

# The Relationship of Intellectual Capital, Innovation and Organizational Performance: a Preliminary Study in Malaysian SMEs

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## Abstract

In SMEs, knowledge is in abundance. SMEs are known for being good in creating knowledge but poor in knowledge acquisition. Although intellectual capital is extensively researched in large organizations, for SMEs it is yet to be explored in-depth. Knowledge exploitation and knowledge exploration in an organization leads to administrative and technological innovation. Innovation depends heavily on knowledge. Because of the small size, SMEs are said to be the best platform for innovation to take place. However, SMEs do not really get involved in innovation as actively or extensively as expected due to the lack of expertise and financial capabilities. This study traces the intellectual capital of SMEs that contribute to product and process innovation, which lead to higher performance in SMEs. This study will also highlight the framework of intellectual capital as an analytical framework for SMEs to extend their capabilities for long-term survival. The framework is developed and deployed as an analytical model to facilitate the investigation of the relationship of intellectual capital, innovation and organizational performance. The quantitative method is adopted and questionnaires were distributed using simple random sampling. The findings of this preliminary study will help SMEs to identify their intellectual capital, which is different from the intellectual capital of large organizations. This preliminary study will highlight the intellectual capital of SMEs that encourage innovation in SMEs, particularly in product and process innovation. The findings of this empirical study will give insights into the importance of SMEs identifying their internal resources, which are intellectual capital, thus, capitalizing and utilizing it to be innovative, as a result having higher organizational performance, especially in making profit, which is the main concern of SMEs.

**Keywords:** Intellectual Capital, Innovation, Organizational Performance, Small and Medium Enterprises, Malaysia

## 1. Introduction

The small and medium sector in Malaysia has long been hailed as a key driver of the national economy; it contributes 32% to the national Gross Domestic Product (GDP) (Low, 2007). Ninety-nine out of 100 Malaysian businesses are Small or Medium Enterprises (SMEs) and almost 5.6 million Malaysians work in the SME sector (Low, 2007). As a result of globalization, SMEs in Malaysia are no longer “protected” through tariff and non-tariff measures, which previously enabled them to garner a significant market share in the country (UNDP, 2006). SMEs have to seek opportunities in the global marketplace (UNDP, 2006). As the economy is moving towards a knowledge-based economy, rich information is flowing from many sources and channels without any limitation. The capability of an organization to manage knowledge effectively becomes a prerequisite for success and innovativeness (Widen-Wulff & Suomi, 2007). In 2007, the Malaysian Government proposed to implement a total of 190 programmes, involving a financial commitment of RM3.7 billion to help SMEs build competitiveness and capabilities (Low, 2007). These programmes are under key areas, namely, physical infrastructure, information management infrastructure and regulatory infrastructure. Hashim (2007) points out that the business characteristics of successful SMEs in Malaysia are dependent on sufficient capital, economies of scale, flexibility in costing, pricing latitude, ability to meet typical operating profit margin of the industry, costs variability at various production levels, ability to achieve greater efficiency, use of marketing in generating additional sales and ability to be innovative. The Malaysian government strives to provide a business friendly environment with a supportive regulatory and institutional framework in which entrepreneurial activity is able to thrive (SME Annual Report 2006).

According to Man et al (2002) the success of SMEs is influenced by the key players and knowledge, experience and skills of the owners and workers is a key factor for success. Basically, entrepreneurs have the ability to recognize a business opportunity, which is fundamental to the entrepreneurial process as well as growing a business (Hisrich et al, 2008). Entrepreneurs that are able to act on business opportunities will be in a strategic position to develop innovation as well as new products/services. Key factors influencing the competitiveness of SMEs are internal factors, external environment and the influence of the entrepreneurs (Man et al, 2002). The strength of SMEs lies in motivation, good networks, tacit knowledge in unique skills, shorter informal communication, less bureaucracy, greater proximity to market and internally, which is important to be innovative (Nooteboom, 1993). This gives SMEs flexibility in innovation, especially with their close proximity to market information and customer information. The great variety of SMEs generates a variety of innovative ventures (Nooteboom, 1993). Most of the literature review highlights SMEs lacking tangible resources, physical and financial capital. However, the challenge for these SMEs is to be able to demonstrate the intangible resources embedded in the organization, entrepreneurial capital, which is the extension of human capital (Erikson, 2002).

