FACTORS INFLUENCING INNOVATIVE BEHAVIOR OF EMPLOYEES IN SMEs IN ELECTRICAL AND ELECTRONIC SECTOR IN MALAYSIA

ROSMELISA BINTI YUSOF

GSM 2016 26
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By

ROSMELISA BINTI YUSOF

Thesis Submitted to the Graduate School of Management, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Doctor of Philosophy

March 2017
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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirements for the degree of Doctor of Philosophy

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March 2017

Chairman : Associate Professor Serene Ng Siew Imm, PhD
Faculty : Graduate School of Management, UPM

The organisations of Small and Medium Enterprises (SMEs) need to be prepared for the external challenges which are mostly beyond the control of SMEs. One of the challenges faced by the SMEs is related to employee’s low productivity. Hence, SMEs could improve its internal strength in terms of improving the employees work processes. This however, is only effective if the employees are innovatively improving their work. Therefore, this study aims to look at the role of the employee’s intention to engage in innovative behaviour and examined it by using the Theory of Planned Behaviour (TPB) as a theoretical basis. The research employed determinants of attitude, subjective norm and perceived behavioural control to understand employee’s intention to engage in innovative behaviour. Subsequently, this study attempts to assess the influence of factors such as self-enhancement, openness to change, organizational support, leader expectation, self-efficacy and thriving towards the three determinants of TPB (attitude, subjective norm and perceived behavioural control). This study also investigated the relationship between intention and innovative behaviour. Besides, the organizational fairness was added as a moderator to better reflect the impact of intention on innovative behaviour. Lastly, this study also examined the positive outcomes of innovative behaviour (job satisfaction and job performance).

The research employed quantitative method to examine the relationship among the variables. The questionnaires were sent to the 382 professional workers of Electrical and Electronic (E & E) SMEs in Malaysia using convenient sampling. A total of 201 completed questionnaires were obtained. The hypothesis in this research was tested using PLS-SEM. The results revealed that three antecedents of attitude, subjective norm and perceived behavioural control affected the employee’s intention and innovative behaviour. Significant results were also found for openness to change, organizational support, leader expectation, self-efficacy and thriving. Unfortunately, the results of self-enhancement and moderator effects were insignificant. Finally,
this study managed to show a positive relationship between innovative behaviour and the outcomes variables (job satisfaction and job performance).

This thesis contributes to the theoretical and practical aspects of innovative behaviour in the context of E & E SMEs. In general, the study extends the application of TPB in the context of innovative behaviour and provided empirical support that intention leads to innovative behaviour. Thus, innovative behaviour helped the employees to enhance their skills and capabilities, and contribute to better job performance. In short, it is important to ensure the SMEs employees engaged in innovative behaviour, in order to help the organization to increase its productivity and competitiveness.
Abstrak tesis yang dikemukan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan Ijazah Doktor Falsafah

FAKTOR-FAKTOR YANG MEMPENGARUHI TINGKAH LAKU INOVATIF PEKERJA DI PKS DALAM SEKTOR ELEKTRIK DAN ELEKTRONIK

Oleh

ROSMELISA BINTI YUSOF

Mac 2017

Pengerusi : Profesor Madya Serene Ng Siew Imm, PhD
Fakulti : Sekolah Pengajian Siswazah Pengurusan, UPM


Kaedah kuantitatif penyelidikan digunakan untuk mengkaji hubungan antara pembolehubah. Soal selidik telah dihantar kepada 382 pekerja profesional Elektrik dan Elektronik (E & E) PKS di Malaysia dengan menggunakan persampelan mudah. Sebanyak 201 soal selidik yang lengkap diperolehi. Hipotesis dalam kajian ini telah diuji menggunakan PLS-SEM. Keputusan mendedahkan bahawa tiga latar belakang sikap, norma subjektif dan kawalan tingkahlaku dilihat mempunyai hubung kait dengan niat pekerja dan tingkah laku inovatif. Keputusan signifikan juga didapati dalam keterbukaan kepada perubahan, sokongan organisasi, jangkaan pemimpin,
keberkesanan diri dan berkembang maju. Malangnya, keputusan peningkatan diri dan kesan moderator adalah tidak ketara. Akhir sekali, kajian ini berjaya menunjukkan hubungan yang positif di antara tingkah laku inovatif dan hasil pembolehubah (kepuasan kerja dan prestasi kerja).

Tesis ini menyumbang kepada aspek teori dan praktikal tingkah laku inovatif dalam konteks PKS E & E. Secara umum, kajian ini meliputi penggunaan TPB dalam konteks tingkah laku inovatif dan memberi sokongan empirikal terhadap kepentingan niat dalam membawa kepada tingkah laku inovatif. Oleh itu, tingkah laku inovatif dapat membantu pekerja untuk meningkatkan kemahiran dan keupayaan mereka, dan menyumbang kepada prestasi kerja yang lebih baik. Pendek kata, ia adalah penting untuk memastikan kakitangan PKS terlibat dalam tingkah laku inovatif, untuk membantu organisasi meningkatkan produktiviti dan daya saing.
ACKNOWLEDGEMENT

In the name of Allah, the Most Gracious and the Most Merciful, Alhamdulillah, all praises to Allah for the strengths and His blessing in completing this thesis. Special appreciation goes to my supervisor, Associate Prof. Dr. Serene Ng Siew Imm, for her supervision and constant support. Her invaluable help of constructive comments and suggestions throughout the thesis works have contributed to the success of this research. Not forgotten, my appreciation to my co-supervisor, Associate Prof. Dr. Ho Jo Ann and Associate Prof. Dr. Azmawani Abd Rahman for their support and knowledge regarding this topic. I would also like to thank Universiti Sains Malaysia for providing me a scholarship and facilities to undertake this study.

