Dynamic Capabilities as a Precursor to Corporate Innovation and Competitive Advantage: The Role of Human Capital

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Abstract

This paper presents a critical review of literature on the relationship between dynamic capabilities and innovation, and between innovation and competitive advantage of firms. It further explores the effect that human capital has on these relationships. Theories of dynamic capabilities, resource-based view and resource advantage theory were used to support the literature provided for in the study.

Relevance to innovation. The literature presented shows that dynamic capabilities support innovation as the business environment changes and provides the foundation of firm-level competitive advantage. Various empirical studies highlighted demonstrate that to attain innovative performance, firms must be able to mobilize their resources and capabilities and dynamically align them with the changing environmental opportunities and customer needs.

Key Words. Dynamic Capabilities, Innovation, Competitive Advantage, Human Capital.

INTRODUCTION

Research on dynamic capabilities has been described as a promising perspective of scholarship in strategic management (Teece, 2014). It supports evolutionary fitness which has to do more with innovation and continuously doing the right things as the business environment changes (Teece, 2009). Practitioners and researchers can use the framework to determine the basis of companies’ value creation and establishment of sustainable competitive advantage. This can no longer be achieved through cost control, reduction in inventories, quality improvement and use of best practices. Business environments with global competition, driven by robust innovation were assumed for the dynamic capabilities framework. Dynamic capabilities involve building and orchestrating resources to perform various tasks in an organization.

Strategic capabilities can be achieved primarily through valuable assets such as knowledge resources which can form distinctive configurations (Hsu and Sabherwal, 2012). Within an organization, an important form of knowledge is inherent in human capital (Hitt et al., 2001). For example, employees have been recognized to play important duties in the development and maintenance of a firm’s competitive advantage (Delery and Shaw, 2001). In addition, companies have a high possibility of benefiting from knowledge and competences specific to them to sustain competitive advantage if they remained where they are developed (Hitt et al., 2001). To be effective in achieving advantage dynamic capabilities should be used in support of successful strategies that
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Figure 1: Relationship between Dynamic Capabilities, Innovation and Competitive Advantage of Firms and the Influence of Human Capital

are consistent, coherent and can accommodate innovation. The roots of the innovation construct can be found in the work of Schumpeter (1952). He argued that innovation does not have to be created from new knowledge but can be created from an organization’s unused knowledge (Hébert and Link, 2006).

Understanding of a companies’ advantage over its rivals has been influenced by the dynamic capabilities framework. Some of the approaches of competitive advantage identified by various management scholars include the firm’s management decisions, activities and processes that firm’s use in pursuit of new market opportunities in order to establish a superior market position (Eisenhardt and Sull, 2001). The relationship between dynamic capabilities, innovation and competitive advantage can be modeled as shown in Figure 1. Within the figure it is posited that human capital plays a key role in the strength of the relationships. A description of each of these variables and their relationships as found in the literature, are presented in the sections that follow.

DYNAMIC CAPABILITIES

Dynamic capabilities was defined by Teece et al., (1997) as the integration, building and configuration of a company’s resources, competences that are external and internal to the firm to deal with rapidly changing environment. They are influenced by companies’ structures, processes and systems for their trading activities and are vested in their top management team (Teece, 2007).

In order to stay ahead of competition, a company’s future can be determined by entrepreneurial managers through sensing, seizing, augmentation of knowledge resources, transformation of organizational regulatory and institutional structures and protecting them with intellectual property rights (Teece, 2007).

The roles of entrepreneurial management entrenched in dynamic capabilities involves recognizing problems and trends, directing, reconfiguring, renewing resources and reshaping organizational structure, systems and processes to create and address technological and business opportunities while remaining aligned to customer needs and preferences. Earlier, faster and more astute application of dynamic capabilities by firms should lead to competitive advantage over others (Eisenhardt and Martin, 2000). Wang and Ahmed (2007) grouped dynamic capabilities into three main components namely; innovative, absorptive and adaptive capabilities. To capitalize on new markets opportunities, adaptive capabilities stresses on a company’s capacity to adapt in a prompt manner through flexible use of its assets. The significance of acquisition of external...
information integrated with internal information is recognized by absorptive capabilities to be useful within a company for commercial activities.

