM has been entrusted to collect direct taxes. What it aims is to promote voluntary compliance with the laws and tax regulations. The primary objective of the IRBM is to implement effective, fair, and equitable tax management system (IRB, 2009).

The IRBM has invested a lot of money to improve their services, either to other government agencies, employees, and citizens (IRB, 2009). Employees' productivity can be increased through the implementation of latest information communications and technologies (ICT) tools and systems that can help in fulfilling their duties and responsibilities. The implementation of e-Filing system by the IRBM in 2004, for instance, is a part of the IRBM's Government to Customer (G2C) initiative under the e-Government. The overall productivity of the IRBM has improved with the implementation of e-filing, where all the manual tax return forms are now processed through the system which has expedited the refund process (if any) (IRB, 2009).

In ensuring that the Government to Employees (G2E) elements under the e-Government is successful, the IRBM has invested in new technologies to enhance its employee's productivity. Currently, various systems have been introduced by IRBM to boost employee's productivity, such as E-Detection, *Sistem Maklumat Unit Pengesanan (SMUP)*, Revenue Management System (REMS), Customer Relationship Management (CRM), and many more. IRBM has

invested in Case Management System (CMS) to replace the traditional way of audit report filing and audit report management.

Under the self-assessment system, there are two categories of an audit. The audit performed at the IRBM's office called desk audit and field audit executed at the taxpayer's premises. Both types of audit cases require an audit officer to key in a report in the CMS.

CMS is an application that enables an internal user to manage the audit and investigation paperwork from start to finish. Traditionally, when an auditor receives a new audit case from the Group Leader, it will be in a file form with the related documents attached to it. While processing the audit case, all correspondence will be stacked, compiled, and bind in the file. Audit reports are typed and sent to Group Leader for approval. If the settlement amount exceeds the threshold value of RM300,000.00, the case will go all the way to the Branch Director for approval.

CMS enables the officers to manage and handle audit and investigation cases for each stage of activity according to the determined Audit Work Process. Audit and investigation activity can use previous concluded cases as guidance and can easily be accessed online. The auditors in the unit such as Audit, PCB Audit, Investigation, and Profiling are currently using CMS.

This system replaces the Audit and Investigation module in the Company Self-Assessment System (STSC), another internal system used by the auditors. CMS Audit and Investigation cover the preparation of Audit Paper Works and Investigation Paper Works for Company files and Non-Company files.

In the early days, only the Field Audit Unit officers use CMS to file their audit report. After seeing its benefit to the officers regarding more manageable audit reports and cases more conveniently monitored, especially the case aging, the management has expanded the usage of the system stage by stage. Nonetheless, to my best knowledge, IRBM has never assessed the success of CMS from the user's perspective. Therefore, the critical objective of this research is to evaluate the success of CMS implementation in IRBM by using the DeLone and McLean Information System (IS) Success Model (D&M ISSM).

1.2 Problem Statement

Currently, the auditors are using CMS to file in an audit report, monitor audit cases individually, monitor the aging of the audit cases, view taxpayer's profile, make a comparison for all the audited year of assessments, and generate statistics for the auditor's individual use. The Group Leaders use CMS to monitor the progress of each audit case of each auditor. The Branch Director, on the other hand, uses CMS to observe the progress of collection amount for their branch.

CMS is a mandatory system that the auditors needed to use even though they have some reservations about it. Regardless of all the benefits being offered by the CMS (see Table 1 for detail), the auditors cannot fully accept the system as they felt that the system is lacking and has not fulfilled their satisfaction (see Table 2 for detail). Among the benefits raised by users include complete process, prescribed letter, organised and efficient monitoring, statistic, accessibility of database, fast processing capability, no overlapping task, paperless and user-friendly.

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For example, a user described in detail how CMS failed to calculate the actual audit finding in the calculation column due to the limitation of a predetermined column. Nonetheless, they have to still key in the figures and work around the limited column to close the case and record the actual finding.

Table 1.   *Advantages of CMS According to Users*

No.	Problem	Description
1.	Complete process	CMS covers the whole process of audit from pre-audit to post-audit work process. Tax calculation and how it led to the figure are shown in CMS in the audit process.
2.	Prescribed letter	CMS has a prescribed letter format build in.
3.	Organised and efficient monitoring	CMS can monitor audit cases more organised and more efficient. No case of untraceable data compared to manual. Closed cases can be checked. Easy to keep track of the stages for each audit case. Monitor the aging of the case. Case progress updated. Easy monitoring by the Head of Unit and Audit Manager.
4.	Statistic	Statistic can be generated immediately. A precise statistic based on file/ case/ RM achieved by auditors.
5.	Accessibility of database	Audit reports stored in the database can be accessed anytime. A complete tax payers profile and audited assessment year is easier to view.
6.	Fast processing capability	A dynamic system and fast search capability. Not much time needed for uploading report. Able to conclude audit cases faster.
7.	No overlapping task	Same report prepared for both manual and online.
8.	Paperless	No more printing of reports.
9.	User friendly	Features in CMS are user friendly.

Hence, further investigation was carried out to understand the problems encountered by the auditors when using CMS. For this purpose, preliminary questionnaires were prepared and distributed to CMS users in Malaysia (see Appendix 1 for detail of questions asked during the initial investigation).

Table 2.   *Problems Encountered by Users*

No.	Problem	Description
1.	Unstable system	Network too slow. Document that has been saved does not exist in the system.
2.	Bottleneck	Bottleneck at the end of month due to excessive logging in activity by users at the same time to close audit cases.
3.	No integration with other system	A few different systems needed to be open to complete an audit case report. CMS does not connect with other IRBM's system.
4.	Limited storage	Supporting documents to be upload involve large quantity.
5.	Limited function	Limited function of predetermined column. For example, the calculation of imposed tax involving carry forward Reinvestment Allowance was not displayed. The date of the audit field visit cannot be backdated.
6.	Too many steps	Too many steps in CMS to complete one audit case report.
7.	Contents displayed	Important information, such as information of taxpayer, should be displayed in other screen too. A lot of un-useful field. Not enough information displayed in certain screen, such as turnover of a company for the purpose of case selection according of threshold or info on cases that already being audited in less than two years to avoid the same company being audited twice in a short span of time. Auditors can only view information of taxpayers limited to their branch' taxpayers only.
8.	Auto log out	Time out setting is not suitable.
9.	Manual report	Manual report still needs to be prepared.

The desired state would be that CMS users fully utilised the system and achieved the net benefit of using the system. Currently, there are two types of users; one whom accept the imperfections part of CMS and live with it, and two; the one who admitted to the benefit received from CMS. This situation shows that the benefit from CMS or the success of it has yet to be determined. Hopefully, the users and IRBM could see the benefits that could be derived from the CMS, which eventually indicates that the investment made by IRBM does not go wasted. It is hoped that CMS delivers the objectives of its development. CMS now is still being

updated module per module, and new investments are still being channelled into upgrading and adding a new group of users to the system.

This study aims to close the gap and gives a view to the management in the success factors of the system in the eyes of the user. To the best of researcher's knowledge, the success of the system from the user's perspective in Malaysia has never been tested before. An IS would be a waste if the users are not using it for their benefit. A successful IS can benefit the user in many ways, such as, Electronic Monitoring Systems that has been proven to positively affect in reducing corruption (Hu, 2015).

It is hoped that the present study will be able to provide a clear view of the successful factors of CMS implementation in IRBM as according to the users. It is very crucial to understand the success of a system before more investments made on the system.

1.3 Research Questions

This study listed out four research questions namely:

(a) Do information quality, system quality, and service quality influence CMS use?

(b) Do information quality, system quality, and service quality influence user satisfaction?

(c) Does CMS use influence user satisfaction and net benefits of CMS?

(d) Does user satisfaction influence the net benefits of CMS?

1.4 Research Objectives

The research objectives below have been constructed to achieve the research questions above (see section 1.3):

(a)   To examine the effects of information quality, system quality, and service quality on CMS use.

(b)   To examine the influence of information quality, system quality, and service quality on user satisfaction.

(c)   To examine the effect of CMS use on user satisfaction and net benefits of CMS.

(d)   To study the effect of user satisfaction on the net benefits of CMS.

1.5 Significance of the Study

IS is vital to the operation and management of every organisation. An IS is said to benefit the organisation if the system is successful. According to Tansley and Watson (2000), managers can use IS generally or in more specific functions, such as report management, to increase the capability of the organisation. Few organisations have attempted to measure the success of their system and factors contributing to the success (Ngai & Wat, 2006).

CMS is a system developed by the IRBM to enhance the auditor's efficiency and betterment of audit cases management. An IS would be a waste if the users are not using it for their benefit. A successful IS can benefit the user in many ways, such as, Electronic Monitoring Systems that has been proven to positively affect in reducing corruption (Hu, 2015). To determine the CMS success, it is imperative to assess the factors that contribute to its success and take necessary

action based on the assessment result. Understanding the IS success will help to highlight the value of the system and can serve as a basis for subsequent decisions regarding such systems.

The users of CMS will benefit from the result of the assessment. They will have a better understanding of how CMS has helped them in their daily task. An assessment review should help CMS gain recognition from users and provide users with satisfaction when using the system. Should IRBM improves CMS afterward, users will enjoy a better quality of CMS, which will eventually help them in their work.

To date, there is no model or framework has been developed specifically to measure CMS success. The only option available is to look at a few well-known models that focused on IS success and uses the model as a basis for assessing the success of CMS.

The present study will help all organisations, especially IRBM, to understand better the success factors of CMS in aiding the auditor performing their daily task.

1.6   Scope and Limitation of this Study

The population used in this study is all of the CMS users in the Field Audit Unit (Company and Business Income), Desk Audit Unit (Company, Business, and Employment), PCB Audit Unit, Profiling Unit, and Investigation Branch from all IRBM branches in Malaysia. This population was chosen because they are using the system in their daily task.
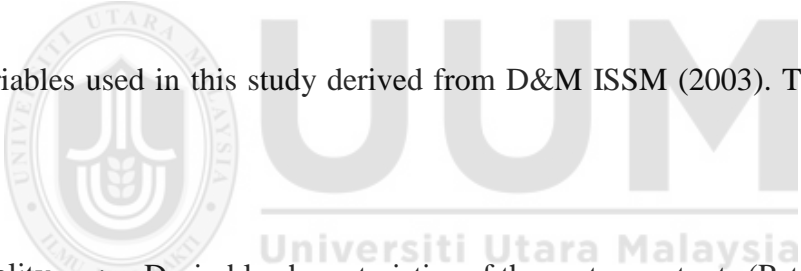
CMS is also used by the Tax Compliance Department as the owner of the system. They use the system primarily to distribute audit cases to auditors located in all branches over Malaysia.

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Besides, they will also present the statistic to the management on the performance of audit task for IRBM to the Chief Executive Officers in major meetings. Nonetheless, they were excluded from this study to avoid prejudice in giving their opinion about the system.

This study may be a bit bias because of the small sample size, and the group of user chosen to fill in the questionnaires is limited to the auditors only. The user from the management group might bring a different result to the study. Any act of generalising the result of the research based on the small size sample is not advisable.

1.7 Definition of Key Terms

Each of the variables used in this study derived from D&M ISSM (2003). The dimensions of the success are:

Information quality	:	Desirable characteristics of the system outputs (Petter, DeLone & McLean, 2008).
Net benefit	:	The effect an IS has on an individual (Petter & McLean, 2009).
Service quality	:	The quality of the support that system users receive from the IS department and IT support personnel (Petter et al., 2008).
System quality	:	Performance of the IS in terms of convenience, reliability, ease of use, functionality and other system metrics (Petter & McLean, 2009).
Use	:	Actual usage or self-reported usage (Petter & McLean, 2009).
User satisfaction	:	Approval of an IS or the likeability of an IS and its output (Petter

& McLean, 2009).

1.8 Organisation of the Thesis

This study consists of five chapters, namely, Introduction, Literature Review, Research Model and Hypotheses, Research Methodology, Findings, and Discussion, Conclusion, and Recommendations for Further Research. The organisation of the study arranged as below:

Chapter One introduces the study. This chapter includes details on the background of this study, the problem statement, the research questions and research objectives, and significance of the study. Next is the scope and limitation of the study, the definition of key terms used in this study, and the organisation of the thesis.

Chapter Two reviews all literature that helps to understand CMS in IRBM. Next part focuses on the development of main models of IS Success models namely "Technology Acceptance Model" (TAM) and D&M ISSM and then reviews on previous studies that used the D&M ISSM as the basis of their hypotheses and the IS success model.

Chapter Three focuses on the research model and hypotheses used in this study. The origins of the hypotheses for each relationship are explained in detail.

Chapter Four focuses on research methodology of the study which explains in detail how the flow of the research is done. This chapter covers research design, population and sampling technique, unit of analysis, key informants, data collection procedure, operational definition of each construct, measurement of variables, and data analysis technique.

Findings of this study are presented in Chapter Five. This chapter covers survey response rate, data screening, and model testing.

The concluding chapter discusses the findings of this study. In conclusion, the limitation and suggestions for future research are highlighted.

CHAPTER 2   LITERATURE REVIEW

2.1   Introduction

This chapter starts with the overview of CMS system in IRBM. This is followed by a discussion of past literature on IS success model, prior studies adopting the D&M ISSM, and previous studies that had made alteration and amended the model. The final part is the summary of the chapter.

2.2   Understanding CMS at IRBM

The change in the taxation policy from formal assessment to Self-Assessment System in 2001 for company files and 2004 for another type of files has led to the Data Warehouse Application (DWA) development. In the context of IRBM, DWA project was started through the "*Rancangan Malaysia Ke 9*" (RMK-9) with the aim of improving the effectiveness and efficiency of taxation activity (IRBM, 2012). In this project, five applications were developed, and one of it was CMS.

