

FINANCIAL EFFECTS OF OPEN INNOVATION IN THE MANUFACTURING COMPANIES IN MALACCA, MALAYSIA

Mohd Fazli Mohd Sam

Faculty of Technology Management and Technopreneurship, University of Technical Malaysia Melaka

Email: mohd.fazli@utem.edu.my

Nanthakumar Subramanian

Faculty of Technology Management and Technopreneurship, University of Technical Malaysia Melaka

Raihayu Mustafa

Faculty of Technology Management and Technopreneurship, University of Technical Malaysia Melaka

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ABSTRACT

Companies must use their resources effectively and productively if they are to compete in an increasingly competitive globalized economy. Effective performance measurement can support this competitiveness. To be able to do this, companies must know the factors that influence their performance and manage these factors in an effective manner. This study seeks to investigate the effect of open innovation strategies of manufacturing companies on their financial performance. A total of 2 manufacturing companies that are registered under the Companies Commission of Malaysia, were selected and their managers have been interviewed. It was found, that an increase in the quality and cost/flexibility will increased the financial performance. However, the rate of delivery did not have any influence on the financial performance. On the basis of the analysis and interviewed data done on the firm size, the last finding is that the effect of the quality and cost, flexibility on financial performance is higher for manufacturing companies. The paper identifies the open innovation strategies in manufacturing that significantly influence the financial performance of manufacturing companies.

Keywords: *Manufacturing industry, Open innovation, Strategic management, financial performance*

INTRODUCTION

In the business environment, most companies manufacturing in Malaysia began taking proactive steps to innovation as it is one of the strategies to meet the increasing financial performance and investments in companies. Hence, demand or customer requirements often become the focus in choosing products that contain more features cirri- highest innovation and quality is satisfactory.

Innovation plays an important role in growth company and master competition. Some examples of companies that manage innovation well are Apple and Google. Since it was founded from 1970, Apple continues to develop innovations continuously so produce products gadget I pad, I phone, IPod received in the market. Even after the death of founder Steve Jobs, Apple is expected to I-car launches. In addition,

Google has also appeared with the various service search engine and is equipped with a variety of other services that are unique in Internet.

Traditionally, firms have been responsible for their own products and services, employing internally developed technologies. This tradition has prevailed because it prevented a firm from weakening its competitiveness by transferring expertise to a competitor (Calantone and Stanko, 2007). Such closed innovation reached the limits of improvements as more firms accelerated their innovations by adopting new ideas and technologies from a variety of external sources (Tsai and Wang, 2008). Since Chesbrough (2003) coined the term “open innovation”, it has drawn a great deal of attentions from both researchers and practitioners.

Recently, firms across different industries have begun adopting knowledge from outside their boundaries (Gambardella et. al., 2007). Open innovation has blurred organizational boundaries and enabled firms to interact with one another, in order to exploit technology sources and commercialization channels (Cooper, 2008).

Open innovations enables firms to integrate external knowledge and expertise into their innovative process, improving their offerings while cutting costs and more effectively managing risk (Granstrand 2011). What is more, it can enhance absorptive capacity at the firm as well as macroeconomic levels, while accelerating technology development and diffusion.

The term Open Innovation was originally popularized by Henry Chesbrough, a professor from the Haas Business School - University of California at Berkeley, who is also the Executive Director of the Centre for Open Innovation at the same university. In his book "Open Innovation: the new imperative", Prof Chesbrough writes Open Innovation can be defined as the utilization of knowledge flows either into or out to accelerate internal innovation and develop markets for external use of innovation. In short: the use of a source of ideas and innovation both from within or from outside the company. Open innovation is a phenomenon that has had roles increasingly important both in theory and practice (Enkel et. al. 2009).