Innovative capability involves a firm’s ability to link the advantage it has in the market with its inherent innovative behavior by developing new markets and products. The three main components as established in the dynamic capabilities literature are similar in more than a few industries even though it may also be developed by companies from their unique beginnings and paths (Mota and de Castro, 2004).

INNOVATION

Innovation is a key source of competitive advantage in firms. Creation of new ideas is fundamental to the process of developing innovation. These come from within and outside the firm (Hyland, Marceau, and Sloan, 2006). It is also driven by internal factors such as firm’s employees (Zhou, Hong and Liu, 2013) and research and development investments (Amara and Landry, 2005).

According to Hall (2009), Organization for Economic, Cooperation and Development (OECD) studies have provided rules which classify innovation into five groups namely: marketing innovation; service innovation; process innovation; management innovation and product innovation.

Innovations of services and products are those that result in significantly improved or new products and services (Camisón and Monfort-Mir, 2012). Innovation in processes includes all operational tasks to improve and enhance quality of offerings through provision of more cost effective methods of delivery (O’Sullivan and Dooley, 2009). Innovation in management is the significant improvement or new methods of management of external relationships, systems, structures and organized functions (Hall, 2009). Innovation in marketing refers to new introduced marketing techniques and methods such as changed and improved pricing, design of products and promotional strategies (Camisón and Monfort-Mir, 2012).

Global competition is today often technologically intensive. As a result, innovation in technology can lead to increased competitive advantage. Companies applying innovation in technology can speedily act on new product and service offerings as well as reduce time taken to develop products. Further, when competition in technology is intensified, it can be a global source of competitive advantage if companies have more importantly reinforced, protected and recognized their technological capabilities (Guan, 2007).

Innovation in processes can be enabled by new technological adoption, for example information technology. Its implementation is successful if there are improvements in organization routines and efficient utilization of new systems.

COMPETITIVE ADVANTAGE

Gaining competitive advantage has been eagerly pursued by researchers in strategic management and continues to remain difficult to achieve (Hellat and Peteraf, 2009). D’Aveni et al.,(2010) provided that only short-term gains are achievable. Competitive advantage refers to the execution of a strategy different from rivals in order to provide superior products and services, capitalize on new market opportunities, counteract competitors’s threats and reduce costs. The term is used reciprocally with performance but the two are conceptualized differently (Powell, 2001). Performance is envisioned to be payments accrued by a company after execution of its strategies. A company which creates greater economic worth will have achieved competitive advantage over its rivals (Peteraf and Barney, 2003). Firms can have a cost effective competitive advantage by providing offerings with greater worth at a lower cost than their rivals (Newbert, 2008).

Thus, firm managers’ need to exploit their distinct resources, competencies, capabilities while concentrating their efforts on innovation, are receptive to customer needs and provide quality products and services to attain a market position superior to its competitors. It is also imperative for firms to generate greater customer value and enter market segments by constantly innovating.
their offerings and looking for new market opportunities in order to achieve higher financial earnings than competition (Hill and Jones, 2004). Hence, to sustain competitive advantage, firms’ must have the capacity to maintain their innovation for longer periods (Miles et al., 2003).

Many scholars have measured competitive advantage using public archived information and statistics. Some of the researchers have found it difficult to obtain financial data for organizations and opt for non financial data. This is supported by a study done by (Spanos and Lioukas, 2001). Li and Liu (2014) measured competitive advantage using financial and non financial measures such as higher profit growth margins, higher sales growth, lower cost of operations, superior quality products and services, bigger market share and increased profitable old and new customers (Chang, 2011).

HUMAN CAPITAL

In the field of strategic management, human capital has been recognized as an important resource which can be a source of competitive advantage. Coff et al., (2011) defined human capital from an individual perspective as an individual’s stock of knowledge, skills, and abilities. From the firm’s level, they defined it as an aggregation of employee skills. Crook et al., (2011) defined it as the knowledge, skills and abilities expressed in a person. The translation accepted by (Kor and Leblebici, 2005) is that contrary to financial and physical capital, human capital is the skills, health and knowledge that is inseparable from people owning them.

In a company, the accumulation of human resource comes from selecting, developing and deploying employees (Koch and McGrath, 1996). Therefore, companies need to seek externally from the job market, individuals that provide assurance to become industrious employees (Hatch and Dyer, 2004). However, being industrious may not be certain. Companies need to develop their employees in order to improve their productivity so to be able to offer quality products and services and subsequently improve performance, hence competitive advantage.

