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EFFECT OF KNOWLEDGE MANAGEMENT, MANAGEMENT INNOVATION AND DYNAMIC CAPABILITIES IN SUSTAINING COMPETITIVE ADVANTAGE IN DYNAMIC BUSINESS ENVIRONMENTS

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Abstract: *Sustainable competitive advantage is imperative for business firms to survive and succeed in a complex and turbulent business landscape. From resource-based view perspective, firms have to utilise their resources and capabilities to exploit opportunities and neutralising threats to achieve sustainable competitive advantage. Knowledge is a crucial resource for the survival of firms when managed properly. Hence, firms that can capture knowledge and deploy it into their businesses could excel over their competitors. Besides, innovation has become the lifeblood challenge for business firms. However, firms cannot rely on technological innovation alone but also develop non-technological innovation (i.e. management innovation) to create and maintain a competitive edge due to the rapid development of science and technology. The value generated by current resources and capabilities inclines to become out-dated and competitive advantages may not be sustainable in the long run. Firms need to develop dynamic capabilities which are believed to be an essential element for their growth, survival and competitiveness. Furthermore, environmental dynamism is viewed as a critical contingency factor that affects every business firms. In sum, knowledge management, management innovation, dynamic capabilities, and environmental factors are critical for firms to sustain their competitive advantage over their competitors.*

Keywords: *Sustainable Competitive Advantage, Knowledge Management, Management Innovation, Dynamic Capabilities, Perceived Environmental Dynamism.*

Introduction

The quest for sustainable competitive advantage is an idea that is the focal point of many strategy management scholars (Coyne, 1986; Low & Nair, 2010; Rouse & Daellenbach, 1999). The continuously changing business environment can be characterised by the dynamic and competitive nature that exerts pressure on firms. In the context of resource-based view (RBV) of the firm, business firms have to sustain their competitiveness by establishing positions of sustainable competitive advantage within the industries that they compete in (Barney, 1991). In particular, the RBV perspective maintains that business firms have developed differentiated resources and capabilities that undergird sustainable competitive advantage in order to outperform their competitors. Hence, RBV has become one of the commonly accepted strategic management theories that incorporates resources and capabilities to sustain competitive advantage (Braganza, Brooks, Nepelski, Ali, & Moro, 2017; Ferreira & Fernandes, 2017). However, there are many issues and knowledge gaps that have been highlighted in RBV that requires further research (Burvill, Jones-Evans, & Rowlands, 2018). Apart from this, there is a need to have a better understanding on the interactions between resources and capabilities and sustainable competitive advantage in the context of rapidly changing business environment (Ferreira & Fernandes, 2017; Teece, 2007). As a result, this paper aims to address the identified gaps in the literature to create an integrated conceptual framework that brings together various constructs whilst developing the existing theory.

Literature Review

Sustainable Competitive Advantage

The field of strategic management is organised around a central research question: Why do some firms persistently perform better than others? To that end, strategic management scholars seek answers why do some firms persistently perform better than others? Hence, the central mission of strategic management research is to examine and explain the variance in performance that exists among business firms (Dubey, Goel, & Sahu, 2013).

From the success of the Japanese in penetrating world markets under rapidly changing business circumstances in the late 1970s, McKinsey and Company articulated the notion of competitive advantage (South, 1981). Competitive advantage has been defined as an advantage that one particular firm has over their competitor or a group of competitors in a given market, strategic group or industry (Kay, 1993).

Lippman and Rumelt (1982) argued that firms are able to sustain a competitive advantage when there is causal ambiguity in their competencies. The link between the competencies and sustainable competitive advantage is ambiguous in causality, hence, competitors outside the firm are not able to understand and therefore make it hard for the competitors to imitate these competencies (O’Shannassy, 2008). Barney (1991) opined that a firm has a sustained competitive advantage “when it is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors and when these other firms are unable to duplicate the benefits of this strategy" (p. 102).

Porter (1985) identified the two basic types of competitive strategies that firms possess to achieve sustainable competitive advantage based on environmental conditions. The two types of the competitive strategy being proposes by Porter (1985) are cost leadership strategy and differentiation strategy. Barney (1991) pointed out there was little emphasis given by Porter (1985) to take into account the idiosyncratic organisational resources that influence sustainable competitive advantage. Subsequently, Barney (1991) proposes and developed the concept of RBV.

