

**THE IMPACT OF HUMAN RESOURCE
STRATEGY TO KNOWLEDGE PROCESS
AND KNOWLEDGE CAPABILITY
TOWARDS INNOVATION IN
THE MALAYSIAN ELECTRICAL
AND ELECTRONICS
FIRMS**

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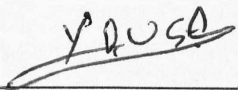
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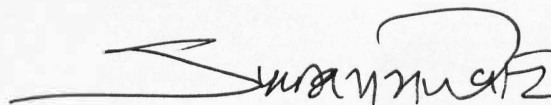


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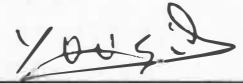
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Yousif Mamoun

2 August 2017



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ABSTRACT

The purpose of this thesis is to develop innovation within the Malaysian electrical and electronics firms. For some firms, innovation occurs only at irregular times, while some others seek to innovate continuously, but there is a lack of knowledge of the necessary steps needed to generate innovation. Thus, the research objectives investigate the impact of human resource strategy, knowledge process and knowledge capability to develop innovation in electrical and electronics firms. This thesis conducted a quantitative approach using a questionnaire as the research tool using five points Likert scale. The respondents of this study consists of 287 managers from electrical and electronics firms across Malaysian states including Kuala Lumpur, Selangor, Penang, Johor, Kedah, Melaka, Sabah and Sarawak. The list from the Federation of Malaysian Manufacturers (FMM) indicated that most of firms were located in these states. Out of 287 questionnaires only 102 usable were received. Statistical package for social science was used to generate the descriptive statistics besides the Partial least squares structural equation modeling (PLS SEM) as the statistical instrument to examine the measurement model and structural model. Results confirmed that, human resource strategy is significant to knowledge process and knowledge capability. Also, It has been shown that a learning culture and knowledge application are significant and the most important determinants of innovation. Eventually, which contributes in the development of the Malaysian electrical and electronics firms. The confirmation of mediating effects shows that indirect effects exist, confirming the existence of the proposed relationship posited, where knowledge process and knowledge capability mediate the relationships between human resource strategy and innovation. This thesis draws a theoretical contribution by the application of human resource strategy and knowledge process and knowledge capability to innovation in the context of Malaysian electrical and electronics firms. Therefore, this thesis expands the body of knowledge in the area of innovation because more studies are needed in this field especially in the Malaysian context also because of the importance of this sector in producing advanced products that needs high level of knowledge. Consequently, drawing upon the findings, some guidelines are suggested for top management and decision makers on how to encourage such enhancement to innovate by the application of human resource strategy that enhances the level of knowledge and skills, besides developing appropriate behavior that develops innovation. Eventually, management and decision makers would identify the necessary steps on how to encourage and generate innovation in their organizations.

ABSTRAK

KESAN DARIPADA STRATEGI SUMBER MANUSIA TERHADAP PROSES PENGETAHUAN DAN PROSES KEUPAYAAN TERHADAP INOVASI DI DALAM SYARIKAT ELEKTRIK DAN ELEKTRONIK MALAYSIA