Sustainable competitive advantage is contributed by human capital due to its intangibility, complexity and difficult to copy by competition. Thus, for the full potential of human capital to be realized, hiring, development and deployment must be done well. Further human resource with better education will be more productive (Hitt et al., 2001). Companies also need to prevent competitors from quickly seizing the value of their human capital (Hatch and Dyer, 2004). Education levels acts as a basis of defining the level of an employee’s cognitive skills such as their motivation to achieve and their capacity to absorb knowledge.

Efficiency and adaptation to innovation in a firm can be assisted by highly talented and gifted employees (Mahsud, et al., 2011). Education will not lead to competitive advantage even when it increases employees’ acquisition and employment of specific skills and knowledge, if workers with related education are obtainable or easily acquired by competitors. Companies with high turnover of human capital significantly perform lesser than their rivals. Firms must therefore develop and implement strategies to retain employees such as provision of better compensation.

DYNAMIC CAPABILITIES, HUMAN CAPITAL AND INNOVATION FIRM

Teece, Picanco and Shuen (1997) described dynamic capabilities as competences and company’s ability to react quickly to changes in the external environment by producing unique products and processes. Sensing, seizing and transforming company capabilities were identified to be essential to sustain innovation. To achieve innovative performance, organizations must mobilize their resources and capabilities to dynamically align them with changing environmental opportunities (Liao et al., 2009). An empirical study carried out by Zheng et al., (2011) showed significant relationships between dynamic capabilities, innovation and performance. Similarly, Danneels
Table 1: Commonalities between dynamic capabilities and innovative capabilities

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Dynamic Capabilities</th>
<th>Innovative Capabilities</th>
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<tbody>
<tr>
<td>Principal learning</td>
<td>Creation is shaped by the main source</td>
<td>Key objectives are shaped by the main</td>
</tr>
<tr>
<td>roles</td>
<td></td>
<td>source</td>
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<tr>
<td>Strategic</td>
<td>Constantly seizing, sensing,</td>
<td>Continuously scanning, searching,</td>
</tr>
<tr>
<td>orientation</td>
<td>scanning, searching, exploring new</td>
<td>exploring new opportunities</td>
</tr>
<tr>
<td>Major features</td>
<td>Diverse and precise for firms</td>
<td>Diverse and precise for firms</td>
</tr>
<tr>
<td>Management roles</td>
<td>Main / Key roles are important</td>
<td>Main / Key roles are vital</td>
</tr>
<tr>
<td>Kind of evolution</td>
<td>Configuring, changing, improving new</td>
<td>Configuring, changing, improving new</td>
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Source: Breznik and Hisrich (2014)

(2010) analyzed how a firm’s lack of capacity to change its resource base kept it from offering competitively viable new products and services. Breznik and Hisrich (2014) posited that there are significant commonalities between dynamic capabilities and innovative capabilities (see Table 1).

An essential valuable asset used to achieve fundamental competences that allows firms to sustain their advantage over rivals is human capital. Firms are therefore expected to invest further in the selection, acquisition, retention and training to increase the value of its human capital. Michie and Sheehan (2003) who investigated grouped systems of human resource and their association between product and process innovation discovered that companies that recruited and selected well, managed and rewarded performance, trained their employees and provided versatile job duties had a higher likelihood to innovate than those who did not. Similarly, they had a higher likelihood to introduce innovation in a process than those companies that did not have work place innovation practices.

Thus, human resource systems and innovation strongly complemented each other. Shipton et al., (2006) provided that most innovative enterprises train more. This was also identified by Laursen and Foss (2003). Thus, the training function is imperative for the production of greater innovation levels, creation of management capabilities and organizational culture that sustained innovation. This can be achieved through improvement of knowledge and skills needed at a personal level (Lau and Ngo, 2004).

**INNOVATION, HUMAN CAPITAL AND COMPETITIVE ADVANTAGE**

To strengthen efficiency and competitiveness, innovation has been continuously recognized by companies for being responsible for the achievement of a firm’s competitive advantage (Baregheh et al., 2012). Major challenges being faced by companies today are on how to consolidate diverse categories of innovations in order to achieve competitive advantage. Empirical research by Tidd et al., (2006) noted that there is a strong relationship between market performance and the development of new products to maintain market share. Guo et al., (2013) investigated the role of top management and human capital on business model innovation. Through a survey of 146 Chinese firms, they found out that entrepreneurship and management skills of top management linked strongly to business model innovation, a precursor to competitive advantage.