CMS is an application that can help IRBM users to manage their audit and investigation case paper works for both company files and other files from the start until finish (IRBM, 2012). This application has replaced the Audit Module and Investigation Module in the main system, STSC (IRBM, 2012). CMS enables the managing and handling of audit and investigation cases for each stage of audit activity based on the established work process (IRBM, 2012). Concluded cases can be used as a reference material and can be accessed online. Every stage of

the management personnel can monitor each of the activities and overdue cases in branches. In addition, CMS can also track client's information.

Through the eyes of the user, CMS is a system where its success is defined only by the capability and the ability to automate document handling and generate reports and has no significant contribution to their efficiencies. Kamal (2006), as stated in Lupo (2016), proposed that due to legal and employment restrictions, efficiencies derived from information technology (IT) investments through tasks automation and headcounts reduction usually are unable to be accomplished by the government agencies as compared to private organisations.

Initially, CMS was developed to help auditor to migrate from manual audit case handling to an automated process. This approach has helped to eliminate the manual, time-consuming, and error-prone process of file management. The capability and functionality of CMS have been upgraded ever since. According to Sun, Ju, and Chen (2004), Internet-based official document processing system will improve administration efficiency by saving on postage, paper, and a lot of other administrative costs along with expediting the document processing flow. According to Ju (1998), as quoted in Sun et al. (2004), weather and distance will no longer affect the document transportation which will improve the swiftness and more trustworthy. The methodical control of documents throughout the entire life cycle is known as document management (Spargue, 1995 in Sun et al., 2004). It includes the production, storing, organisation, transfer, search, and distribution of documents. Even though CMS has yet to prove its benefits but it certainly has helped IRBM to eliminate the paper usage involving audit cases.

Another approach to research on CMS system was found in one of the e-justice systems (also known as Case Management Systems). However, no further explanation of the structure of the system was provided to be able to compare it with the IRBM's CMS system. The research titled "Evaluating e-Justice: The Design of an Assessment Framework for e-Justice Systems" (Lupo, 2016) designed a framework to evaluate e-justice systems. The framework used the D&M ISSM variables as a foundation with a set of determinants that operationalised e-justice's aptitude to upkeep judicial values. The independence variable was related to the assessment of a particular type of systems particularly case-management systems and electronic legal work desk, that supported the day-to-day activities of the judges. The case allocation mechanism gave assurance that case would not be assigned to judges that might jeopardise the judgment of the judge.

CMS Audit was started to be used entirely in January 2008 while CMS for investigation and CMS for technical and law modules began in June 2009. Continuous improvement on the CMS has been made throughout the years, module per module. CMS users have also been expanded to Profiling Unit, PCB Audit Unit, and newly under developments, the International Taxation, and Non-Resident users.

2.3 The IS Success Model

The theoretical model has been developed by using two major models to explain the IS and CMS success that is the TAM (Davis, 1989) and D&M ISSM (1992 and 2003).

2.3.1 Technology Acceptance Model (TAM)

Fu, Farn, and Chao (2006) defined user acceptance as a psychological state of mind of an individual whether to use the technology. User acceptance and behaviour were constructed by "Theory of Reasoned Action" (TRA) by Fishbein and Ajzen (1975) and had become the focal hypotheses for researchers in developing new models. The two most popular models developed are the "Theory of Planned Behaviour" (TPB) by Ajzen (1991) and "Technology Acceptance Model" (TAM) by Davis (1989).

TAM explains the relationship between perceived ease of use, perceived usefulness, behavioural intention to use, and attitude toward using any new IT. Davis (1989), in his paper "Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology", discovered that computer usage was influenced by perceived ease of use and perceived usefulness by users. The reasoning of perceived usefulness is based on the Action Theory, Work Motivation Theory, and Behaviour Decision Theory, which assert that the force for actual behaviour comes from mental representation connecting instrumental conduct to more elevated amount objectives or purposes (Venkatesh & Davis, 2000). A person will decide to use a system when one thinks that a system is useful regarding the functionality and when the complexity level of those functions is high (Davis, 1989). Davis (1989) found out that usefulness-usage is more significant than the use-usage relationship and has subsequently developed the "Technology Acceptance Model" (TAM).

Davis (1989) study has then been expanded with newly constructed theories, which were developed using the TAM as the basis. Venkatesh, Speier, and Morris (2002) inspected the

continuous use of technology by considering a relationship connecting the behavioural intention to use technology to its short and long-term use. They found that the desire to use technology was fundamentally related to a shortly use as well as to long-term use. Indeed, the first TAM (Davis, 1989) proved that behavioural intention is equivalent to actual use. Therefore, it would be fair to assume that behavioural intention was considered as a proxy to actual usage (Venkatesh, 2000).

Venkatesh, Morris, Davis, and Davis (2003) proposed the "Unified Theory of Acceptance and Use of Technology" (UTAUT) aiming to unify multiple models and theories. UTAUT has proven that user acceptance is directly influenced by effort expectancy and performance; social impact; assisting circumstances that are moderated by age, gender, experience, and voluntariness (Venkatesh et al., 2003). Venkatesh et al. (2003) expressed the importance of extending the literature using information and system characteristics particularly on how it will affect the significant theories in TAM and probably designed the system usage indirectly.

Information and system characteristics have been the main elements of the past literature about user satisfaction as opposed to the writings of technology acceptance (DeLone & McLean 1992). User satisfaction is defined as the users' approach toward information system (DeLone & McLean 1992) and is a significant theoretical hypothesis concerning its potential to describe both upstream and downstream links (Doll & Torkzadeh, 1991). Upstream activities are referring to determinants that lead to satisfaction (Doll & Torkzadeh, 1991). On the other hand, user satisfaction is considered as the independent determinant when involves the downstream activities, where behaviours are affected by satisfaction (Doll & Torkzadeh, 1991). Even

though acceptance of an IS is an important factor contributing to success, it is however not equal to success (Petter et al., 2008).

TAM has been approved as one of the most effective models for determining usage behaviour and user acceptance in past literature on IS. This stand, however, is not in line with the current study where "prediction of usage behaviour" could not be a determinant of CMS success when the system use is mandatory. Thus, TAM is not a suitable model to assess CMS success.

2.3.2 DeLone and McLean IS Success Model (D&M ISSM)

DeLone and McLean first introduced the D&M ISSM through their research "Information systems success: The quest for the dependent variable" in 1992 (DeLone & McLean, 1992). The paper was based on researches back in the 1970s and 1980s. Heavily inspired by the taxonomy developed by Richard Mason back in 1978 that build out of Shannon and Weaver's "Information Theory" in 1949, the authors developed an alternative classification to better understand the various dimensions of IS success (DeLone & McLean, 1992). The article intended to produce a coherent and well-defined outcome measure from IS success research that can evaluate policies, practice, and procedures of IS.

DeLone and McLean (1992) had successfully hypothesised six determinants of IS success, namely, information quality, system quality, user satisfaction, use, individual and organisational impact. These six variables, however, are interdependent instead of being independent success measures. Figure 1 illustrates the original IS success model (DeLone & McLean, 1992).

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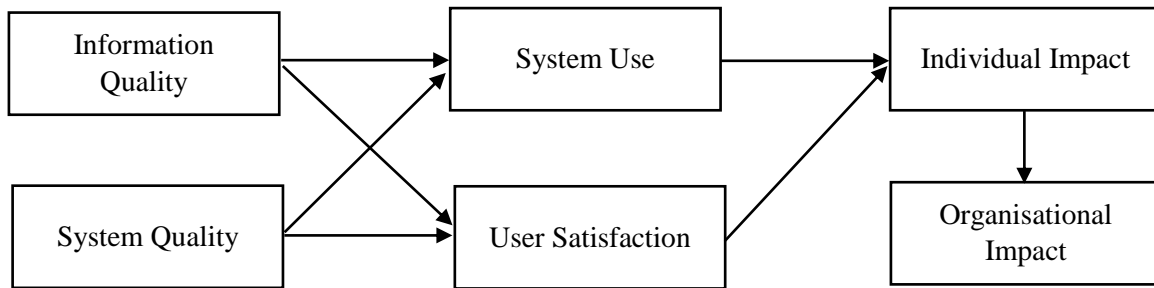
Figure 1. The Original IS Success Model (Delone & McLean, 1992)

According to the D&M ISSM (1992), both information quality and system quality influence the use and user satisfaction; and both user satisfaction and use are inter-related to each other. More use of the system will affect user's satisfaction, and more satisfied user means more system use will be recorded. The actual use of the system (behaviour) and user's attitude (being satisfied) towards the system which has a reciprocal relationship will produce an individual impact and eventually would influence the organisation.

After the D&M ISSM (1992) was published, many researchers have tested the significance of the variables in various situations, either by adopting the whole model; or by proposing a modified version of the model by adding new variables and removing the unrelated ones. Seddon and Kiew (1996), for instance, studied information quality, system quality, user satisfaction, and use by altering the use construct, estimating that the core success construct that researchers have been trying to reveal is not use but usefulness. Seddon and Kiew's idea of usefulness is equal to the concept of perceived usefulness in TAM by Davis (1989). They argued that use is a more appropriate measure for voluntary systems. Usefulness, however, can measure IS success better than use when system use is mandatory (Seddon & Kiew, 1996). Another well-known proposal by Seddon (1997) was the three potential meanings of the use construct, analysing the process and modifications of the model. He argued that the original

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form of D&M ISSM (1992) was perplexing because the process and variance models were integrated within the same framework. DeLone and McLean (2003) responded that they believed that this was one of its strong points and not a shortcoming. The D&M ISSM (1992) was planned to be 'both comprehensive and parsimonious' but the modifications introduced by Seddon which complicates the model has reduced its impact.

Researchers have also suggested that service quality is added to the D&M ISSM (1992). For example, a marketing literature instrument, known as SERVQUAL (Service Quality), measured the service quality of IT departments by assessing and comparing user's perception and their expectations of the IT department. Pitt, Watson, and Kavan (1995) had evaluated and proposed that the dimension of service quality to be added to the D&M ISSM (1992). The study provides evidence that SERVQUAL can be used as a measure of IS success. Some studies have agreed to this change (Jiang, Klein, & Carr, 2002), and some resisted (Seddon, 1997).

Finally, in 2003, DeLone and McLean have redesigned their D&M ISSM framework comprising seven dimensions of IS success. The major modifications to the model were by adding service quality dimension while dividing use into 'actual use' and 'intention to use.' Service quality was added because of the continuously changing nature of IS. Hence, it requires the need to assess service quality whenever IS success is being evaluated. Also, the Individual Impact and the Organisational Impact have also been combined into a Net Benefits construct; taking into account the effects of both individual and organisational level (see Figure

2.   The Modified IS Success Model (DeLone & McLean, 2003)
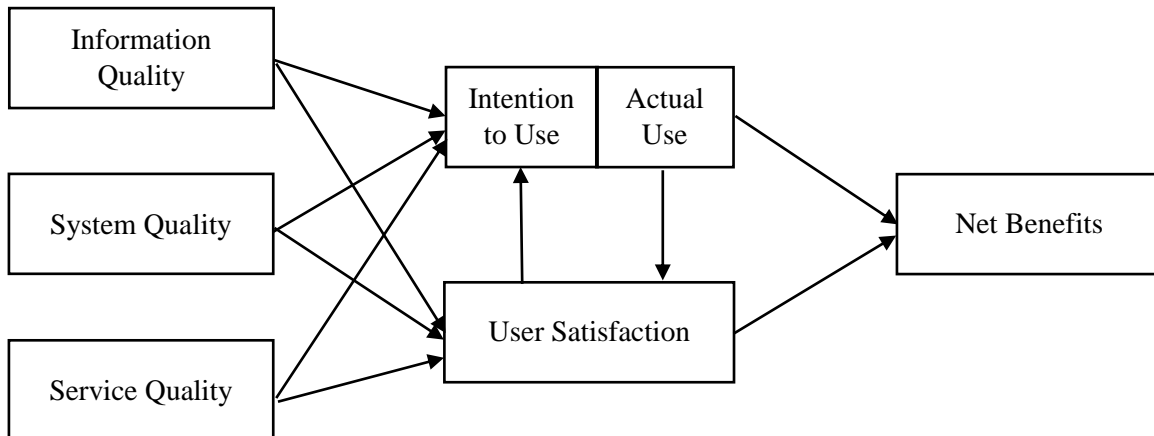
Figure 2. The Modified IS Success Model (DeLone & McLean, 2003)

According to McGill and Hobbs (2003), DeLone and McLean's model has created two significant contributions to better understand the IS: (1) it provides a structure for classifying the multitude of IS success measures which were used in the literature; and (2) a model of temporal and causal interdependencies among the classes. The present study follows the D&M ISSM (2003) as a basis for the theoretical framework for various reasons stated above.

2.4 Prior Studies Adopting D&M ISSM

This section discusses prior studies that have adopted and extended the D&M ISSM in their studies.

2.4.1 Prior Studies Adopting the D&M ISSM

Many studies in the past had adopted a D&M ISSM in their research framework (see Table 2). Chong, Cates, and Rauniar (2010), for instance, adopted the D&M ISSM 2003 framework in their constructed model to assess the "Business to Customers" (B2C) e-commerce achievement in the student loan industry in the USA. The research used the "structural equation modelling"

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(SEM) to run the data twice because of the testing was done on the bidirectional connection between user satisfaction and system use (vice-versa). The constructs used in the research were system quality, information quality, system use, user satisfaction, and service quality. From the first analysis, the result discovered that out of the nine hypotheses proposed, four were insignificant, namely, system quality with user satisfaction, system quality with system use, information quality with system use, and system use with the net benefit.