My deepest gratitude goes to my beloved father Mr. Yusof Bin Mohd and my Late mother Allahyarhamah Sarehah Binti Md Zain (passed away in July, 2015). How I wish I can celebrate my happiness completing this thesis with my mother. She is my biggest supporter who keeps praying for my success throughout my study. Without her effort, I am nobody in this world. I would also like to thank my sisters, brother, nieces, nephews and my friends for their support.

Last but not least, a special thank to my beloved husband Mr Amir Anwar Bin Shabudin for his endless love and encouragement. He was always by my side cheering me up, stood by me during good and bad times. Not forgotten, my in laws family and also my cutest son Ammar Fikry that came and accompanied me during my last stage of completing the thesis. To those who indirectly contributed in this research, your kindness means a lot to me. Thank you very much.
I certify that a Thesis Examination Committee has met on 16 March 2017 to conduct the final examination of Rosmelisa Binti Yusof on her thesis entitled “Factors Influencing Innovative Behavior of Employees in SMEs in Electrical and Electronic Sector in Malaysia” in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Doctor of Philosophy.

Members of the Thesis Examination Committee were as follows:

Noor Azman Ali, PhD  
Associate Professor  
Faculty of Economics & Management  
Universiti Putra Malaysia  
(Chairman)

Kenny Teoh Guan Cheng, PhD  
Senior Lecturer  
Faculty of Economics & Management  
Universiti Putra Malaysia  
(Internal Examiner)

Rosmini Omar, PhD  
Associate Professor  
UTM International Business School  
University Teknologi Malaysia  
(Internal Examiner)

Badar Alam Iqbal, PhD  
Professor  
Department of Commerce  
Aligarh Muslim University  
India  
(External Examiner)

PROF. DR. IQBAL M. SARIPAN  
Deputy Vice Chancellor (Academic & International)  
Universiti Putra Malaysia

Date:

On behalf of,  
Graduate School of Management  
Universiti Putra Malaysia

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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee were as follows:

Serene Ng Siew Imm, PhD
Associate Professor
Faculty of Economics & Management
Universiti Putra Malaysia
(Chairman)

Ho Jo Ann, PhD
Associate Professor
Faculty of Economics & Management
Universiti Putra Malaysia
(Member)

Azmawani Abd Rahman, PhD
Associate Professor
Faculty of Economics & Management
Universiti Putra Malaysia
(Member)

PROF. DR. IQBAL M. SARIPAN
Deputy Vice Chancellor (Academic & International)
Universiti Putra Malaysia

Date:

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Signature : ______________________________
Name : Associate Professor Dr. Serene Ng Siew Imm
Faculty : Faculty of Economics and Management, UPM

Members of Supervisory Committee

Signature : ______________________________
Name : Assoc. Prof. Dr. Ho Jo Ann
Faculty : Faculty of Economics and Management, UPM

Signature : ______________________________
Name : Associate Professor Dr. Azmawani Abd Rahman
Faculty : Faculty of Economics and Management, UPM
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<tr>
<td>AVE</td>
<td>Average Variance Extracted</td>
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<td>GOF</td>
<td>Goodness of Fit</td>
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<td>HTMT</td>
<td>Heterotrait-Monotrait</td>
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<td>MATRADE</td>
<td>Malaysia External Trade Development Corporation</td>
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<tr>
<td>PLS</td>
<td>Partial Least Square</td>
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<td>SEM</td>
<td>Structural Equation Modelling</td>
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<td>SET</td>
<td>Social Exchange Theory</td>
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<td>SMEs</td>
<td>Small and Medium Enterprises</td>
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<td>SMIDEC</td>
<td>Small and Medium Industries Development Corporation</td>
</tr>
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<td>SRMR</td>
<td>Standardized Root Means Square</td>
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<td>TPB</td>
<td>Theory of planned behaviour</td>
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<td>VIF</td>
<td>Variance Inflation Factor</td>
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CHAPTER 1

INTRODUCTION

This chapter discusses an overview of the study regarding innovative behavior in the context of SME employees. In the first part, the background of the study in the context of SME employees is discussed. The next section reviews the concept of innovative behavior and SME overview in Malaysia. The subsequent sections explain the problem statement, research questions, research objectives, significance of the study and definition of terms.

1.1 Background of study

In the pace of globalization, organizations throughout the world have to deal with the challenge of drastic changes in technology and market liberalization. The Malaysian economy is also affected by the fast changes of business operations globally. Functioning within the fast, changing environment and threat from the globalization phenomenon, organizations in Malaysia must have a suitable business strategy to compete effectively in global markets. To be more prepared for the external challenges which are mostly beyond the control of SMEs, SMEs could capitalize on improving its internal strengths in terms of improving work processes. This however, is only effective if the employees are innovatively improving their work by trying out new techniques, methods or processes of doing their jobs, which would then translate to improvement of the overall work process of the organization.

One of the important issues for Malaysian SMEs to increase its productivity and performance is related to the skilled employees who are a key factor contributing to firm effectiveness and competitiveness (Xerri, 2013). Individual innovative behavior can be referred to the accumulated knowledge, experience and skills of a person (Marcati, Guido & Peluso, 2008). Thus, skilled employees postulate the value of innovation among its members. Innovative behavior refers to intentional establishment or use of original ideas, procedures, and products within a person’s work task or group (West & Farr, 1989).

Academics and researchers asserted that employees have the potential to build up and cultivate innovation within themselves, which in turn drives organizational performance and competitive advantage (Reuvers et al., 2008; Yuan et al., 2013; Xerri, 2013; Stock, 2015). Individual innovative behavior acts as a foundation for high organizational performance and the application of innovative behavior aimed to improve firm performance and productivity (Carmeli, Meitar, & Weisberg, 2006). Firms cannot remain static in creating products and services in a similar way without any improvement, and continue with standard employee behavior (Kheng, June, & Mahmood, 2013). This kind of situation will likely lead to a decline in the firm’s productivity. According to Pieterse and Knippenberg (2010), employees who engage
in innovative behavior would stimulate organizational effectiveness and productivity. Employees who innovate would also contribute to firm improvement in terms of economic perspective by increasing firm productivity and sales (Knol & Linge, 2008).