RBV concept had replaced industrial organisation based competitive advantage and became the dominant theme in the studies concerning sources for sustainable competitive advantage in the 1990s (Rouse & Daellenbach, 1999). RBV contends the possession of certain essential resources and capabilities can achieve and sustain competitive advantages (Kraaijenbrink, Spender, & Groen, 2010). From the forthcoming literature review, it appears that the most commonly agreed resources are something that can provide a firm with either strengths or weaknesses and which subjects to how the resources are used (Burvill et al., 2018). Besides, Barney (1991) also identified four attributes of firm's resources as the source for attaining sustainable competitive advantage. The resources must be *valuable, rare, imperfectly imitable and non-substitutable*, and known as the VRIO framework (Barney, 1991).

Business firms are said to have possessed a sustainable competitive advantage when they either acquire or develop a combination of attributes that allow them to outperform their competitors. As posited by Barney (1991), value and rareness of resources lead to competitive advantage. Furthermore, imitable and non-substitutable resources can lead business firms to sustain the competitive advantage over the competitors because these resources are limited or non-substitutable. Lastly, business firms that possess sustainable competitive advantage have the ability to weather the present or potential competition in the business world.

Knowledge Management

Knowledge is an abstraction and it has to do either with a theoretical approach or practical understanding of a subject. Knowledge is originated from thinking and is a mixture of information, experience and insight (Hu, 2009). In recent years, knowledge is viewed as a strategic resource and regarded as a key to achieving a sustainable competitive advantage (Ragab & Arisha, 2013). Knowledge has become an important aspect of economic life and knowledge itself is the main raw material of what we deal and the components with which we work (Stewart, 1997).

More importantly, knowledge cannot be depleted compared to natural resources and other physical capital. Knowledge could be extended and opened to further growth and refinement (Egbu, Hari, & Renukappa, 2005). In the knowledge-based economy, firms have emphasised on issues of knowledge assets over traditional assets, and the capability of firms to harness these knowledge assets (Denford & Chan, 2011). However, firms in turbulent business environments are facing challenges to maintain their up-to-date knowledge base (Ambrosini & Bowman, 2009). In this sense, there is growing interest in the effective management of knowledge and using it in an effective manner to achieve a sustainable competitive advantage.

Knowledge management has emerged as a new discipline in the mid-1990s (Newell, 2014). Knowledge management refers to recognising and leveraging the collective knowledge in a firm to enhance the ability of the firm to compete (von Krogh, 1998). Firms that are able to capture the knowledge embedded in their firms efficiently and deploy it into their businesses could attain sustainable competitive advantage over their competitors (Garrido-Moreno, Lockett, & Garcia-Morales, 2015)

From a business perspective, knowledge management is considered as a capability. Newell (2014) states knowledge management comprises a set of processes for the capture/storage/sharing and use of knowledge which is anticipated to enhance firm performance and competitiveness. A firm's know-how cannot lead the firm to competitive advantage if firms are not capable of extracting the value to be delivered by such resource (Lee, Lanting, & Rojdamrongratana, 2016). The ability to extract the value across its business units is through a series of knowledge management processes (Kamasak, Yavuz, & Altuntas, 2016).

Processes in managing knowledge have been widely discussed in the literature (e.g., Rusly, Sun, & Corner, 2015; Sook-Ling, Ismail, & Yee-Yen, 2015). However, there is little consensus as to what knowledge management processes constitute (Mahdi, Nassar, & Almsafir, 2018). An analysis of the numerous categorisations of knowledge management processes shows that they comprise of three main interdependent parts: knowledge acquisition, knowledge dissemination, and knowledge utilisation (Darroch, 2003, 2005; Jayasingam, Ansari, Ramayah, & Jantan, 2012).

Knowledge acquisition is where useful knowledge is gained, collected and obtained by the employees of the organisation internally or externally to perform their jobs (Tan & Wong, 2015). Knowledge dissemination is where explicit and tacit knowledge are distributed and shared among the employees throughout the organisation (Alavi & Leidner, 2001). Lastly, knowledge utilisation is to make practical use of knowledge acquired by applying or adopting the best practices in their daily tasks (O'Dell & Grayson, 1998). The existing knowledge must be captured, codified, presented and stored in a structured way, so it can be re-used later (Choi, Poon, & Davis, 2008).

Management Innovation

Innovation has become the lifeblood challenge for all types of firms (Andreeva & Kianto, 2011; Hollen, Van Den Bosch, & Volberda, 2013). Innovation is regarded as a concept essential to the establishment of new industries, sustaining competitive advantage and enhancing the performance of firms (Damanpour, 2014). A large body of literature is being generated on the topic of innovation for the past 40 years and numerous conceptualisation of innovation are proposed largely attributed from Schumpeter's work (Damanpour & Aravind, 2012).