Table 3.   *Prior Studies Adopting D&M ISSM*

No.	Study	IS/IT Context	Country	SQ	IQ	SerQ	SUse	US	NB
1.	Chong et al. (2010)	Student Loan System	USA	√	√	√	√	√	√
2.	Alshibly (2014)	Human Resource	Jordan	√	√	√	√	√	√
3.	Seyal and Rahman (2015)	Financial & Accounting	Brunei	√	√	√	√	√	√
4.	Ojo (2017)	Hospital Information System	Nigeria	√	√	√	√	√	√

With the second model, the relationships between system quality and system use, system quality and user satisfaction, system use and net benefit, and service quality and system use, were found insignificant. In both analyses, three insignificant relationships were related to system use. This result might be because of model inability to measure bidirectional relationships in one analysis, or it represents original situation happening in student loan industry. In the industry, customers typically retain a long-term connection with the lender. Customers are left with no choices to select other lenders once the relationship has been

established. This may indicate that the characteristics and features of B2C e-commerce system do not affect system use.

The more recent research was carried out by Alshibly (2014), aimed at addressing the conceptualisation and measurement of an online human resource system (e-HRM) success within organisations. Alshibly (2014) had proven that system quality, information quality, service quality, user satisfaction, use, and perceived net benefit are valid measures of e-HRM success and all the nine tested hypotheses were significantly supported.

Seyal and Rahman (2015) had also validated the D&M ISSM 2003 to measure the Financial and Accounting Information System (FAIS) of Brunei Government. The study revealed that information quality strongly influences user satisfaction where user considers this measure more essential as it delivers what the user wants from the FAIS more frequently compared to service quality and system quality. In addition, they also found that a significant relationship exists between user satisfaction and the net benefits. FAIS success was measured by the net benefits comprising both individual and organisational benefits. Seyal and Rahman (2015) used all the constructs proposed by the D&M ISSM 2003. In the study, they used the actual use of the system rather than the intention to use.

Other researchers that had adopted D&M ISSM as their framework included Ojo (2017). The study validated the D&M ISSM in the context of a hospital information systems in a developing country. Importantly, system quality was found significant to the use of hospital information systems success. It is, therefore, imperative that hospital information systems are designed in such a way that is easy to use, flexible, and functional to serve their purpose.

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2.4.2 Prior Studies with Extended D&M ISSM

Numerous studies have extended the D&M ISSM 2003 in their research for various applications. Further evaluation of the literature review focused more on how the D&M ISSM was used as a basis in their newly constructed model. Many studies have combined the D&M ISSM with TAM to test their hypotheses. All the major literature discussed in this section are summarised in Appendix 2.

Using the D&M ISSM 2003, AlShibly (2011) studied the Human Resource Information System (HRIS) success model by including the influence of TAM's perceived usefulness and perceived ease of use (Davis, 1989) to the model. The study tested five hypotheses comprising four determinants tested against HRIS user satisfaction and HRIS success. It was revealed that perceived HRIS system quality, perceived HRIS information quality, perceived HRIS ease of use, and perceived HRIS usefulness influenced HRIS user satisfaction. Higher user satisfaction resulted in the success of the system. The success of the system was established through the benefits that HRIS offers by using the system, such as, enhancements of their daily work involving HRIS.

Lwoga (2013), in his study of library 2.0 adoption assessment, tested the relationship of the D&M ISSM quality constructs, such as information quality, system quality, service quality against perceived net benefits, user satisfaction, and behavioural intention to reuse. The study's finding confirmed the validity of using the proposed IS model for library 2.0 adoption assessment. The users' intention to reuse was found important, and accurately predicted the usage behavior of library 2.0 services. The perceived net benefits had the strongest effect on

users' intention to reuse library 2.0 systems than any other determinants within the model. Among the three quality-related constructs, service quality had the strongest total effect on perceived net benefits and intention to reuse. Compared to system quality, information quality had the largest effect on user satisfaction.

Masrek, Jamaludin, and Awang (2010) tested four hypotheses which all turned out to be positive. Specifically, information quality, system quality, and service quality influenced user satisfaction. User satisfaction positively influenced user's intention to reuse the system.

In the context of Customer Relationship Management (CRM) system, Choi, Rho, Park, Kim, and Kwon (2013) combined the D&M ISSM (1992) constructs with TAM's perceived usefulness (Davis, 1989). The study found that information quality and service quality were significant to perceived usefulness and all the three quality dimensions influenced user satisfaction. Therefore, perceived usefulness and user satisfaction were found to influence individual performance (as measured by work efficiency and task performance availability) and organisational performance. These findings confirmed the significant role that the CRM system plays in the competitiveness of health promotion centres.

In a similar context, a study by Kim, Lee, Wang, and Mirusmonov (2015) examined the influence of mobile CRM characteristic on employees' performance (i.e., individual impact). Highly influenced by D&M ISSM, the study listed customer segmentation and customer information integration under information quality construct; system extensibility and system flexibility under system quality construct; and immediacy and personalisation as service quality construct. User satisfaction and system use were used as mediating factors. Kim et al.

discovered that system use and user satisfaction had a moderating effect on m-CRM quality (e.g., system quality, information quality and service quality) and personal performance.

Wang, Li, Li, and Wang (2014), in their study of eLearning systems in Taiwan, came up with a new model integrating D&M ISSM with "Knowledge Management System" (KMS) success by substituting information quality with content quality and context and linkage quality. The results indicated that content quality, as well as context and linkage quality, were significantly influencing user satisfaction. These constructs plus system quality construct were discovered as significant predictors of system use. User satisfaction was proven to positively affect learning performance through system use as the mediator. Meanwhile, system quality did not have a significant effect on user satisfaction while service quality did not significantly affect both user satisfaction and system use.

Hossain (2016), in his study of m-Health success, created a completely new research model using a combination of D&M ISSM, Wang's e-commerce success model, and other m-Health models. The study resulted in the entire quality construct, such as platform quality, quality of medical advice, and interaction quality, had a positive effect on user satisfaction with the quality of advice being the strongest effect. Interaction quality also showed a strong relationship with perceived value, indicating that better interaction may motivate users to remark a service with higher value. The finding also showed that user satisfaction did not mediate the relationship between perceived value and continuance intention while user satisfaction and user's perceived value were positively related.

Khayun, Ractham, and Firpo (2012) in their study titled "Assessing e-Excise Success with DeLone and McLean's Model," had altered the model by combining it with trust element and individual characteristics, such as education level, training level, and professional level. The findings indicated that by increasing trust in the e-government website, perceptions of information quality, system quality, and service quality will influence system usage and user satisfaction and will ultimately affect the perceived net benefits.

Another study of eGovernment document, carried out by Mohamed, Hussin, and Hussein (2009), was to measure internal end-users at the level of officers and directors level of satisfaction with Malaysia's electronic government systems using the end-user computing satisfaction (EUCS) model. The study measured constructs, such as content, measures, accuracy, format, ease of use, and timeliness, as elements that contribute to end user's satisfaction. The findings showed that timeliness, content, accuracy, format, and ease of use had contributed to user's satisfaction with the first three being the top factors that contributed to the users of Malaysia's electronic government system.

The list of studies that have extended the D&M ISSM into their framework are endless and are growing day by day. AlMutairi and Subramaniam (2005), for instance, studied the effectiveness of IS with seven organisations (in seven different sectors) in the Kuwait stock market. Lee and Lee (2012) used D&M ISSM to build a framework for open source Enterprise Information System (EIS) success model. Sun et al. (2004) developed a scale to assess the official document processing with the e-official-document system by using the D&M ISSM (1992). Rizal, Yussof, Amin, and Ku (2016) studied the electronic word-of-mouth system for homestay lodging whereas Ronald, Khaled, Lane, and Wen (2010) focused on eLearning. A

study by Baraka, Baraka, and El-Gamily (2013) was about the performance of a call center. Mudzana and Maharaj (2015), on the other hand, identified successful factors of Business Intelligence system in South Africa. A study by Michel and Cocula (2017) concluded that system quality and service quality had a positive impact on information quality in the banking sector. In addition, system quality and service quality also positively influenced satisfaction of IS.

After reviewing the TAM and DeLone and McLean's models, D&M ISSM 2003 was found to be a useful framework to understand the key success factors of CMS in IRBM.

2.5   Summary of the Chapter

This chapter reviewed the related literature on CMS and prior studies of IS success. Based on the literature review, D&M ISSM 2003 was discovered as a useful framework to understand the success factors of CMS in IRBM. Hence, a research model, which was developed based on the D&M ISSM 2003, was used in the present study. Detail discussion of the research model is provided in Chapter Three.

CHAPTER 3   RESEARCH MODEL AND HYPOTHESES

3.1   Introduction

This chapter focuses on the research model of the study. The research model is presented along with the hypotheses. The chapter ends with the summary of the chapter.

3.2   Research Model

The research model of the present study is presented in Figure 3. This study provides an empirical test of relationships between information quality, system quality, service quality, system use, user satisfaction, and net benefits. The only difference between DeLone and McLean's model (2003) and this study's model is the elimination of Intention to Use variable in the present study. This is because the CMS is a mandatory system that has to be used by the auditors to file audit report and no other alternative means provided by the IRBM.
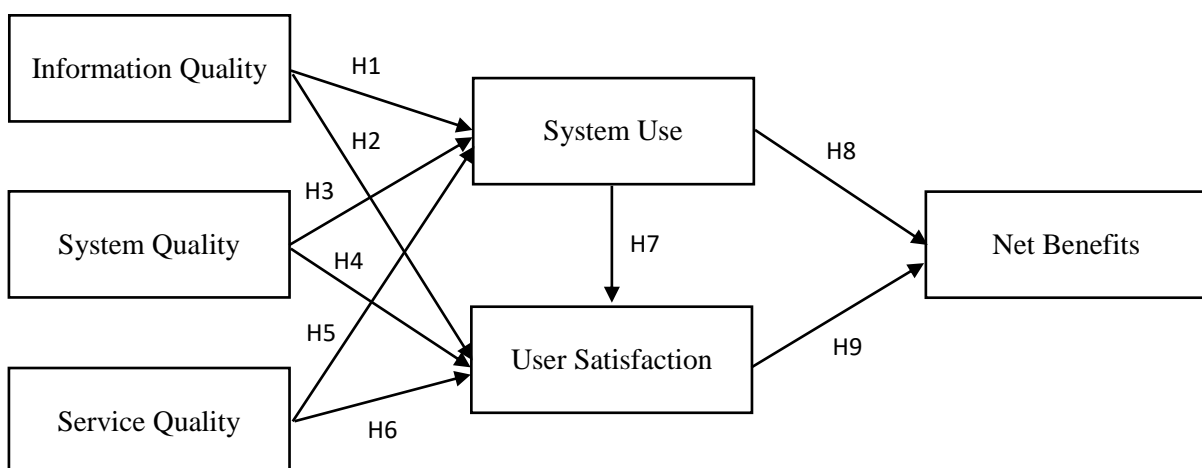
Figure 3.   Research Model

3.3 Hypotheses Development

3.3.1 Information Quality

Petter and McLean (2009) defined information quality as a characteristic of the output offered by the IS, such as accuracy, timeliness, and completeness. Pitt et al. (1995) pointed out that information is vital than the delivery mechanism to users. According to Michel and Cocula (2017), information quality influences user satisfaction in a highly information-intensive sector, such as banks. Some determinants used to evaluate information qualities of IS are relevance, understandability, accuracy, conciseness, completeness, understandability, currency, timeliness, and usability.

According to AlMutairi and Subramaniam (2005), IS success can be influenced by increasing the quality of the information produced by the system. They listed issues, such as timeliness, accuracy, relevance, and format of information generated by IS, as the factors to be tested and found a positive relationship between these factors and user satisfaction. Even though information quality has been proven to be the indirect factor that contributes to system usage, where the system usage increases as individual impact increases (AlMutairi & Subramaniam, 2005), Alshibly (2014) in contrary found information quality to be the dominant influence on use and user satisfaction.

Sun et al. (2004) found information quality as the most important factor for deploying an e-official-document system in an organisation. As the information quality of the system high, more users would rely on the system. One of the highlighted factors that contributed to user satisfaction was avoiding different units sending official documents of similar contents. This

result showed that by resolving the problem, information quality of the system would improve and contribute to user satisfaction.

Many researchers have proven that information quality is an important determinant of system use and user satisfaction of an IS. Some of the studies that supported the relationship are in library (Masrek et al., 2010), student loan (Chong et al., 2010), e-HRMS (Alshibly, 2014), financial and accounting system (Seyal & Rahman, 2015), homestay lodging (Rizal et al., 2016), and hospital system (Ojo, 2017).

Based on the findings of these researches, it is hypothesised that information quality is positively associated with system use and user satisfaction.

H1 : Information quality is positively related to system use.

H2 : Information quality is positively related to user satisfaction.

3.3.2 System Quality

System quality refers to the desirable characteristics of an IS. The determinants used to measure system quality are usability, availability, reliability, adaptability, and response time (DeLone & McLean, 2003). Petter and McLean (2009) added convenience, ease of use, functionality as the measures. Others, on the other hand, added system flexibility, ease of learning, system intuitiveness, and sophistication (Sun, Ju, & Chen, 2004), and accessibility (Shibly, 2011) to the list. Schaupp et al. (2006), in Alshibly (2014), pointed system quality as the degree to which the system is easy to use to accomplish tasks.