Awino (2016) sought to determine whether innovation had an impact on firm performance. He carried out a survey of 55 publicly listed companies in the Nairobi Stock Exchange. He established that the relationship between innovation and performance was positive and significant and that organizational innovation was achieved through employees’ engagement. All these
studies suggest that although innovation can lead to a firm’s competitive advantage and superior performance, it is predicated on the human capital either through the management actions or employees engagement. Innovation alone, therefore, may not be a sufficient condition for attaining superior competitive advantage.

DISCUSSION

The division of the philosophical areas of two seminal papers by Teece et al., (1997) and Eisenhard and Martin (2000) led to the social construction of dynamic capabilities theory (Di Stefano et al., 2010). The scholars differed on the definition of terms, assumptions, central relationships between variables, applicable boundary conditions as well as how firms can use dynamic capabilities to attain and maintain competitive advantage.. Further, questions have arisen about its coherence and validity explicitly on its failure to attain concurrence on key construct elements (Ambrosini and Bowman, 2009).

On applicable boundary conditions, Teece et al., (1997) found dynamic capabilities approach relevant and suitable in a Schumpeterian world where organizations seek to attain competitive edge over others through new types of innovation. On the contrary, Eisenhardt et al., (2000) found it relevant in high velocity markets, is homogenous and therefore a limited source of competitive advantage (Peteraf, Di Stefano and Verona, 2013). The opinion of the author on the critical differences of the two scholars is that organizations can use dynamic capabilities to attain a competitive edge over others. Organizations operate in a fast and rapidly changing business environment, often global in scope and therefore require unique, rare, and difficult to imitate and replicate dynamic capabilities.

These can only be acquired through creation, protection, renewal, transformation and upgrade of the firm’s assets and resources to adapt and respond to changing customer needs fast and proficient as the environment changes. Through this, managers of organizations will avoid being complacent with status quo as long as they are competing in markets that are perfect. However, in many ways both scholars emphasized on the importance of organizational procedures and the crucial roles played by managers in decision making which affects organizational processes and systems. Top management who are visionary can direct a firm’s processes in order to shape and create dynamic capabilities.

Studies supporting this argument include McKelvie and Davidsson (2009) whose study found that improvement to the technological resources within the firm is positively related to new product development. A manager’s ability to sense, seize opportunities and maintain competitive advantage by combining, enhancing, reconfiguring and protecting a firm’s tangible and intangible resource base is different and not likely to be found in one manager (Teece, 2007). Therefore the chief executive officer of a firm must create teamwork among his top managers. Dynamic capabilities framework has been criticized for challenges in its measurability and that many of its aspects are unverifiable. Examples of methodologies used to measure it include interviews, case studies, questionnaires and longitudinal studies. Interviews were carried out by (Bruni and Verona, 2009) from companies that sold pharmaceutical drugs in order to establish the roles and process played by dynamic marketing capabilities in developing new drugs.

Questionnaires were filled by the creators and the chief executive officers of various firms to examine the roots and growth of dynamic capabilities in new firms (McKelvie and Davidson, 2009). In the history of management literature, the resource based view has been recognized as one of the most authoritative and highly quoted theories (Kraaijenbrink, Spender and Groen, 2010). It provides an explanation for the source of sustainable competitive advantage from the inside of a firm. It argues that competitive advantage can only be attained by firms’ through acquisition and control of rare, valuable and difficult to imitate and substitute (VRIN) resources
and capabilities. Further, companies must also have the ability to assimilate and use them (Barney, 2002). Its development supplements the theory of industrial organization (IO).

While industrial organization look at the external sources of a company’s competitive advantage, the resource based view looks at the internal sources of competitive advantage from within a firm. The methodology used in studies done on the theory have been mainly variance approach where a group of resources and capabilities were categorized as predictor variables and sustainable competitive advantage as the response variable. Researchers have critiqued the theory on its lack of managerial implications; limited applicability and unachievable sustainable competitive advantage (Foss et al, 2008). It is therefore essential to extend research methodologies on process approaches (Groen et al., 2008).