While most of the intellectual capital studies focus on a larger organization, this study focuses on intellectual capital or internal resources in SMEs. Intellectual capital is also known as organizational knowledge, which needs to be regulated in order to make sure that the

knowledge is valuable. Globalization has encouraged innovation to be a prerequisite for SMEs to operate in more competitive global markets (Gunasekaran et al., 1996). Although there are a number of studies on continuous improvement in SMEs (Gunasekaran et al., 1996) there is a relative paucity of in-depth studies on innovation implementation in SMEs (McAdam, 2001). Intellectual capital that provides structure, system, strategy and culture (Afuah, 2003) is an antecedent of innovation. There are very few studies of intellectual capital in SMEs (Cohen & Kaimenakis, 2006) and most studies of intellectual capital conducted in Malaysia are based on accounting perspectives and are quantitative. This study integrates intellectual capital and innovation for better SMEs performance. It focuses on the inner resources of SMEs, which should be regarded as their advantage. By doing this, SMEs are capable of emerging as key players in the industry, rather than thinking about their incapability, especially in physical and financial capital (Man, Lau et al. 2002).

## 2. Literature Review

### 2.1 Intellectual capital

Stewart (1997) defines intellectual capital as “the intellectual material – knowledge, information, intellectual property, experience – that can be put to use to create wealth” while Bontis (1998) defines intellectual capital as the pursuit of the effective use of knowledge (the finished product) as opposed to information (the raw material). Intellectual capital consists of three types of capital; human capital, structural capital and customer capital. Intellectual capital can be located in its people, its structures and its customers.

### 2.2 Human Capital

Human capital refers to the value of knowledge, skills and experience held by individual employees in a firm; structural capital consists of “embodiment, empowerment and supportive infrastructure of human capital” (Edvinsson & Malone, 1997), which includes all the things that support human capital in a firm but are left behind when employees go home at the end of the day (McElroy, 2002). Human capital represents the individual tacit knowledge embedded in the mind of the employees. It can be defined as a combination of employees’ competence, attitude and creativity (Jin Chen, 2004). According to Mayo (2001), human capital can be divided into three dimensions: capability and potential, motivation and commitment and innovation and learning.

Table 1. Three dimensions of human capital

Capability and potential	Educational level, professional skills, experience, attitudes, personal networks, values and the ability of current employees to evolve within the organization.
Motivation and commitment	Whether employees align their own interests with those of the firm
Innovation and learning	The degree to which employees are open to change

Human capital is different from structural capital in managing knowledge (Stewart 2000), it is the source of innovation as people contribute their creativity while sharing and transporting knowledge. The entrepreneur and the inventor are pure human capital (Cohen &

Kaimenakis, 2006). Desouza & Awazu (2006) state that unlike large companies, human capital in SMEs tends to behave quite differently. As SMEs are very much into entrepreneurship, entrepreneurial orientation should be incorporated into human capital as suggested by Keskin (2006). Entrepreneurial orientation constitutes an organizational phenomenon that reflects a managerial capability by which firms embark on proactive and aggressive initiatives to alter the competitive scene to their advantage (Avlonitis and Salavou 2007). Entrepreneurial orientation plays a key role in the development and maintenance of innovativeness (Hult, Hurley et al. 2003). Entrepreneurial orientation, which comprises the qualities of pro-activeness, aggressiveness and initiative, sparks and ignites the firm into innovative action (Hult, Hurley et al. 2004).

### *2.3 Structural Capital*

This component of intellectual capital is the infrastructure firms develop to commercialize their intellectual capital (Edvinsson and Sullivan, 1996). Structural capital provides a platform for people to be creative (Stewart, 2000). While firms do not own human capital (Cohen and Kaimenakis 2007), structural capital belongs to the organization as a whole. It can be reproduced and shared. A good structural capital will provide a good environment for rapid knowledge sharing, collective knowledge growth, shortened lead times and more productive people (Stewart, 2000).