A few studies that have supported the positive impact that system quality has on user satisfaction include AlMutairi and Subramaniam (2005), Alshibly (2014), Masrek et al. (2010), Ojo (2017), and Sun et al. (2004). Following these, the following hypotheses are proposed:

H3 : System quality is positively related to system use.

H4 : System quality is positively related to user satisfaction.

3.3.3 Service Quality

Pitt et al. (1995) had listed five dimensions to be used when evaluating the service quality of a system, namely, tangibles, reliability, responsiveness, assurance, and empathy. Tangibles are the physical facilities, equipment, and appearance of personnel while reliability refers to the ability to perform the service dependently and accurately. Responsiveness is the willingness to help customers and provide prompt service while the assurance dimension is the knowledge and courtesy of employees and their ability to inspire trust and confidence in customer. Empathy refers to caring, individualised attention that the service provider gives to its customers. Adapted from the marketing field, SERVQUAL is a prevalent tool for measuring IS service quality (Pitt et al., 1995).

Sun et al. (2004), in their study of the effectiveness of the system for managing the government's official documents, discovered a positive impact of service quality on user satisfaction. Chong et al. (2010), Alshibly (2014), Masrek et al. (2010), and Ojo (2017) supported the finding. Pi (1999), in Sun et al. (2004), found that if the IS department provides good service, then the words will spread, leading to user intention to use the system. The more

usage recorded will then lead to better IS performance and more satisfied users. Therefore, the following hypotheses are tested:

H5 : Service quality is positively related to system use.

H6 : Service quality is positively related to user satisfaction.

3.3.4 System Use

System use is a degree to which staff and customers utilise the capabilities of an IS. For example, amount of use, frequency of use, nature of use, appropriateness of use, extent of use, and purpose of use. There are many debates relating to the D&M ISSM (1992) concerning the System Use factor. According to DeLone and McLean (1992), use is an objective measure of IS success. If the system is used, it must be useful, and therefore successful.

Seddon and Kiew (1996), in contrast, argued that even though a system is not used it may indicate that the user has other more important things to do and not because the system is not useful. He stated that Usefulness is more applicable than Use in a situation where system use is mandatory. Seddon's usefulness connected to Perceived Usefulness is similar to Davis (1989) model. Davis (1989) stated usefulness as the degree to which a person believes that using a particular system would enhance his or her job performance.

D&M ISSM (1992) agreed that more use is connected with a more individual impact which supports the idea that use is more appropriate as a factor to assess CMS success. Alshibly (2014) found the strongest direct and total effect of system use on perceived net benefit, indicating the importance of system use in promoting perceived net benefit. Alshibly (2014)

also confirmed that use, user satisfaction, and perceived net benefit are complementary yet distinct constructs, and that use is mediated through user satisfaction in its influence on the perceived net benefit of an e-HRM system. In summary, increased use will increase user satisfaction and yield more benefits to the staffs (Alshibly, 2014).

The findings of these studies have supported both the hypotheses as suggested below. Therefore, these hypotheses are suggested:

H7 : System use is positively related to user satisfaction.

H8 : System use is positively related to net benefits.

3.3.5 User Satisfaction

Based on the previous IS success models (DeLone & McLean, 1992, 2003; Seddon, 1997), user satisfaction is considered a good measure/surrogate of IS success. Bailey and Pearson (1983) and Seddon (1997) assumed that user satisfaction reflects experience with the system and does not include expectations. User satisfaction refers to approval or likeability of an IS and its output (Petter & McLean, 2009).

A study by Alshibly (2014) remarked the importance of user satisfaction on the net benefits of the system. In his study, satisfaction was considered as an evaluative judgment regarding a specific e-HRM experience and the effective attitude to the e-HRM of the employee who had used it and felt satisfied with its information, system quality, and service quality. Alshibly (2014) listed job performance improvement, increased productivity, cost saving, goal

achievement, and assessment and training enhancement as the net benefits construct affected by the user satisfaction.

Masrek et al. (2010) defined user satisfaction as the feeling of pleasure or displeasure resulted after having all the benefits one was hoping to acquire from using a system. Masrek et al. (2010) found that user satisfaction highly influenced the individual impact. All the three quality attributes, namely, information quality, systems quality, and service quality were proven to have impact on user satisfaction. This implies that fulfilling users' quality expectations of the library portal would lead to more satisfied users. Continuous updating and upgrading of the information on the library portal had contributed to a high rating of the information quality attributes by the users. Users were also inclined to agree that the library portal was useful and had affected them regarding improving and increasing their task productivity and performances (Masrek et al., 2010).
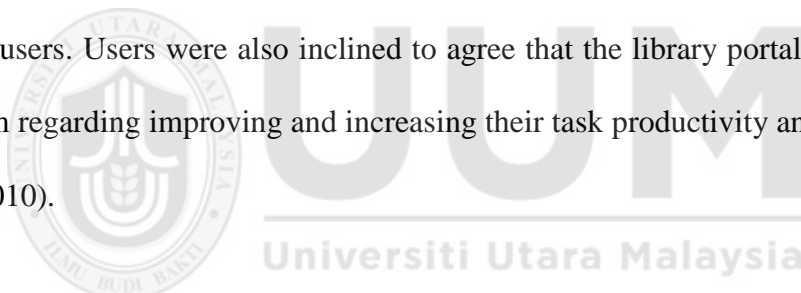
Based on the DeLone-McLean's model and past literature, it is hypothesised that user satisfaction is positively related to the net benefits.

H9   :   User satisfaction is positively related to net benefits.

3.3.6   Net Benefits

According to DeLone and McLean (2003), net benefits variable must be defined within the context of the system under study and within the frame of reference of those assessing the system impact, as these variables substantially influence what constitutes net benefits and hence IS success. The success of a system was based on the net benefits that it offers to the

user of the system, such as task performance, job efficiency, quality improvement, and cost reduction (DeLone & McLean, 2003).

Net benefits are defined differently according to the system being researched. In the Sun et al. (2004), better ratio of time to complete the entire procedure compared to the time spent to complete the paper-based procedure was defined as net benefits. The effect an IS has on an individual, group, organisation, industry, or society, has been often measured by organisational performance, perceived usefulness, and the effect on work practices (Petter & McLean, 2009)

In this study, the success construct refers to the actual benefits that the auditors received from using the CMS. The net benefits are measured using four items from Iivari (2005), namely, work performance, time spent on work process, make a job easier, and productivity. The close association between user satisfaction and individual impact also suggests that user satisfaction may serve as a valid surrogate for individual impact (Iivari, 2005).

3.4   Summary of the Chapter

This chapter illustrated the research model of the study along with its hypotheses. The research model was developed based on the D&M ISSM (2003). Three IT quality constructs (i.e., information quality, system quality, and service quality) were hypothesised to affect CMS use and user satisfaction. CMS use was hypothesised to affect user satisfaction and the net benefits of the system. User satisfaction was hypothesised to affect the net benefits of the system.

CHAPTER 4   RESEARCH METHODOLOGY

4.1   Introduction

This chapter explains the research design, population, and sample, unit of analysis, and key informants of the study. The chapter continues with the data collection procedure, operational definition of each construct and its measures, and the technique used to analyse data.

4.2   Research Design

This study aims to assess the success of CMS implementation in IRBM. The questionnaire or survey instrument was used for data collection. Multi-questions with Likert scale were used for each construct in the questionnaires to address the hypotheses testing (see sections 3.3.1 to 3.3.6 for all the hypotheses).

4.3   Unit of Analysis and Key Informants

The unit of analysis of this study is individual. The key informants of this study are the IRBM employees who are working in the unit and branches (see section 4.4 for details). The employees will be addressed as auditors from this section onwards.

The auditors hold a wide range of positions, such as Senior Executive Officer, Executive Officer, and Assistant Executive Officer. The minimum requirement for the informants is that they must hold at least the position of Assistant Executive Officer Grade 31 to ensure that they are CMS users.

The auditors are the one who have access to CMS and have been using the system in their daily work. It is critical for the auditors to know each part of the CMS, the process, and the functions of the system to be able to give a relevant and fair opinion of the system. The auditors would be well aware of what contributes to the system effectiveness when answering the questionnaires.

4.4 Population and Sample of the Study

The population of the study is all the IRBM staff in Malaysia, who are working in the:

a. Desk Audit Unit for Employment Income (SG), Business Income (OG) and Company (C),

b. Field Audit Unit for OG and C,

c. Profiling Unit,

d. Monthly Tax Deduction (PCB) Audit Unit, and

e. Investigation Branch.

The reasons for these selections are: (a) they are users of the CMS system who uses CMS in their daily task; and (b) CMS modules that are being used as at January 2018 only cover these users.

Approximately, there are 2,713 auditors, which fall under the listed criteria as above (see Table 4). Using Krejcie and Morgan (1970) table as guidance, of the 2,713, a sample of 338 is adequate for distribution. The questionnaires were randomly distributed to the staff.

Table 4.   *Number of IRBM Officers in Five Units in Year 2018 (According to State)*

State	Number of Staff
Johor	296
Kedah	99
Kelantan	58
Melaka	94
Negeri Sembilan	77
Pahang	111
Perak	209
Perlis	18
Pulau Pinang	226
Sabah	216
Sarawak	233
Selangor	319
Terengganu	54
W. P. Kuala Lumpur	354
W. P. Labuan	16
W. P. Putrajaya	333
Total	2,713

Source: Unpublished Statistics of IRBM as at February 2018

4.5   Survey Instrument

A structured questionnaire was used to collect the data. The questionnaire was prepared based on the research objectives and the consultations made with subject experts. The simple language was used in the questionnaire to enable easy understanding of the respondents.

There are seven main sections in the questionnaire, namely, system use, user satisfaction, net benefits, information quality, system quality, service quality, and respondent profile. All items in the sections, representing the determinants of the study, were adapted from prior studies with

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validated scales (e.g., Alshibly, 2014; DeLone & McLean, 2003; Iivari, 2005). Overall, a 35-item questionnaire with closed and open-ended questions was developed. The questionnaires were prepared in both Malay and English version for easy understanding of the respondents. A sample of the questionnaire is presented in Appendix 3.

In the first section, the respondents needed to state the degree to which they utilise the capabilities of the CMS. The following section covered questions related to user satisfaction of whether CMS is a good system, of high quality, met their expectations, and overall satisfaction. The next segment listed out seven questions related to the net benefits derived from using CMS.

In the fourth section, the respondents were required to respond to the desired characteristic of the system output that they receive from using CMS. The fifth section listed questions related to a desirable characteristic of an information system itself (i.e., system quality), followed by service quality (i.e., the quality of the support that users receive from the IS Department and the IT support personnel) in the next section. The final section was about the users' profile.

Table 5.   *Measurement of Variables*

Construct	Operational Definition	Item	Source
Information Quality (IQ)	Desirable characteristics of the system outputs (Petter, DeLone & McLean, 2008).	CMS provides sufficient information. CMS provides information that is exactly what I need. CMS provides me the information at the time that I need it. CMS provides information that is relevant to my job. CMS provides information that is easy to understand. CMS provide up-to-date information.	Alshibly (2014)
System Quality (SQ)	Performance of the IS in terms of convenience, reliability, ease of use, functionality and other system metrics (Petter & McLean, 2009).	CMS is easy to use. CMS is very user-friendly. CMS provides high-speed information access. CMS allows information to be readily accessible to me. CMS provides interactive features between users and system. CMS can flexibly adjust to new work demands. Feedback on enquiries/request through CMS is fast. (response time)	Alshibly (2014); Iivari (2005)
Service Quality (SerQ)	The quality of the support that system users receive from the IS department and IT support personnel (Petter et al., 2008).	CMS Help-Desk does give prompt service. CMS Help-Desk is always willing to help users. CMS Help-Desk is never been too busy to respond to users' requests. When users have a problem, CMS Help-Desk shows a sincere interest in solving it. CMS Help-Desk tells users exactly when services will be performed.	Alshibly (2014); Pitt et al. (1995)

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		CMS insists on error-free records.	
		Members of CMS Help-Desk give users a personal attention.	
System Use (USE)	Actual usage or self-reported usage (Petter & McLean, 2009).	Overall, how would you rate the frequency of using the CMS system in a month?	Alshibly (2014); Seddon & Kiew (2007)
		I depend on the CMS system.	
		I use many functions of the CMS system.	
		If CMS is not mandatory, I would still use the system.	
User Satisfaction (US)	Approval of an IS or the likeability of an IS and its output (Petter & McLean, 2009).	CMS is a good system within my area of responsibility.	Shibly (2011)
		The CMS is of high quality.	
		The CMS has met my expectations.	
		Overall, I'm satisfied with using CMS.	
Net Benefits (NB) – Individual Impact	The effect an IS has on an individual (Petter & McLean, 2009).	Using CMS enhances my work performance.	Alshibly (2014); Shibly (2011); Iivari (2005)
		Using CMS improves the time spent on work process.	
		Using CMS makes my job easier.	
		CMS helps the IRBM to save cost.	
		Overall, using CMS enhances my productivity.	
		Overall, using CMS helps IRBM to achieve its goal	
		Overall, using CMS increases IRBM's productivity.	

4.6   Measurement of Variables

The measurements of the variables were mainly adapted from previously verified instruments to ensure the validity of the scale used (see Table 5 for details of the items). All items, except for frequency element in System Use, were measured by using a seven-point Likert scale with anchors ranging from Strongly Disagree (1) to Strongly Agree (7). The frequency element was measured with anchors ranging from Rarely (1) to Often (7). All items were designed as reflective measures.