Mixing both perspectives can be useful to researchers to create an understanding on the types of capabilities and resources required to achieve competitive advantage and the reasons for better performance by some firms compared to others (Holcomb et al., 2009). The theory has had some methodological challenges which have been difficult to measure empirically. Molloy et al., (2011) for example noted the theoretical disconnect between the theory and measurement of intangibles that leaves central questions in the research unanswered, undermines and constricts the success and fruitfulness of future research. He noted a lack of mixed method approaches and raised concerns in which quantitative and qualitative methods were combined. Foss (2011) noted that scholars are increasingly familiarizing themselves with various statistical methods that can handle these multilevel issues. However studies have been limited. Resource-advantage theory is important for this study as its central proposition is competition (Magnusson et al., 2009). It puts emphasis on companies pulling together their tangible and intangible assets to attain competitive advantage which results to a company’s superior financial performance (Hughes and Morgan, 2007).

It also emphasizes on the importance of market segmentation; acquisition of heterogeneous assets by a company to attain superior market position. The theory evolved from the resource based view, industrial-organization economics and the transaction cost economic theories. Each firm in the marketplace will have a unique set of resources such as very knowledgeable workforce, efficient production methods, highly capable and knowledgeable management. Therefore, firms compete for resources that will yield attainment of superior market place positions for some of the market segments hence superior financial performance (Griffith and Yalcinkaya 2010). The theory stresses that resources are tangible and intangible assets that assists companies to be efficient and effective in the production of product and services that can yield benefits for various markets (Hunt, 2000).

It categorizes resources into seven categories; human, financial, physical, organizational, relational, legal and information resources. Financial resources facilitate new product and service development and company’s expansion to new markets (Li and Li, 2008). Human resources stimulate the use of other resources and are therefore considered the most important (Roth et al., 2009). Physical resources provide an interacting environment with customers such as ambience. Legal resources include licenses, trademarks; copy rights and protects a firm’s competitive aspects of its offering (Hunt, 2000). Information resources comprises of a company’s product, service, system, production process, customer, supplier and competitor information.

Organization resources comprises of a company’s capabilities, policies and culture. Relational resources comprises of a company’s suppliers, competitors and customers and its relationship with them (Hunt, 2000). Assets possessed by a company do not guarantee any benefits. The benefits are acquired if they are able to generate differentiated offerings that are beneficial to customers. Empirical studies that have used this theory include Yeo and Deilami (2015) whose study found that a positive relationship exists between the upper and middle level management’s personal preference for innovation and the adoption of a proactive strategy.
CONCLUSION

This paper has presented a critical review of literature on the influence of human capital on the relationships between dynamic capabilities, innovation and competitive advantage as outlined in the conceptual model (Figure 1). The literature reviewed supports that earlier, faster and more astute application of dynamic capabilities by firms can lead to competitive advantage. It emphasizes that firms’ with strong dynamic capabilities are highly entrepreneurial and embraces innovation through provision of its unique offerings.

It recognizes the important role of the chief executive officer and management in decision making and defining its strategic actions. Management must have and demonstrate entrepreneurial leadership through instituting actions and reforms in organization that competition will find it difficult to replicate. The chief executive officer of a firm must create teamwork among his top managers as a manager’s ability to sense, seize opportunities in the market in order to remain competitive is different and not likely to be found in one manager. The literature also identified resources such as human capital as the most important valuable asset that enable firms to achieve and maintain its competitiveness as they are intangible, socially complex and difficult to imitate.

Firms who have a high experienced and knowledgeable workforce will have the capability to identify unique company assets, align and modify their functions to meet the changing customer needs and to better understand their environment. Training function was noted to be significant for the production of greater innovation levels, creation of management capabilities and organizational culture that sustain innovation through improvement of knowledge and skills needed at a personal level.

Literature also identified innovation to be also a key source of competitive advantage and are interconnected. Innovation was categorized into product, process, marketing, management and technological innovations all playing significant key roles in organization’s achievement of its competitive advantage. It also noted that the term competitive advantage is used reciprocally with performance but the two are conceived differently. The theoretical foundations used in the study were resource based view, resource advantage theory and dynamic capabilities theory and are related.

REFERENCES


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