KNOWLEDGE INTEGRATION MODEL IN ENHANCING PERFORMANCE OF SMALL AND MEDIUM ENTERPRISES THROUGH SOCIAL MEDIA

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By

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Knowledge Integration (KI) has been identified as a key enabler of knowledge management. KI can integrate scattered knowledge, seek for specialist domains, products or services, increase the pool of services available to users, remove cooperation barriers, and enable the network effect that matters at the application level. Organization's capability to integrate various sources of knowledge across geographical and organizational boundaries constitutes a key competence for obtaining and sustaining competitive advantages. Because a large part of the required knowledge in innovation process is tacit, technological cooperation among organizations is deemed important. Also, as we are moving into a more digital world and people are more engaged through social media, it is seen that the knowledge flow among organizations can be as well facilitated via social media (SM). SM can be considered as a tool to integrate knowledge effectively. In previous research, there are lack of studies that explore on how SM may facilitate KI. Therefore, in this study, a KI model is developed with the adaption of SM focusing in enhancing the performances in SMEs.

A survey was conducted using questionnaire for data collection among SMEs organization in Malaysia. The data was analyzed using statistical tools (SPSS) and Partial Least Square- Structural Equation Modeling (PLS-SEM), as a method to test the hypotheses and evaluate the model. A prototype namely E-Knowledge Integration System (KIS) was developed to perform the functionality of KI through SM in enhancing the SMEs performances. The results of this study provide empirical support for the research model. The research model focuses on the measurement of 10 factors which are social network, IT capability, credibility, specialization, coordination, technology turbulence, market turbulence, KI, SM and service quality. The findings show that credibility (β=0.158, P<0.5), social network (β=0.206,

P<0.5), IT capability (β=0.181, P<0.5) and technology turbulence (β=0.23, P<0.5) have significant effect on KI over SM. SM (β=0.611, P<0.5) has significant effect on KI. KI has significant effect on service quality (β=0.585, P<0.5). KI (β=0.275, P<0.5) and service quality (β=0.56, P<0.5) have significant effect on organization's performance. In contrast, coordination (β=0.096, P>0.5), market turbulence (β=0.175, P>0.5) and specialization (β=0.014, P>0.5) have no significant effect on KI over social media. EKIS prototype has been developed as a method for model validation. The findings for this study can be used as a guideline for SMEs in integrating knowledge through social media.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

MODEL INTEGRASI PENGETAHUAN DALAM MENINGKATKAN PRESTASI PERUSAHAAN KECIL DAN SEDERHANA MELALUI MEDIA SOSIAL

Oleh

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Integrasi pengetahuan (IP) telah dikenalpasti sebagai kunci utama pengurusan pengetahuan. IP boleh mengintegrasikan pengetahuan yang bertaburan, mencari pakar dalam sesetengah domain, produk atau perkhidmatan inovasi, meningkatkan kumpulan perkhidmatan yang tersedia kepada pengguna, meningkatkan kerjasama, dan meningkatkan kesan rangkaian di peringkat aplikasi. Keupayaan organisasi untuk mengintegrasikan pelbagai sumber pengetahuan merentasi sempadan geografi dan organisasi merupakan kecekapan utama untuk memperoleh dan mengekalkan kelebihan daya saing. Oleh kerana sebahagian besar pengetahuan yang diperlukan dalam proses inovasi adalah tersirat, kerjasama teknologi di kalangan organisasi dianggap penting. Juga, oleh kerana masyarakat sekarang dilihat bergerak ke dunia yang lebih digital dan lebih terlibat melalui media sosial, ia dapat dilihat bahawa aliran pengetahuan di kalangan organisasi dapat difasilitasi melalui media sosial (MS). Oleh itu, MS adalah alat untuk mengintegrasikan pengetahuan dengan berkesan. Dalam penyelidikan terdahulu, terdapat kekurangan kajian yang menerokai bagaimana MS dapat membantu IP. Oleh itu, dalam kajian ini, model KI dibangunkan dengan penyesuaian SM yang menumpukan perhatian dalam meningkatkan prestasi dalam perusahaan kecil dan sederhana (PKS).