Innovation is not limited to the development of new products and production processes (Ganter & Hecker, 2014). However, past studies of innovation carried out by the economist and technology management scholars have concentrated on new products and new methods of production typologies (Basile & Faraci, 2015; Damanpour & Aravind, 2012). Damanpour (2010) defined product innovation as introducing new products or services to satisfy external user need, and process innovation is defined as introducing new features into a firm's production or service operation in order to manufacture a product or render a service in a more efficient and effective way. Both are typically associated with the improvement or application of new technologies and often referred as technological innovations (OECD, 2005).

Technological innovation is not able to create and maintain a competitive edge in the rapid development of science and technology because they are easy to imitate. Whilst Hamel (2006) had concluded that only non-technological innovation has the ability to create a long-term competitive edge. Recent research on management innovation suggests it is an imperative source of sustainable competitive advantage (Mol & Birkinshaw, 2009; Vaccaro, Jansen, Van Den Bosch, & Volberda, 2012). According to Lin, Su and Higgins (2016), management innovation is able to accelerate changes including technical innovation that improve firm's competitiveness.

As competition becomes stiffer and the pace of technological change speeds up, firms need to innovate not by offering new products or services but focusing on non-technological innovations such as management innovation within the firms (Vaccaro et al., 2012). The introduction of new management techniques and practices precedes the conceptualization of management innovation, also known as organisational, administrative, and managerial innovations (Damanpour, 2014). The initial concept of management innovation is referred as the organisational innovation in the economics literature to pose a contrast to technological innovation (Damanpour & Aravind, 2012). According to Huang et al. (2015), Stata (1989) was the first scholar to differentiate management innovation apart from the technological innovations.

Management innovation brings in new management practices, processes, and structures that are projected to advance organisational goals (Birkinshaw, Hamel, & Mol, 2008; Mol & Birkinshaw, 2009). According to Hamel (2006), management innovation is either a distinct change in traditional management principles, processes and practices or a conventional organisational form that significantly revises the way the managerial work is performed. Management innovation is hard to replicate and it is more likely to enhance firms' ability to sustain their competitive advantage (Ganter & Hecker, 2013; Mol & Birkinshaw, 2006).

Damanpour and Aravind (2012) stated management innovation is novel ways to formulate strategy and structured tasks and units, alters the firm's management processes and administrative systems, inspire and reward organisational members, and enable firm to adapt and change. Management innovation is also related to changes in how managers set directions, make decisions, coordinate activities, and motivate people (Hamel, 2006). These changes are parts of the organisational management innovation that help to establish new management practices, processes, or structures (Mol & Birkinshaw, 2009; Vaccaro et al., 2012).

Dynamic Capabilities

As a result of the challenging and dynamic business landscape, the value created by resources and capabilities inclines to become out-dated. Hence, the value from existing resources and capabilities may not perpetually be appropriated in any firm. This is captured by the notion of dynamic capabilities, which is believed to be an important element for firms' growth, survival and competitiveness (Teece, 2007). Teece and colleagues introduced dynamic capabilities approach which is built upon the calls in practice and the findings in RBV, evolutionary economics and behaviour theory (Li & Liu, 2014).

Dynamic capabilities concept is an extension of RBV that shares similar assumptions (Barney, 2001; Schilke, 2014; van Reijsen et al., 2015). In contrast to the RBV, dynamic capabilities perspective stresses the way in which firms behave and react in a particular situation (Easterby-Smith, Lyles, & Peteraf, 2009). Possession of dynamic capabilities allows firms to turn short-term competitive advantage for a short-term period into sustainable competitive advantage (Augier & Teece, 2008). Teece et al. (1997) asserted that firms should continuously adapt, reconfigure and renew their resources and capabilities to address environmental change. Firms' abilities to organise their competencies and resources while exploiting existing internal and external firm-specific competencies to address fluctuating environment could help to sustain their competitive advantage (Teece, 2007; Teece et al., 1997).

According to Teece et al. (1997), 'dynamic' denotes the capacity to replace old competencies with the new ones in order to remain competitive in the changing business environment.

Helfat and Winter (2011) defined “capability” as the capacity of firms to implement a particular activity in a reliable manner. In this stream of research in strategic management, dynamic capabilities are an essential part of selecting, developing, and coordinating ordinary capabilities (Teece, 2017). Ordinary capabilities allow an organization to make a living in the present, while dynamic capabilities alter the way an organization makes its living (Helfat and Winter, 2011). In other words, ordinary capabilities are to a great extent operational whereas dynamic capabilities are generally strategic in nature (Teece, 2017).

