

FACTORS AFFECTING OPEN INNOVATION
ACCEPTANCE AMONG EMPLOYEE OF SMALL
AND MEDIUM - SIZED ENTERPRISE (SMEs) IN
NEGERI SEMBILAN

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DECLARATION

I hereby declare that the report has been prepared by my own except for the summaries and citations that I have clarified the sources.

Signature :.....
Name :.....
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DEDICATION

I would like to dedicate this research to my beloved families who educated me and motivate me all the time. I would also like to appreciate the dedication of my lecturers and friends who have given me support and advice throughout the completion of this dissertation. Without their blessings and motivation, it is impossible to complete this research in short period.

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ABSTRACT

Open innovation is a popularized innovation model in recent years that can bring monetary value to technological knowledge and creativity of firms. In this study will focus on the motives and perceived factors that affecting open innovation acceptance among employees of SMEs in Negeri Sembilan. Thus, the researcher identifies the three factors that will influence the acceptance of open innovation to SMEs. The research methodology for data collection is quantitative approach throughout this study. Data analysis will use multiple regression analysis to proof the relationship between independent variables and dependent variable based on the research questions, objectives and theoretical framework. Data collect from respondent will analysis by statistical software to get the results and make a conclusion for this study topic.

ABSTRAK

Terbuka inovasi adalah model inovasi populariti dalam beberapa tahun kebelakangan yang dapat membawa nilai kewangan kepada pengetahuan teknologi dan kreativiti firma. Dalam kajian ini akan memberi tumpuan kepada motif dan faktor yang dirasakan yang mempengaruhi penerimaan inovasi terbuka di kalangan pekerja SME di Negeri Sembilan. Oleh itu, penyelidik mengenal pasti tiga faktor yang akan mempengaruhi penerimaan inovasi terbuka kepada SME. Kaedah penyelidikan untuk pengumpulan data adalah pendekatan kuantitatif sepanjang kajian ini. Analisis data akan menggunakan analisis regresi berganda untuk membuktikan hubungan antara pembolehubah bebas dan pemboleh ubah bergantung berdasarkan soalan penyelidikan, objektif dan rangka kerja teori. Data yang diperoleh dari responden akan dianalisis oleh perisian statistik untuk mendapatkan hasil dan membuat kesimpulan untuk topik kajian in

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LIST OF ABBREVIATIONS

OCB	Organizational Citizenship Behavior
SME	Small and Medium-sized Enterprise
R&D	Research and Development
OI	Open innovation
IP	Intellectual Property
IPR	Intellectual Property Right
GDP	Gross Domestic Product
VIF	Variance Indicator Factor
ICT	Information and Communication Technology
SPSS	Statistical Package for Social Science

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Innovation is a major process for each company to enhance their organization performance and sustain in the competitive environment. Companies are paying more attention to focus their management on the internal R&D activities by using own internal resources. However, most of the companies have their own innovation team but it is difficult in developing innovations by themselves and longer insufficient to obtain and sustain of competitive advantage because innovation strategies are become increasing similar and commoditized. A company also need to overcome those costs and resources that needed when carry out internal R&D activities to their products. If the innovation shift from internal R&D activities to a more open and collaborative method will improve their ability to produce, integrate and recombine knowledge to the new products. Hence, those firms try to improve their innovation performance by collaborative across industry networks and partnerships to sustain the speed of innovation.

Open innovation is a popularized innovation model in recent years that can bring monetary value to technological knowledge and creativity of firms. Open innovation (OI) is defined as a concept that it can become a paradigm to the firms combines internal and external ideas form a new business model (Chesbrough H. W., 2003). Hence, companies can use their internal knowledge or ideas collaborative with

other companies' ideas to develop new business and enhance their innovation capabilities. Open innovation become more recognize as one of the key factors that can increase the R&D productivity and improve capability of organization for successful innovation. However, open innovation only refers as collaborative networking between those companies. It did does not mean free access for the sharing of company's knowledge and technology because it can relate high costs for the use of licenses and intellectual property.

Most of the pioneer studies focus on the successful of implementation and adoption of open innovation in large, multinational and technological firms (Chesbrough H. W., 2003) while small and medium-sized enterprise (SMEs) only gain little attention on the study. Although those studies are based on implementation open innovation among small firms but focus only on companies that develop open source software (West & Gallagher, Challenges of open innovation: the paradox of firm, 2006) and the research regarding adoption of open innovation in SMEs begin increasing subsequently (Vrande, P.J. de Jong, Vanhaverbeke, & de Rochemont, 2009).