### *2.4 Relational Capital*

Customer capital or relational capital refers to all the relations the firm has established with its stakeholder groups, such as customers, suppliers, community, and government (Bontis, 1998). Most of the literature reviewed focuses on customer and market orientation when referring to this external capital. But for the purpose of this paper, relational capital will be adopted. Stewart (2000) points out that the purpose of a relationship with these external stakeholders is to turn it into money. While customer and market orientation is important, the relationship of SMEs to other parties, especially the government, is crucial in navigating SMEs to be competitive. Market orientation, which includes customer capital (Cohen and Kaimenakis 2007) is a set of behaviours and processes (Kohli and Jaworski 1990) or an aspect of culture ((Narver and Slater 1990) to create a superior customer value. Market orientation is to coordinate the customer's needs (Kohli and Jaworski.1990; Han et al.1998) by obtaining and using customer's information, competitor's capabilities and provision of other significant market agents and authorities (Keskin 2006), Deshpande & Webster, 1989). This integrated effort on the part of employees across departments in an organization, results in higher or superior performance for an organization (Kohli and Jaworski 1990).

Montequin et al. (2006) in their study listed important elements of Intellectual Capital for SMEs as shown below.

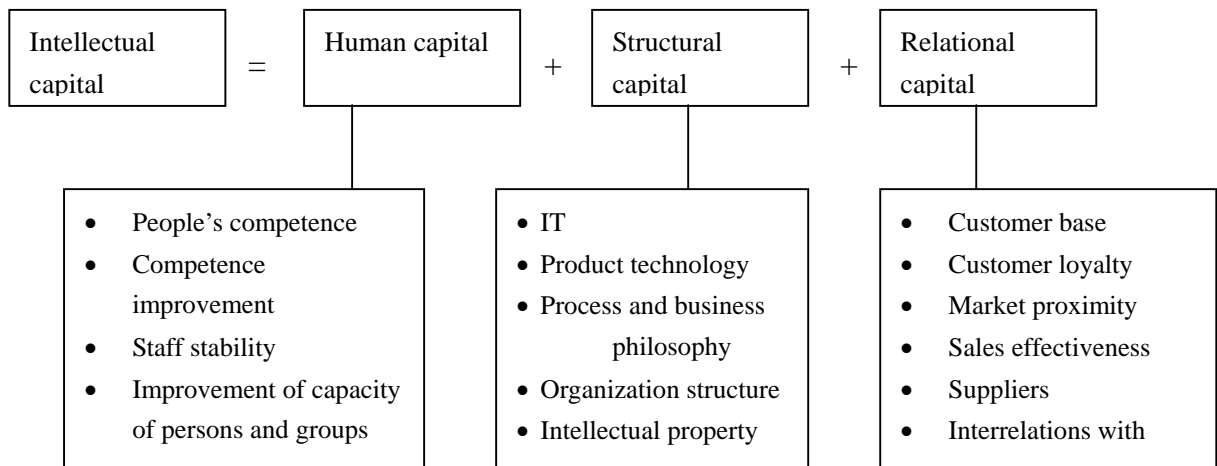


Figure 1. Important elements of Intellectual Capital for SMEs

*Source: Montequin et al. (2006)*

Intellectual capital in SMEs and large organizations should not be the same as they differ significantly in the resources employed (Cohen & Kaimenakis, 2007). Desouza & Awazu (2006) found that organizational capital in an SME is primarily developed and maintained by means of its employees. On top of that, employees develop common knowledge so as to better organize work (Cohen & Kaimenakis, 2007).

### 2.5 Innovation

Innovation is the process of creating a commercial product from an invention (Hitt et al, 2005). Innovation can deliver four types of benefits besides cash: knowledge, brand, ecosystem and culture (Andrew & Sirkin of Anonymous, 2007). But the most important reason for innovation in an organization is to make profit. A firm makes profit by offering products or services at a lower cost than its competitors or by offering differentiated products at premium prices that more than compensate for the extra cost of differentiation (Afuah, 2003), as shown in the figure below:

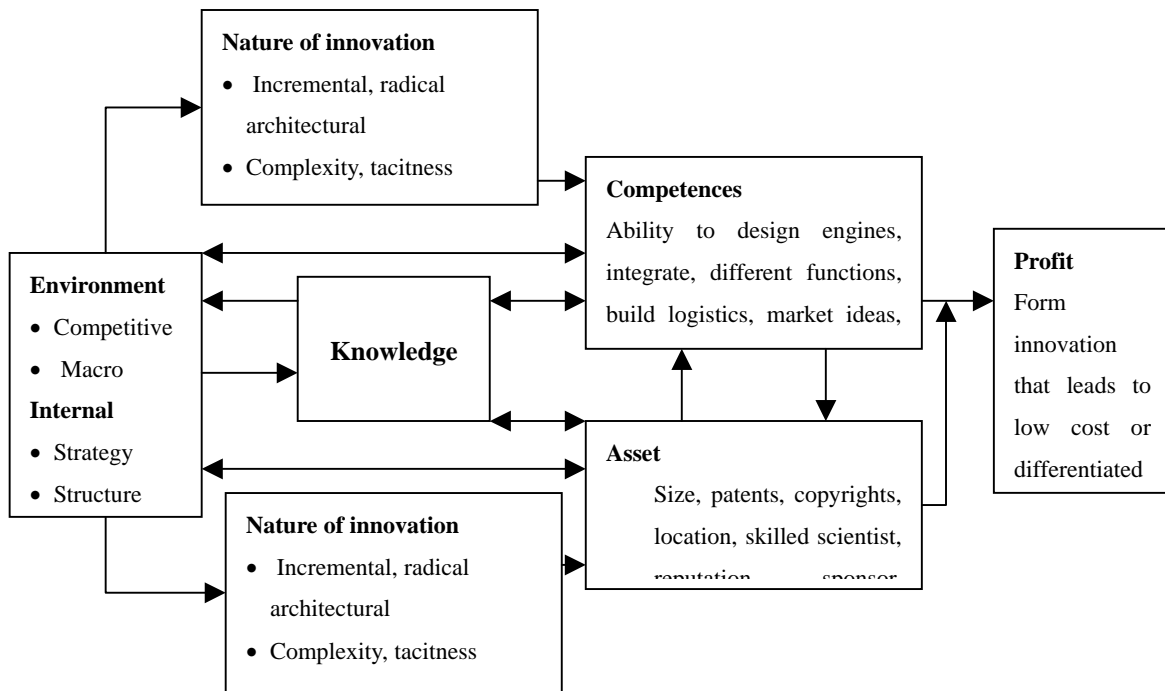


Figure 2: The innovation model (Afuah, 2003)

Internally, firms should be supported by their strategy, structure, system and people (Afuah, 2003). Competences and assets are the function of technological and market knowledge as innovation is the use of new technological and market knowledge to offer a new product or service that customers will want (Afuah, 2003). Motwani et al. (1999) found that the structure of an organization is important to innovation as it supports innovation in SMEs, for both the product and process of innovation. Product innovation occurs when a new or improved product is introduced to the market while process innovation is an adoption of new ways of making products or services (Maravekalis et al., 2006).

### 2.6 Intellectual Capital and Innovation

Human capital's "output" is innovation, which is structural capital's efficiency (Stewart 2000). An innovative organization requires an organizational culture that constantly guides its members to strive for innovation and fosters a climate that is conducive to creativity (Ahmed, 1998). It is the task of organizational leaders to provide the culture and climate that nurtures and acknowledges innovation at every level (Ahmed, 1998). This is particularly important for SMEs as owners should lead, encourage, and nurture an innovative culture (Avlonitis & Salavou, 2007). Few studies examine the embeddedness of innovation in SMEs (Oakey 1993, Shaw 1998, Panniccia 1998, Freel 2000, Jensen and Greeve 2002 in Scozzi and Garavelli, 2005), which show that SMEs are capable of engaging in innovation in developing their competitive edge. According to Caputo et al. (2002) the relationship of SMEs and innovation is not an easy one as SMEs have a number of unique features, such as, scarce resources, low market influence and informal communications, which differentiate them from large firms (Hadjimanolis, 2000). The innovation process traditionally involves huge