SMEs have a responsibility to improve the nation’s economy and employment rates, as well as social improvement (Harvie & Lee, 2002). SMEs often relied on the innovative process (e.g. cost leadership strategy) and products (e.g. product differentiation strategy) as one of a ways to survive and compete in global markets (June, 2011). However, little is understood about the role played by the employee in innovative work engagement and whether it contributes to SME’s innovative performance. Thus, the employee’s capacity in producing innovative products and services may determine SME’s success such as the increase of firm productivity and performance.

In gaining its market competitiveness, SMEs need to fully exploit its internal strength and minimize weaknesses (Gallato et al., 2012). Nevertheless, SMEs in Malaysia are still facing several challenges and difficulties that impede its growth. Some of the challenges faced by Malaysian SMEs are related to competitiveness (Ali, 2012), weak culture (Gallato et al., 2012), difficulty in retaining talents (Mat, Ahmad, Emieza & Ngah, 2012) and low productivity among employees (June, 2011). Malaysian SMEs only contributed 19% of total Malaysian exports (SME Corporation Malaysia, 2009). Hence, uncovering the role of employees as innovators and whether innovative behavior of employees contributes to firm innovation helps SMEs to improve its innovative competency.

Conversely, innovative employees contributed to firm competitiveness and better performance. The success performance of the organization is much dependent on the worker’s skill and behavior whereby they helped the organization to increase its productivity (June, 2011; Mat et al., 2012). With this in mind, understanding the innovative behavior of the employees in SMEs who provide new ideas and solutions in their tasks is important as this potentially translates to a firm’s innovative performance.

This study identified the antecedents that contribute to the development of individual innovative behavior specifically in the context of SME employees working in Electrical and Electronic Industry. Although Theory of Planned Behavior (TPB) is well-known for describing individual behavior, none of the innovative behavior (IB) framework is found using TPB as a theoretical basis in predicting behavior. Current innovative behavior models such as Scott and Bruce (1994), Carmeli & Spreitzer (2009), Yuan et al. (2010) and Vinarski-Peretz et al. (2011), did not include innovative behavior’s intention in their studies. Measuring intention to engage in innovative behavior is important because intention leads individuals to have strong motivation to undertake the behavior (Norman & Hoyle, 2004). This will allow us to understand better the process of innovative behavior engagement. For that reason,
this study closes the gap in the literature by understanding the employee’s innovative behavior using the theory of planned behavior (TPB) as a theoretical basis.

By incorporating the TPB and antecedents to behavioral beliefs, custom beliefs and control beliefs (Jemmott et al., 2007), this study intends to consolidate the framework and propose a holistic model of individual innovative behavior. On top of that, this study proposes a moderator, the importance of organizational fairness, in translating employee's intention to engage in innovative behavior. The role of organizational fairness is justified using social exchange theory (SET) perspective. Researching innovative behavior within SME employees is timely and relevant as this sector contributes more than 50% of total employment in the Malaysian private sector, but labour productivity of Malaysian SMEs is still low compared to their counterparts in other Asean countries (SME Corporation Malaysia, 2013). As such, this study looked into the role of employees as the innovative driver in order to help the SMEs to improve its business performance.

1.2 Concept of Individual Innovative Behavior

Research on innovation is viewed at two levels: organizational and individual level of innovativeness (Koellinger, 2008). Previously, the study of innovation is based on the context of product and process of innovation (Chen, Lin, Lin, & McDonough, 2012; Sundbo, Orfila-Sintes, & Sørensen, 2007) that referred mostly at the firm level (Koc, 2007). The research on product and process of innovation mainly focused on research and development (R&D), as people tend to think and believe that innovation existed only in the R&D Department (Koc & Ceylan, 2007).

The term “innovation” was first used broadly by Ven (1986) to explain the individual perspective of innovation, which includes various aspects and forms of innovation, either individual or organizational. Subsequently, the research on individual innovative behavior has captured interest among scholars as individual innovative behavior was found to influence the effectiveness and survival of an organization (Janssen, 2003). Based on the individual innovative behavior perspective of Ven (1986), innovation is referred to as the mixture of fresh and old thoughts by a person, in which this idea will become a new formula or order (Ven, 1986). The concept of individual innovative behavior was further developed for a more insightful understanding of the concept but no measurement scale was developed at this stage.

The most prominent study of individual innovative behavior was developed by Scott and Bruce (1994), who explained the stages of individual innovative behavior in which they proposed a few factors that influenced individual innovative behavior and, more importantly, they developed a measurement scale of innovative behaviour (IB). Thus, the measurement scale of IB by Scott and Bruce (1994) was mostly referred to and cited by scholars in the field of innovative behavior study (e.g.
Carmeli, Meitar, & Weisberg, 2006; Jong & Hartog, 2007; Vinarski-Peretz, Binyamin, & Carmeli, 2011; Vinarski-Peretz & Carmeli, 2011; Yuan et al., 2010).

Innovative behavior is described as the intended use of original thoughts, processes and products within an employee’s work role and association (West and Farr, 1989). Most innovative behavior studies adopted this definition of innovative behavior provided by West and Farr (1989). Research on individual innovative behavior has been widely done for over a decade now since Scott and Bruce’s innovative behavior study in 1994. The factors influencing individual engagement in innovative behavior has been viewed from several perspectives. In the meantime, the process of individual innovative behavior was introduced by Scott and Bruce (1994), who posits that individuals gradually innovate through evolutionary stages. This process includes the phases of problem recognition, idea creation and execution of the ideas. Having said that, this study does not intend to understand individual’s innovation stages, but to identify factors contributing to IB.