Tujuan utama tesis ini adalah untuk mengembangkan inovasi di dalam syarikat elektrik dan elektronik di Malaysia. Ini kerana inovasi adalah penting untuk pengeluaran Malaysia, syarikat elektrik dan elektronik perlu membangun dengan lebih banyak inovasi, terutamanya dalam produk inovasi dan proses inovasi. Untuk beberapa syarikat, inovasi hanya berlaku pada masa-masa tertentu sahaja, manakala yang lain meneruskan inovasi secara berterusan, tapi terdapat kurangnya pengetahuan untuk langkah penting yang diperlukan untuk melaksanakannya. Oleh itu, objektif penyelidikan ini mendapati impak kesan kepada strategi sumber manusia, pengetahuan pemprosesan dan pengetahuan keupayaan dalam meningkatkan produk inovasi dan proses inovasi dalam syarikat pengeluar elektrik dan elektronik. Industri elektrik dan elektronik memainkan peranan besar di dalam ekonomi Malaysia. Kajian ini dijalankan dengan menggunakan pendekatan kuantitatif soal selidik sebagai alat penyelidikan dengan menggunakan skala 5 mata. Soal selidik telah diedarkan kepada syarikat elektrik dan elektronik Malaysia. Responden kajian ini terdiri daripada 288 pengurusan daripada seluruh syarikat elektrik dan elektronik Malaysia termasuk Kuala Lumpur, Selangor, Pulau Pinang, Johor, Kedah dan Melaka. Daripada 288 soal selidik hanya 102 sahaja yang diterima, statistik untuk sains sosial digunakan untuk menghasilkan deskripsi statistik selain daripada sebahagian dua struktur persamaan (PLS SEM) sebagai peralatan statistik untuk mengkaji model pengukuran dan model penstrukturan. Kajian mendapati bahawa, strategi sumber manusia adalah bertepatan dengan proses pengetahuan dan keupayaan pengetahuan. Ianya juga menunjukkan bahawa mempelajari budaya dan aplikasi pengetahuan adalah bertepatan untuk inovasi, dan penentu produk inovasi juga adalah penting untuk proses inovasi. Yang akhirnya akan menyumbangkan pembangunan syarikat elektrik dan elektronik di Malaysia. Pengesahan pengantara menunjukkan bahawa kesan tidak langsung wujud, mengesahkan kewujudan hubungan cadangan yang dikemukakan, di mana proses pengetahuan dan proses keupayaan pengetahuan pengantara hubungan antara strategi hubungan manusia, produk inovasi dan proses inovasi. Tesis ini telah menarik sumbangan teori dengan menggunakan strategi sumber manusia dan proses pengetahuan dan proses keupayaan dalam menginovasikan proses inovasi dalam konteks syarikat elektrik dan elektronik Malaysia. Oleh itu, tesis ini telah mengembangkan pengetahuan dalam bidang inovasi kerana terdapat banyak kajian diperlukan dalam bidang ini terutamanya dalam konteks Malaysia kerana kepentingan dalam sektor ini bagi menghasilkan produk canggih yang memerlukan

pengetahuan tahap tinggi. Oleh itu, hasil kajian mendapati, beberapa garis panduan adalah dicadangkan untuk pengurusan atasan dan pembuat keputusan untuk mengetahui bagaimanakah caranya bagi meningkatkan galakan untuk membuat pembaharuan, penggunaan strategi sumber manusia untuk meningkatkan level pengetahuan dan kemahiran, di samping membangunkan tingkah laku sesuai yang membangunkan inovasi. Akhirnya, pengurusan dan pembuat keputusan haruslah mengenal pasti langkah yang penting tentang bagaimana untuk menggalakkan dan menghasilkan inovasi di dalam organisasi mereka.



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CHAPTER 1

INTRODUCTION

Introduction

This chapter introduces the study. It begins by reviewing the background of the study, and outlines the significance of conducting it. Previous studies have identified the importance of innovation to organizations. Furthermore, it has shown that knowledge act strongly to accelerate innovation especially when industries are involves like the Malaysian electrical and electronics industry. Therefore, this chapter begins with a discussion on innovation and knowledge and it introduced the Malaysian electrical and electronics industry. Drawing upon this discussion, the research problem was then identified. The following sections list the research questions and objectives, followed by the scope of the study and the significance of the study. Lastly, terms related to the study were defined of further understanding.

1.1 Background of the Study

The concept of innovation has been discussed in prior research because of its importance regardless of whether it is a process, an outcome, or a product, it has been shown to lead to organizational success (Damanpour and Gopalakrishnan, 1998). The concept has been widely explored in developed countries such as Europe and the United States (Damanpour, 1991). However, there is still a lack of studies carried out in developing countries, and studies in innovation are still at an early stage in Malaysia (Ismail, 2005). Since the 1990th, the Malaysian government has taken the initiative to boost innovation within firms by developing skills, talent and research and development (R&D) to enhance the industrial sector and launch a variety of products.

