

Innovation and open innovation concept management essay



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The concept of innovation is now widely used by the firms from many industries. Open Innovation is the approach where the firms use external ideas of innovation from the community and society as well as internal innovation. This approach can be achieved by the integration with customers, suppliers and also University-Industry collaboration. In Malaysia, open innovation paradigm is relatively new in adaptation event in manufacturing industry. The purpose of this research is to identify the implementation of open innovation on this research study is ICT, Automotive and Electronics sectors. The innovation process is the effective way of improving the company performances and at the same time increase the economic growth of the overall industries. The research method use is based on quantitative method research approach in term to identify types and methods used on implementing the open innovation in the manufacturing industries and also the impact of the implementation to the industries.

Keyword: Open Innovation, Malaysia, Manufacturing, Industries.

CHAPTER 1: INTRODUCTION

Background of study

Today, Open innovation are widely used and becoming the vital sources of progress in term of improving the industry performance especially by using the external sources of creativity and innovation. But In Malaysia, this paradigm is relatively new and the approach of Open Innovation is still difficult to accept. Innovation is one of the important mechanisms to the organizations in term to improve economic growth of the organization and increase the competitive advantages.

Open Innovation is the paradigm that firstly described by Henry Chesbrough in his former book named as Open Innovation: The New Imperative for Creating and Profiting from Technology, published in 2003. In the simply words, open innovation explained as a process where the firms use external ideas of innovation from the community and society as well as internal innovation.

By the approach of Open Innovation in manufacturing industry, the process of innovation is become wider than using closed model of innovation where the organization only focus on the internal innovation and R & D rather than external sources. From this paradigm, the travels of knowledge from the society and community as an external source to industry will bring the formation of openness of giving ideas and innovation.

This research study is focus on the implementation of open innovation in Malaysian manufacturing industry. This study is center on the degree of Open Innovation in manufacturing industries that only involve sectors of ICT, Automotive and Electronics. Based on the open innovation paradigm, the research question is concentrated to what types and methods of open innovation that implemented in manufacturing industry? This research question is answered based on the Malaysian Manufacturing Companies perspective.

Research question

These are the research question that qualified for this research study:

What is the type of Open Innovation implemented in these firms?

What is the method of open innovation implemented in these firms?

To what extent is Open Innovation implemented in these firms?

Does the Open Innovation implementation differ for each cluster of manufacturing companies?

Objectives

Innovation is a significant method of improving and increase the performance and competitive advantages of the company and opening a change for the community and society to get involved in the innovation process.

The objectives of this research study are stated as:

To determine the type of Open Innovation adopted by Manufacturing Industry.

To investigate the methods for open innovation adopted by these firms.

To determine the extent of Open Innovation implementation in these manufacturing firms.

To investigate whether the implementation of Open Innovation differ for each clusters on manufacturing firm.

Scope of study

This study is limited to only Malaysian Manufacturing Industries from Automotive, electronics and ICT. The scope of topic discusses on this study is

about the extent of open innovation implementation on the Malaysian manufacturing industry.

Limitation of study

Although this research study has reached the aims, there were unavoidable limitations. First limitation of the study on this topic is the open innovation approach itself. As know that open innovation paradigm is relatively new approach on the Malaysia industry but there are still companies already applied the open innovation paradigm.

Second, the limitation considered is because of the time limit, this research was conducted in short period of times to complete all the primary and secondary data. The last one is the lack of cooperation from the respondent. The method used on this research study is via survey that distribute to the random respondent from the identified focus group.

Importance of study

Manufacturing industry is the major entity of the economic growth rather than other sectors. It is important to improve the capabilities of manufacturing industry by innovation. Open Innovation mechanism is the best way to help manufacturing industry in term to improve their performance and competitive advantages.

The importance of this study is to identify the best methods used on performing the open innovation on the manufacturing industries in Malaysia. This study also can discover the impact of Open Innovation to the firms as well as ICT, Automotive and Electronics industries.

Summary

The implementation of open innovation is already become worldwide paradigm which changes the ways of industrial and organization to improve their competitive advantages and core competencies. Open innovation also become medium and gives changes to community and society to get involved in sharing ideas and knowledge of innovation

CHAPTER 2: LITERATURE REVIEW

Introduction

On the chapter of literature review, the researcher is able to discuss about the theory and the paradigm of the research study. According to (Saunders, et al, 2012), critical (literature) review is the detailed and justified analysis and commentary of the merits and faults of the literature within a chosen area, which demonstrates familiarity with what is already known about your research topic. For this chapter, the sources of literature and theories that relevant with the research study are gathered from the books, journals, magazines, thesis, newspaper and online articles.