4.7   Content Validity

As mentioned in section 1.2 of Chapter One, preliminary investigation (via survey) was carried out before actual data collection was carried out. Out of 30 questionnaires distributed, 25 responded (response rate of 83%). This preliminary questionnaire consists of the respondent's profile, such as name, position, current branch, designation, main work process, problems encountered when using CMS, advantage, limitation, and improvements of CMS. The finding from preliminary survey makes out the base of the report for the problem statement of the system (Detail of the problems encountered by the users were summarised in Table 2).

The questionnaires were given to two subject experts to assess face and content validity. Adjustments anywhere necessary were made before copies of the approved questionnaires were distributed to participants who gave their consent for a pretesting.

4.8 Pretesting

A pretesting was conducted in January 2017 before the main questionnaire was distributed to the auditors to reduce the risk of the main study being fatally flawed (Zikmund, 2013). The objective of the pretesting is to ensure that the questionnaire is clear and easily understood (Ismail, Jogeran, & Noor, 2012). The pretesting was crucial to ensure that any amendment and refinement required were done to the questionnaire before the final is released. A cover letter was attached and sweets were given as a token of appreciation to the respondents for filling up the questionnaire.

The pretesting was conducted in two stages. First, 26 students of Master of Science (International Accounting), Universiti Utara Malaysia (UUM) read and commented on the questionnaires. Second, IRBM staff who use CMS in their daily work, particularly in the Audit Unit and Desk Audit Unit Field gave their feedback. The results of the pretesting showed good results in certainty and responses.

4.9 Data Collection Procedure

The main, approved, and pretested questionnaires were then transferred into the Google Form, which is an online survey form as a means to collect data. The collected data then can easily be transferred into a spreadsheet. A sample of the questionnaire provided in Appendix 3.

The questionnaires were distributed to the IRBM staff by email and *WhatsApp* application by giving them the link to the survey. Specifically, the link of the online survey was distributed to

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the auditors in the WhatsApp group chat application whereby the monitoring of unreturned or unfilled questionnaires was done by giving reminders every month to the chat room.

The questionnaires were distributed in two stages. The first distribution was made on the 15th March 2017. The respondents were given two weeks to respond. Within the first two weeks, 80 questionnaires were returned. Three reminders were then sent out to those who had not responded after the two-week period ended. The first reminder was sent on 17th May 2017, the second reminder was sent on the 19th October 2017, while the third reminder was made on 23rd January 2018. Of the 338 questionnaires distributed, 105 questionnaires were returned (see Table 6).

Table 6.   *Number of Responses*

	No. of Response
Response in the first 2 weeks	80
Response after the first reminder	4
Response after the second reminder	17
Response after the third reminder	4
Total	**105**

4.10   Technique of Data Analysis

SmartPLS (version 2) was used for data analysis. Partial Least Squares (PLS) requires minimal demand on the measurement scales (Ang, Ramayah, & Amin, 2015), residual distribution, and sample size (Ang et al., 2015; Shackman, 2013). Being a components-based structural equation modelling technique, PLS is similar to regression, but simultaneously models the structural

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paths and measurement paths (the relationship between a latent variable and its indicators) and structural model (the relationship among latent variables) (Chin, Marcolin, & Newsted, 2003).

4.11   Summary of the Chapter

This chapter elaborated on the research methodology of the study, focusing specifically on the unit of analysis and key informants, population and sample, data collection procedure, survey instrument, constructs' measures, pretesting, data collection procedure, and data analysis technique. The study used a quantitative research design where data were gathered via survey questionnaire. The online survey was used where the survey link was sent to the respondents through email and *WhatsApp* application. The respondents of the study were IRBM staff in Malaysia. PLS (version 2) was used to analyse the data. All items were set as reflective.
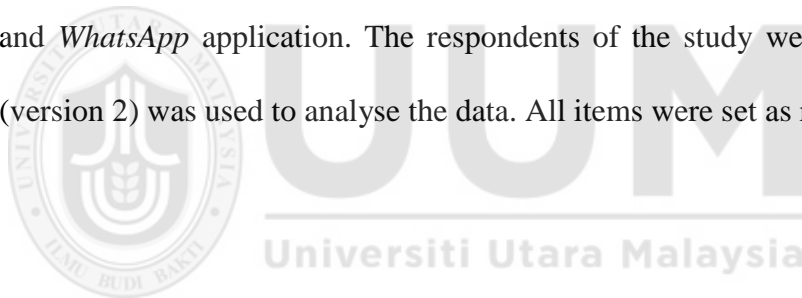
CHAPTER 5   FINDINGS

5.1   Introduction

This chapter presents the findings of the study. The chapter starts with survey response rate and data screening process then followed by presenting the respondent profiles and model testing. Model testing covers both measurement and structural model.

5.2   Survey Response Rate

A total of 338 surveys were distributed of which 105 responses were received (see section 4.9 for details). The response rate is, therefore, 31%.

5.3   Data Screening

Before data analysis, the data were screened to inspect and correct errors. The screening process involves verifying data and checking for missing values.

5.3.1   Data Verification

The online survey was used as a means to collect data. The survey results were exported in a spreadsheet where each row contains the answers from a given respondent. As the results were already coded in the spreadsheet, no further data keying-in process was, therefore, required. This guarantees that the researcher made no errors in the input process.

5.3.2 Checking for Missing Values

Each response was then checked for missing values. According to Hair, Black, Babin, and Anderson (2010), variables with more than 50% of missing values should be deleted from the dataset.

In the present study, few cases had less than five missing items, giving that the percentage of missing values in the study was less than 13%. Specifically, seven cases had one missing item, two cases had three missing items, and one case had four missing items. As the percentage of missing values was below than the suggested threshold for deletion by Hair e al. (2010), none of the cases were, therefore, deleted from the dataset.

5.4 Respondent Profiles

5.4.1 Age

Most of the respondents are within the range of 31 to 40 years old (78.10%) (Table 7). Only two respondents (1.9%) are above 50 years old.

Table 7.   *Age*

Age	No.	%
20 - 30 years	5	4.76%
31 - 40 years	82	78.10%
41 - 50 years	16	15.24%
51 - 60 years	2	1.90%
Total	105	100%

5.4.2 Academic Qualification

Detail of the academic qualification of the respondents is presented in Table 8. Majority of them holds a Bachelor Degree (83.81%) and only .95% holds the "Association of Chartered Certified Accountants" (ACCA) certificate.

Table 8.   *Academic Qualification*

Academic Qualification	No.	%
ACCA	1	.95%
Bachelor Degree	88	83.81%
Master Degree	16	15.24%
Total	105	100%

5.4.3 Current Position

Most of the respondents (60%) holds the position of Executive Officer Grade 41 (Table 9). Three of them (2.86%) is from the Senior Executive Officer Grade 48 position.

Table 9.   *Current Position*

Current Position	No.	%
Senior Executive Officer Grade 48	3	2.86%
Executive Officer Grade 44	35	33.33%
Executive Officer Grade 41	63	60.00%
Assistant Executive Officer Grade 31	4	3.81%
Total	105	100%

5.4.4 Current Unit

More than half of the respondents (51.43%) work in the Field Audit Unit (Table 10). The least number of respondents (.95%) is from the HASiL Care Group, Stamp Duty, and Law Unit.

Table 10. *Current Unit*

Current Unit	No.	%
Desk Audit	21	20.00%
Field Audit	54	51.43%
HASiL CARE GROUP	1	.95%
Investigation	12	11.43%
PCB Audit	8	7.62%
Profiling	2	1.90%
Stamp duty	1	.95%
Law	1	.95%
Not specified	5	4.76%
Total	105	100%

5.4.5 Number of Service Period in IRBM

Majority of the respondents (82%) have been serving IRBM for more than ten years (Table 11). Only .95% of them have been working with IRBM for less than three years.

Table 11. *Number of Service Period in IRBM*

No. of Service Period	No.	%
0 - 3 years	1	.95%
4 - 6 years	9	8.57%
7 - 9 years	13	12.38%
10 years and above	82	78.10%
Total	105	100%

5.4.6 Current State of Working

Table 12 presents the current state in which the respondents work when the questionnaires were answered. The highest number of respondents (24.76%) works in Wilayah Persekutuan Kuala Lumpur. Only 1.90% of them work in Pahang, Perlis, and Terengganu, respectively.

Table 12. *Current State of Working*

State	No.	%
Johor	9	8.57%
Kedah	3	2.86%
Kelantan	3	2.86%
Melaka	5	4.76%
Negeri Sembilan	6	5.71%
Pahang	2	1.90%
Perak	5	4.76%
Perlis	2	1.90%
Pulau Pinang	7	6.67%
Sabah	17	16.19%
Sarawak	4	3.81%
Selangor	10	9.52%
Terengganu	2	1.90%
Wilayah Persekutuan Kuala Lumpur	26	24.76%
Wilayah Persekutuan Putrajaya	4	3.81%
Total	105	100%

5.4.7 Current Access of CMS

Detail of the current access to CMS is presented in Table *13*. Eighty-four percent (84%) of the respondents use CMS as the Assessor, and 4% of them access CMS as the Head of Unit, Manager, and Officer.

Table 13.   *Current Access of CMS*

Current Access of CMS	No.	%
Assessor	84	80.00%
Group Leader	17	16.19%
Head of Unit	1	.95%
Manager	1	.95%
Officer	1	.95%
Not specified	1	.95%
Total	105	100%

Overall, the highest number of respondents comprise of those within the age ranging from 31 to 40 years old with Bachelor degree that holds the position of Executive Officer Grade 41. Majority of the CMS users were field audit officers with more than ten years of experience in the field. These officers' years of experience are the same as the years of existence of the CMS. They have used and have fully experienced CMS from the earlier version to the more recent ones with a lot of updated modules. This would give a big impact on the results of the present study as they are very experienced respondents.

5.5   Model Testing

There are two stages involved in the analysis. First, testing the measurement model, by examining the relationship between a latent variable and its indicators. Second, testing the structural model, by examining the relationship among latent variables.

5.5.1 Testing of the Measurement Model

Testing the measurement model involves the assessment of both the convergent and discriminant validity.

5.5.1.1 Convergent Validity

Convergent validity refers to the extent to which different measures that are designed to tap the same construct correlate with each other (Cunningham, Preacher, & Banaji, 2001). Convergent validity is assessed by examining the item reliability, internal consistency reliability, and average variance extracted (AVE). Table *14* summarises the item loadings, composite reliability, and the AVE for each construct.

Item reliability refers to a standardised loading of an item on its construct (Igbaria, Guimaraes, & Davis, 1995). Following Petrick (2002), all items with the loading of .70 were retained in the dataset. Items with loadings of .70 suggested that each of the factors is reliably measuring their respective constructs.

Internal consistency reliability measures how well the items on the test measure the same construct. Gefen, Straub, and Boudreau (2000), and Hair et al. (2010) suggested composite reliability of .70 or higher to indicate adequate convergence or internal consistency.

AVE or average variance shared between a construct and its items are commonly used to assess convergent validity. Fornell and Larcker (1981) suggested that an AVE for each construct should be at least .50. The AVE for each construct in the present study has met this criterion.

Table 14.　*Item Loadings*

Item	Loadings	AVE	CR	Item	Loadings	AVE	CR
IQ1	.94	.87	.98	Sat1	.89	.88	.97
IQ2	.93			Sat2	.95		
IQ3	.95			Sat3	.96		
IQ4	.95			Sat4	.96		
IQ5	.92			SerQ1	.87	.73	.95
IQ6	.90			SerQ2	.90		
NB1	.93	.88	.98	SerQ3	.85		
NB2	.95			SerQ4	.90		
NB3	.97			SerQ5	.92		
NB4	.90			SerQ6	.75		
NB5	.97			SerQ7	.79		
NB6	.91			SQ1	.84	.79	.96
NB7	.93			SQ2	.86		
Use1	.77	.67	.89	SQ3	.90		
Use2	.88			SQ4	.91		
Use3	.88			SQ5	.94		
Use4	.74			SQ6	.89		
				SQ7	.88		

Note: IQ - Information Quality; NB - Net Benefits; Sat – User Satisfaction; SQ - System Quality; SerQ - Service Quality; Use – CMS Use.

5.5.1.2 Discriminant Validity

Discriminant validity tests whether constructs that should have no relationship do, in fact, not have any relationship. In general, items should measure their own constructs, rather than another construct (Zhu, Dong, Xu, & Kraemer, 2006). Fornell and Larcker (1981) suggested that the square root of the average variance for each of the factors should be greater than any of the inter-correlations of the constructs. The finding (as presented in Table *15*) suggested that the factors of CMS success value have discriminant validity.

Table 15. *Discriminant Validity*

Construct	IQ	NB	SerQ	SQ	Use	Sat
Information Quality (IQ)	.93					
Net Benefits (NB)	.83	.94				
Service Quality (SerQ)	.62	.59	.86			
System Quality (SQ)	.92	.83	.63	.89		
System Use (Use)	.67	.73	.48	.67	.82	
User Satisfaction (Sat)	.80	.89	.62	.81	.75	.94

Note. Numbers on diagonal (given in bold) are square roots of AVE

5.5.2   Testing of the Structural Model

A bootstrapping procedure, with 500 resamples (Sanchez-Franco & Roldan, 2005), was used for hypotheses testing.

5.5.2.1   Path Coefficient and Hypotheses Testing

Of the nine hypotheses tested, five (i.e., H1, H6, H7, H8, and H9) were supported. H2, H3, H4, and H5 were, however, not supported (see *Table 16*).

Out of the three IT quality constructs (i.e., information quality, system quality, and service quality), only information quality was found to influence CMS use ($p<.10$). Nonetheless, system quality and service quality were not found significant to CMS use.

In regards to factors that influence user satisfaction, service quality was the only IT quality construct that was found significant ($p<.05$). The relationship between information quality, system quality, and user satisfaction, on the other hand, were not supported.