Small and medium-sized enterprise (SMEs) become an importance role in help to achieve sustainable growth in social and economic. SMEs are hinder by internal and external structure impediments such as smallness, managerial capacity, skills, awareness and access to external knowledge and financing (Wynaczyk, 2014). The statistics data show that only 10% of SMEs have the chance to survive more than five years on the market by overcome the risks (NEAGU, 2016). Hence, SMEs must improve the ways of innovating and reduce cost while reducing time to market thus become more competitive in the market. Besides, SMEs is increasingly become more important role in innovation but often lack of resources to exploit new products or services internally thus they should overcome their limitations and constraints to be more innovate and grow successfully with the help of collaboration with other firms.

The benefit of applying open innovation by companies is provide an extended base ideas and technologies. It can provide companies explore to the new growth of opportunities at lower risk by the collaboration with external partners such as customers, consumers, researcher or other people that have input to help the future development of company (Rahman & Centro Algoritmi, 2013). Moreover, open

technologies and ideas offer companies high flexibility and low costs during the innovation process. SMEs could engage with open innovation practice to sustain their competitive at the market place. Therefore, adoption of open innovation is highly relevant for SMEs because they have to overcome the limitations and constraints during the innovation process.

The main purpose of this research is to investigate the factors affecting open innovation acceptance among employees of SMEs. This study focuses on the impact of factors toward the acceptance of open innovation among SMEs when they operate their business implement by open innovation processes. Lastly, research can determine the most critical factor affecting open innovation acceptance among employees of SMEs through the data analysis and evidence collection from the survey conduct at SMEs manufacturing industries.

1.2 Problem Statement

In developing countries, SMEs become one of the fundamental parts of the economic fabric of nations. Malaysia is one of the developing countries and the contribution of SMEs to Malaysia's GDP rose to 37% in 2017 compare with year 2016 (SME Corporation Malaysia Official Website, 2018) thus increases the development of Malaysia's economic. Therefore, Malaysia government has been highlighted to boost the contribution of SMEs in the manufacturing sector in the mid-term review of Eleventh Malaysian Plan 2016-2020 to aim SMEs economic growth to 41% by 2020 (The Mid-Term Review of the Eleventh Malaysia Plan, 2018). To improve a country economic stability, open innovation become an important tool to boost the economic growth of SMEs in Malaysia.

Although open innovation can help to enhance performance of SMEs, but they are strongly restricted in access the capital to their business thus limited financial resources become the major constraint for SMEs in developing countries (Sallem, Mohd Nasir, Wan Mohd Nori, & Che Ku Kassim, 2017). Besides, SMEs in Malaysia are largely facing lack of capital, incomplete accounting records, poor financial performance and difficult in getting financial support (NorasikinSalikin, Ab Wahab, & Muhammad, 2014). Next, SMEs in Malaysia should enhance knowledge of all elements of IP system to reduce barriers during implementing open innovation (Sukarmijan, 2013). An effective entrepreneur should maintain strengthen interaction between various external resources. Therefore, Vrande, P.J. de Jong, Vanhaverbeke, & de Rochemont (2009) stated in the pioneer studied several challenges faced in adopting open innovation practices which are organizational and cultural barriers, cost resources and intellectual property rights. Hence, this research will aim to SMEs Malaysia with these 3 factors to find out the most critical factor that will affect the acceptance level open innovation among employee SMEs. Lastly, SMEs survival must achieve creativity, technology and innovation in production to produce quality products depends on knowledge and technology they apply through the production processes (Bhuiyan, 2016).

1.3 Research Questions

The purpose of this research is about the study of factors affecting open innovation acceptance among employees of SMEs in Negeri Sembilan. The research will be based on the following research question to act as a guide:

1. What are the factors affecting open innovation acceptance among employees of SMEs in Negeri Sembilan?
2. What are the impacts of the factors toward acceptance of open innovation?
3. What are the most critical factors affecting open innovation acceptance among employees of SMEs in Negeri Sembilan?

1.4 Research Objectives

This research is to study the factors affecting open innovation acceptance among employees of SMEs in Negeri Sembilan. To answer the research questions, the following research objectives were constructed:

1. To identify the factors affecting open innovation acceptance among employees of SMEs in Negeri Sembilan.
2. To investigate the impact of the factors toward acceptance of open innovation.
3. To determine the most critical factors affecting open innovation acceptance among employees of SMEs in Negeri Sembilan.

1.5 Scope & Limitation

The aim of this research is to study the factors affecting open innovation acceptance among employees of SMEs in Negeri Sembilan. Researcher has narrowed down to focus on the manufacturing industries in Negeri Sembilan to ensure that the scope and location are easy to evaluate during the research. This research will select 322 respondents involve in the survey among all the SMEs manufacturing industries in Negeri Sembilan. The questionnaires will be answering by someone who work at manufacturing industries of SMEs because they are more understanding about those factors that affected their organization when accepting open innovation in the company. The scope of this research will focus on the factors that affect SMEs in acceptance open innovation, where in the next chapter researcher will find out the factors which influence the acceptance of open innovation in SMEs. By summarizing those factors, researcher can evaluate the barriers faced by SMEs when they implement and accepting open innovation to their company.