A number of individual innovative behavior models were proposed by various scholars who take different, often interrelated factors into account. Among them are leadership role (Reuvers, Engen, Vinkenburg, & Wilson-evered, 2008; Stock, 2015; Scott & Bruce, 1994), individual’s psychological aspects (Pieterse & Knippenberg, 2010; Vinarski-Peretz et al., 2011), social support (Janssen, 2003; Montani, 2012; Vinarski-Peretz & Carmeli, 2011; Xerri & Brunetto, 2011), individual skills and capabilities (Carmeli & Spreitzer, 2009; Yidong & XinXin, 2012) and outcomes of innovation (Janssen, 2003; Shih & Susanto, 2011).

Research linked to innovative behavior of SME’s employees is still scarce in the Malaysian context. So far, only one research of innovative behavior is found in Malaysia, in which Ghani, Hussin and Jusoff (2009) studied innovative behavior in the educational sector that mainly focused on lecturers in private universities in Malaysia. The study looks at the influence of emotional empowerment on innovative behavior of lecturers in private universities. None of the innovative behavior research in Malaysia tends to focus on SMEs. Despite SMEs being one of the largest business sectors, contributing more than 50% of the employment rate in Malaysia, a lack of study on innovative behavior is evident. Accordingly, the performance of the organization is driven by the potential development of employees’ innovation (Reuvers et al., 2008), SMEs need to enhance and utilise their employees’ innovative skills to attain higher productivity. SMEs in Malaysia is reported to have lower labour productivity than that of other Asean countries (SMECorp, 2013). In an effort to increase its performance and productivity, knowledge on innovative behavior of employees in a Malaysian context is certainly valuable for Malaysia SMEs especially in developing suitable range and training programs to prepare SMEs to take up their contribution to the Malaysian economy. Thus, understanding ways to enhance employees’ innovative behavior is timely and relevant.

Besides that, innovation is seen as one of methods that could improve a firm’s effectiveness and efficiency (Xerri & Brunetto, 2011). According to Koellinger
(2008), the entrepreneur’s innovativeness depends on the environment and individual’s action which in this case relates to the workers of a firm. In order for SMEs to compete successfully, the firm needs to develop their employees’ talents, skills and right behavior (Che & Mat, 2010). Innovative behavior is one of the desired behaviors practised by employees in an organization. In addition, improving the individual employee’s innovative behavior would also improve the performance and competitiveness of the SME.

1.3 The Scope of Study

The study intends to focus on the innovative behaviour of Malaysian employees working in SMEs Electrical and Electronic (E&E) sector. Thus, the Malaysian context of innovation and the overview of SMEs industry specifically focus on electrical and electronic sector in Malaysia was discussed below.

1.3.1 Innovation in Malaysian Context

Literature on innovation in Malaysian context has grown and attracted researcher to study further on this concept. Previous study revealed that the innovation level of Malaysian companies is still at lower level comparing to countries with high-income (Zakaria, Abdullah & Yusoff, 2016). Hence, several literatures suggested the need to design more studies on innovation capacity of Malaysian firms. In addition, most previous studies on innovation were conducted at the organizational such as in the study of Zakaria et al. (2016), Hilmi and Ramayah (2008) and Aziz and Samad (2016). For example, the study of Zakaria et al., explored the organization performance and innovation linkage in Malaysian manufacturing SMEs. Meanwhile, Aziz and Samad (2016) examined the innovation-competitive advantage of manufacturing foods SMEs.

Despite the importance of innovation at organizational level, the need to address more research at the individual level in Malaysian context has been pointed out by several literatures (Othman; 2015; Hakimian et al., 2015; Zakaria et al., 2016). Thereafter, the study of Hakimian et al., (2015) examined the importance of commitment in the context of employees’ innovative behaviour and set the tone for employee level of innovative behavior. Besides that, several studies attempted to explore the innovative personality and affective commitment of innovative teachers in Malaysia (Othman, 2016; Abdullah & Ling, 2016). Due to limited numbers of literatures on individual innovative behaviour in the Malaysian context especially in the context of SMEs, this study was designed to overcome this gap and extending the literature of innovative behaviour in the context of Malaysian SMEs.
1.3.2 Overview of SMEs in Malaysia

In East Asia, most business enterprises are small and medium enterprises (SME). In Malaysia, SMEs have a tough position in enhancing the nation’s employment percentage and social growth (Nik Abdullah, & Mohd Zain, 2011). SMEs are known as sources of innovation, generating export opportunities, and also act as a platform for providing future successful large-scale enterprises. SMEs have the potential to encourage domestic business enlargement in surviving and new industry, and also reinforce the flexibility of the economy on the rise of global economic competition (SME Corporation Malaysia, 2013).

Malaysian SMEs developed in the era of industrialisation where the Industrial Master Plan (IMP) was set up since 1966 (Che, 2010). Thereafter, the Small and Medium Industries Development Corporation (SMIDEC) was introduced by the government. Then, Malaysia External Trade Development Corporation (MATRADE) were also created as principal agencies to help SMEs in Malaysia.

The Malaysian SMEs are characterized according to the quantity of workers and yearly sales turnover. The Malaysian SMEs are divided into four major segments: manufacturing, manufacturing-related services, services (with information and communication technology), and primary agriculture (Ab, Nizam & Zain, 2011). SMEs in Malaysia are now contributing 32% of Gross Domestic Product (GDP), 59% of employment and 19% of exports to the Malaysian economy (SMECorp, 2015). This shows that SMEs is considered as key traders and service contributors to main industries. In addition, a large number of SMEs are also recognised as producers of finished goods and services in various industries.

