



Faculty of Technology Management and Technopreneurship

**KNOWLEDGE MANAGEMENT AND FINANCIAL PERFORMANCE
OF MALAYSIAN PUBLIC HIGHER EDUCATION: ENTERPRISE
RISK MANAGEMENT AS A MEDIATOR**



Ummu Ajirah binti Abdul Rauf

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MALAYSIAN PUBLIC HIGHER EDUCATION: ENTERPRISE RISK
MANAGEMENT AS A MEDIATOR**

UMMU AJIRAH BINTI ABDUL RAUF

**A thesis submitted
in fulfillment of the requirements for the degree of Doctor of Philosophy**




Faculty of Technology Management and Technopreneurship

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2022

DECLARATION

I declare that this thesis entitled “Knowledge Management and Financial Performance of Malaysian Public Higher Education: Enterprise Risk Management as a Mediator” is the result of my own research except as cited in the references. The thesis has not been for any degree and is not concurrently submitted in candidature of any other degree.

Signature : 

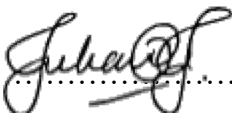
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APPROVAL

I hereby declare that I have read this thesis and in my opinion this thesis is sufficient in terms of scope and quality for the award of Doctor of Philosophy.

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Date : 13 April 2022



DEDICATION

This thesis is specially dedicated to:

My family and my beloved mother,

Hjh. Fazilaton binti Hj. Borhan



ABSTRACT

Knowledge management (KM) in public higher education (PHE) helps them in acquiring the information on income generation, identifying and analyzing the risk across the organization and lead to the successful of enterprise risk management (ERM) implementation. ERM in PHE is crucial as it is aimed at mitigating the multidimensional risks that faced by PHE after been granted an autonomous status as well as enhancing their financial performance. Nevertheless, they are still far behind the corporate sector in implementing ERM as they have limited knowledge towards risk management. Therefore, PHE must have a good KM to establish understanding towards the concepts of ERM as well as helps them to enhance the knowledge on income generation, thus lead to the better financial performance. Based on the arguments, it indicated ERM are able to be a mediator between KM and financial performance of PHE. The link between ERM and performance have been widely discussed, however, it was commonly explores on other industries and majority of it was investigated among developed countries which resulting to diverse conclusions. There is also limited research on KM and performance of Malaysian PHE mediated by ERM implementation. Therefore, this research is crucial to fill the gap as it focuses on uncovering the factors under KM that encourage the ERM implementation and how ERM implementation as a mediator can enhance the financial performance of Malaysian PHE. Using the Open System Theory as the theoretical foundation, this research has developed a model on the mediating effect of ERM implementation, by utilizing the KM components (KMC) which include work coordination, communication, interaction information system, knowledge sharing, management information system functionality, intranet quality, information system integration and network capability that can enhance the financial performance of Malaysian PHE. Data were collected from Malaysian PHE using a cross sectional design and multistage sampling method (purposive, stratified and census). A total of 210 usable questionnaires were collected by online survey and analysed with Covariance-Based SEM (CB-SEM). 14 out of the 25 hypotheses were supported; work coordination, management information system functionality, intranet quality, information system integration and network capability have direct influence with financial performance of Malaysian PHE, while work coordination, communication, intranet quality and network capability positively influenced the ERM implementation. Moreover, the significant mediating effect of ERM implementation has shown indirectly its strong influence with the performance of Malaysian PHE. This research makes several theoretical contributions and provides further insights on the KMC and impacts of ERM implementation in Malaysia. From the managerial viewpoint, this research provides a valid and applicable framework to encourage the ERM implementation in Malaysian PHE. Besides, practical contribution indicates that, by implementing ERM, Malaysian PHE will have better financial performance in terms of income generation. The important implications of this research to the Ministry of Higher Education (MOHE), policy makers, academics and risk practitioners are identified through the enhanced knowledge towards the concept and importance of ERM to encourage the implementation, as well as long term impact of ERM towards achieving better financial performance. There is also a need for a revisit of the policy instrument as to realign it with the current ERM implementation and provide supportive policies that will improve the financial performance of Malaysian PHE.