At the centre of the model open innovation and other innovations matching concept is how using the ideas and knowledge of external actors in the innovation process (Lauren and Salter, 2006). In other words, the purpose of open innovation, that companies need to open up the company to bring the current limit valuable knowledge from outside in order to create opportunities for join process innovation with partners, customers and / or suppliers (Enkel et. al. 2009). Instead the organization is too focused on the internal will harm because it will lose some opportunities because many economic opportunities come from outside the organization or activity that needs a lot of potential external technology combined premises in order to optimize potential Integration (Chesbrough, 2003).

LITERATURE REVIEW

OPEN INNOVATION

Open Innovation (Innovation Open) is that valuable ideas can come from inside or outside the company and can go to the market of the or outside the company as well. This approach puts the idea of an external and external path toward market-which is just as important as the idea internal ideas and the road to the market during the era Closed Innovation. The landscape of science in open innovation can be seen in Figure 1.

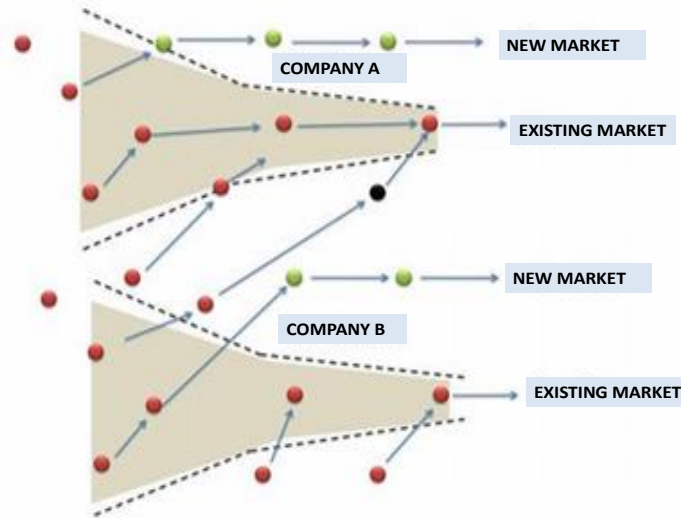


Figure 1: source-Henry W. Chesbrough, Open Innovation, 2003

In open innovation, the manager can organize transactions knowledge through three major decisions: knowledge acquisition (making or buy), knowledge integration (integration or linkages), and knowledge exploitation (retaining or selling). It is assumed that regional and sector innovation system is open, where development of reform ideas can come from the outside and the inside, even the boundaries of the company in the context of the innovation system has begun to flex because interaction claims between actors in the innovation system.

Further quoting the same book, Open Innovation is a new paradigm for the company can use the "sources of ideas from external parties" (community, society, government, educational institutions, independent laboratories, etc.) "Just as good and just as important" as "source of ideas from internal party" (R&D, marketing, production, etc.). Plus the company can empower the path of innovation to the market launch of products either through internal or external lines. Because it certainly Open Innovation should be able to incorporate innovative ideas in the unity of external and internal systems and enterprise architecture.

MOTIVES TO ADOPT OPEN INNOVATION PRACTICES

There isn't one single reason to why firms choose to open up their innovation practices. Motives are ranging from pure strategic to brute financial and the many advantages of cooperation have been confirmed by many scholars. Koschatzky and Sternberg (2000) even found that firms which do not exchange knowledge and collaborate, risk reducing their knowledge base on a long term basis. In line with that, recent research show that companies often experience a perceived inability to meet corporate growth objectives, absent acquisition of external technologies (Chesbrough and Crowther 2006; Huston and Sakkab 2006).

The identified motives to open up the innovation practices are summarized as for strategic motives it will reducing time to market, monitoring potentially "disruptive technologies", (Enkel, Gassman & Chesbrough 2009), access improved product features and improved the internal innovativeness by leverage external resources (Chesbrough & Crowther, 2006). For financial motives it will help to access to new geographical markets, improve product margins and reduce risk in technology development, (Liechtenhaler and Ernst 2006).