However, Malaysia is still far behind countries such as China and Taiwan in terms of innovation (Yusuf and Nabeshima, 2009). One of the reasons is that Malaysia has been slow to introduce the culture of innovation, unlike China, Taiwan

and Korea (Yusuf and Nabeshima, 2009). Nevertheless, the Malaysian government aims to convert the country into a knowledge intensive economy by 2020, where innovation would be implemented in all areas of economy (Mosti, 2006). In Malaysia, although the productivity growth improved by 5.7 percent in 2010, the performance growth is still below from developing economies (MPC, 2011). To manage this situation, innovation is a crucial element in increasing its productivity and competitiveness of the economy (EPU, 2010). Therefore, it is essential for Malaysia to emphasis on innovation as one of the key plan to heading towards the Innovation (MPC, 2011). However, Malaysia needs to tackle its innovation challenges by improving innovation capabilities and enhancing the driving force of innovation (World Bank, 2010). One of the main contributors towards performance growth is the manufacturing sector (27 percent in year 2010) and although the portion to GDP is considered large, the number of manufacturing firms engaged in innovation is about 35 percent (Lim Ee and Nagaraj, 2011). This figure is still low as compared to developed countries such as France 46 percent, Germany 67 percent, Denmark 53 percent and Sweden 48 percent (Lim Ee and Nagaraj, 2011). This situation shown the importance of innovation, When it is place, it can accelerate organization improving businesses in terms of customers, asset and capabilities and product or service offerings (Kim and Mauborgne, 1997). Despite the previous studies on innovation (Damanpour, 1991; Damanpour and Gopalakrishnan, 1998; Ismail, 2005; Crossan and Apaydin, 2010). However there are still gaps highlighted from inconsistent findings, which involved innovation in terms of product and process (Crossan & Apaydin, 2010). Therefore, The study aims to fill the gap and focuses on electrical and electronics firms in Malaysia.

Innovation requires people and knowledge. To foster innovation, firms seek innovative employees who have the required skills and talent to produce innovative products because innovation is an important factor to organizations (Chen and Huang, 2009). However, knowledge is considered to be antecedent to innovation (Darroch and Mcnaughton, 2002). It helps in sharing of ideas to produce innovative products or services (Nonaka and Takeuchi, 1995). In some contexts, when knowledge is involved then innovation is perceived as the generation of profitable

goods or services that are the end results of creations, either technical or non-technical (Ajagbe and Ismail, 2013).

Due to the high level of competition among business players, knowledge and innovation are important factors for a firm to achieve competitiveness. Moreover, to sustain constant innovation, there is a need for individuals who can create and knowledge that can help the creativity process (Nonaka and Takeuchi, 1995). According to Landry et al. (2001), firms achieve competitiveness through the application of knowledge, not from knowledge itself. As a result, product innovation involves launching a new a product or services to customers. The creation and production of this new product or service came about as a result of the employee's knowledge acquisition, dissemination and utilization (Kuo, 2011). Knowledge management (KM) plays an important role in organizational innovation through knowledge processes that acquire and disseminate knowledge from external or internal sources (Maqsood and Finegan, 2009). External sources of knowledge can be academies or centers. Organizations acquire knowledge from them for better knowledge to enhance organizational outcomes (Masqood and Finegan, 2009). Similarly, knowledge suppliers provide firms with innovative ideas to solve their complex problems and difficulties. Knowledge suppliers connect and deploy knowledge to organizations to product creative ideas (Cantner et al., 2009).