Based on the topic addressed, the major theories that used to complete the study are the open innovation paradigm. On the open innovation theory, there are lots of disciplinary under this term. For this chapter, the researcher will first defined the theories of innovation, open innovation and overviews of Malaysian Manufacturing Industry; ICT, Automotive and Electronics sector.

Innovation and open innovation concept

Innovation is one of the important catalysts to the sustainable organizational growth and performance. The term of innovation is already used over the

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century ago and innovation meaning is focus more on the changes or improvement made by the organization either to their product/services, processes and paradigm.

In simple words, innovation is described as a change that is made to the product and services and also to the process. Innovation has a significant relationship between technology and knowledge. In order to create add values and changes based on the innovation, the component of new knowledge is a vital sources. According to Allan Afuah (2003), the new knowledge can be technological or market related. Technological knowledge is knowledge of components, linkages between components, methods, processes, and technique that to go into a product or services. Market knowledge is the knowledge about the distribution channels, product applications and customer expectation, preferences, needs and wants (Afuah, A. 2003: 13).

Innovation

Innovation is the use of new technological and market knowledge to offer a new product or service that customer want and the new product must new, lower cost and the attributes of the product are improved with the attributes that never existed in the market before (Afuah, A. 2003). The concept of innovation also defined as the process of making changes of something established by introducing something new that adds value to customers and contributes to the knowledge store of the organization (O'Sullivan, D. and Dooley, L. 2009).

There are four (4) broad categories of innovation called as '4Ps' of Innovation (Tidd, J. et al, 2005): 1. Product Innovation where classify as change in the things (products or services) which an organization offers, 2. Process Innovation is the changes in the ways in which they are created and delivered, 3. Position Innovation is the changes made in the context in which the products or services are introduced, 4. Paradigm Innovation is changes in the underlying mental models which frame what the organization does.

In innovation mechanism, there are two (2) types of static model of innovation which is the Radical Innovation and Incremental Innovation. Radical innovation is defined as major changes that are made in something established (O'Sullivan, D. and Dooley, L. 2009) and incremental innovation is the innovation that uses existing forms or technologies as a starting point. Both types of incremental and radical innovation affect the technological and market-related competencies of a firm in different ways (Herzog, P. 2011: 10).

Open Innovation

For the open innovation theory, this theory is firstly described by Henry Chesbrough. Open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology (Chesbrough, H, 2006). The paradigm of open innovation leads the research & development to an open system.

Open Innovation denotes, on the one hand, the use of external and internal knowledge sources to accelerate internal innovation and, on the other hand,

the use of external paths to markets for internal knowledge (Chesbrough, H. 2006). On the modern worlds nowadays, most of everything in industry are made using machines and advance technology. So that, the production of new products and services are fast and also can be produced in huge amounts. In retailing, the advances in computing and communications are bringing retailers into closer contact with their customers as well as their suppliers, enabling them to provide more variety with fewer inventories than ever before (Chesbrough, H. 2006).

On the modern era, Innovation paradigm has shift from the closed model of innovation to open innovation model (Chesbrough, H. et al. 2005). The closed innovation model is the paradigm where the process leading to innovation is completely controlled; all the Intellectual property is developed internally and kept within the company frontiers until the new products is released on the market (Meige, A. 2009).

Figure : The model of Closed Innovation

In case of closed model of innovation, the firm has to rely heavily on their internal core competencies and potential as a result of right of intellectual property. According to Philipp Herzog (2011), the implicit rules of closed innovation described as follows:

A firm should hire the best and smartest people.

Profiting from innovative efforts requires a firm to discover, develop, and market everything itself.

Being first to market requires that research discoveries originate within the own firm.

Being first to market also ensures that the firm will win the competition.

Leading the industry in R&D investments results in coming up with the best and most ideas and eventually in winning the competition.

Restrictive Intellectual Property management must prevent other firms from profiting from the firm's ideas and technologies.

Figure : The Model of Open Innovation

In open innovation models, the firms used the external sources technologies and knowledge to improve the internal innovation process and the firm also capable to commercialize the internal innovation via their own distribution channel by external pathways.

The open innovation principle is the contrast and reflected to the closed innovation model. The principle of open innovation is shown as follows (Herzog, P. 2011: 22):

A firm does not need to employ all the smart people, but rather work with them inside and outside the firm.