financial resources and is quite risky (Caputo et al., 2002). Moreover, innovation allowing diversification strategies may be better pursued by large organizations rather than SMEs. Traditionally, SMEs demonstrated poor ability in innovating products and processes (Caputo et al. 2002). However, based on several cases in a study by the European Union it shows that SMEs appear to be favoured in innovation (Caputo et al, 2002). The innovation of products, processes or services of varying type and degree can be appropriate for different SMEs in different industry sectors or product life cycle stages (Susman, et al.2006), and product innovation is more important for small firms (Damanpour, 1996). SMEs have at some point undertaken some form of incremental innovative initiatives, often supported by local authority grants (Humphreys et al, 2005). Therefore, there is a need for SMEs to increasingly innovate to survive and compete in global and niche markets. Many SMEs focus on project and product development aspects of innovation (Humphreys et al, 2005). There is a need for studies on how innovation is implemented within the constraints and characteristics of SMEs (Humphreys et al., 2005).

### *2.7 Innovation and Organizational Performance*

The innovation type has a significant impact on business performance, especially incremental innovation (Oke et al, 2004). Deshpande et al. (1993) found that innovativeness is an important determinant of organizational performance, even after culture had been controlled. Previous studies on innovation and organizational relationship indicated mixed results, some positive, some negative and some showed no relationship at all (Capon et al. 10990, Atuahene-Gima, 2001). Damanpour (1991, 1996) argued that the association between innovation and firm performance depends on the performance measurement and the characteristics of a given organization. Furthermore, different types or different combinations of innovation may also result in divergent organizational performance (Lee & Chen, 2007). The relationship between innovation and organizational performance has been found in many researches (Hurley & Hult, 1998; Kohli & Jaworski, 1993; Keskin, 2006; Atuahene-Gima, 2001; Damanpour; 1991, 1996). Innovation has demonstrated a strong and influential relationship with SMEs performance (Wolff & Pett, 2006; Montequin, 2006).

### *2.8 Intellectual Capital in SMEs*

Man et al (2002) point out that the key factors influencing the competitiveness of SMEs depend on their internal factors, external environment and the influence of the entrepreneur. The internal factors are financial; human and technological resources; organizational structures and systems; productivity; innovation; quality; image and reputation; culture; product/service variety and flexibility; and customer service while external environment refers to competitors. According to Desouza and Awazu (2006) the organizational capital in SMEs is primarily developed and maintained by means of their employees. Even though there is a lack of knowledge repositories maintained by the owner, knowledge is created, shared, transferred and applied through the organization's members without the intervention of the automated mechanisms usually found in larger firms. From the perspective of relational capital, SMEs acquire more knowledge from their customers because of the close proximity (Wong & Aspinwall, 2004) and are able to develop their relational capital with

greater ease, as well as using the available knowledge from their associations or membership more readily in order to achieve higher performance (Desouza & Awazu, 2006). The entrepreneur's demographic, psychological and behavioural characteristics, as well as his or her managerial skills and technical know-how, are often cited as the most influential factors related to the performance of SMEs (Man, Lau et al. 2002).

### **3. Research Methodology**

This study is a preliminary study of intellectual capital and innovation in SMEs. Prior to the main study, a pilot study was undertaken that helped refine data collection plans with respect to both the contents of the data and the procedure to be followed. The pilot study explored the main challenges faced by SMEs in innovation. A total of 12 respondents from various backgrounds participated in the questionnaire survey. The sample consisted of six owners, three co-owners, one manager and two executives. The SMEs involved were sole-proprietor (4), family-owned business (4), partnership (2) and others (2). Most of the participants were degree-holders (5) and two were either Masters or Professionals. Most of the sample has been in business for more than four years.

### **4. Findings/Discussion**

#### *4.1 Intellectual capital*

##### 4.1.1 Human capital

The findings showed that human capital is an important element of intellectual capital in SMEs as found by Cohen & Kaimnenakis(2007). Surviving on a small scale, SMEs tend to be creative, aggressive in exploiting the opportunity and produce more products compared to their competitors. Size gives SMEs an advantage to create a friendly atmosphere, be creative and have a close network to nurture cooperation of the employees. This also gives its employees equal opportunity to be creative. Not only that, as found by Desouza and Awazu (2006), employees of SMEs tend to be loyal and satisfied with their current job, which is in contrast to most studies that indicate that turnover in SMEs is high.