**PENGURUSAN PENGETAHUAN DAN PRESTASI KEWANGAN INSTITUSI
PENGAJIAN TINGGI AWAM DI MALAYSIA: PERUSAHAAN PENGURUSAN
RISIKO SEBAGAI MEDIATOR**

ABSTRAK

Pengurusan pengetahuan (KM) dalam pengajian tinggi awam (PHE) membantu dalam memperoleh maklumat (penjanaan pendapatan), mengenal pasti dan menganalisis risiko di seluruh organisasi dan membawa kepada pelaksanaan perusahaan pengurusan risiko (ERM). ERM dalam PHE penting kerana bertujuan mengurangkan risiko pelbagai dimensi selepas diberikan status autonomi serta meningkatkan prestasi kewangan mereka. Namun, mereka jauh di belakang sektor korporat dalam pelaksanaan ERM kerana pengetahuan yang terhad. Oleh itu, PHE mesti mempunyai KM yang baik bagi mewujudkan pemahaman terhadap konsep ERM serta membantu meningkatkan pengetahuan tentang penjanaan pendapatan, dan membawa kepada prestasi kewangan yang lebih baik. Berdasarkan hujah, ia menunjukkan ERM dapat menjadi mediasi antara KM dan prestasi kewangan PHE. Kaitan antara ERM dan prestasi telah dibincangkan secara meluas, namun, lazimnya diterokai di industri lain dan disiasat di negara maju yang menghasilkan kesimpulan yang berbeza. Penyelidikan mengenai KM dan prestasi PHE di Malaysia yang dimediasi oleh pelaksanaan ERM juga terhad. Oleh itu, penyelidikan ini penting bagi mengisi jurang tersebut kerana memfokuskan kepada faktor di bawah KM yang mendorong pelaksanaan ERM dan bagaimana ianya sebagai mediasi boleh meningkatkan prestasi kewangan PHE di Malaysia. Menggunakan 'Open System Theory' sebagai teori asas, kajian ini membangunkan model mengenai kesan mediasi pelaksanaan ERM, dengan menggunakan komponen KM (koordinasi kerja, komunikasi, interaksi sistem maklumat, perkongsian pengetahuan, fungsi pengurusan sistem maklumat, kualiti intranet, integrasi sistem maklumat dan keupayaan rangkaian) yang mana dapat meningkatkan prestasi PHE di Malaysia. Data dikutip dari PHE di Malaysia menggunakan reka bentuk kajian keratan rentas dan kaedah pensampelan berperingkat (bertujuan, berstrata dan banci). 210 soal selidik dikumpulkan secara dalam talian dan dianalisa dengan 'Covariance-Based SEM'. 14 dari 25 hipotesis disokong; koordinasi kerja, fungsi pengurusan sistem maklumat, kualiti intranet, integrasi sistem maklumat dan kemampuan rangkaian mempengaruhi prestasi PHE di Malaysia secara langsung, manakala koordinasi kerja, komunikasi, kualiti intranet dan kemampuan jaringan mempengaruhi pelaksanaan ERM secara positif. Seterusnya, pelaksanaan ERM sebagai mediator menunjukkan pengaruh yang kuat terhadap prestasi PHE di Malaysia. Kajian ini juga membuat beberapa sumbangan teori dan pandangan lanjut mengenai KMC dan kesan pelaksanaan ERM di Malaysia. Dari perspektif pengurusan, kajian ini menyediakan rangka kerja yang sah dan boleh digunakan bagi mendorong pelaksanaan ERM dalam PHE di Malaysia. Seterusnya, sumbangan praktikal menunjukkan dengan pelaksanaan ERM, PHE di Malaysia akan mempunyai prestasi kewangan yang lebih baik (penjanaan pendapatan). Implikasi penting dari kajian ini kepada Kementerian Pengajian Tinggi (KPT), pembuat dasar, akademik dan pengamal risiko adalah, ia mampu meningkatkan pengetahuan terhadap konsep dan kepentingan ERM untuk mendorong pelaksanaan dan kesan jangka panjang ERM ke arah prestasi yang lebih baik. Terdapat juga keperluan menyemak semula dasar instrumen bagi penyelarasan semula dengan pelaksanaan ERM semasa dan menyediakan dasar yang menyokong yang akan meningkatkan prestasi PHE di Malaysia.