The Malaysian Department of Statistics stated in 2006 that more than 90% of business establishments in Malaysia were set up as SMEs (June, 2011). SMEs also employed some 3.7 million workers that consisted of 59% of the total employment in the private sector (SMECorp, 2013). Therefore, SME’s performance largely determines the country’s growth potential. The Chief Economist of Malaysian Rating Corporation stated that "The growth of SMEs has consistently surpassed the overall economic growth between 2004 and 2010, where SMEs' value-added growth averaged 6.8% versus 4.9% for the Malaysian economy." (SMECorp, 2013). Indeed, SMEs consist of a large portion of business establishments and provide the highest numbers of employment for the Malaysian economy. Thus, SMEs play a pivotal responsibility in social and financial growth in Malaysia.

The Malaysian government needs to adopt domestic and international market policies in order to be globally viable (Muhammad, Char, Yasoa & Hassan, 2010). Therefore, the Government of Malaysia has finalised the SME Masterplan that showed the policy route for SMEs through the year 2020 by creating a beneficial network for SMEs to succeed and transform domestic SMEs to be internationally aggressive by enhancing capital foundation as well as contribute to the social well-
being of the country (SME Annual Report, 2011). Based on the SME Masterplan 2012-2020, the government recognises a few key characteristics that SMEs need to overcome. One of them is related to the problem of low productivity (SMECorp, 2013). Low productivity of SMEs is largely due to low employee performance. Meanwhile, studies show that employees who are innovative are reported to contribute more to an organization’s productivity and performance (Xerri & Brunetto, 2011; Xerri, 2013; Stock, 2015). Similarly, Kavoo-Linge and Kiruri (2013) also stated that the achievement of organization is relied on the employees’ effectiveness and efficiency. One of the indicators for employee performance or effectiveness was based on their innovative skill and behavior (Xerri & Brunetto, 2011). Thus, by cultivating innovative behavior among employees, SME’s labour productivity level was also improved.

For SMEs to compete with bigger business entities, they need to be innovative (Rosenbusch, Brinckmann, & Bausch, 2011). Previous research has proposed that innovation has a greater effect in helping SMEs become competitive and grow larger compared to large firms (López-sintas & Martínez-ros, 2000). However, most of the studies on SMEs focused on the innovation process of SMEs at the firm level (Koellinger, 2008; López-sintas & Martínez-ros, 2000; Rosenbusch et al., 2011). The individual level of innovative behavior has not attracted much attention within SME research. Thus, research on employees’ innovative behavior of SMEs is left ambiguous and needs further investigation in the current study.

In terms of industry, the SMEs will be from the electrical and electronic industry. This is because the electrical and electronic industry has expanded and become one of the main contributors to the Malaysian gross domestic product (GDP) growth (Matrade, 2013). The electronic sector encompasses three broad subsectors, i.e. electronic components, consumer electronics, and industrial electronics. The electrical segment can be categorized into electrical components, industrial electrical utensils and end user electricals (Matrade, 2011). This was deemed a promising industry for the Malaysian economy. The demand for local and imported electrical and electronic products and services is ever increasing and points to a bright future for the electrical and electronic sector in Malaysia. Table 1.1 shows the increasing total exports for electrical and electronic products comparing to other products in Malaysia from 2014 to 2015 based on quarterly term. While Table 1.2 shows the increasing number of total sales from the E & E Industry. This provide a great opportunity for E & E SMEs in Malaysia to expand its business.
Table 1.1: Malaysia’s exports products (Quarterly)

<table>
<thead>
<tr>
<th>Products</th>
<th>Q4 2014</th>
<th>Q3 2015</th>
<th>Q4 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RM Million</td>
<td>RM Million</td>
<td>RM Million</td>
</tr>
<tr>
<td>Electrical &amp; Electronic Products</td>
<td>67,688.5</td>
<td>74,278.7</td>
<td>74,159.6</td>
</tr>
<tr>
<td>Petroleum Products</td>
<td>17,027.0</td>
<td>13,669.0</td>
<td>14,952.6</td>
</tr>
<tr>
<td>Chemicals &amp; Chemical Products</td>
<td>13,463.9</td>
<td>14,312.1</td>
<td>14,507.9</td>
</tr>
<tr>
<td>LNG</td>
<td>16,534.0</td>
<td>9,461.6</td>
<td>12,409.9</td>
</tr>
<tr>
<td>Palm oil &amp; palm-based products (palm oil; palm kernel oil &amp; other palm based products)</td>
<td>11,854.9</td>
<td>12,679.7</td>
<td>11,950.1</td>
</tr>
<tr>
<td>Manufactures of Metal</td>
<td>7,144.7</td>
<td>9,013.1</td>
<td>11,287.1</td>
</tr>
<tr>
<td>Machinery, Appliances &amp; Parts</td>
<td>7,497.6</td>
<td>9,057.0</td>
<td>9,914.3</td>
</tr>
<tr>
<td>Optical &amp; Scientific Equipment</td>
<td>5,808.0</td>
<td>6,413.6</td>
<td>7,554.7</td>
</tr>
<tr>
<td>Crude Petroleum</td>
<td>7,698.4</td>
<td>6,083.3</td>
<td>7,257.2</td>
</tr>
<tr>
<td>Rubber Products</td>
<td>4,670.2</td>
<td>4,999.1</td>
<td>5,518.8</td>
</tr>
<tr>
<td>Total Exports</td>
<td>195,937.2</td>
<td>199,876.9</td>
<td>211,735.6</td>
</tr>
</tbody>
</table>

(Source: Malaysia External Trade statistic, 2015)
Table 1.2: Sales from E & E Industry (RM Billion)