Dynamic capabilities permit the firm to change their resource base, change ordinary capabilities, and/or initiate change in the organization’s external environment (Arend and Bromiley, 2009; Teece, 2007). More importantly, dynamic capabilities permit a firm to respond to change by switching operational capabilities which require significant managerial involvement (Arend & Bromiley, 2009). Besides, Teece et al. (1997) also claimed that the competitive edge of firms lies with decision-making and other organisational processes which are moulded by their distinctive asset position and the paths available to them. Eisenhardt and Martin (2000) asserted that dynamic capabilities represent best practices and exhibit equifinal. In sum, dynamic capabilities are built on signature practices which are derived from prior management actions and context-specific learning (Shuen, Feiler, & Teece, 2014).

Perceived Environmental Dynamism

In the strategic management literature, the external environment is a variable and has been viewed as a critical contingency factor for a business firm to sustain their competitive advantage over their competitors (Child, 1972) . To sustain their competitive advantage, business firms need to renew their resource base in line with change in their external business environment.

Environmental changes often refer to the degree of dynamism in the environmental settings that a business firm faces (Lumpkin & Dess, 2001; Miller & Friesen, 1982). From the contingency view perspective, environmental dynamism is a contextual variable and being studied as a moderator in the strategic management related studies (Dess & Beard, 1984). In the context of business, it is generally referred as the rate and unpredictability of changes in a firm’s external environment (Danneels & Sethi, 2011). According to Schilke (2014), environments with low dynamism correspond with occasional changes, and those changes that do occur can be anticipated, in contrast, highly dynamic environments correspond with rapid and discontinuous changes.

Under dynamic environment, existing products and processes are easy to become obsolete (Chan, Yee, Dai, & Lim, 2016). As such, it is imperative for business firms to improve their existing and processes or the development of new products and processes in order to stay in the competition. Accordingly, business firms pursuing knowledge management, management innovation and dynamic capabilities are more likely to capture changing circumstances by improving the existing and processes or developing new products and processes. Hence, this paper proposes that environmental dynamism would impose a moderating effect on firm’s characteristics (etc. knowledge management, management innovation and dynamic capabilities) and sustainable competitive advantage.

Conceptual Framework

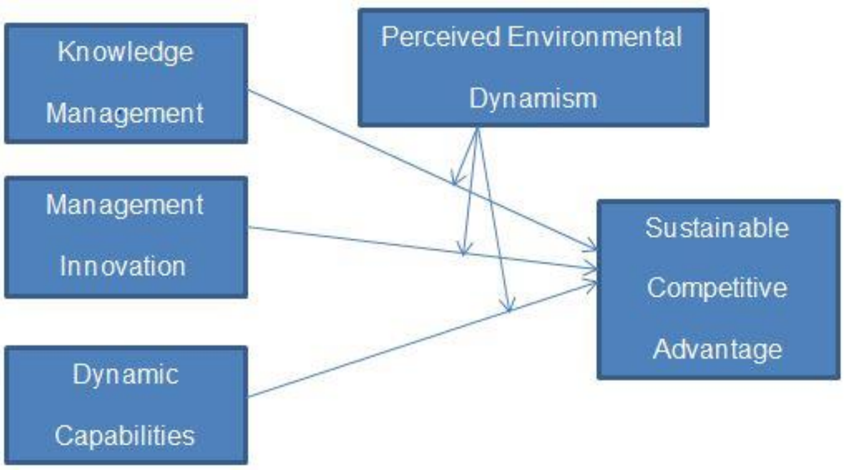

Figure 1: Proposed Conceptual Framework

This conceptual framework is developed based on Barney's (1991) resource-based theory. Building on past studies and drawing strength from theoretical models on resource-based theory, sustainable competitive advantage is the dependent variable while knowledge management, management innovation and dynamic capabilities are the independent variables. Lastly, perceived environmental dynamism acts as the moderating variable between the dependent variable and independent variable.

Conclusion

Firms are exposed to competition so an above-average performance is not sufficient for long-term successes and survival in the business firms. Hence, achieving a sustainable competitive advantage in a dynamic and competitive nature of the business environment is critical to the business firms. In order to do this, firms must gain control the knowledge embedded in their firms efficiently and turn it into their sustainable competitive advantage. Besides, firms have to practice management innovation that creates and maintain their competitive edge in the rapid development of science and technology environment. Subsequently, firms need to develop dynamic capabilities which are believed to be an essential element for their growth, survival and competitiveness because the value generated by resources and capabilities inclines to become out-dated. Furthermore, sustainable competitive advantage can be created or eroded in today's rapidly changing business environment; hence, perceived environmental dynamism is being incorporated as a moderator. In sum, firms have to enrich their knowledge base, bring in new management practices, processes, and structures, and lastly explored their unique capabilities to sustain their competitiveness over their competitors in different environmental conditions that can lead to the better performance in the long term.

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