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There are number of people to whom I owe a great deal of gratitude. I wish to convey my utmost gratitude to Associate Professor Dr. Juhaini binti Jabar, my beloved supervisor for her encouragement, valuable suggestions and advice during the entire period of this research. In addition, I am also indebted for her helpful comments, support and understanding. My special thanks are also belonged to my second supervisor, Dr. Nusaibah binti Mansor, for providing me with valuable advice and opinions.

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LIST OF ABBREVIATIONS

KM	-	Knowledge management
KMC	-	Knowledge management component
RM	-	Risk management
ERM	-	Enterprise risk management
PHE	-	Public higher education
GDP	-	Gross domestic product
SEM	-	Structural equation modelling
AMOS	-	Analysis of moment structure
EFA	-	Exploratory factor analysis
χ^2	-	Chi-square
p	-	Significant value
df	-	Degree of freedom
cr	-	Critical region
Sig	-	Significant



LIST OF PUBLICATIONS

Rauf, U.A.A., Jabar, J., and Mansor, N., 2021. A conceptual framework for Enterprise Risk Management in Malaysian Public Higher Education: Applications of Knowledge Management. *Academy of Entrepreneurship Journal*, 27(2), pp.1-11. (Scopus)

Rauf, U.A.A., Jabar, J., and Mansor, N., 2020. An exploratory factor analysis for measuring knowledge management component construct in Malaysian public higher education. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(7), pp.4523-4534. (Scopus)

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Rauf, U.A.A., Mansor, N. and Jabar, J., 2018. Mediating Effect of Enterprise Risk Management on Quality Communication and Performance of Malaysian Public Higher Educational Institution: A Conceptual Framework. *Indian Journal of Public Health Research and Development*, 9(12), pp. 2702–2707. (Scopus)

CHAPTER 1

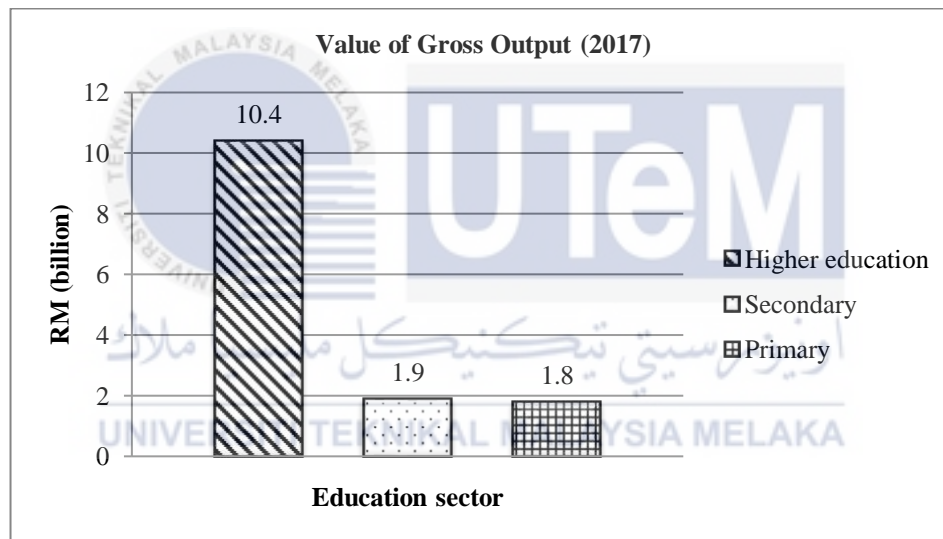
INTRODUCTION

Chapter 1 will introduce the basic concepts and knowledge of this research. Basically, this research will begin with the background of research, research problem, following with the research objectives, research questions, significance of research, scope of research, operational definition of key terms, as well as structure of thesis. The background of research covers the brief introduction of higher education in Malaysia, enterprise risk management (ERM) and then focuses on public higher education (PHE). For the research problem, it is based on the research gaps, which have been identified from the previous problems, and how this research will tackle them. Lastly, in order to build an understanding of this research, the structure of the thesis will be explained at the end of this chapter.

