



A CONCEPTUAL PAPER ON THE RELATIONSHIP BETWEEN COLLABORATION NETWORKS, ABSORPTIVE CAPACITY AND INNOVATION PERFORMANCE OF SERVICES INDUSTRY SMEs IN MALAYSIA

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Article Information

Keywords

Open Innovation, Small-Medium-Enterprises, collaboration networks, absorptive capacity, innovation performance.

Abstract

This is a conceptual paper of a future study based on the review of literatures related to collaboration networks, absorptive capacity and innovation performance. Innovations are becoming more complicated for SMEs as they are facing rapid growth of technology and competitive market. SMEs find it difficult to carry out innovation because they may lack both technical and managerial skills. However, they can achieve greater benefits if they are more active and open towards innovation. The objective of this study is to examine for an imminent research whether absorptive capacity mediates the relationship between the collaboration networks of SMEs among services industry in Malaysia and innovation performance. The paper went on to analyse the issues, concepts and objectives for the forthcoming study through several literatures of various disciplines. The conceptual paper signifies to supplement literatures for academics as reference for their research. The result of this future research may provide information to SMEs on how to leverage absorptive capacity in order to enhance firm's innovation activities. It will also be relevant to policy-makers who design support mechanisms and schemes to promote the creation and growth of small firms.

INTRODUCTION

Since turning into the twenty-first century, small companies are faced with tough market situations. Nevertheless, the struggling condition in the competitive global market, does not cease the important role of small and medium enterprises (SMEs) as the "backbone" of many countries (Wymenga, Spanikowa, Baker, Konings, & Canton, 2012). The drastic change caused by either external or internal environment may weaken the financial condition of SMEs. The world which is facing a constant change, often force small firms to adjust or reinvent their business through using new technologies or enveloping unique value propositions. They are also facing constraints in differentiating their products, changing their business model, internal financial resources, and technical capabilities (Vanhaverbeke, Vermeersch, & De Zutter, 2012). The on-going global change makes the business environment more dynamic, complex and unpredictable and this highlights the essential of innovation in all SMEs (O'Regan, Ghobadian & Sims, 2005).

Innovations are now becoming more complicated for SMEs (Diez, 2000). SMEs find it difficult to carry out innovation because they may be lacking of innovation resources, unsound innovation, lack technical expertise, problem in adapting new technology, poor skills in managing innovation, etc. However, open innovation is a promising resource for SMEs to resolve those difficulties and increase their profitability (Gassman, Enkel, & Chesbrough, 2010).

Open innovation (OI) is introduced by Chesbrough, (2003) who defines it as “the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and to expand the markets for external use of innovation, respectively” OI leads to an increasing interaction with other players in the business landscape for SMEs to complement uncertainty arising from development and use of technologies. It is essential for SMEs to be allied with different companies, suppliers, research facilities and customers in an impenetrable innovation network that allows them to share knowledge and profit from complementary competencies (Bulinger, Auernhammer, & Gomeringer, 2004). Networking is unwaveringly a good practice of relationship for SMEs (Vrgovic, Vidicki, Glassman & Walton, 2012), very frequently it is recognised as a possible way to innovate (Narula, 2004). (Van de Vrande, De Jong, Vanhaverbeke, & De Rochemont, 2009, p434) quote, ‘External networking to acquire new or missing knowledge is an important open innovation activity among SMEs’.

Open innovation has turned into one of the hottest issues in the management of innovation after Chesbrough’s publication about a decade ago (Chesbrough, 2003a, 2003b, 2003c). However, OI is not a new concept as most of the activities have been used by many companies over several decades (Huizing, 2013). The foundation of OI is the opening up of the innovation process. Chesbrough and Bogers (2014) extended earlier definition by Chesbrough 2003a as “a distributed innovation process based on purposively managed knowledge flows across organisational boundaries, using pecuniary and non-pecuniary mechanisms in line with the organisation’s business model”.

OECD, 2008 reported only 5-20% of SMEs that are actively involved in open innovation activities. Open innovation brought benefits to business firms such as quick to market, up keeping internal research and development (R&D) capability, increased growth and revenue, reduced cost, increased in the differentiation of products and process, mobility of knowledge workers, widespread of knowledge accessibility and many more.