Satu tinjauan telah dijalankan menggunakan soal selidik untuk pengumpulan data di kalangan organisasi PKS di Malaysia. Data ini dianalisis dengan menggunakan alat statistik (SPSS) dan Pemodelan Persamaan Struktur Separa Least Square (PLS-SEM) untuk menguji hipotesis dan menilai model. Satu prototaip iaitu eSistem Integrasi Pengetahuan (EKIS) telah dibangunkan untuk melaksanakan fungsi IP melalui media sosial dalam mempertingkatkan prestasi organisasi. Hasil kajian ini memberi sokongan empirikal untuk model penyelidikan. Model penyelidikan memberi tumpuan kepada pengukuran 10 faktor iaitu rangkaian sosial, keupayaan

teknologi maklumat (IT), kredibiliti, pengkhususan, koordinasi, pergolakan teknologi, pergolakan pasaran, IP, MS dan kualiti perkhidmatan. Hasil kajian menunjukkan bahawa kredibiliti ($\beta = 0.158$, $P < 0.5$), rangkaian sosial ($\beta = 0.206$, $P < 0.5$), keupayaan IT ($\beta = 0.181$, $P < 0.5$) SM ($\beta = 0.611$, $P < 0.5$) mempunyai kesan ketara terhadap PI. PI mempunyai kesan yang signifikan terhadap kualiti perkhidmatan ($\beta = 0.585$, $P < 0.5$). KI ($\beta = 0.275$, $P < 0.5$) dan kualiti perkhidmatan ($\beta = 0.56$, $P < 0.5$) mempunyai kesan yang signifikan terhadap prestasi organisasi PKS. Sebaliknya, koordinasi ($\beta = 0.096$, $P > 0.5$), pergolakan pasaran ($\beta = 0.175$, $P > 0.5$) dan pengkhususan ($\beta = 0.014$, $P > 0.5$) tidak mempunyai kesan yang signifikan ke atas media sosial. Prototaip EKIS telah dibangunkan untuk pengesahan model. Penemuan untuk kajian ini boleh digunakan sebagai panduan untuk perusahaan kecil dan sederhana (PKS) untuk mengintegrasikan pengetahuan melalui media sosial

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This is to confirm that:

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LIST OF ABBREVIATIONS

AVE	Average variance extracted
CA	Cronbach's Alpha
CFA	Conduct Validation Factor Analysis
CR	Composite Reliability
EKIS	E-Knowledge Integration System
HTMT	Heterotrait-Monotrait
KBR	Knowledge based resources
KI	Knowledge Integration
PIDM	Person-Item Distribution Map (PIDM)
PLS	Partial Least Squares
PMC	Point Measure Correlation
SEM	Structural Equation Modelling
SEM	Structural Equation Modeling
SLR	Systematic Literature Review
SM	Social media
SME	Small Medium Enterprices
SNT	Social Network Theory
TMS	Transactive Memory System
TOE	Theory of Technology Organisation Environement

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter provides a brief explanation of the research. Following this introduction section is Section 1.2 which presents the background of study, Section 1.3 which presents the research problem and Section 1.4 which describes the research question. Section 1.5 specifies the research objective, while Section 1.6 outlines the scope of research. Finally, Section 1.7 provides the research significant and Section 1.8 gives the overall structure of research.

1.2 Background

In the new age, knowledge has been recognized as one of most valuable assets developed in organization. Knowledge is related to activities and process flow in and between the organizations. Grant (1996) argued that the primary role of the firm and the essence of organizational capability is knowledge integration (KI). Hence, organizations are required to be in control of the knowledge resources in order to sustain a competitive advantage.

Recently, there are numerous issues involving knowledge management (KM). The major challenges faced by organization are: fail to deliver the new product in time and fail to meet the target of quality and technical performance (Gomes, 2001, Tsai et al., 2015). The main reason of these problems is because organizations fail to trace back the knowledge that has been across the company (Kraaijenbrink et al., 2006). The organization shall be able to acquire the knowledge needed for creation of innovation in their products and service and improvement of their processing activities. Moreover, all organizations attempt to promote innovations in their activities, processes, products and services in order to improve their competitiveness by utilizing knowledge management strategies. KI has been found to reduce software defects (Tiwana, 2004) and increase the performance of product innovation teams (Lin & Chen, 2006, Tsai et al., 2015). Failure of product or service innovation is due to the lack of knowledge integration (KI) capability (Sivadas & Dwyer, 2000). This view suggests that the key capability of organization is their ability to integrate their knowledge.