1.1 Research background

Higher education has been known as the critical and strategic sector, and it is one of the major contributors towards the country's growth as they are striving towards knowledge-economy. They are responsible to provide training and maintain the quality of the graduates based on their vital part under the Malaysia's nation building agenda. Higher education is also one of the sectors in Malaysia that have experienced a positive growth in the mid of 1990s. This is because, during that time, the government policy widened up to privatize education and encouraged private sectors to invest in education. Such policy was implemented to reduce government budgets, to encourage self-regulation plans, and to increase competition among business holders by leading Malaysia's economy towards a

fully independent nation as well as making Malaysia as an education hub of the region by 2020 (Eam et al., 2016). Phoong et al. (2017) also stated that there are greater positive effects of higher education on economic growth in Malaysia. Therefore, this sector has potential to boost up the economy in Malaysia. In 2008, it generated almost RM2.1 billion (Ministry of Higher Education, 2018) and the data is increasing yearly. By the year 2013, the annual revenues reached RM4.2 billion (Lim and Williams, 2015). While in 2017, this sector recorded the highest value added which amounted to RM6.5 billion, and it also was the largest contributor of gross output value with RM10.4 billion (59.0%) in Annual Economic Survey 2018 compared to other education level (refer Figure 1.1).



Source: Department of Statistics Malaysia (2019)

Figure 1.1: Value of gross output of education sector in Malaysia, 2017

Malaysian Higher Education System (MHES) is divided into two which are public and private higher education. Currently, there are total of 20 public higher educations and 487 private higher educational have been operated, comprises of private universities, polytechnics, community colleges, university colleges and private colleges that been recognized by Malaysian Qualifications Agency (MQA). The details are shown in Table 1.1.

Table 1.1: Number of higher education institutions by types (as in 2020)

Type of institutions	Total numbers
Public higher education	20
Private Universities	63
Polytechnics	32
Community College	37
University College	35
Private College	320
Total	507

Source: Malaysian Qualifications Agency (MQA) (2020)

From the rising numbers of higher education in Malaysia, it highlights the significant increase in the government allocation of education expenditure along the years. In 2009, the Malaysian's government expenditure on education was 21.9% followed by 22.8% in 2010, 16.7% in 2011 and 17.2% in 2012. In general, the figures for Malaysia are higher than the Organization for Economic Co-operation and Development (OECD) countries, since those countries spend around 13% of expenditures on education, with levels ranging from less than 10% in Czech Republic, Slovak Republic, Italy and Japan and more than 19% in Chile, Mexico and New Zealand (OECD, 2012). In terms of GDP percentage, Malaysia is above the OECD average which is 3.25%, and the private spending of 0.9% on higher education has indicated that both are highest in the world compared to OECD countries that only spend 1.6% on higher education, while for Canada, Chile, Korea and the United States, they spend between 2.4% and 2.6% (World Bank Report, 2011).

Apart from that, in 2013, there are around RM8 billion per year is allocated as operating grant and another RM4 billion per year as a development fund for the PHE. Meanwhile, community colleges receive around RM2 billion per year and no ongoing funding is channeled to private universities. In the meantime, there are a number of universities under government-linked-companies that receive funding occasionally. Therefore, on average, up to 95% of the revenues of universities are coming from the government including grants (MOSTI, 2013).

However, in 2014, it has been reported by Universities 21 (U21) Ranking of National Higher Education Systems that, Malaysia's return on investment ranks only 44th out of 50 countries and this shows that the sources of income such as government funds might not be utilized efficiently by the higher education. Hence, this results in the unsatisfactory of organizational performance in higher education with lower levels of expenditure than other countries such as Singapore and Thailand. Thus, this indicates that Malaysia has yet to be efficient in its expenditure on education (Phoong et al., 2017) as most of Malaysian PHE are funded by the federal government which is Ministry of Higher Education (MOHE) and the Ministry of Science, Technology and Innovation (MOSTI) through the allocation of budget for annual operation as well as lump-sum funding for development expenditure.