Internal innovation activities are needed to claim some of the significant value which can be created by external innovation efforts.

In order to win the competition, it is more important to have the better business model than getting to market first.

Winning the competition does not require coming up with the best and most ideas, but to make the best use of internal and external ideas.

Proactive Intellectual Property management allows other firms to use the firm's Intellectual Property. It also considers to buy other firms' Intellectual Property whenever it advances the own business model.

The model of closed innovation on the present time are steadily eroded because of the several of reason such as when the employees of some company changes their jobs, they will bring together the knowledge and the knowledge then will flows from one firm to another. It is contrast to the open innovation model where the knowledge can be shared and gathered by the community and society that not directly involved with the organization.

Malaysian manufacturing Industry

The rate of Malaysian economic growth on the manufacturing industries increase rapidly since 1980's impact from the economic transition from agriculture based economy to an industrial-based economy. Economic transition occurs because of the awareness of the existing ability on the country. This mechanism can reduce the dependencies on the import sector of Malaysia to other countries and starting develop own national based technology sectors in term to bring a growth to the Malaysian economy.

Manufacturing industries is the one of effort by the Malaysian government on their Ninth (9th) Malaysian Plan in term to emphasize the importance of up scaling manufacturing industry and related services. The government authorities that in-charge on leading and driving the expansion of

manufacturing activities is the Ministry of International Trade and Industry
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(MITI). The others agencies and ministries are also playing important roles in improving the national manufacturing industries including Malaysia External Trade Development Corporation (MATRADE), Malaysian Investment Development Authority (MIDA), Small and Medium Industries Development Corporation (SMDEC), Ministry of Entrepreneur and Cooperative Development and Ministry of Science.

In this modern era, the development of manufacturing industries in Malaysia is improving a lot especially on the sectors of ICT, Automotive and electronics sectors. There are lots of efforts contributed by the private and government sectors in term to improve enhance the development of ICT, automotive and electronics industries in Malaysia.

Adaptation of open innovation on Malaysian manufacturing industry

This research study is focused on the investigation for open innovation implementation on the Malaysian manufacturing industry. The researcher is required to determine the manufacturing firms that involved in application of open innovation concept on their organizations. The random firms are selected from three (3) different sectors: ICT, Automotive and Electronics.

In adapting the model of open innovation, there are various forms of collaboration identified for implementing the knowledge of innovation from the external sources. Eric von Hippel (1988) identified four external sources of useful knowledge: 1. Suppliers and customers, 2. University, Government and private laboratories, 3. Competitors and 4. Other nations.

For this research study, the forms of collaboration are centered to the three (3) forms of collaboration specifically the Customer integration, supplier integration and university-industry collaboration (Parida, V. et al., 2009).

Inbound versus outbound innovation

In the open innovation concept, inbound open innovation refers to internal use of external knowledge and outbound open innovation is the external exploitation of internal knowledge (Huizingh, E. 2011: 4) and this mechanism relates to the three (3) knowledge process of exploration, retention and exploitation that can be performed either inside or outside the firm's boundaries (Lichtenthaler and Lichtenthaler, 2009).

The inbound open innovation or known as outside-in innovation process are using the concept of integration on external knowledge with the suppliers, customers, research institutes and universities. The outbound open innovation or called as inside-out is different than inbound concept where the firms will selling intellectual property and bringing their internal ideas to market by sharing them to outside environment (Huizingh, E, 2011: 27).

The best example of inbound open innovation activities are technology scouting, horizontal technology collaboration, vertical technology collaboration, and technology sourcing. For the outbound open innovation the example is external technology commercialization.

Conceptual Framework

Figure : conceptual framework of the research topic

Summary

On chapter of literature review, the researcher is responsible to describe and explain about the theories that related to the topic of research study. The researcher has explained the definition and concept of traditional innovation and open innovation paradigm. This chapter also describe about the relationship between the manufacturing industries and open innovation.

CHAPTER 3: METHODOLOGY

Introduction

On this chapter, the research design methodology used on this research study will be described and explained. Research methodology refers to the theory of how the research should be undertaken (Saunders et al, 2012). The researcher will discuss and describe all the information related with the method used on the research study in term of obtaining and gathering the data collection.