Social media (SM) is one of the most rapid technology tool in digital marketing. Currently, social media is widely used by various organization especially SMEs (Meske & Stieglitz, 2013). Previous survey such as the one conducted by Mckinsey Global Institute (2011) showed that organizations who maximized the usage of social media were able to improve the business performance and exploit new market opportunities. Technological cooperation among organizations is important because

a large part of knowledge needed in innovation process is tacit, and it can be transferred through social media interaction (Hong & Liang, 2015; Hong & Zhang, 2014; Cao et al., 2013; Raban, 2008). Technology allows individuals to express themselves and to collaborate with others. This participation generates and spreads contents, news, ideas and knowledge (Kotler et al., 2010). Grant (1996) argued that organizations need to integrate knowledge using a combination of mechanisms and technology, in order improve organizational performance. This change represents a great challenge for companies that want to follow this technological development (García, 2011). Studies by Meske and Stiegler (2013) found that SMEs used social media in order to support collaboration among employees and to improve knowledge management. In Malaysia context, most large business organizations have been using social media as a marketing tool for the purpose to improve business performance (Shahizan et al., 2012).

The inspiration of the research is to contribute a KI model through social media in order to enhancing the organizational performances.

1.3 Problem Statement

The numerous issues will be highlighted in these studies. Organizations face many challenges in KI such as the following:

a) There is a lack of expertise in specific domain to accomplish task (Mirjam, 2016). Integrating knowledge from many different individuals has become critical and constructive in order to producing good and service in organizations (Zhang et al., 2012). For example, complex building projects usually involve the collaboration of expertise from different areas. They usually require the integration of knowledge from civil, mechanical, electrical, and other engineering domains into the associated architectural designs (Pourzolfaghar, 2013). Furthermore, organizational capabilities depend not only on specialized knowledge held by individuals but also on the organization's ability to integrate that specialized knowledge (Huang & Newell, 2003). Integrating knowledge of many different sources in the process of producing goods and services is a critical element of organizational performance (Kim et al., 2011; Wang & Farn, 2012).

b) Scattered knowledge of internal or external knowledge affects organization and performance (Hustad, 2007). Since knowledge is continuously changing and depreciating, organization cannot possess all the required knowledge by themselves (Mirjam, 2016; Argote et al., 1990) Moreover, the traditional knowledge-based view is essentially static in nature, because it does not fully clarify why an organization's knowledge structure different from other organization can affect organization's performance (Kim et al., 2011; Hoskisson et al. 1999). Integrating and combining the new internal knowledge with external knowledge is necessary to keep pace with the

industry which leads to creating competitive advantage and innovation capability (Mohannak, 2013).

c) Lack of KI also leads to failure in delivering new product or service development (Kraaijenbrink, 2007). Integrating and combining the new internal knowledge with external knowledge is necessary to keep pace industry which lead to create competitive advantage and innovation capability (Mohannak, 2013). The effects of integrating knowledge is significant towards innovation as well as improving organizational performances (Arun et al., 2015; Raban, 2008; Tiwana, 2004).

As mentioned in the previous sections, prior studies have suggested that social media can be an effective tool in integrating knowledge effectively (Cao et al., 2013; Hong & Zhang, 2014; Hong & Liang, 2015). The identification on social media as a factor that motivates organizations to integrate knowledge is regarded as one of the high priorities issues in organizations (Cao et al. 2013). However, many small businesses that use social media fail to understand how to use them correctly (Hurley, 2012). Furthermore, the perspectives on technology, organization and environment are still lacking. Based on previous research, there is less emphasis on organizational performances in KI context (Kim et al., 2011; Warn & Farn, 2012). Gorla et al. (2010) has argued that better provided services can lead to better organizational performances in KI context. Additionally, previous studies have emphasized the existence of individuality over organizations (Zhang et al., 2012). It can be concluded that the studies on service quality effects in KI context is still lacking, and the improvement on service quality in KI is necessary. Therefore, to ensure the successful implementation of KI through social media in organization, this study will examine the factors of KI that influence organizational performances through social media.