Therefore, the new funding mechanism has been introduced by government in Higher Education Blueprint and the Tenth and Eleventh Malaysia Plans (2011-2020) thrust in order to reduce the reliance of Malaysian PHE on the government funding. This new funding mechanism will be based on the performance of PHE, such as research projects and commercialized products that will no longer be in the form of fixed operating and development budgets or block grants. In other words, the funding will be allocated on competitive basis after reviewing the research projects such as research grant proposals, proof of publication or conferences. This is to encourage the Malaysian PHEs to diversify their sources of fund which means they need to self-generate their income in order to be financially sustainable as well as to ensure higher productivity and efficiency of PHE. This effort is also in line with Malaysia Higher Education Blueprint Plan 2015-2025 (MEBHE) and Eleventh Malaysia Plan 2016-2020 under the third thrust, which stated that diverse sources of fund in higher education system are vital in order to ensure improvements in productivity and efficiency to enhance the overall performance of Malaysian PHE.

Besides, there are also other performance measurement within the higher education such as Quacquarelli Symonds (QS) World University Rankings, Times Higher Education (THE) World University Rankings (THE), Discipline-Based Rating System (D-SETARA) and Malaysian Research Assessment Instrument (MyRA). QS and THE World University Rankings are the most well-known ranking systems for universities in the world, while D-SETARA and MyRA are the ranking systems which commonly used in Malaysia (Azziz, Yusoh and Muda, 2020). The QS World University Rankings is the ranking that can help the students to compare the annual publication of top universities around the world (Quacquarelli Symonds, 2013), meanwhile THE World University Rankings is the ranking that measures the performance of global universities in terms of teaching, research, knowledge transfers and international outlook (Times Higher Education, 2017). As for D-SETARA, this is referring to the rating system to assess the quality of teaching and learning in Higher Education Institutions (HEIs) in Malaysia (D-SETARA, 2013), while MyRA is referring to the system developed to assess the research capacity and performance of all Higher Education Institutions (HEIs) in Malaysia (Universiti Sains Malaysia, 2015).

Despite from various of performance measurement in higher education, nevertheless as this research was focusing on PHE, therefore, their performance will be measured in terms of financial through income generation. This is because as stated in CUC report (2006) and Higher Education Blueprint and Tenth and Eleventh Malaysia Plans (2011-2020), income generation is the higher level of key performance indicator to measure the financial performance especially in PHE. Precisely, income generation is an income that been self-generated by the Malaysian PHE through diverse sources of funding such as funding from private institutions, public funding by government agencies (Wächter, 2012), income generated from research activities, consultations,

commercialization activities (Gebreyes, 2010; Ahmad, Soon and Ting, 2015), and fees from program offered that paid by students (Jongbloed, 2004; Ahmad, Farley and Soon, 2013) without relying on government funding.

In addition, these income generation have been widely utilized in various previous research to measure the performance of PHE, and among them are Wang (2010), Ariff et al. (2014), and Asif and Searcy (2014). Wang (2010) further stated that the income generation is able to measure the financial health of PHE in knowing how effective they have utilized their financial resources within the organization for the purpose of academic. Moreover, it is also the most common and vital indicator to measure the performance of higher education for the purpose of sustaining their competitive advantage in the long run (Ahmad, Soon and Ting, 2015).

Hence, in order to allow the Malaysian PHE to self-generate their income, the year 2011 has marked the effort of the government in launching the University Good Governance Index (UGGI). UGGI was designated by the Code of University Good Governance (CUGG) as a self-evaluation tool to measure the readiness of PHE for autonomy status (Ministry of Higher Education Malaysia, 2017). This autonomy status will allow them to self-govern, especially in self-generating their income financially and sustainably. Other than that, the Malaysian Higher Education Department has stated that the autonomous status is able to improve competitiveness and performance of PHE by giving them more flexibility in decision-making, devising and implementing their own strategies without government over-regulation, political interference, and micromanagement (Bernama, 2018).

Since the launched of Malaysian Higher Education Blueprint 2013-2025 in 2013, there are seven PHEs managed to obtain autonomous status with another six in 2014 and 2015. Meanwhile, in 2018, the last six PHEs which are Universiti Malaysia Perlis,