Table 16.   *Results of Hypotheses Testing*

Hypothesis		Path (t-value)	Supported/ Not Supported
H1	IQ → Use	1.84	Supported*
H2	IQ → Sat	1.47	Not Supported
H3	SQ → Use	1.48	Not Supported
H4	SQ → Sat	1.49	Not Supported
H5	SerQ → Use	.84	Not Supported
H6	SerQ → Sat	2.08	Supported**
H7	Use → Sat	3.84	Supported***
H8	Use → NB	2.15	Supported**
H9	Sat → NB	11.70	Supported***

Factors found significant at *p*<.10*, .05**, .01***.

In addition, CMS use affects user satisfaction (*p*<.01) and net benefits of the system (*p*<.05). The net benefits of the system were also affected by user satisfaction (*p*<.01).

5.5.2.2   *Amount of Variance Explained*

The model explained 80% of the variance in the CMS use (see Table 17). CMS use explained 47% of the variance in user satisfaction. User satisfaction, on the other hand, explained 76% of the variance in the net benefits of the system. Chin (1998) considers the amount of variance explained for endogenous latent variables of more than .67 as substantial.

Table 17.   Amount of Variance Explained

Dependent Variable	R^2
Net benefits	.80
CMS use	.47
User satisfaction	.76

5.6   Summary of the Chapter

This chapter presented the findings of the study, covering specifically the survey response rate, data screening process, and model testing. Model testing covers both the relationship between the construct and its items (i.e., measurement model) and between the construct (i.e., structural model).

CHAPTER 6   DISCUSSION, CONCLUSION AND
RECOMMENDATIONS FOR FURTHER RESEARCH

6.1   Introduction

This chapter discusses the findings of the study. The first two sections of the chapter discuss the results of the hypotheses testing, focusing specifically on the factors influencing CMS use and user satisfaction. This is followed by a discussion on the effects of CMS use on user satisfaction. The next part discusses the effect of CMS use and user satisfaction on net benefits. Then, the chapter covers the implications of the study to theory and practice, followed by the limitations of the study and suggestions for further research. The summary of this study concludes the chapter at the end.

6.2   Factors Influencing CMS Use

6.2.1   Information Quality

The present study found that there was a significant relationship between information quality and CMS use. This finding indicates that the auditors find that information provided by CMS is useful, sufficient, and relevant to their daily tasks which subsequently influence them to use the system. The higher the quality of the information provided by CMS the more use of the CMS is recorded. This finding is in line with prior studies (e.g., Alshibly, 2014; Mudzana & Maharaj, 2015; Ronald et al., 2010).

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Seyal and Rahman (2015), in contrary, could not establish any relationship between information quality and system use. The users did not find the information provided by the system as what they needed. The information might have been insufficient, hard to understand, and not updated. All these elements did not contribute to the actual use of the system. Chong et al. (2010) reported similar finding.

In the context of CMS, beliefs about information quality had a more dominant influence on use and perceived net benefit than beliefs about system quality and service quality (Alshibly, 2014). Thus, respondents showed more concern about information quality (e.g., sufficient information, relevant, easy to understand, up-to-date, exactly as needed, and timeliness). Accordingly, IRBM should pay much more attention to improve the information quality of CMS to help with higher system use.

6.2.2 System Quality

In this study, system quality was found to be insignificant for CMS use. This result implies that system characteristics, such as easy to use, user-friendly, information accessibility, and interactive feature of CMS, did not influence the users to increase the frequency of CMS use. This result also proves that CMS users are not attracted to the quality features of the system even though they use the system on a daily basis. This finding supported previous findings by Chong et al., (2010), Seyal and Rahman (2015), and Wang and Liao (2008) who could not establish any relationship between both. Since the users already have a high computer self-efficacy and better internet experience in daily life, ease of use or system quality of a system is

not a critical point for them to determine whether to use the system or not (Wang & Liao, 2008).

Contrary to this, findings from Ojo (2017) revealed that system quality had the most influence on the system's use in Nigerian teaching hospitals. This implies that for hospitals to encourage the continued use of implemented IS, the system quality, regarding ease of use, flexibility, and functionality must be given utmost attention. Ronald et al., (2010) also supported the relationship.

From the CMS perspective, system quality construct does not influence CMS use. Even though use influences user satisfaction and net benefit, system quality features of CMS do not contribute to that. System quality does not influence the users to use CMS more than they are using it now. Hence, IRBM does not have to give priority to enhance system quality features to encourage continued use of CMS.

6.2.3 Service Quality

Service quality did not affect system use. This finding indicated that service quality did not have a positive impact on the CMS use. This finding supported prior studies (e.g., Chong et al., 2010; Seyal & Rahman, 2015; Wang et al., 2014). The quality of the CMS Help-desk service did not help the user in deciding to use the system. A plausible reason for this finding is that the auditors are already using the CMS. Hence, the high quality of service received by them did not affect the use.

6.3   Factors Influencing User Satisfaction of CMS

6.3.1   Information Quality

Information quality was not found to influence user satisfaction. This finding indicated that the information provided by CMS did not contribute to the auditors' satisfaction. This finding supported the previous finding by Sanjaya (2012) where the quality of information was assessed to be ineffective to the satisfaction of the website users.

This finding does not support the findings by DeLone and McLean (2003) and Ramdan, Azizan, and Saadan (2014) where information quality was found very significant to user satisfaction. Other studies (e.g., AlMutairi & Subramaniam, 2005; Choi et al., 2013; Chong et al., 2010; Masrek et al., 2010; Michel & Cocula, 2017; Rizal et al., 2016; Ronald et al., 2010; Seyal & Rahman, 2015; Wang et al., 2014) also found that information quality significantly influences user satisfaction.

This result proves that information quality constructs, such as sufficient information, relevant, easy to understand, up-to-date, exactly as needed, and timeliness, are not the features that satisfied the auditors. Hence, CMS did not meet their expectation. Information provided by CMS did not create the sense of satisfaction when the auditors used it in their daily task. Even though the information provided might be useful, however, it only influenced them to use the system but does not make them satisfied using it. This sense of satisfaction can be found if CMS manages to aid the auditors' decision-making, provide sufficient information, and also the degree of accuracy of the information provided (AlShibly, 2011).

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6.3.2 System Quality

Similar to information quality, system quality did not influence user satisfaction of CMS. This finding is consistent with previous studies (e.g., Chong et al., 2010; Seyal & Rahman, 2015; Wang et al., 2014).

System quality was also found to be insignificant to system use. It seems that the quality of CMS did not affect either the use or users' satisfaction level of the system. This probably implies that the user did not see system quality as an important construct in determining the success of CMS. They might think that the features, such as usability, response time, or functionality of CMS, were unattractive.

This result, however, contradicts with the findings discovered by previous studies (e.g., AlMutairi & Subramaniam, 2005; AlShibly, 2011; Mudzana & Maharaj, 2015; Masrek et al., 2010; Ojo, 2017; Ronald et al., 2010) where system quality significantly influenced user satisfaction. According to Seyal and Rahman (2015), the factors that contribute to the insignificant result is the Internet connection problems, such as delay in processing time, which might be treated as a negative feature by the user.

The unsupported result indicates that system quality characteristic, such as usability, availability, reliability, adaptability, response time, convenience, ease of use, functionality, and interactive feature, does not meet their expectation of the system. From the CMS perspective, system quality construct does not influence CMS user satisfaction, and even though user satisfaction influences net benefit, system quality features of CMS do not add to that. Hence,

based on the findings of this study, IRBM does not have to give priority to enhance the quality features of the system to satisfy the users.

6.3.3 Service Quality

In contrast to information quality and system quality, the effect of service quality on user satisfaction was found to be significant. Previous studies that had similar findings included Choi et al. (2013), Chong et al. (2010), Ojo (2017), and Masrek et al. (2010). This finding indicates that the service rendered by Help-Desk has significantly influencing auditors satisfaction with CMS. The findings suggested that the quality of support received from the Help-Desk is the focal construct that can influence them to be satisfied with CMS and help them to fulfil their expectations of the system. According to Ojo (2017), the type and context of a system may be a factor where users that are not incentivised but mandated to use a system may have warranted a need to improve the service quality of the system in order to enhance user satisfaction.

Nonetheless, several studies (e.g., Lwoga, 2013; Mudzana & Maharaj, 2015; Seyal & Rahman, 2015; Wang et al., 2014) reported a contradicting findings where service quality did not significantly affect user satisfaction. According to Seyal and Rahman (2015), the factors that contribute to the insignificant result might be due to the quality of support that users received from the outside consultant which were trained to help end-users. Support provided by trained consultant usually lacks empathy and sympathy and does not contribute to the users' satisfaction with the services provided. The CMS Help-Desk, however, consist of IRBM's officers, the process owners, and IT personal, who involved in the development and

maintaining of CMS. They know CMS pretty well and can relate to the users' problem. This has certainly contributed to the positive impact of service quality on user satisfaction.

Accordingly, IRBM has to upgrade and improve the service quality of Help-Desk to help improve user satisfaction on CMS. The higher the quality of the services rendered, the higher the satisfaction level of the users would be. The Help-Desk being more personalised, quick in giving a response, and shows empathy to callers will contribute to the higher service quality of the CMS.

6.4   The Effect of CMS Use on User Satisfaction

The effect of CMS use on user satisfaction was proven to be significant. This indicates that continuous use of CMS will influence user satisfaction of the system. The users are satisfied with the system because they are using it. Hence, IRBM needs to pay more attention to the information quality factors that contributed to the continued use of the CMS. The quality of the information provided by the CMS will contribute to the higher use of CMS and higher satisfaction level of the users towards the system.

This study's finding is consistent with Chong et al. (2010) where system use was significantly affecting user satisfaction. In contrary, Ojo (2017) found no significant influence of hospital information system's use on user satisfaction. This might also be due to a different method of measuring the use variable (Seyal & Rahman, 2015). In this research, only three out of the four items measured the actual use and frequency of use. Even though DeLone and McLean (2003)

suggested that 'intention to use' be used as an alternative of 'use', however, the use of CMS is not voluntary but compulsory.

The result of this study indicates that continued use of CMS will positively affect user satisfaction and when the user has gained positive experience from using the system, it will positively contribute to increased satisfaction level towards CMS.

6.5   The Effects of CMS Use and User Satisfaction on Net Benefits

In the present study, CMS use and user satisfaction were found to have a positive effect on the net benefit. Specifically, user satisfaction has the highest influence on the net benefit.

There are several ways of measuring the net benefits at both individual and organisation level. This study used the seven-item net benefits to measure both elements including work performance, improving time spent, making the job easier, improving productivity, saving cost for IRBM, achieving IRBM's goal, and increasing IRBM's productivity. The findings suggested that the higher the use of CMS and user satisfaction, the higher the possibilities that it would impact the net benefits.

The finding of this study is consistent with the findings of prior literature (e.g., Alshibly, 2014). Doll and Torkzadeh (1991) found that user satisfaction impacts the user's job positively and McGill and Hobbs (2003) on improved performance.

Mixed findings were reported in prior literature where a relationship between user satisfaction and net benefits were significant but unable to find any relationship between use and net

benefits (e.g., Seyal & Rahman, 2015; Chong et al., 2010). In contrast, other studies found that user satisfaction (Masrek et al., 2010) and use (AlMutairi & Subramaniam, 2005) influenced individual benefit but did not perform any test on the organisational impact.

The finding of this study indicates that the CMS users believe that the benefits that they received from CMS have given them a positive impact in certain ways. These benefits are enjoyed because they have used CMS and felt satisfied with the two major elements of CMS; information quality and service quality.

6.6   Implications of the Study

6.6.1   Implications to Theory

At present, no specific studies on CMS system using the D&M ISSM has been found which tested the data empirically. It is hard to find studies that evaluate a system similar to CMS. The most resemblance found in the study by Lupo (2016), in his research titled "Evaluating e-Justice: The Design of an Assessment Framework for e-Justice Systems." The features of the e-Justice system match the CMS in few ways, such as the case management system type, case reporting module that it offers, the statistic it provides, and the capability to keep track of all cases and reports keyed-in by the users. Lupo (2016) however, prepared a framework that can be applied to assess a set of e-justice systems but did not test the framework. The framework used the DeLone and McLean's model variables as a basis with a set of variables that operationalised e-justice's capacity to support judicial values. Lupo (2016) suggested independence variable related to evaluating specific types of systems and, in particular, case-management systems and electronic legal work desk, which support judges' day-to-day

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activities. Hence, the present study adds to the literature on system of the "case management system" type, such as CMS.

The present study also contributes to the theory by adapting the D&M ISSM with a different background and system context than in preceding studies as recommended by various authors (see, for example, Alshibly, 2014, DeLone & McLean, 2003; Iivari, 2005). Consequently, this study is among the first to empirically validate a comprehensive success model for a document handling system in DWA environment. Thus, this study will be a basis for future research in this field. Moreover, by using an established IS theory as the theoretical basis, this study is an attempt to apply significant research to offer solutions to solve a relevant problem.

6.6.2 Implications for Practice

The findings of the present study remarked the importance of information quality on CMS use. However, the importance of system quality and service quality on CMS use were insignificant. This implies that high quality of information in CMS has influenced the continuous use of the system. The auditors found the information provided by CMS to be of high quality that it attracts them to use the system and helps them in their daily task. The features and availability of CMS and the service offered by CMS Help-Desk were not considered as important determinants contributing to CMS use. The present study has listed six dimensions that characterised information quality of CMS (desired characteristic of the system output), such as sufficient information, relevant, timely, easy to understand, and up-to-date information. Consequently, IRBM should pay extra attention to these features when upgrading or designing a system with similar features as CMS for their users to ensure continued use, which will positively influence user satisfaction and attain success as described by the net benefits.