<table>
<thead>
<tr>
<th>Products</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>E&amp;E Industry</td>
<td>166.8</td>
<td>158.7</td>
<td>167.8</td>
<td>166.7</td>
<td>191.4</td>
</tr>
<tr>
<td>Semiconductors &amp; Electronic Components</td>
<td>69.44</td>
<td>69.7</td>
<td>79.8</td>
<td>75.4</td>
<td>95.1</td>
</tr>
<tr>
<td>Audio &amp; Audio Visual Products</td>
<td>43.06</td>
<td>38.7</td>
<td>36.2</td>
<td>39.5</td>
<td>42.2</td>
</tr>
<tr>
<td>Manufacture of office and accounting machinery &amp; computers and computer peripherals</td>
<td>33.29</td>
<td>27.5</td>
<td>29.3</td>
<td>27.5</td>
<td>28.3</td>
</tr>
<tr>
<td>Wires &amp; cables</td>
<td>11.3</td>
<td>12.4</td>
<td>10.9</td>
<td>10.9</td>
<td>10.4</td>
</tr>
<tr>
<td>Manufacture of domestic appliances not elsewhere classified</td>
<td>2.78</td>
<td>4</td>
<td>4.4</td>
<td>4.4</td>
<td>4.3</td>
</tr>
<tr>
<td>Electricity distribution and control apparatus</td>
<td>2.21</td>
<td>3.5</td>
<td>4.1</td>
<td>4.1</td>
<td>3.6</td>
</tr>
<tr>
<td>Manufacture of electric motors, generators and transformers</td>
<td>2.88</td>
<td>1.5</td>
<td>1.3</td>
<td>2.9</td>
<td>5.4</td>
</tr>
<tr>
<td>Accumulators, primary cells and primary batteries</td>
<td>0.28</td>
<td>0.3</td>
<td>0.6</td>
<td>0.6</td>
<td>0.66</td>
</tr>
<tr>
<td>Electric lamps and lighting equipment</td>
<td>0.58</td>
<td>0.3</td>
<td>0.3</td>
<td>0.4</td>
<td>0.46</td>
</tr>
</tbody>
</table>

(Source: Department of Statistic, 2015)

1.4 Problem Statement

Innovation is vital for the development of a firm’s competitive gain (Xerri & Brunetto, 2011). The innovation process of an organization requires innovative employees who have the ability to produce innovative solutions and ideas (Scott & Bruce, 1994). Thus, having employees who engage in innovative behavior is crucial for SMEs to gain its competitive advantage and also increase employees’ productivity level (Scott & Bruce, 1994; Shih & Susanto, 2011; Yuan et al., 2010). Several literatures on innovative behaviour in Malaysian context are specifically referring to innovative capacity of teachers and lecturers (Othman, 2016; Abdullah & Ling, 2016). Meanwhile, some of the study in the context of Malaysian firm focused more on innovation capacity at organizational level. For example the study of Zakaria et al., 2016 found that organizational innovation are having positive
relationship with organizational performance of Malaysian SMEs. Besides that, Aziz and Samad (2016) focused on competitive advantage of manufacturing SMEs. Hence, the study of individual innovative behavior of SME employees in Malaysia is still scarce and has not attracted much attention from the scholars.

One of the problems faced by Malaysian SMEs is related to the low productivity of employees (June, 2011; Khalique et al., 2011). This problem triggered the need to explore ways to improve employees’ skills and behavior that might contribute to increasing productivity. One of the ways is to cultivate innovativeness among employees. Employees who engage in innovative behavior helped their firms gain its market competitiveness, performance and productivity (Carmeli et al., 2006; Xerri, 2013; Yuan et al., 2010). In addition, the Electrical and Electronic (E & E) SMEs also having the difficulties of hiring experienced and good quality of workers (Wong, 2013). The E & E SMEs may possibly enlarge their business if they have fine quality and excellent skills of workers. This could be done by hiring employees who are expected to engage in innovative behavior.

Previous research on individual innovative behavior proposed a few models, which take various and often overlapping factors with a weak theoretical basis in their innovative behavior framework. For example, few studies focused on the individual’s internal motivational aspects such as thriving (Carmeli & Spreitzer, 2009), self-leadership skill (Carmeli et al., 2006), optimism (Li & Wu, 2011) and employee’s psychological empowerment (Singh & Sarkar, 2012). Other studies emphasized external motivational factors such as transformational leadership (Pieterse & Knippenberg, 2010) that support the employees to engage in innovative behavior (Pieterse & Knippenberg, 2010; Reuvers et al., 2008). Another group of studies look at organizational factors such as learning culture (Carmeli & Spreitzer, 2009) and co-workers’ support in helping the employees to innovate (Janssen, 2003; Shih & Susanto, 2011). The main limitation of these studies is their failure to discuss and examine important factors (individual, leader and organization) within one model or framework.

The review of the extant literature provides a broad range of factors influencing the individual’s engagement in innovative behavior (Scott & Bruce, 1994; Vinarski-Peretz et al., 2011; Chou, Shen, Hsia & Chen, 2014; Yuan et al., 2010). However, previous antecedents examined were scattered. For instance, the study by Yuan and Woodman (2010) showed only the individual differences that affect employee innovativeness while the study by Vinarski-Peretz et al. (2011) only discussed the implications of subjective relational experience on employee engagement in innovative behavior. Therefore, a model of innovative behavior that provides comprehensive factors would be helpful (Vinarski-Peretz et al., 2011). So far, all IB models studied predictors to innovative behavior without measuring “intention of innovative behavior” (Carmeli & Spreitzer, 2009; Vinarski-Peretz et al., 2011; Chou et al. 2010; Yuan et al., 2010). It is important to have “intention” in the framework if referred to Theory of Planned Behavior (TPB) because some predictors may influence intention but not behavior, and intention does not always translate to behavior (Verbeke & Vackier, 2005).
The internal motivation factor of innovative behavior such as individual values coincide with attitude components of Theory of planned behavior (TPB), organizational support and leader’s role on the other hand coincide with subjective norms of TPB, while self-efficacy and thriving for innovation seems very similar to the context of perceived behavioral control of TPB. Earlier studies on innovative behavior (e.g. Chou et al., 2014; Scott and Bruce, 1994; Carmeli & Spreitzer, 2009; Vinarski-Peretz et al., 2011; Yuan and Woodman, 2010) have not looked at all the elements of TPB (attitude, subjective norms and perceived behavioral control) in one framework. The limitation of this becomes the foundation for the current study to consolidate innovative behavior models into a more holistic framework with a stronger theoretical foundation using TPB as the theoretical basis and integrates predictors identified in earlier models of innovative behavior as antecedents to each of the TPB determinants (attitude, subjective norm and perceived behavioral control). By virtue of that, the antecedents of individual innovative behavior used in previous literature will be integrated into the TPB model. This will provide a holistic understanding of what it takes to cultivate employees who involve in innovative work behavior.