Limitation in this research is confidential and sensitive issues such as intellectual property (IP), trade secret of company, this will take a lot of time to communicate with the company and may rejected from the company. The company reject to answer the survey tend to protect the company's confidential and sensitive information and prevent their business information exposed to the public. Second, the constraints of time that spend to send the questionnaire and follow up the status. There are large number of respondents and might miss some of the company when collect those questionnaires. In addition, the time when researcher conduct survey during the end of the year thus the company will busy for their year-end closing report.

1.6 Summary

This chapter has briefly stated research objective acts as a guideline for researcher during carry out the research. In this chapter, researcher is reflected on identify the objective of the research about what factors affect employees of SMEs toward acceptance open innovation to company. Researcher can also determine the most critical factors affect employees of SMEs after investigated and analyzed those data from SMEs in Negeri Sembilan. The detail background for the study will be provided in next chapter. In Chapter 2, the theoretical framework that used in this study will discuss to obtain the desired result at the end of the study.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

There are several of thesis and research about the factors affect employee SMEs toward acceptance of open innovation had been done before in other countries. In this study the investigate and survey will carry out in the SMEs manufacturing industries. Literature review related to factors affect employee SMEs in accepting open innovation will be discussed in this chapter to improve the understanding of the topic. In order to identify the research questions, the secondary sources act as evidence to support the findings and theoretical meaning of the topic in this study.

2.2 Open Innovation

Open innovation is a term that first developed by Chesbrough (Chesbrough, 2003) as the interaction of internal and external knowledge of firms to speed up the internal innovation and maximize usage of external innovation (Chesbrough, 2006). Before Henry Chesbrough first introduced open innovation in 2003, the traditional model suggested to innovate the company's product is close innovation. Close innovation had become the successful way apply by companies to sustain a competitive advantage to their business at that time. In the close innovation paradigm, process of innovation is fully controlled by company, intellectual property is developed internal and kept it secret away from competitors until the new product is launched on the market. Hence, the company has the monopoly right from the process of innovation until the product release on the market (Meige, 2009).

According to Chesbrough (Chesbrough, 2006), open innovation has 2 dimensions which is 'inside out' and 'outside in' for the open innovation processes but there are three core open innovation processes actually (Gassmann & Enkel, 2004). Gassmann and Enkel suggested the third dimension is called 'coupled process'. First of all, the 'outside in' movement means that firm is looking for suitable external sources that can improve own innovation process or current technological developments. 'Outside in' movement is the most common recognized features of open innovation. Next, 'inside out' movement refer as the existing ideas and technologies in the firm bring to outside and collaborate with others' firms. This is the less common recognized features of open innovation. 'Coupled process' means that firms combine both technology exploitation and technology exploration cooperate with other firm to maximize their technological capabilities and competencies.

Out-bound (indicates as an inside out process) of open innovation also known as a process for technology exploitation. Out-bound process is depending on the openness of a firm or initiator towards open innovation to unlocks their own resources for external uses. Those firms also seek for external pathway that are suited for their commercialize knowledge or technology. External pathway included spin out new venture and outward licensing of intellectual property (IP) to external parties (Chesbrough, 2003). Several large firms involved in spin off new venture when their

business ideas cannot fit with existing technology and business model (Vanhaverbeke, Van de Vrande, & Chesbrough, 2008).

Besides, out-licensing of intellectual property (IP) can help the firms to make profit from the IP when the other companies with different business model are looking for profitable and external path to the business trade (Chesbrough, 2006). In addition, firms need to use different IP rights strategies to protect the knowledge and technologies of the firms to prevent competitors imitate the innovations and disclosure knowledge.

In-bound (indicates as an outside in process) of open innovation or refer as technology exploration. In-bound is the basic open innovation concept because this concept is common implement by most of the firms. In this form of open innovation model, firm will be seeking the external pathway and commercialize the access of external source such as suppliers, customers, employees and others to develop internal innovation in order bring profitable to firm (West & Bogers, 2014). Hence, firms will gain advantage from their customer's ideas and innovations to modify and develop the product based on the design or desire of customers and evaluate from general product development.

Another factor is external networking which allows firm obtain knowledge at lower cost and shorter time than innovate internally. In the form of external networking, firm collaborate formal or informal projects and activities with external environment because under assumption of open innovation firms cannot conduct all R&D activities by themselves (Vanhaverbeke, Van de Vrande, & Chesbrough, 2008). Lastly, couple process refers to the combination of outbound process and inbound process focused on research cooperation thus develop and commercialize innovation together.