The interest on innovation has brought about many researchers to study about the network issue and few studies have recorded to have concentrated on developing countries perspective (Zeng, Xie & Tam, 2010). Despite extensive research in the area of SMEs innovation and noticeable differences of characteristics between small and large enterprises, only a few studies focus on OI (Lee, Park, Yoon & Park (2010); (Zang & Chen, 2014; Colombo, Laursen, Magnusson, Rossi-Lamatra, 2012). Chesbrough,(2003a and 2006) stated that several empirical studies in numerous countries confirm that most OI adopter are larger firms (Bianci, Cavalier, Chiaroni, Frattini & Chesia 2010), in which subsequently leads to the indisputable importance of OI towards SMEs. Some research are said to concentrate on one type of OI activities that is the ‘in-bound innovation’ (Bianci et al., 2010).

As a developing country, there is no exception for SMEs in Malaysia (SME Developments Outlook, 2009/2010) to face this hardening global competition. The SME Annual Report 2012/2013 illustrated by the Economic Census 2011 states, SMEs in Malaysia constitute 97.3% of total business formations in the country (645,000) and contribute about 31 percent of Gross Domestic Product (GDP). The national policy in its Tenth Malaysia Plan highlighted to release the potential of SMEs and to transform these business entities to become more competitive and robust in facing the changing environment. Tomlinson (2010) pronounced that in OI, the strength of collaboration ties of firms is crucial to ensure their success. Strong collaboration with other firms can form part of a business’s competitive advantage. However, many firms avoid the thought of sharing ideas and technology with other organisations. SMEs can take advantage of OI because of their size, flexibility and less bureaucracy process comparing larger size companies in taking advantage of external knowledge (Ortega-Argiles, 2009). External knowledge has been distinguished as critical factors for innovation performance and frequently seen as a vital component to optimise in-house innovation (Chesbrough, 2003). Cassiman and Veugelers, (2006) are concerned over SMEs that take external knowledge flow for granted.

It is critical for business firms to be able to identify and evaluate the potential value of the external knowledge. The capabilities of doing this is recognised as ‘absorptive capacity’ (AC). AC is a concept introduced by Cohen and Levinthal, (1990) and is defined as a firm’s ability to find, acquire, assimilate and exploit knowledge from the external sources. Small firms as compared to large ones may find difficulties in keeping pace to grow by acquiring and using new knowledge. Some may not be aware of the need to change while some to manage change. The latter can happen when they are lacking of capability in finding, acquiring, assimilating and

exploiting new knowledge. It is learned that AC and OI are two concepts that are increasingly accepted in the area of innovation management.

In this conceptual paper, the study is to explore the relationship between the collaboration networks of SMEs in Malaysia among services industry and absorptive capacity and the effect towards innovation performance.

PROBLEM ISSUES AND STATEMENT

There has been an increasing respond in scientific research on open innovation, however, the focus of research so far has been in large, high-tech multinational enterprises depicting on in-depth and case studies (Chesbrough, 2003). Vrgovic, Vidicki, Glassman and Walton (2012) on the other hand, add that there is lacking of exploration on the conceptual and potential applications of open innovation of SMEs in developing countries. In addition, SMEs are discriminated from large companies in that they are lacking of formal process to develop new products and services (Nieto & Santamaria, 2010). According to Vrgovic et al. (2012), this is partly due to having scarce resources (Van de Vrande, De Jong, Vanhaverbeke, & De Rochemont, 2009) e.g. people and capital to commit to such a process and subsequently generates an unpleasant loop that hinders most small business from growing considerably. Moreover, despite SMEs establishing their technology in-house R&D, it is very unlikely that they spend as much as large firms do in total, or even as a percentage of overall revenue (Narula, 2004).

Hence, the above discussion entails that SMEs are often lacking of resources to develop and commercialize. This hinders them to perform better and effect their economic growth.

PURPOSE OF RESEARCH AND RESEARCH QUESTIONS

The conceptual paper is intended to identify the links among collaboration networks, absorptive capacity and innovation performance of services industries SMEs in Malaysia. As such, research questions that will be addressed are:

- i. Is there a relationship between collaboration networks and innovation performance of services industry SMEs?
- ii. Is there a relationship between absorptive capacity and innovation performance of services industry SMEs?
- iii. Is there a relationship between collaboration networks and absorptive capacity of services industry SMEs?
- iii. Does absorptive capacity mediate the relationship between the different collaboration networks and innovation performance of services industry SMEs in Malaysia?