Jimenez-Jimenez and Sanz-Valle (2007) argued that the relation between HRM, KM, and innovation had been defined in prior research, but few studies have examined the relationship between these variables in industry in its entirety, as some studies tackled only a few segments of the relation between HR, KM and innovation. As such, more research is needed in this area. Knowledge management is considered as antecedent to innovation (Darroch and McNaughton, 2002). It is an important key and a facilitator to innovation, as innovation requires the sharing of ideas among employees to produce innovative products or services (Nonaka and Takeuchi, 1995).

The creation of new ideas depends on knowledge and on employees sharing the existing past and current ideas among each other to develop new theories and approaches that can solve a firm's complex issues and difficulties; without knowledge, employees will not be able to develop these ideas into new products or processes (Jimenez-Jimenez and Sanz Valle, 2007). Knowledge management also benefits organizations in terms of sharing and distributing knowledge. Knowledge processes and capabilities are important foundations for organizations as they contribute to managing knowledge. To leverage organizational position and success, firms need to leverage their abilities for gaining and managing their new knowledge which can be used to develop organizational success (Lee and Lee, 2007). Other research, such as Gold et al. (2001), has identified the link between knowledge process and capability, and different knowledge process models have been addressed in the literature (Lee and Choi, 2003). For instance DeLong (1997) divided knowledge processes into: capture, transfer, and use; while Gold et al. (2001) labeled the processes as: acquisition, conversion, application, and protection.

1.2 Electrical and Electronics In Malaysia

Malaysia is considered to be one of the important manufacturers of E&E components in Asia, and exports of these products reach international markets in the USA, Europe, Singapore, Japan and Taiwan (MITI, 2012). The industry is divided into four groups: electronics components, consumer electronics, industrial electronics, and electrical products (MITI, 2012). Malaysia is determined to develop and strengthen the subsectors of electronics, especially semiconductors, as this type of electronics has played an important role in the Malaysian economy over the last 30 years (MIDA, 2014). In addition, semiconductors are the highest among products in terms of exports, due to the global use of smart phones, devices, televisions etc (MIDA, 2014). The total value of semiconductor exports reached RM97.8 billion in 2013 (MIDA, 2014). The development and rapid growth of semiconductors can be accounted for by the companies' new notion of creating a neighboring RD facility that can enhance their growth (MIDA, 2014). The Malaysian government's efforts to develop this sector have led to the involvement of many local and international firms. Foreign firms engage in semiconductors and industrial

electronics. The northern corridor is considered to be the most developed sector for this industry; Johor as well is known for manufacturing and transportation due to its proximity to Singapore (Yusuf and Nabeshima, 2009).

The electrical and electronics industry had achieved a sales of RM 158.7 billion in 2011 (Miti, 2014). Since the 1980s, the electronic industry started to prosper and achieve growth, and by 1994 the value of exports exceeded more than 21 million USD (Hobday, 1996). Later, sales of semiconductors declined and were replaced by consumer goods in the form of Japanese appliances such as televisions; foreign investments like American investments in computers parts; and Taiwanese firms producing items such as calculators. Foreign investments have played a major role in the development of the electronics industry. Currently, semiconductors are still a significant part of the electronics industry that contributes to the manufacture of several important products such as computers and smartphones (Yusuf and Nabeshima, 2009).

Most innovative firms in Malaysia are multinational corporations such as Japanese and European firms that have produced innovative products through the activities of a well-developed R&D department. Although a few local firms produce advanced products, most produce less advanced products (Best and Rasiah, 2003). Nevertheless, local firms are progressing in process innovation in terms of technology and flexibility in production. Additionally, small innovations happen regularly, such as fixing new processes or making new improvements, but still electronics remain at an early stage of innovation (Best and Rasiah, 2003). Due to the importance of the electronics industry to the Malaysian economy, the present study seeks to identify the relation proposed between HR strategy, knowledge process, and knowledge capability towards innovation within the electrical and electronics firms in Malaysia.

1.3 Research Problem

The concept of innovation began with the work of Schumpeter in 1932, who stressed the novelty of products or markets or methods. It is clear the term 'novelty' meant the creation of something new or doing things in a different way