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Of the three IS characteristics, only service quality was found to affect user satisfaction. This indicates that the service rendered by Help-Desk has significant influence over the auditor's satisfaction with CMS. The insignificant relationship between system quality and information quality with user satisfaction implies that the user does not see both qualities as an important construct in determining their satisfaction or the success of CMS. Since CMS has been used for about 11 years, user support seems to contribute more to user's satisfaction with the system. Service quality is the quality of the support that system users receive from the IT Department and the IT support personnel. This study has listed one element on error-free record and six factors related to CMS Help-Desk, namely, prompt service, willingness, responsive, sincere, attentive, and personal attention. These are the factors that defined service quality of CMS and should be focused on to ensure user satisfaction with CMS.

The finding that system use has a significant influence on user satisfaction indicates that continuous use of CMS will influence user satisfaction of the system. The users are satisfied with the system because they are using it.

User satisfaction has the highest influence on net benefit. This finding indicates that IRBM needs to satisfy the users to draw the net benefits from CMS. Specifically, they need to pay attention to the factors that contribute to high quality of service which influence the user satisfaction. Users that are not inspired but given the mandate to use a system may have expressed the need for improved service quality for better user satisfaction.

Using CMS has also contributed to allure the net benefits of the system. Net benefits are the extent to which IS is contributing to the success of individuals, groups, organisations,

industries, and nations. Several benefits of using CMS include enhancing work performance, improving time spent on work process, making a job easier, enhancing productivity, saving cost, assisting IRBM to achieve its goal, and increasing its productivity. Hence, for the system to attain the success as stated in the net benefits, IRBM has to ensure continued use of CMS as well as improving the quality of the service to provide user satisfaction. The finding of this study indicates that the CMS users believe the benefit that they received from CMS has impacted them positively in specific ways. These benefits are relished because they have used CMS and felt satisfied with the two main elements of CMS; information quality and service quality.

The finding from this study has also helped IRBM in acknowledging the success status of CMS implementation in IRBM since its establishment in 2008. The result of this study will help IRBM to set up appropriate strategies to address CMS issues strictly in its problematic area to ensure that no unnecessary cost would occur.

6.7 Limitations of the Study and Suggestions for Further Research

This study investigated the success factors of the CMS system from the perspective of active users (i.e., auditors) only. Hence, future studies should pay attention to the non-active users and suggested to compare the two user groups to better understand the CMS success factors more comprehensive.

The non-active users are the top management and middle management group of users instead of the auditors which were more of operational staff. These types of users have a broader

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perspective on the use of CMS because they benefit from the system differently from the operational staff.

Extra cautiousness is recommended when generalising the results of this study because of the small sample size. The upcoming research based upon realistically more significant sample size can bring a new dimension to the theory and practical implications of the study.

6.8 Conclusions

This study aimed to examine the effect of three quality constructs of D&M ISSM 2003, namely, information quality, system quality, and service quality on CMS use and user satisfaction. The study also assessed the effect of CMS use on user satisfaction and net benefit, and the effect of user satisfaction on the net benefits of CMS. The Information System Success Model by DeLone and McLean was used to find a complete understanding about IS success by recognising, defining, and clarifying the relationship between six factors that contribute to system success.

A structured questionnaire was used to gather data. The questionnaires were distributed to IRBM officers who are working in the desk audit, field audit, profiling, PCB Audit, and investigation branches. Data were analysed using the PLS. Specifically, the model testing was carried out in two stages, namely, measurement model testing and structural model testing.

Of the seven constructs tested, only information quality was found to influence system use while service quality influenced user satisfaction. CMS use had also been found to affect user satisfaction. Both CMS use and user satisfaction were found to be positively affecting the net

benefit of the CMS. The insignificant result for the rest of the determinants in this study does not indicate that they are not important, but the auditors may pay more attention to information quality in using the system and being satisfied with the service quality as the most critical factor that defines CMS success. Therefore, for CMS to attain success as presented via net benefits, the system must be in continuous use and satisfy the users. Consequently, to achieve the continued use, more attention should be put into enhancing the information quality of CMS. Whereas, to attain satisfaction, the best service should be offered to the users.

This study will be a good start for IRBM to have a sight of what is going on in the IT department and where it is heading. IRBM will have a platform to plan its future move in the IS implementation in IRBM. By recognising factors that play a leading role in measuring the success of CMS, such as information quality and service quality, the management can now focus on bringing improvement in these variables to another system too.
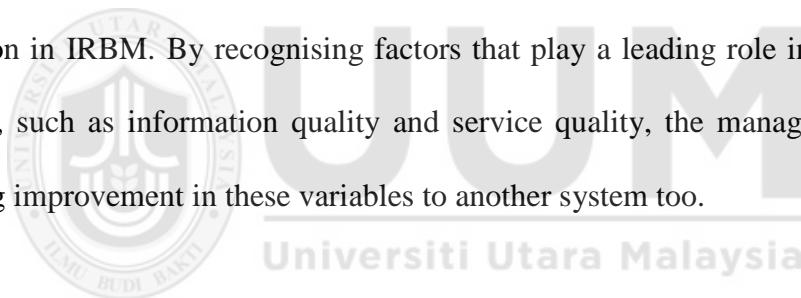
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APPENDICES

Appendix 1.   Preliminary Questionnaire

Pusat Pengajian Perakaunan
Tunku Puteri Intan Safinaz
TUNKU PUTERI INTAN SAFINAZ SCHOOL OF ACCOUNTANCY

Universiti Utara Malaysia

PRELIMINARY QUESTIONNAIRE

**The Success of CMS (Case Management System) in
Inland Revenue Board of Malaysia (IRBM)**

Dear participant,

This questionnaire is designed to study about the problems that user encounters when using the CMS system at IRBM. Your participation is highly appreciated.

This study is conducted as a partial fulfillment for my Master of Science (International Accounting). The information you provide for the purpose of this study will be kept **STRICTLY CONFIDENTIAL** and will be used for the academic purpose only.

Your input is highly valued. Thank you very much for your time and cooperation.

Yours sincerely,

_____

Peserta yang dihormati,

Soal selidik ini adalah untuk mengkaji tentang masalah yang dihadapi pengguna semasa menggunakan sistem CMS LHDNM. Penyertaan anda amat dihargai.

Kajian ini dilakukan sebagai memenuhi sebahagian daripada keperluan Sarjana Sains (Perakaunan Antarabangsa). Maklumat yang anda berikan untuk tujuan kajian ini akan **DIRAHSIAKAN** dan akan digunakan bagi tujuan akademik sahaja.

Maklumbalas anda amatlah dihargai. Terima kasih atas masa dan kerjasama yang diberikan.

Yang ikhlas,

Nadianauli Yaakub
Master of Science (International Accounting)
Universiti Utara Malaysia
Name:

Nama:

Position:
Jawatan:

Current Branch/ Division/ Department:
Cawangan/ Bahagian/ Jabatan Sekarang:

Title/ Responsibilities in Current Unit:
Gelaran/ Tanggungjawab di unit sekarang:

Service Period at IRBM:
Tempoh berkhidmat di LHDNM:

Service Period in audit:
Tempoh berkhidmat dalam bidang audit:

Please state your 2 current Main Work Process:
Nyatakan 2 Proses Kerja Utama (PKU) anda yang terkini:

Limitations in using CMS for your Main Work Process:
Kekangan penggunaan CMS dalam melaksanakan PKU:

Problems encounter when using CMS for your Main Work Process:

Masalah dihadapi semasa menggunakan CMS dalam melaksanakan PKU:

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Please state other systems used in your Main Work Process:
Nyatakan sistem-sistem lain yang turut digunakan dalam melaksanakan PKU:

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Please state the advantages of CMS compared to the systems used before CMS was introduced:
Sila nyatakan kelebihan CMS berbanding dengan sistem yang digunakan sebelum CMS diperkenalkan:

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Please state your opinion on what needs to be fixed or improvements that need to be done with CMS.
Sila nyatakan pendapat anda mengenai perkara yang perlu dibaiki atau penambahbaikan yang perlu dilakukan pada CMS:

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Appendix 2.   Prior Studies with Extended D&M ISSM

No.	Study	IS/IT Context	Country	IV	DV	Finding
1	Human Resources Information Systems Success Assessment an integrative model (AlShibly, 2011)	HRMS	Jordan	Perceived HRIS System Quality (SQ) Perceived HRIS Information Quality (IQ) Perceived HRIS Ease of Use (EOU) Perceived HRIS Usefulness (Use)	HRIS User Satisfaction (Sat) HRIS Success (Succ)	Significant SQ->Sat IQ->Sat Use->Sat Sat->Succ Not significant EOU->Sat
2	Measuring the Success of Library 2.0 Technologies in the African Context: The Suitability of the DeLone and McLeans Model (Lwoga, 2013)	Library	Tanzania	Information Quality (IQ) System Quality (SQ) Service Quality (SvsQ)	Perceived Net Benefits (PNB) User Satisfaction (Sat) Behavioural Intention to reuse (ItR)	Significant IQ->Sat IQ->PNB SQ->Sat SvsQ->PNB PNB->Sat PNB->ItR Sat->ItR Not significant SQ->PNB SvsQ->Sat
3	Information System Success Model for	Customer Relationship	Korea	Information Quality (IQ) System Quality (SQ)	Perceived Usefulness (PUse)	Significant IQ->PUse

No.	Study	IS/IT Context	Country	IV	DV	Finding
	Customer Relationship Management System in Health Promotion Centers (Choi, Rho, Park, Kim, & Kwon, 2013)	Management System		Service Quality (SvsQ)	User Satisfaction (Sat) Individual Performance (Ind) Organisational Performance (Org)	SvsQ->PUse SQ->Sat IQ->Sat SvsQ->Sat Sat->Ind Ind->Org <u>Not significant</u> SQ->PUse PUse->Org
4	Assessing m-Health success in Bangladesh An empirical Investigation using IS success models (Hossain, 2016)	m-health	Bangladesh	Platform Quality (PQ) Quality of Advice (QoA) Interaction Quality (IQ)	User Satisfaction (Sat) Perceived Value (PV) Continuance Intention (CI) Quality of Health Life (Q)	<u>Significant</u> PQ->Sat QoA->Sat IQ->Sat PQ->PV QoA-PV IQ->PV PV->Sat PV->CI Sat->CI CI->Q
5	A model for assessing blog-based learning systems success (Wang, Li,	e-Learning	Taiwan	System Quality (SQ) Service Quality (SvsQ) Content Quality (CQ) Context and Linkage Quality (CLQ)	User Satisfaction (Sat) System Use (Use) Learning Performance (LP)	<u>Significant</u> CQ->Sat CLQ->Sat SQ->Use

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No.	Study	IS/IT Context	Country	IV	DV	Finding
	Li, & Wang, 2014)					CQ->Use
						CLQ->Use
						Sat->Use
						Use->LP
						Sat->LP
						<u>Not significant</u>
						SQ->Sat
						SvsQ->Sat
						SvsQ->Use
6	Assessing e-Excise Success with DeLone and McLean Model (Khayun, Ractham, & Firpo, 2012)	e-Excise	Thailand	Trust (T) Perception of Information Quality (IQ) Perception of System Quality (SQ) Perception of Service Quality (SvsQ) Individual Characteristic (IC)	User Satisfaction (Sat) Use (Use) Perceived Net Benefits (NB)	<u>Significant</u> T->IQ T->SQ T->SvsQ IQ->Sat SQ->Use SvsQ->Use SvsQ->Sat Sat->Use Use->Sat Sat->NB IC->Use
						<u>Not significant</u> IQ->Use SQ->Sat Use->NB

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Appendix 3. Questionnaire

QUESTIONNAIRE

ASSESSING THE EFFECTIVENESS OF CMS IMPLEMENTATION IN INLAND REVENUE BOARD OF MALAYSIA (IRBM)

Dear participant,

This questionnaire is designed to assess the effectiveness of the Case Management System (CMS) implementation in Inland Revenue Board of Malaysia (IRBM). Please evaluate the system with regards to the scope of your job. Your participation is highly appreciated.

This study is conducted as a partial fulfillment for my Master of Science (International Accounting). The information you provide for the purpose of this study will be kept **STRICTLY CONFIDENTIAL** and will be used for the academic purpose only.

Your input is highly valued. Thank you very much for your time and cooperation.

Yours sincerely,

_____

Peserta yang dihormati,

Soal selidik ini bertujuan untuk menilai keberkesanan pelaksanaan Sistem Pengurusan Kes (CMS) di Lembaga Hasil Dalam Negeri Malaysia (LHDNM). Sila buat penilaian terhadap sistem yang berkaitan dengan skop kerja anda. Penyertaan anda amatlah dihargai.

Kajian ini dilakukan sebagai memenuhi sebahagian daripada keperluan Sarjana Sains (Perakaunan Antarabangsa). Maklumat yang anda berikan untuk tujuan kajian ini akan **DIRAHSIAKAN** dan akan digunakan bagi tujuan akademik sahaja.

Maklumbalas anda amatlah dihargai. Terima kasih atas masa dan kerjasama yang diberikan.

Yang ikhlas,

………………………....
Nadianauli Yaakub
Master of Science (International Accounting)
Universiti Utara Malaysia

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SECTION A – SYSTEM USE

BAHAGIAN A – PENGGUNAAN SISTEM

System use is the degree and manner in which staff utilise the capabilities of an information system. Items below represent your opinion on using the CMS.
Penggunaan sistem adalah tahap dan cara bagaimana kakitangan menggunakan keupayaan sistem maklumat. Item-item di bawah mewakili pendapat anda mengenai penggunaan CMS.