SIGNIFICANCE OF THE RESEARCH

The conceptual paper is significant as it will provide important implications to groups of potential users of SME performance evaluation models such as owners or founders of SMEs who want to monitor the performance of their firms. The study attempts to look into the impact of collaboration networks towards the knowledge-processing capabilities on the firm's innovation performance. The study will also look into the mediating effect of absorptive capacity between collaboration networks and the innovation performance. The result of these linkages may provide information benefits to SMEs on how to leverage absorptive capacity in order to enhance firm's innovation activities. This study is also relevant to policy-makers who design support mechanisms and schemes to promote the creation and growth of small firms. Last but not least, this conceptual paper can add to contribute as a literature for scholars to make reference.

DELIMITATIONS AND LIMITATIONS

This conceptual paper is delimited by insufficient readings of literatures from multi-discipline in order to get a broader scope of theoretical understanding. This conceptual paper too has its investigative limitations. For example, this paper is merely a review from other journals and the data is yet to be collected. Another limitation is that the literature related to topics is not fully explored due to time constraints.

THEORETICAL OVERVIEW

Open innovation Theory

(Gassmann, 2006) describe about an American economist, Robert Merton Solow who gave his view on the link between innovation and economic growth and just then researchers and business firms started to associate strong internal R&D capability with innovativeness. Chesbrough, (2003a), identified this as 'closed innovation'. The principle worked well for some industries for a very long time. Their investment through internal R&D was able to create new innovation discoveries and led to increase in sales and margins (Chesbrough, 2003a). But in the twentieth century the close innovation principle deteriorates (Chesbrough 2003a, Chesbrough 2007, & Gassmann, 2006). Wang, Jaring and Wallin, (2009) point out that it was due to the increase in the costs of

technology development which raised firms' internal costs of developing new innovations, new products' life cycle shortened thus making it more difficult to earn profits before they become commercialized. Due to the erosion, open innovation emerged. Open innovation practices allow firms to mix internal (inbound) and external (outbound) ideas, technology and R&D, and use both internal and external paths to market their products, as they attempt to commercialise and advance their technologies (Chesbrough, 2003).

Vanhaverbeke et al. (2008) identify four broad advantages associated with open innovation practices, namely:

1. benefit from early involvement in new technologies and/or business opportunities;
2. access to other organisations' technological capabilities and R&D, through the combination of internal and external channels to market;
3. accessing venture capital funds; and
4. provides educational investments and joint venturing in potential projects at universities or research laboratories.

Although open innovation is widely researched, there is no integrated definition of open innovation practices. Enkel, Gassmann & Chesbrough, 2009 identified three "core processes" in open innovation:

1. outside-in process - it is based on the assumption that the firms add their own knowledge based through inter-firm connections with suppliers, customers and/or collaboration with other external institutions (e.g. universities)
2. inside-out process - describes as the creation and generation of profits by transferring innovative ideas to market through licencing out intellectual property (IP) or selling.
3. coupled process - refers to the combination of both outside-in process and inside out process. Also known as partnership or co-creation with complementary partners through supply chain clusters, alliances, co-operation, and joint ventures.

Inter-Organisational Theory

The 'network' is not a new approach. It goes way back in the 1930s of organizational studies. Nonetheless, researchers owe as much to the founding disciplines and conceptual origins, like sociology, anthropology and role theory (Jack, 2010). Barringer and Harrison (2000) identify the different types of inter-organisational used by firms: joint ventures, networks, consortia, alliances, trade associations, and interlocking directorates. Interchangeably the word network has also been used to signify partnerships, inter-organizational relationships, strategic alliances, cooperative arrangements coalitions, collaborative agreements (Provan & Fish, 2007) or any other kind of inter-organizational relations (Oliver & Eber, 1998). However, the inter-organizational network relationships are often studied without a clear description of the construct. The most accepted definition in the social network analysis literature (Bergenholtz & Waldstrom, 2011) define network as a set of nodes connected by a set of social relationships of a specified type (Laumann, Galaskiewicz, & Marsden, 1978).