##### 4.1.2 Structural capital

Even though, SMEs are said to be poor at storing knowledge (Kuan & Aspinwall, 2003; Levy, 2003), this preliminary study found that SMEs do keep records of good practice in handling issues for the future. In line with the literature review, the culture of SMEs not only creates mutual support among its employees but also provides support and encourages creativity in the organization. Technology is important in SMEs as it helps them to set a product quality level and produce new products and services.

##### 4.1.3 Relational Capital

It is found that customer orientation is very important in SMEs. Limited in financial and expertise, SMEs are very focused on their target market. Compared to large organizations, SMEs are closer to their customers, and, therefore, are able to capture information on customers and market as their source of expertise and know-how. Therefore SMEs are



mostly customer-focussed and aware of their competitors' actions. Government support is important to SMEs. As SMEs lack expertise, innovation support by government, R&D centres and universities is crucial to SMEs. Again, subsidies and financial support are very important in assisting SMEs to be competitive. The government training programmes also help SMEs to be creative and innovative.

#### 4.1.4 Innovation

Most of the entrepreneurs interviewed agreed that they produce unique and innovative features for their customers. But their innovation is not totally new or radical. However, as they have a close relationship with their customers, their products fulfil their customers' needs. Government support helps SMEs to produce high quality and technologically superior products. There is a mixed response in producing new products and new services. However, SMEs are not innovative in their operation processes and refining their existing products. Overall, SMEs' innovations are not risky. As mentioned by Lin & Chen (2007) who found that 53.5% SMEs in manufacturing and service industries in Taiwan engaged in a combination of incremental and radical innovation.

The study also found that entrepreneurial orientation positively affects innovation, and, thus, leads to higher SME performance (Alvonitis and Salavou 2007), which is in line with other researchers. Davenport and Binny (1999, in Humphreys et al (2005) stated that SMEs increasingly need to develop their innovation capabilities beyond that of technical innovation. Furthermore, with the support of government, SMEs can embark on incremental innovation, which eventually leads them to radical innovation whenever they are ready. SME managers need to focus on products, technology and processes as well as on culture, norms, values and beliefs, which is important for SMEs that operate in a close-knit circle (Gunasekaran et al 1996 in Humphreys et al, 2005). Studies have shown that SMEs contributed to the main innovation of the twentieth century (Oakey, et al 1988; Rothwell and Zegveld, 1982; Rothwell, 1994 in Scozzi and Garavelli, 2005). More than that, innovation in SMEs can be more efficient and effective (Vossen, 1998 in Scozzi and Garavelli, 2005). Although many SMEs focus on incremental innovation (Lin & Chen 2007), many small companies also succeed in introducing more radical innovations because of their genetic makeup (Stringer, 2000).

Government plays a very important role in assisting SMEs to be competitive, either in terms of finance or advice (Humphreys et al, 2005). Even though SMEs are known to lack financial capabilities, financial support and marketing/management advice are not considered crucial for SMEs. Instead, government assistance such as training, seminars, R&D support and technical assistance are very important for SMEs. Human capital contributes more to innovation and organizational performance than structural and relational capital.

## 5. Conclusion

This preliminary study gives brief insights into SMEs in defining their understanding of intellectual capital and innovation. By refining their objectives in operating their business, SMEs must understand their own capabilities, especially their internal strengths. Their

people, their practices and their external support are important in assisting SMEs to be innovative in order for them to be competitive. Innovation is happening in SMEs and most innovation is related to products and service. Incremental innovation is more prevalent. As reported by the United Nations Development Programme (UNDP) Malaysia (2007), SMEs in Malaysia used to concentrate domestically but with the elimination of trade sanctions, SMEs are affected by globalization. Therefore, SMEs should find a way to be competitive globally. No more labour capital but knowledge capital. Innovation is still in its infancy in Malaysia. However, the government is taking a major role in helping SMEs to be innovative by providing training, mentoring, subsidies and financial support. Therefore, this study looks into SMEs' intellectual capital and innovation, which influences organizational performance. This framework can be applied into the SME scenario for their long-term competitive advantage. This framework can also assist SMEs find their way in improving their internal resources, capitalizing their strengths and capturing opportunities with the support of authority.

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