Based on the scale given, please circle the number that you think appropriate for each item.
Berdasarkan skala yang diberikan, sila bulatkan pada nombor yang sesuai menurut pandangan anda terhadap item di bawah.

A1. Overall, how would you rate the frequency of using the CMS system in a month?
Secara keseluruhan, bagaimana anda menilai kekerapan penggunaan sistem CMS dalam sebulan?

1	2	3	4	5	6	7
Rarely *Jarang*						Often *Kerap*

A2. I depend on the CMS system.
Saya bergantung kepada sistem CMS.

1	2	3	4	5	6	7
Strongly Disagree *Sangat Tidak Setuju*						Strongly Agree *Sangat Setuju*

A3. I use many functions of the CMS system.
Saya menggunakan banyak fungsi yang terdapat di dalam sistem CMS.

1	2	3	4	5	6	7
Strongly Disagree *Sangat Tidak Setuju*						Strongly Agree *Sangat Setuju*

A4. If CMS is not mandatory, I would still use the system.
Jika CMS tidak diwajibkan, saya masih akan menggunakan sistem ini.

1	2	3	4	5	6	7
Strongly Disagree *Sangat Tidak Setuju*						Strongly Agree *Sangat Setuju*

Please comment on your answers in this section.
Komen jawapan anda dalam bahagian ini.

_____

_____

_____

SECTION B – USER SATISFACTION

BAHAGIAN B – KEPUASAN PENGGUNA

User satisfaction refers to users' level of satisfaction with the reports, Web sites, and support services of the system. The items below represent your satisfaction on using CMS.
Kepuasan pengguna merujuk kepada tahap kepuasan pengguna terhadap penghasilan laporan, laman web, dan perkhidmatan sokongan sistem. Item-item di bawah mewakili kepuasan anda menggunakan CMS.

Based on the scale given below, please circle the number that you think appropriate for each item.
Berdasarkan skala yang diberikan di bawah, sila bulatkan pada nombor yang sesuai menurut pandangan anda terhadap item di bawah.

1	2	3	4	5	6	7
Strongly Disagree *Sangat Tidak Setuju*						Strongly Agree *Sangat Setuju*

		Scale
B1.	CMS is a good system within my area of responsibility. *CMS adalah sistem yang baik di bawah bidang tanggungjawab saya.*	1 2 3 4 5 6 7
B2.	The CMS is of high quality. *CMS adalah berkualiti tinggi.*	1 2 3 4 5 6 7
B3.	The CMS has met my expectations. *CMS telah memenuhi jangkaan saya.*	1 2 3 4 5 6 7
B4.	Overall, I am satisfied with using CMS. *Secara keseluruhannya, saya amat berpuas hati menggunakan CMS.*	1 2 3 4 5 6 7

Please comment on your answers in this section.
Komen jawapan anda dalam bahagian ini.

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SECTION C – NET BENEFITS

BAHAGIAN C – FAEDAH BERSIH

Net benefits are the extent to which information system is contributing to the success of individuals, groups, organisations, industries, and nations. The items below represent your opinion about the net benefits accomplished out of using CMS in your daily job.

Faedah bersih adalah sejauh mana sistem maklumat menyumbang kepada kejayaan individu, kumpulan, organisasi, industri, dan negara. Item-item di bawah mewakili pendapat anda tentang faedah bersih yang dicapai melalui penggunaan CMS di dalam tugas seharian.

Based on the scale given below, please circle the number that you think appropriate for each item.

Berdasarkan skala yang diberikan di bawah, sila bulatkan pada nombor yang sesuai menurut pandangan anda terhadap item di bawah.

1	2	3	4	5	6	7
Strongly Disagree *Sangat Tidak Setuju*						Strongly Agree *Sangat Setuju*

C1. Using CMS enhances my work performance.
Penggunaan CMS lebih meningkatkan prestasi kerja saya.
   1 2 3 4 5 6 7

C2. Using CMS improves the time spent on work process.
Penggunaan CMS lebih menambahbaik tempoh masa yang digunakan untuk membuat proses kerja.
   1 2 3 4 5 6 7

C3. Using CMS makes my job easier.
Penggunaan CMS menjadikan tugas saya lebih mudah.
   1 2 3 4 5 6 7

C4. CMS helps the IRBM to save cost.
CMS membantu IRBM untuk menjimatkan kos.
   1 2 3 4 5 6 7

C5. Overall, using CMS enhances my productivity.
Secara keseluruhan, penggunaan CMS meningkatkan produktiviti saya.
   1 2 3 4 5 6 7

C6. Overall, using CMS helps IRBM to achieve its goal.
Secara keseluruhan, penggunaan CMS membantu LHDNM mencapai matlamatnya.
   1 2 3 4 5 6 7

C7. Overall, using CMS increases IRBM's productivity.
Secara keseluruhan, penggunaan CMS meningkatkan produktiviti LHDNM.
   1 2 3 4 5 6 7

Please comment on your answers in this section.
Komen jawapan anda dalam bahagian ini.

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SECTION D – INFORMATION QUALITY

BAHAGIAN D – KUALITI MAKLUMAT

Information quality refers to a desired characteristic of the system output from the management of reports to the web pages itself. The items below represent your opinion about the information quality in regards to the CMS system.

Kualiti Maklumat adalah ciri-ciri yang dikehendaki perlu wujud pada keluaran sistem samada dari segi pengurusan laporan sehinggalah kepada paparan laman web itu sendiri. Item-item di bawah mewakili pendapat anda mengenai kualiti maklumat bagi sistem CMS.

Based on the scale given below, please circle the number that you think appropriate for each item.
Berdasarkan skala yang diberikan di bawah, sila bulatkan pada nombor yang sesuai menurut pandangan anda terhadap item di bawah.

1	2	3	4	5	6	7
Strongly Disagree *Sangat Tidak Setuju*						Strongly Agree *Sangat Setuju*

D1. CMS provides sufficient information.
Maklumat yang dibekalkan oleh CMS adalah mencukupi.
  1 2 3 4 5 6 7

D2. CMS provides information that is exactly what I need.
Maklumat yang dibekalkan oleh CMS adalah bertepatan dengan kehendak saya.
  1 2 3 4 5 6 7

D3. CMS provides me the information at the time that I need it.
CMS menyediakan maklumat pada masa saya memerlukan maklumat tersebut.
  1 2 3 4 5 6 7

D4. CMS provides information that is relevant to my job.
CMS menyediakan maklumat yang berkaitan dengan kerja saya.
  1 2 3 4 5 6 7

D5. CMS provides information that is easy to understand.
CMS membekalkan maklumat yang mudah difahami.
  1 2 3 4 5 6 7

D6. CMS provides an up-to-date information.
CMS membekalkan maklumat yang terkini.
  1 2 3 4 5 6 7

Please comment on your answers in this section.
Komen jawapan anda dalam bahagian ini.

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SECTION E – SYSTEM QUALITY

BAHAGIAN E – KUALITI SISTEM

System quality is a desirable characteristic of an information system itself. The items below represent your opinion about the quality of CMS system.
Kualiti sistem adalah ciri-ciri yang perlu ada pada sistem maklumat itu sendiri. Item-item di bawah mewakili pendapat anda mengenai kualiti sistem CMS.

Based on the scale given below, please circle the number that you think appropriate for each item.
Berdasarkan skala yang diberikan di bawah, sila bulatkan pada nombor yang sesuai menurut pandangan anda terhadap item di bawah.

1	2	3	4	5	6	7
Strongly Disagree *Sangat Tidak Setuju*						Strongly Agree *Sangat Setuju*

E1. CMS is easy to use.
CMS adalah mudah untuk digunakan.
    1   2   3   4   5   6   7

E2. CMS is very user friendly.
CMS amat mesra pengguna.
    1   2   3   4   5   6   7

E3. CMS provides high-speed information access.
CMS menyediakan akses maklumat berkelajuan tinggi.
    1   2   3   4   5   6   7

E4. CMS allows information to be readily accessible to me.
CMS membolehkan maklumat sedia diakses oleh saya.
    1   2   3   4   5   6   7

E5. CMS provides interactive features between users and system.
CMS menyediakan ciri-ciri interaktif antara pengguna dan sistem.
    1   2   3   4   5   6   7

E6. CMS can flexibly adjust to my new work demands.
CMS boleh menyesuaikan diri dengan mudah kepada tuntutan kerja saya yang baru.
    1   2   3   4   5   6   7

E7. Feedback on enquiries/request through CMS is fast.
Maklumbalas mengenai pertanyaan/ permintaan melalui CMS adalah cepat.
    1   2   3   4   5   6   7

Please comment on your answers in this section.
Komen jawapan anda dalam bahagian ini.

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SECTION F – SERVICE QUALITY

BAHAGIAN F – KUALITI PERKHIDMATAN

Service quality is the quality of the support that system users receive from the Information System Department and the information technology (IT) support personnel. The items below represent your opinion about the quality of service of CMS Help-Desk.

Kualiti perkhidmatan adalah kualiti sokongan yang diterima oleh pengguna sistem daripada Jabatan Teknologi Maklumat dan kakitangan sokongan IT. Item-item di bawah mewakili pendapat anda mengenai kualiti perkhidmatan Meja Bantuan CMS.

Based on the scale given below, please circle the number that you think appropriate for each item.
Berdasarkan skala yang diberikan di bawah, sila bulatkan pada nombor yang sesuai menurut pandangan anda terhadap item di bawah.

1	2	3	4	5	6	7
Strongly Disagree *Sangat Tidak Setuju*						Strongly Agree *Sangat Setuju*

F1. CMS Help-Desk does give prompt service.
Meja Bantuan CMS memberikan perkhidmatan yang segera.
   1 2 3 4 5 6 7

F2. CMS Help-Desk always willing to help users.
Meja Bantuan CMS sentiasa bersedia untuk membantu pengguna.
   1 2 3 4 5 6 7

F3. CMS Help-Desk is never been too busy to respond to user's requests.
Meja Bantuan CMS tidak pernah terlalu sibuk untuk membalas permintaan pengguna.
   1 2 3 4 5 6 7

F4. When users have a problem, CMS Help-Desk shows a sincere interest in solving it.
Apabila pengguna mempunyai masalah, Meja Bantuan CMS menunjukkan minat yang ikhlas dalam menyelesaikannya.
   1 2 3 4 5 6 7

F5. CMS Help-Desk tells users exactly when services will be performed.
Meja Bantuan CMS memberitahu pengguna dengan tepat apabila perkhidmatan akan dilakukan.
   1 2 3 4 5 6 7

F6. CMS insists on error-free records.
CMS mewajibkan kemasukan rekod yang bebas dari kesilapan.
   1 2 3 4 5 6 7

F7. Members of CMS Help-Desk give users a personal attention.
Ahli Meja Bantuan CMS memberikan perhatian peribadi kepada pengguna.
   1 2 3 4 5 6 7

Please comment on your answers in this section.
Komen jawapan anda dalam bahagian ini.

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SECTION G: RESPONDENT PROFILE

BAHAGIAN G: PROFIL RESPONDEN

Please tick (√) in the box provided.
Sila tandakan (√) di dalam kotak yang disediakan.

G1. Sex / *Jantina*

☐ Male/ *Lelaki*   ☐ Female / *Perempuan*

G2. Age / *Umur*

☐ 20 - 30 years / *tahun*   ☐ 51 – 60 years / *tahun*

☐ 31 - 40 years / *tahun*   ☐ 61 years and above / *tahun dan ke atas*

☐ 41 – 50 years / *tahun*

G4. Service period in IRBM/ *Tempoh berkhidmat di LHDNM*

☐ 0 - 3 years / *tahun*   ☐ 7 - 9 years / *tahun*

☐ 4 - 6 years / *tahun*   ☐ 10 years and above / *tahun dan ke atas*

G5. Current access of CMS
   Peranan dalam penggunaan CMS

☐ Assessor   ☐ Pengurus
  Penaksir   *Manager*
☐ Group Leader   ☐ Others / *Lain-lain:* _____
  Ketua Kumpulan

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G6. Current position/*Jawatan sekarang*

☐	Assistant Executive Officer *Pen. Pegawai Eksekutif*	☐	Senior Executive Officer Grade 48 *Pegawai Eksekutif Gred 48*
☐	Executive Officer Grade 41/44 *Pegawai Eksekutif Gred 44*	☐	Others _____/ Grade ____ *Lain-lain*

G7. Academic Qualification/ *Kelayakan Akademik*

☐	Master Degree/ *Sarjana*	☐	MCE/ *SPM*
☐	Bachelor Degree / *Sarjana Muda*	☐	Others / *Lain-lain:* _____

G8. Current Unit / *Unit semasa*

☐	Field Audit*/ Audit Luar*	☐	Profiling*/ Profiling*
☐	Desk Audit*/ Audit Meja*	☐	Investigation/ *Siasatan*
☐	PCB Audit/ *Audit PCB*	☐	Others / Lain-lain: _____

G9. Current state you're working/ *Negeri tempat anda bertugas sekarang*

☐	Johor	☐	Pulau Pinang
☐	Kedah	☐	Sabah
☐	Kelantan	☐	Sarawak
☐	Melaka	☐	Selangor
☐	Negeri Sembilan	☐	Terengganu
☐	Pahang	☐	Wilayah Persekutuan Kuala Lumpur
☐	Perak	☐	Wilayah Persekutuan Labuan
☐	Perlis	☐	Wilayah Persekutuan Putrajaya

THANK YOU VERY MUCH FOR YOUR VALUABLE TIME AND SUPPORT.
TERIMA KASIH ATAS MASA DAN SOKONGAN ANDA.