Palmatier, Dant and Greval, (2007) describe from their study on four theoretical perspectives currently attempt to understand the drivers of successful inter-organisational relationship performance which include 1) commitment-trust, 2) dependence 3) transaction cost economics and 4) relational norms. In contrast, (Kehler, 2004) determines that inter-organisational relationships have the potential to increase business firms' values in two ways: 1) they provide the possibility for firms' innovation and enhancement, and 2) they offers employees the chance to exchange knowledge of current professional practices with others in related fields, which may enable employees to perform better their various tasks.

Investigation based on an assimilation of inter-organisation literature from 1960 found six crucial possibilities of relationship formation dimensions, they include 1) necessity, 2) asymmetry, 3) reciprocity, 4) stability 5) efficiency and 6) legitimacy (Oliver, 1990).

Absorptive Capacity

The AC concept has been known as one of the most significant concepts that appeared in the field of organizational research. (Lane et al., 2002). The concept was first introduced in macroeconomics as the ability of an economy to use and absorb external knowledge and resources (Adler, 1965) in Tua et al., (2006). Cohen and Levinthal (1989:569) adjusted this macroeconomic concept to organizations and define it as "the ability to identify, assimilate, and exploit knowledge from the environment – what we call a firm's 'learning' or 'absorptive capacity'. In 1990, the definition was elevated to 'the ability of a firm to identify the value of new, external information, assimilate it, and apply it to commercial ends' and they saw it as 'largely a function of the firm's level of prior related knowledge.

Cohen and Levinthal, (1990), proposed that different organizational mechanism effect the level of AC. Examples are the knowledge transfer across and within departments, the communication background between the firm and the external environment, a wide-range internal and external network relationships, and cross-function interfaces Indarti, 2010 studied that the AC concept has been used in many various research fields by different scholars which include innovation management, strategic management, organizational learning, knowledge management organizational learning , and external interactions.

Zahra and George, (2002) reconceptualise AC into four dimensions; acquisition, assimilation, transformation and exploitation (Figure 1). They reviewed and extended AC with several different process and build AC into components of potential AC and realized AC.

- a. Potential absorptive capacity (PAC): PAC describes a firm’s capability to acquire and assimilate.
- b. Realized absorptive capacity (RAC): RAC is a function of transformation and exploitation capabilities.