The theory of planned behavior (TPB) has been extensively used by researchers to predict human intention to take on a particular behavior, basing on the aspect of attitude, normative belief and perceived behavioral control. For instance, this theory has been applied to explain the human behavior of whistle-blowing (Trongmateerut & Sweeney, 2012), environmental behavioral intention (Greaves et al, 2013), fish consumption (Aghamolaei, 2012) and sustainable marketing (Ferdous, 2010). TPB also has the capability to explain the actual behavior through the individual’s intention (Verbeke and Vackier, 2005). However, intention does not always translate to the actual behavior (Gollwitzer, Sheeran, Michalski, & Seifert, 2009). Thus, the present study also aims to identify moderators that will strengthen the relationship between intention and behavior of innovativeness. It is proposed that organizational fairness will potentially moderate the intention and behavior relationship. Janssen (2000) proposed that organizational fairness influenced the exhibition of employees’ work behavior and may positively or negatively influence the behavior (Shih & Susanto, 2011). According to the social exchange theory (SET), employees who perceived fair treatment from the organization will tend to reciprocate through discretionary and extra work role which could be in the form of innovative behavior (Janssen, 2000). This study therefore tries to observe the role of organizational fairness as a moderator between intention and behavior.

Previous innovative behavior studies examined the negative outcome of innovative behavior such as conflict with co-workers (Janssen, 2003; Shih & Susanto, 2011) and turnover intention (Shih & Susanto, 2011). Past innovative literature provide a restricted number of studies that observed the positive outcomes of innovative behavior for example job satisfaction and work performance (Yuan and Woodman, 2010). Job satisfaction has shown to have an important impact on the overall organizational wellbeing and effectiveness (Morgan et al., 1995). Besides that, past studies also showed that employees with skills and high performance contributed to
increasing firm productivity (Huselid, 1995) and firm competitiveness (Sun & Stuebs, 2013). Thus, employees’ job performance is impacted by firm competitiveness. By virtue of that, this study intends to look at the correlation of innovative behavior and its outcome: job satisfaction and performance.

Responding to the theoretical and practical gaps in the literature, the present study developed and tested a holistic model that explored antecedents to every determinant of TPB (attitudes, subjective norms and perceived behavioral control), examined how organizational fairness (distributive, procedural and interactional) moderate the relationship between intention and behavior, and also examined the positive outcome of IB: job satisfaction and job performance.

1.5 Research Questions

The research questions are created to address the research issues:

Question 1:

What are the antecedents to each determinant of TPB (attitude, subjective norm and perceived behavioral control) in the context of individual innovative behavior?

Question 2:

Do determinants of TPB (attitude, subjective norm and perceived behavioral control) explain the intention to engage in innovative behavior?

Question 3:

Does intention to engage in innovative behavior relate to engagement in innovative behavior?

Question 4

Does organizational fairness moderate the relationship between individual’s intention to engage in innovative behavior and engagement in innovative behavior?
Question 5

Does innovative behavior relate to job satisfaction and job performance?

1.6 Objectives of the Study

The focus of this study is to examine and gain insight into the concept and model of individual innovative behavior in the context of employees working in E & E SMEs. This study later arrived at a better understanding on important factors that influenced and cultivated the employees of SMEs’ engagement in innovative behavior. Furthermore, this research has examined the role of organizational fairness as moderator between intention and engagement in innovative behavior. Finally, this research also examined the outcome of IB towards job satisfaction and job performance.

Thus, the aims and objectives of this study are:

1. To examine antecedents of attitude, subjective norm and perceived behavioral control that influence individual innovative behaviour, utilizing Theory of Planned Behavior as the theoretical basis. Within this aim, the antecedents to each of the determinants of TPB will be identified and managers can have a better understanding of factors that cultivate employees’ IB.

2. To examine the relationship between intention to engage in innovative behavior and engagement in innovative behavior, and using Social Exchange Theory as the theoretical basis to understand the moderating role of organizational fairness. Within this aim, the reason for weak relationship between intention and engagement in innovative behavior will be uncovered.

3. To examine the outcome of innovative behavior (job satisfaction and job performance).

1.7 Significance of the Study

Various empirical studies have been carried out abroad with regards to the issues of individual innovative behavior. For instance, the research on innovative behavior with SME employees as respondents was done in the study by Xerri and Brunetto (2011), which explored the correlation between innovative behavior and workplace social networks within the context of SMEs in Australia. Malaysian SMEs is a good setting to validate further the innovative behavior model, as Malaysia covers different cultural settings and workforce diversity. As a multi-ethnic country, Malaysia provides a ground for study to prove the application of innovative behavior
within employees in SMEs. Most innovative behavior studies were examined in the context of developed countries such as Netherlands (Janssen, 2003; Sanders, 2010), United States of America (Yuan et al., 2010) and Australia (Xerri, 2013). For developing countries, specifically Malaysia, the research on innovative behavior of employees is still scarce. In an effort for SMEs in Malaysia to increase its labour productivity and performance, knowledge on innovative behavior in a Malaysian environment is definitely fruitful for Malaysian SMEs in order to develop suitable range and training programs for preparing employees to fulfil their role in helping the firm to achieve its goals and succeed.