1.4 Research Question

Based on the problem statement discussed above, it is necessary to formulate a KI model through SM in enhancing organizational performances.

The research questions that address the above problem statement are:

i. What are the factors that influence knowledge integration in enhancing Small Medium Enterprise performances (SMEs) through social media?
ii. What are the significant indicators of knowledge integration model in enhancing Small Medium Enterprise performances (SMEs) through social media?
iii. How to examine the relationship between the factors of knowledge integration, social media, service quality and Small Medium Enterprise (SMEs) performances.

1.5 Research Objective

Based on the above research question, the research objectives are described as follows:

i. To analyze the factors that influence knowledge integration in enhancing Small Medium Enterprise's performances through social media.
ii. To propose and evaluate the knowledge integration model in enhancing Small Medium Enterprise's performances by incorporating service quality through social media.
iii. To develop a prototype based on the knowledge integration model in enhancing Small Medium Enterprise's performances through social media.

1.6 Scope of Research

The scope of the research is to focus on Small Medium Enterprise (SMEs) from various organizations in which there are employees available as respondents for this research. The selection of SMEs was based on the definition shown in Table 1.1. The selection of the respondent was based on convenient sampling and their willingness to participate. SMEs at Bangi Sentral in Selangor, Malaysia were selected because they were found active and had strong platform usage in social media environment.

Table 1.1 : Definition of SMEs

	Micro-enterprise	**Small enterprise**	**Medium enterprise**
Manufacturing, Manufacturing-Related Services and Agro-based industries	Sales turnover of less than RM250,000 OR full time employees less than 5	Sales turnover between RM250,000 and less than RM10 million OR full time employees between 5 and 50	Sales turnover between RM10 million and RM25 million OR full time employees between 51 and 150
Services, Primary Agriculture and Information & Communication Technology (ICT)	Sales turnover of less than RM200,000 OR full time employees less than 5	Sales turnover between RM200,000 and less than RM1 million OR full time employees between 5 and 19	Sales turnover between RM1 million and RM5 million OR full time employees between 20 and 50

(Source : SME Corp Malaysia)

1.7 Research Significant

The aim of this study is to promote social media (SM) adoption in KI for enhancing organizational performances. This research provides a model for KI through SM in enhancing Small Medium Enterprise (SMEs) performance and also provides a prototype tool of KI system. The results can provide information for SMEs in the preparation of programs or activities to improve the mastery of SM in KI. Thus, this study is significant because it can be referred as a guide for changing the paradigm for new researchers in integrating knowledge and SM in business organizations. The findings are also expected to produce a model for integrating knowledge using SM for organizations in Malaysia. From practical point of view, organizations are able to receive awareness on the importance of collaboration of KI and SM on organizational performances as well as to increase the level of information and KI. The proposed model also serves as guidelines for SMEs in integrate knowledge effectively.

1.8 Thesis Organization

This research is divided into 7 chapters. A brief description of each chapter is presented as follows:

Chapter 1 introduces the issues related to the topic. Particularly, it presents the problem statement, research objectives, research scope and significance of the study.

Chapter 2 details out the literature review undertaken for the purpose of this research including KI, related models on KI as well as related models on social media, service quality and highlights the research gap in the knowledge integration.

Chapters 3 describes the research methodology that is carried out in this research. It describes the methods that are carried out during model development and verification, model validation, prototype development and prototype evaluation.

Chapter 4 discusses the development of the hypothesized model and proposed research model. It discusses the detail development of the conceptual model including how the initial model being formulated with the identified factors, how the questionnaire items are developed and how the model is verified via expert review and pilot study. Detail findings on the pilot study are also described.

Chapter 5 presents the prototype development in visualizing the KI prototype which begins with the workflow design, followed by system requirement and analysis, design and architecture, and the detail implementation.

Chapter 6 presents the detailed discussion on the findings of this study. This includes the significance of the relationships between proposed constructs, evaluation of proposed framework, prototype and summary of results.

Chapter 7 presents the theoretical and practical contributions of this research. The directions for future research based on the limitations are also addressed in the present study.

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