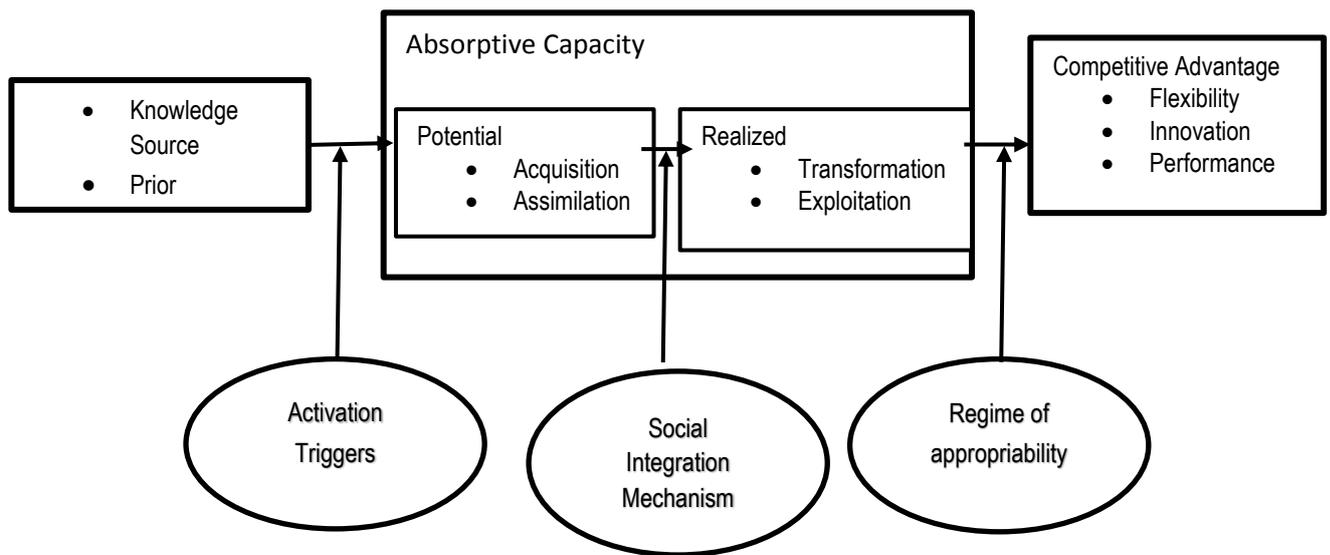


Figure 1: A model absorptive capacity based on Zahra and George (2002)

There is no common measurement of the AC concept. Some researchers used variables such as level of R&D investment (Leahy and Neary, 2007), existence of R&D (Veugelers, 1997), R&D expenditure (Stock, Greis, & Fischer, 2001). In some cases, experience and individual’s skills have been used as representations of AC as Cohen and Levintahl, (1990) argued that experience and prior knowledge are path dependents that facilitate the use of new knowledge.

DISCUSSION OF THE LITERATURE REVIEW

SMEs in Malaysia

An excerpt from the “World Economic Situation and Prospects in 2013”, of The United Nation’s Report records a moderated global economic growth in 2012 a trend that showed a downfall from 2.7% in 2011 to 2.2% in 2012. Accordingly, this was due to the economic recession that affects almost all regions. The Euro area was expected to experience a slow global economic growth in 2013, and a slower growth was predicted in some emerging markets. Amidst the uneven global recovery, the downside risks to the growth prospects remain.

The percentage of total business formation in Malaysia showed a decline as though conforming the economic inherent. In the year 2010, SMEs in Malaysia accounts for 99% of total business establishments and contribute to 31% of nations Gross Domestic Products (GDP). However, the following year the contribution reduced by 1.72%. The Economic Census 2011 showed that SMEs in Malaysia constitute 97.3% of total business establishments approximately about 645,000 companies and contributing 29.4% to GDP (SME Developments Outlook, 2012/2013). Accordingly, the dispersal of SMEs by sectors comprise 90 % on services, 0.1% on mining and quarrying, 3% on construction, 1% on agriculture and 5.9% on manufacturing.

The Economic Census 2011 reports the composition of the total business formation in Malaysia includes micro-size business (75%), small size business (19%), medium size business (3%) and the remaining, (3%) is large companies. The following is the definition of SMEs in Malaysia.

TABLE 1
DEFINITION OF SMALL AND MEDIUM ENTERPRISES (SMES) IN MALAYSIA

CATEGORY	MICRO	SMALL	MEDIUM
Manufacturing	Sales turnover not exceeding RM300,000 OR full-time employees not exceeding 5	Sales turnover from RM300,000 to less than RM15 million OR full-time employees from 5 to less than 75	Sales turnover from RM15 million to not exceeding RM50 million OR full-time employees from 75 to not exceeding 200
Services and Other Sectors		Sales turnover from RM300,000 to less than RM3 million OR full-time employees from 5 to less than 30	Sales turnover from RM3million to not exceeding RM20million OR full-time employees from 30 to not exceeding 75

The World Bank Productivity and the Investment Climate Surveys addressed that the performance of Malaysian SMEs is influenced by the following six factors: Innovation and Technology Adoption, Human Capital Development, Access to Financing, Market Access, Legal & Regulatory and Infrastructure. Currently, small and medium firms in Malaysia are not achieving high performance due to the challenges of these factors (SME Masterplan 2012-2020). Since this research is exploring on the area of innovation and knowledge based of SMEs in Malaysia, only the prominent challenges of the factors are highlighted. The two of the main interest are as below: -

a) Innovation and Technology Adoption: The level of innovation of firms in Malaysia is found to be at par or higher than of middle income economy but is far below the high-income countries. Despite the initiatives which have been put by the government towards a national innovation system, SMEs are still facing limited diffusion of technological innovations. They are solely to be blamed for this as they lacked participation. Moreover, SMEs frequently lack of time, manpower and funding to establish in house R&D. SMEs also perceive technology advancement as a cost rather than an investment.

b) Human Capital Development: Malaysia is presently, experiencing inadequate educated and skilled workforce. As indicated by the World Bank Enterprise Surveys, the inadequacy of educated labour force is causing the obstacle to firms' operations and growth. In addition, the problem in Malaysia is protruding when compared to other middle income or high income nation. Possibilities of the insufficiency of educated and skilled labour supply could have derived from the lacking of job readiness, lack of industry viewpoint in the education curriculum, limited ability of SMEs to provide attractive compensation packages to workers.