Next, the technological motives it fill the development pipeline and accessing new ideas (Nambisan & Sawheny, 2007), allow a variety in product development (Ceasaroni, 2004), access new or supplementary product or process technologies, (Enkel & Gassman 2004). Last but not least the operational motives for earlier identification of technical problems, fewer engineering change orders and the possibility to access prototype, (Ragatz et al 2002).

THE FINANCIAL PERFORMANCE OF THE FIRM

Maximizing shareholder value is the main goal of a firm (Keown et. al.2005). This goal can be achieved with effective strategies to improve the performance of the firm and ongoing monitoring of the performance of the current firm. Firm performance can be measured by firm market performance of the firm in terms of the firm's share price on the stock exchange. In generally, if a firm has a high value market share, the firm considered is financially stable.

However, if the share price is valued firm higher than the actual value of the firm which is 'overvalued', this will result in existing shareholders acting to sell their shares for a profit. Should this information known, the firm will fall because investors are no longer interested in investing in the firm concerned.

Internal funds are the firm's internal financing sources comprising capital / savings alone or retained earnings. While external funding was available through the issuance of equity, preference stocks, warrants and loan / debt. Internal funds and external funds is a perfect substitute to finance the firm if the firm is in perfect capital markets. In this case, Modigliani and Miller (1958) have highlighted. One theory about perfect capital markets which firms can borrow and pay loan at the risk-free rate.

However, the reality of economic agents did not obtain the same information in capital markets, and the manager may be using inside information obtained to their own interests. Agency costs and transaction costs are also among the factors leading source of outside financing to be costly for the firm. The cost of agency is the effects of information asymmetry in the capital market.

This creates conflict interest between managers and outside investors, which result from the information asymmetry outside investors, tend to require a premium to buy new shares (Myers and Majluf, 1984) or purchase shares at a discount (Schiantarelli 1996; Jensen and Meckling 1976). While the cost restrictions reflect transactions in a market where the market with regulatory more stringent will involve higher transaction costs (Ismail et. al. 2010a). This problem will led the firm had to rely on the firm's internal funds to cover activities- activities of the investment firm. Therefore, the problem of financial constraints can apply within firm.

ISSUES

To improve a firm's financial performance, a major strategic decision is whether to pursue open innovation when acquiring new relevant knowledge (Chesbrough, 2006). For sustainable growth, firms must find the necessary technologies to exploit inside or outside of organizational boundaries (Vanhaverbeke et. al., 2002) and decide whether to produce them or buy from external sources. Firms must also decide whether to commercialize their own technologies based on their competitive positions in the market.

Sometimes, it is necessary to reveal knowledge for future benefits or non-pecuniary advantages. These decisions may seriously affect the long- term financial performances of the firm. In 2004, IBM earned

more than \$1.2 billion by licensing its technologies (Chesbrough, 2006). Texas Instruments has earned hundreds of millions of dollars by licensing its technologies (Rivette and Kline, 2000). Such enormous benefits of open innovation have increasingly become a part of corporate strategy (Fosfuri, 2006).

Despite the critical effects of open innovation on financial performance, there are few empirical studies regarding this topic, especially when employing large-scale samples (Lichtenthaler, 2008). Although a number of studies have investigated open innovation topics, most concerned theoretical debates based on case studies or focused on very specific issues.

This lack of empirical research on the general performance effects of open innovation makes it difficult to compare the actual advantages and disadvantages of open innovation. As a result, a number of firms are still reluctant to share technologies, worrying about strengthening their competitors. As for the firm financial report, limitation of the financial information full disclosure of information could endanger their competitive position (Sam and Hoshino, 2013).

Accordingly, this study examines the critical research question which has not previously studied. What are the long-term financial effects of open innovation? Considering that technology transfers are mainly observed among manufacturing firms, this study focuses on the financial effects of open innovation in the manufacturing industry.

In this study, exercise included the feature - which refers to the open innovation input and innovation in improving the company's financial performance. Financial performance also involves the role of administrator roles as managers and leaders in the company to implement it. Therefore, in this study the researchers chose the theory of open innovation strategy, theory and financial theory. In this study, the theory also discussed the budgetary system and financial management theory. Figure 2 shows the theoretical framework for this research.