On chapter 3 (methodology), the method used due to gathering information of primary and secondary data are described and explained. Along with chapter 2, the researcher will determined the type of design method used to get the data of primary data and secondary data to answer the research question of the research study. Chapter 3 consists six (6) sections; Research design, research design method, data collection, location of study, research strategy and reliability, generalizability and validity.

Research Design

Research design is the general plan of the way on answering the research questions. According to Saunders et al., (2012) research design is the frame

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work for the collection and analysis of data to answer research question and meet research objectives providing reasoned justification for choice of data sources, collection methods and analysis techniques.

Figure : Structure and Outline of the research study

Research Design Method

For this research topic study, the method of study implemented is the mono method of quantitative study. The quantitative analysis method as well as survey on this research study is significant in order to obtaining the primary data from the respondents. Quantitative method is

The respondents are randomly selected from the main focus group (ICT, automotive and electronics) to answering the question related to the implementation of Open Innovation on Malaysian manufacturing industries.

Primary and Secondary Data Sources

Primary data is the data collected specifically for the research project that being undertaken by the researcher (Saunders et al, 2012). The primary data mostly collected from the several ways such as observations, experiments, surveys and interviews (Pervez Ghauri and Gronhaug, K. 2005: 102). The method used by the researcher in acquiring the primary data is by the survey that will be distributed to the random respondents of the focus group. The data and information are then collected and analyze by researcher to obtain result.

According to the Uma Sekaran and Roger Bougie (2010), the secondary data is the data that have already been gathered by previous researchers, data

published in statistical and other journals and information available from any published or unpublished source available either within or outside the organization, all of which might be useful to the researcher. For the secondary data collection, researcher gathers the data from the reading of the related previous study, books, and journals and as well as articles. The secondary data also being gathered from the internet sources.

Location of Study

The focus of this study is on Malaysian manufacturing Industry that implements the Open Innovation approach. The location of research is narrowed further to the ICT, Automotive and electronics industries in Malaysia. The locations that are choose for this research is not specified because the firms of ICT, Automotive and Electronics in Malaysia are spread around. The random of respondents are selected based on the focus areas of study (ICT, Automotive and Electronics) to answer the research question related to the research study. The respondents are choosing from the different divisions of the firms.

Research Strategy

Based on (Saunders et al, 2012), research strategy is the general plan of how the researcher will go about to answering the research question of the topic. For this research study, the method used to gather the data collection is via the survey method. The details of research strategy are shows as follows:

Survey Method

On this research study, survey approach is used for data collection. The surveys will be distributed following the specified of sample to the respondents from the focus groups of the research topic. By using the survey method, the researcher can collect many different kinds of information related to the topic study and this method also quick, low cost compared to observation and experimental method.

Preparing the Survey

The research study is using the quantitative method where the survey is used to obtain the information and data. The question on the survey is constructed based on the research question and objectives of the study. This survey is conducted to identify the implementation of open innovation in ICT, automotive and electronics industry. The respondents are staff or employees from the industries.

Survey research design

The approach of using survey method is suitable for this research study for gathering descriptive information and data. For survey method there is several way of conducting the survey such as: 1. Structured surveys - the formal list of questions use and asked all the respondents in the same way, 2. Unstructured surveys - the researcher investigate the respondents and guide the interview according to respondent's answers (Kothari, C. R., 1985).

The survey research method also can be conducted either direct or indirect. The direct approach of survey is where the researcher asks direct questions about behavior and thought of the respondents. Meanwhile the indirect

approach, the requester will asks indirect question and the researcher then may be able to discover the main point.

Sampling

Sample is a segment of population selected to represent the population as a whole. The researcher must determine the sample design for survey method based on type of information is needed, who will be the focus group and which sample size reliable for the result (large sample or small samples). For sampling, the researcher may select sample members randomly from the entire population (probability sample) or the researcher may select people who are easier to obtain information from the population (nonprobability).

Reliability, validity and generalizability

Reliability is the extent to which data collection technique or techniques will yield consistent findings, similar observations would be made or conclusions reached by other researchers or there is transparency in how sense was made from the raw data (Saunders, M. 2012).

According to Mark Saunders, Philip Lewis and Andrian Thornhill (2012), generalizability is the extent to which the findings of a research study are applicable to other settings.

Summary

In summary, this chapter explains about the method used by the researcher in research study to obtain data and information. Researchers using quantitative method in this research study where the data and information are collected by the survey that distributed to the respondents and then the

data will be analyze to obtain result. This chapter also includes the research design and research strategy also. The validity, generalizability and reliability of this research study is being discussed.