Gassman, Enkel & Chesbrough (2010) highlight that there have been many research focus on product and partially on process innovation, while a huge potential of innovating the largest sector, that is the service sector in developed countries has been neglected. According to Gassman et.al (2010) the service sector is still underdeveloped in terms of the innovation processes. Thomke (2003), in his study found that there have not been many service innovations. The SMEs service sector if open up to the innovation process provides new opportunities to them.

Innovation Performance

Innovation performance means reviewing the output of a process by using some possible measures and indicators (Tidd & Bessant, 2013). For example:

- i. the number and range of patents and scientific papers for knowledge produced
- ii. number of new products introduced from product innovation success
- iii. percentage of sales and/or profits derived from product innovation success
- iv. operational or process elements such as customers' satisfaction to measure improvements on quality or flexibility
- v. growth in revenue or market share
- vi. improved profitability
- vii. Higher value added, etc.

Today, open innovation theory introduced by Chesbrough, (2003) has become a prominent topic of research among researchers who are in the field of innovation management. Open innovation practices have extensively reached large companies as well as SMEs. However, the open innovation research had given greater emphasis on large enterprises rather than SMEs (Zhang & Chen, 2014). Despite their witty flexible, high efficiency, “small and specialised” and “small and live”, SMEs have strong sense of innovation and adaptability to market changes. Their active participation in innovation process and ability to improve constantly, allow patent and new products increased considerably. However, at the same time SMEs are facing difficulties to carry out innovation sustainably because they are unsound innovation, poor management achievement and faced technological achievements conversion problems (Zhang & Chen, 2009), in which these challenges influence their performance.

Zhang and Chen, (2014) elaborate on the nature of innovation that can influence a firm’s performance which was described in Oslo Manual’s shown in Figure 2. The evaluation on innovation performance changes along with innovation implication. The first edition of Oslo Manual (1993): Innovation survey for the first edition includes the product and process innovation. Its performance is limited to the industrial innovation of corporate sector from the range of the range of innovation survey; and technological innovation viewed from the object of innovation survey. The second edition of Oslo Manual (1997): Innovation survey includes the first edition and organisational innovations. This paper argues that the innovation is fundamentally based on technical innovation but service innovation is additional. The third edition of Oslo Manual (2005): includes the second edition and market innovation. The paper argues that the third edition separates service innovation from technology innovation, but forming equal importance for both.