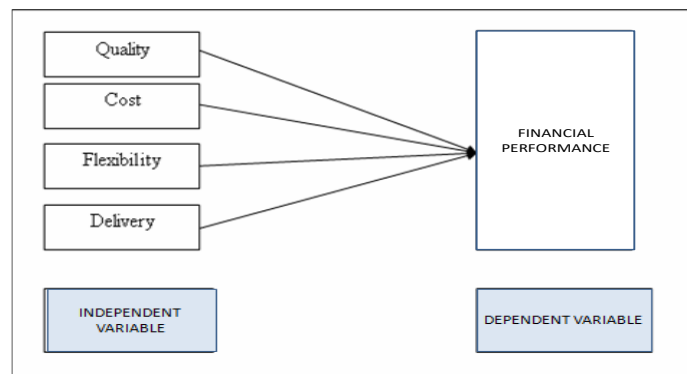


Figure 2 shows the theoretical framework

RESEARCH METHODOLOGY

Scope of The Study

Purpose of this study is to examine to what extent the effects of the financial performance due to the use of open innovation strategy in manufacturing industry. In this study, researchers studied the use of open innovation positive impact or negative impact on the financial performance. Apart from that this study will help the company to improve its performance with the strategy of open innovation. It also provides a wide

scope to enhance the financial performance of companies with lower production costs and increase production. From this study, we study that the important of open innovation to manufacturing company, and we can learn how to improve financial performance by using open innovation strategic.

Sampling

The population for this study was 2 manufacturing companies in the state of Malacca. The five department of each company selected for interview. Five departments that will be selected were from the production division, the division of research, marketing, management and finance. 20 people are needed for interview will be divided into 5 departments so 4 people in each division will be helping answer the interviews.

According to Fraenkel and Wallen (1993), the whole population is a target population where the population has the characteristics of respondents desired in the study. They said that an entire election on this subject should be dealt with in number, can be obtained or population accessible and can be generalized and not limited to a sample and secure.

The sample is taken from the number of factories - factories in the state of Malacca which have different backgrounds and regulated by the Division / Department in different organizations. According to (Creswell, 2005), the most suitable technique is by proportional stratified random sampling method (stratification sampling proportional approach). Mohd Majid (1998) declared it a stratified random sampling which is suitable for the population is not uniform. Whereas, Fraenkel and Wallen (1993), categorized as stratified random sampling group. The proportional stratified random sampling technique is suitable as the numbers of samples vary according to the Department of Interior and which is the organization that regulates the factories.

According to Creswell (2005), proportional stratified random sampling technique is techniques used for the population that shows no imbalance the characteristics of a sample. In this case, a simple random sampling would result in lack of samples for a specific category. This opinion is supported by Now (1992), stating stratified random sampling design is likely most efficiently and with the same number of samples at most will give with more detailed information. According to him, the election of the same sample many are most appropriate if there are strata of the population is too small and too great.

In addition, Fraenkel and Wallen (1993), Roscoe (1975) and Now (1992), the minimum size for attest inference is 30. However, Fraenkel and Wallen (1993), and Pallant (2007) stated minimum sample for a group to a multi-variety analysis adequate 20 people and Chua (2009) stated adequate for a group of 15 people. According to them, what is more important is the statistical test showed normal findings were scattered.

According to Fraenkel and Wallen (1993) used a larger sample is better to represent a population. Whereas, Gay (1992) felt that if the number of its small population, the sample shall be great and approaching the population to allow a selected sample more homogeneous, more representative and generalizations can be made. Selection of the number of samples is also supported by Roscoe (1975) which states that samples from 30 to 500 people is appropriate in a study. The opinion Chua (2009), Fraenkel and Wallen (1993), Krejcie and Morgan (1970), Mohd. Majid (1998), Pallant(2007), Roscoe (1975), Sudman (1976), adopted by the researchers to determine the design and size of the sample.