As for theoretical contribution, this study would add to the on-going development and validation of theory of planned behavior (TPB) expanded by Ajzen (1991). Despite the use of TPB in explaining various types of behavior, none of the studies extends TPB in the context of individual innovative behaviour (Ajzen, 2001; Aghamolei, 2012; Ferdous, 2010; Greaves et al., 2013). Responding to this gap, the present study expands the function of TPB, using the three determinants of attitudes, subjective norm and perceived behavioral control, as a basis to predict the innovative behavior of SME employees in Malaysia. This is important because by examining the three determinants of TPB (attitudes, subjective norms and perceived behavioral control) within innovative behavior context, a basis for explaining the antecedents of innovative behavior within SME employees is provided. Thus, this study provides a clear picture of which antecedents contributes the most to developing and enhancing employees’ innovative behavior.

Apart from that, this study also extends the use of social exchange theory (SET) proposed by Blau (1964), in which this study includes organizational fairness as a moderator between intention and engagement in innovative behavior. This research therefore sheds light on the outcomes of intention. This is because employees who have the intention to execute innovative behavior sometimes do not execute that actual behavior. Therefore, the present study examined the role of organizational fairness (distributive fairness, procedural fairness and interactional fairness) in strengthening the relationship between intention and actual behavior. These variables are important to be included because it explains situations of a strong relationship between intention and innovative behavior. This study also contributes to the body of knowledge for innovative behavior by expanding the current framework proposed in previous researches and expedite the positive outcomes of innovative behavior such as job satisfaction and job performance.

Apart from theoretical contribution, this study also provides practical contributions to practitioners, specifically the management of SMEs. The findings of this study highlight to the management the importance of cultivating IB in employees and how IB can be encouraged. For example, if self-efficacy (a variable in the innovative behavior model) is found to influence intention and behavior, training to improve employees’ capabilities would lead to higher IB intention. On top of that, if individual values are found to affect attitude to innovative behavior, value assessment could be used as a candidate selection tool. For example, candidates with
high openness to change are shortlisted for positions requiring innovative work practices.

Innovative SME employees are expected to show good attitude and perceived behavioral control for their work-related and personal affairs in order to help an organization to increase its productivity and performance. According to the social exchange theory, employees who perceived an obligation towards the organization who provides fair treatment are likely to reciprocate beneficial behavior such as innovative behavior (Chen, Huang, Snape & Lam, 2012). This study provides insights for SMEs to create a fine relationship with their employees and provide them with support in order for employees to demonstrate innovative work behavior which will assist the business organization to achieve its goals by increasing its labor productivity and performance. For example, if this study finds that organizational support was significant in influencing innovative behaviour of workers, then organization can focus on setting a conducive environment where leaders, colleagues and organization could encourage and support the workers to engage in innovative behavior.

1.8 Operational Definition of Key Terms

Some of the terms used throughout this proposal is critical and specific to the current study. The specific definitions are as follows:

**Attitude.** Attitude relates to the perceived of individuals value towards a particular behaviour. Attitude is defined as general feelings or evaluation, either positive or negative, about a person, object or issues (Heider, 1959).

**Innovation.** Innovation is described as a new or combination of old thoughts that is perceived by a person to be a new order, formula or unique approach (Ven, 1986). Innovation includes the context of organizational and individual innovation.

**Innovative behavior.** Intentional establishment or application of new ideas, processes and products within a person’s work role or organization (West and Farr, 1989). The innovative behaviour consist of the stages starting from generating new idea, obtained support and establishment of the new idea.

**Organizational Fairness.** Employees’ perception of fairness within a company that includes distributive, procedural and interactional justice that companies must embrace in bringing the implication towards employee’s motivation and satisfaction (Hassan, 2013; Niehoff & Moorman, 1993).
**Personal values.** Personal values is defined as learned beliefs about preferred ways of acting that serves as leading principles in someone life (Schwartz, 1994). Personal values consists of values of self-enhancement and openness to change.

**Self-efficacy.** Self-efficacy is defined as a belief in one’s capabilities or a competence person to organize and execute the course of action required to produce desired results (Gist, 1987; Bandura, 1997).

**Subjective Norm.** Individual perception of how they should or should not perform the behavior based on the influence of surrounding or other people’s thinking (Ajzen & Fishbein, 1977). Subjective norms also referred as social norms whereby the social surrounding influence a person’s behaviour.

**Thriving.** Thriving is defined as a person who grows, develops and energizes. Thriving consists of two things: vitality and learning, which serves as the joint experience of a person (Porath, Spreitzer, Gibson, & Garnett, 2012).

### 1.9 Organization of the Thesis

This thesis is composed of seven chapters. Chapter one explains the background and scope of study, problem statement, research objectives and significance of the study. Chapter two begins by reviewing definitions of innovative behaviour, context of innovative behaviour, theoretical background and relevant previous research works. Chapter three outlines the research framework and develops hypotheses. Chapter four explains the methodology and analytical tools that have been adopted to analyse the data. Chapter five analyzes the data and displays the results. Chapter six discusses the main findings and contributions of this study. Chapter seven reviews and concludes the study.

### 1.10 Conclusion

This chapter offered an introductory review of the research. The earlier section provided the research background and setting. The background information established that research evidence on the model of innovative behavior in the context of Malaysian SMEs is lacking. Thus, the model of employees’ innovative behavior and the importance of innovative behavior to Malaysian SMEs were explained. The rest of the sections explained the problem statement, research questions, objectives and significance for this research. This chapter provided the definitions of terms used in this study to better understand the terminologies. The next chapter reviews the literature on innovative behavior, identify various models, dimensions and perspectives of individual’s innovative behavior.
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