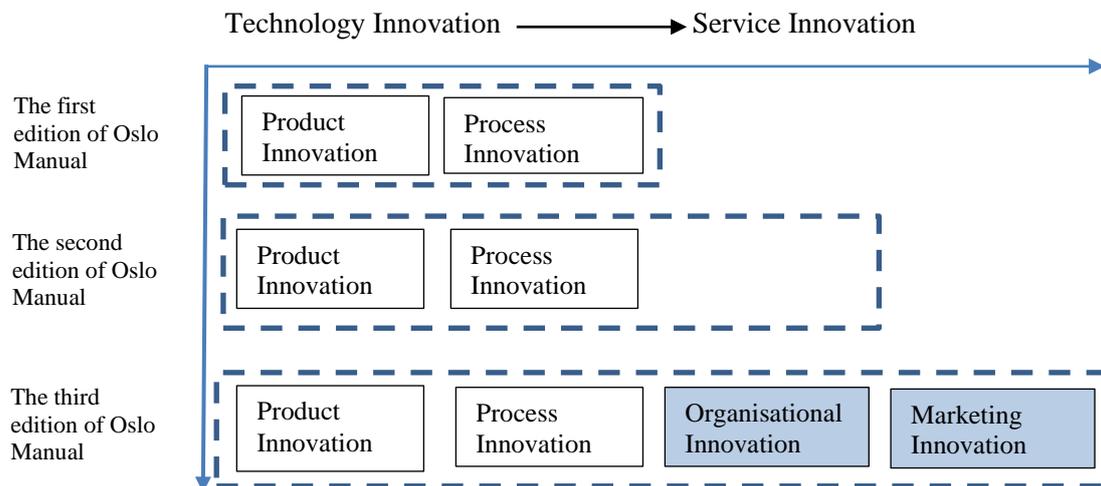


Fig 2. Oslo Manual’s innovation connotation evolution

Oslo’s innovation manual enable scholars to study the innovation performance of firms from the perspective of technology or services. Thus, deliberately the right form of innovation performance measurement must be determined.

Collaboration Networks and Innovation Performance

In this modern era, technology is becoming so complicated that even large firms find it hard to develop a new product alone. According to Hagedoorn and Duyster, 2002, there is a sturdy trend towards R&D partnerships and networks. There is a great interest in research of today that focuses on how inter-organizational relationships can enhance value creation (Enkel, 2010).

A study by Nieto and Santamaria, (2007) discussed that technological collaboration, its continuity and the diversity of alliances impact positively on product innovation. Several other studies done earlier showed that collaboration is a good method of improving firms’ innovation capabilities (Miotti & Sachwald, 2003; Becker & Dietz, 2004; Faem, Looy & Debackere, 2005). Forfas, 2005 expresses that in order for business firms to be successful in accessing new knowledge through collaborations with firms and institutions, firms must achieve the capability to search, find, access and interpret for their own use information embodied in external organisations.

Najafian and Colabi, (2014) examined that most studies have not considered roles of social and informal activities within networks in line with other formal activities that lead to innovation. Such research in relation to collaboration network and innovation performance is found still scarce in the context of an emerging country like Malaysia.

Proposition 1: There is a positive influence of collaboration networks on innovation performance of SMEs of services industry.

Absorptive Capacity (AC) and Innovation Performance

Absorptive capacity creates one of the essential learning processes in a firm and can be a source of competitive advantage, as it represents its ability to identify, adapt and incorporate external knowledge within its routines (Cohen & Levinthal, 1990; Lane et al, 2006). The authors also view AC as a dynamic capability formed by a set of organizational routines and processes by which firms acquire, assimilate, transform and exploit knowledge, and (Zahra & George, 2002) distinguish between potential absorptive capacity (PAC) and realized absorptive capacity (RAC). PAC represents the knowledge-seeking capacities a firm has developed, however may or may not be used to produce innovations, on the contrary RAC represents its ability to develop products and services based on this stock of knowledge.

Small firms in developing countries frequently do not have in-house technical or maintenance support to accelerate incremental process and product innovation. To resolve abrupt issue, small businesses will typically seek assistance from the subject matter experts. On the contrary, large firms sustainably increase their innovative capacity by opening joint research initiatives with external universities. (Lauren & Salter, 2004). Moreover, further study on the influence of AC to innovation performance as cited by Colombo, Rabbiosi and Reichstein, (2011) that there has been little effort made to assimilate organizational design and distributed innovation literature in the attempt to give a more comprehensive understanding of firms' innovative performance.

Moilanen, Ostbye, and Woll, (2014), in their study had used the following proxies for AC; R&D activities, the share of employees with the university degrees, learning activities comprising a) learning by doing b) in-company training and c) upgrading courses, and finally knowledge management. They estimated that the higher the level of AC, the higher the level of innovation performance. Thus, the result of the study was AC is positively related to innovation performance. A similar result was found by Kostopoulos, Papalexandris, Papachroni, and Loanou, (2011); Flatten, Greve and Brettel, (2011); Lichtenthaler, (2009).

In a similar situation, this study intends to examine whether AC influence the firm's innovation performance of small and medium sized enterprises (SMEs) in Malaysia and also to find out if AC mediates collaboration networks towards innovation performance. The following section describes how collaboration networks influences SMEs' absorptive capacity of innovation activity.

Proposition 2: The absorptive capacity of SMEs of services industry relates positively to innovation performance.