Measures

INTERVIEW

Interviews can be a way of collecting data which is the most efficient which involves social interaction to get enough data from the subject (Ghazali, 2009). In this study, researchers have sought permission from the subject of the prior in order to be interviewed. The interview was held on site to facilitate researchers reviewed documents and observations at once. The way the interview was conducted in several phases to maintain the validity and reliability, each phase takes 30 to 45 minutes to avoid the subject of boredom.

The first question that been asked in this interview was the respondent opinion regarding open innovation strategy. The second question was their opinion; does the use of open innovation strategies may influence quality? If so, does it affect financial performance? Last but not least about their opinion about open innovation strategy with cost and flexibility? How does flexibility can influence financial performance?

OBSERVATIONS

In this study, the technique of observation is particularly important when investigating the process of maintenance records of a company's financial performance by the employee. The technique of observation is important because researchers can investigate in the process of implementing deeper and give more realistic. Researchers can determine the process directly through observation. Based on these observations, researchers can easily understand and analyze any activities that occur. The study focuses on the techniques of observation are in the third stage after the interview conducted on the subject. Observations were also made in all aspects of gestures, body and facial communication during the interview.

DOCUMENT REVIEW

In addition, the researchers also reviewed the document and make the document scanning can be identified questionnaires and strengthen the validity and reliability of information studies. The activities of the administrator in control of open innovation include planning, giving orders to the others on the tasks that must be done, lose power if necessary, to monitor, check and document, approve spending, holding discussions and meetings. Whereas, manager of the department's specific, motivating and preparing documents and reference materials into evidence as a result of open innovation strategic giving on its financial performance.

FINDINGS

Researchers decide using qualitative methods. The researchers used the method to send a response to interviews with 10 manufacturing plants that has declared strategy of open innovation but only three factories that give the permission to conduct interviews. Among the companies that provide the opportunities are (i) Honda Malaysia S/B, (ii). Infineon semiconductor and (iii) MFS Technology.

Form the company Honda Malaysia S/B, the Vice President on Financial and Information Technology Department En. Juhairi Abdul Jamal, remark (R1) who respond all my interview questions. Ricky Tan from Infineon Semiconductor who works as engineer in Research and Development (R&D)

became my second responder (R2) and finally, Mr. Neo from MFS Technology who works as Engineer in Innovation development department be my third responder (R3).

RQ1: Proves there is a definition, but in our definition depends on the project that we are going apply. But in generally, open innovation is the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively.

RQ2: Based on the shared views from respondent who participated in the study, this research identified that the three respondents agreed that quality has a significant effect on the financial performance. From their statement they support when the quality increases, the financial performance also increases". So they agreed with statement quality increase indirectly the financial performance also increases.

RQ3: The study revealed that statement from the respondents agreed that cost has a significant effect on the financial performance. From their statement that support to answer third hypothesis that "When cost decreases, financial performance increases". So it's agreed with statement cost decrease and financial performance increases. Those respondents agreed flexibility is significant with financial performance.

RQ4: Based on the shared views from respondent who participated in the study, this research identified that the three respondents disagreed that delivery has a significant effect on the financial performance. They support their statement they believe there no relation between delivery and open innovation strategic. So it is not significant with financial performance.

CONCLUSION

The effect of the open innovation strategies on the financial performance was investigated. This part generated important results relating the effect of quality and "cost and flexibility" on financial performance. According to the findings, both quality and "cost and flexibility" increase financial performance in statement RQ3 and quality increases the financial performance in statement RQ2, while the rate of delivery does not affect the financial performance of the companies.

In this study, it is shown that quality, "cost and flexibility" and rate of delivery factors increase the financial performance, however, quality and "cost and flexibility" resulted in more significant results. These findings have important practical implication as it is important for managers to understand which factors influence financial performance so that they know which strategies to pursue and which actions to take to maximize financial performance.

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