Collaboration Networks and Absorptive Capacity

In the case of SMEs, the capabilities to access and absorb knowledge from external resources are largely influenced by the quality of their AC. However, the empirical evidence of AC at the firm level is concentrated on larger firms and on R&D intensive sectors (Cockburn & Henderson, 1998; Lane & Lubatkin, 1998; Narula, 2001). Very little evidence has been provided about how this important determinant of knowledge acquisition is able to activate SME capabilities to establish and maintain stable relationships with other firms and institutions. Similarly, little evidence has been provided about AC with respect to low-tech manufacturing industries. The reasons for this are again to be found in the excessive focus of the relevant literature on the analysis of R&D related issues. When R&D activity becomes less apparent (such as in the case of SMEs) or less rigorous (such as in low-tech industrial sectors) research becomes scarce or questionable.

Ebers, (1997) explains three elements that effect the formation of inter-organizational networks; trust (an element of mutual expectations), why and how activity links (an element of resource flows), and catalysts (an element of information flows). An empirical analysis presented by Muscio, (2007) provides evidence that when collaborating firms and non-collaborating firms are examined separately, inconsistency in the quality of human capital employed appears. Muscio, (2007) also confirms the probability of a firm with AC which maintain collaborations with universities, technology centres and other firms dramatically increases the firm with qualified human capital when its R&D efforts are high. Tsai and Ghoshal (1998) found that structural as well as cognitive dimension of social capital leads to relational dimension and also found that structural dimension of social capital did not have significant impact on cognitive dimension.

Mohnen and Hoareau (2002) in their study found that when a firm's cumulative capability to establish simultaneously different networks with different organisations, the importance of absorptive capacity becomes greater. Muscio (2007), encountered a similar result in his study with 276 innovative SMEs located in the Lombardy region of Italy.

Thus, this leads to the interest of this study to find out the scenario of collaboration networks in relation with absorptive capacity in Malaysia.

Proposition 3: There is a positive relationship between collaboration networks with absorptive capacity of SMEs of services industry.

CONCEPTUAL MODEL DEVELOPMENT

This conceptual paper attempts to determine the relationship between collaboration networks and innovation performance and being mediated by absorptive capacity. A study has been made on several models established by other authors. The conceptual model shown in Figure 3 is the combination study of Zeng, Xie and Tam (2010) and Moilenan, Ostbye and Woll (2014). Zeng et al. 2010, provides the dimension of cooperation networks which consist of inter-firm cooperation, cooperation with government agency, cooperation with intermediary institutions, and cooperation with research organisations. While, Moilenan, Ostbye and Woll, (2014). determined the relationship between external knowledge, absorptive capacity and innovative performance for small and medium sized enterprises. Therefore, as shown in figure 3, the study proposed:

- P1: There is a positive influence of collaboration networks on innovation performance of SMEs of services industry.
 P2: The absorptive capacity of SMEs of services industry relates positively to innovation performance.
 P3: There is a positive relationship between collaboration networks with absorptive capacity of SMEs of services industry.
 P4: Absorptive capacity mediates the relationship between the collaboration networks and innovation performance of services industry SMEs services in Malaysia.

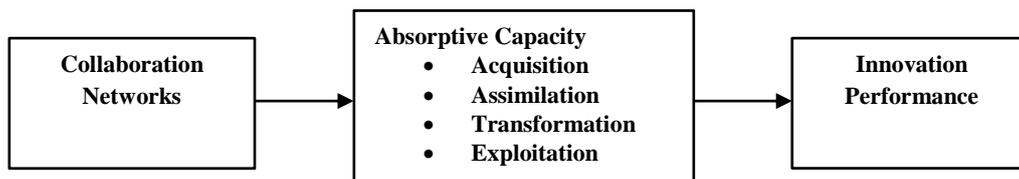


Figure 3: Proposed Research Model

CONCLUSIONS

The findings provide a gateway to the study of the relationship between collaboration networks, absorptive capacity and innovation performance of services industry SMES in Malaysian context. In order to proceed the empirical research, a wider range of literatures need to be explored to obtain an insightful knowledge. Even though a conceptual paper, it is hoped that the effort helps contribute to supplement literatures for the reference of scholars as well as a significant impact to the owners and policy makers of SMEs upon fully completion of the research.

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