

## THEORETICAL UNDERPINNINGS OF DYNAMIC CAPABILITIES

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### ABSTRACT

**T**his article is a review of literature about the theoretical underpinnings of dynamic capabilities. It discusses the theoretical underpinnings of dynamic capabilities. It starts with a conceptualization of dynamic capabilities, the role of dynamic capabilities, and their impact on organizations. The article explores diverse concepts by which dynamic capabilities have been the theoretical foundations of dynamic capabilities. It traces the origins of dynamic capabilities to the concepts of creative destruction, architectural innovation, configuration, competence, combinative capabilities, distinctive competence, core competence, organizational behaviour and organizational routines. It finds that dynamic capabilities are an extension of the Resource Based View. The paper identifies some conceptual gaps emanating from lack of clear definition. It concludes that a multi theory study and uncover a single conceptual definition. The article contributes to the understanding of dynamic capabilities as a new paradigm in strategic management.

**Key words:** Dynamic capabilities

## 1.0 Introduction.

The global competition among industries has demonstrated the need for an expanded paradigm to understand how competitive advantage is achieved. The concept of dynamic capabilities is now a dominant paradigm for the explanation of competitive advantage. The concept seeks to provide a coherent framework which can both integrate existing conceptual and empirical knowledge on competitive advantage. Ambrosini and Bowman, (2009) states that the notion of dynamic capability lies at the heart of the organization's ability to enact change in a systematic way that gives the firm competitive advantage over its peers. This article is a review of literature on the theoretical underpinnings of dynamic capabilities and seeks to understand this paradigm from the perspective of previous theoretical work that appear to have been forethoughts of dynamic capabilities.

## 1.2 Conceptualization of dynamic capabilities.

Helfat and Peteraf, (2007) argue that dynamic capabilities are organizational processes in the most general sense or routines which may have become embedded in the firm over time and are employed to reconfigure the firm's resource base by deleting decaying resources or recombining old resources in new ways (Sirmon and Hitt, 2003). Teece, Pisano and Shuen, (1997) defined dynamic capabilities as the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments. Zollo and Winter, (2002) define dynamic capability as a pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness. Pavlou and El Sawy, (2011) defined dynamic capabilities as those capabilities that help units extend, modify, and reconfigure their existing operational capabilities into new ones that better match the changing environment.

Leonard-Barton, (1992) argues that dynamic capabilities allow firms to continually have a competitive advantage and may help firms to avoid developing core rigidities which inhibit development of inertia and stifle innovation. Eisenhardt and Martin, (2000) state that dynamic capabilities, while often described in a vague manner, actually consist of identifiable and specific routines. They explained that dynamic capabilities involve the organizational processes by which resources are utilized to create growth and adaptation within changing environments and permit the renewal and reconfiguration of a firm's resources. According to Teece et al, (1997), dynamic capability deployment involves sensing and shaping market opportunities, seizing market opportunities and redeploying and reconfiguring (creating, extending and modifying) the resource base. Teece (2007) argues that dynamic capabilities are 'the foundation of enterprise-level competitive advantage in regimes of rapid (technological) change'. He further argues that dynamic capabilities are component capabilities that are 'necessary to sustain superior enterprise performance' in a highly dynamic environment. Auger and Teece, (2009) refined this definition of dynamic capabilities to "the ability to sense and then seize new opportunities, and to reconfigure and protect knowledge assets, competencies, and complementary assets with the aim of achieving a sustained competitive advantage". There is no broad consensus on an operational definition of dynamic capabilities and this makes it difficult to identify a generally acceptable scale for measuring dynamic capabilities

## 2.0 The role of dynamic Capabilities

Ambrosini and Bowman, (2009) state that the role of dynamic capabilities is to impact on the firm's extant resource base and transform it in such a way that a new bundle or configuration of resources is created so that the firm can sustain or enhance its competitive advantage. The value of dynamic capabilities derives from their *outputs*, i.e. the creation of a new set of valuable resources. In other words, a dynamic capability that does not result in the creation of resources that allow the firm to maintain or enhance its sustainable competitive advantage would not be valuable.

The dynamic capabilities theory suggests that in order to compete successfully in their markets, firms need two types of capabilities: ‘Ordinary’ capabilities allow organizations to operate their chosen lines of business efficiently and effectively, while ‘dynamic capabilities’ help them to upgrade their ordinary capabilities, or to create new ones (Winter, 2003). Teece et al, (1997) argue that dynamic capabilities are particularly important for performance in situations of environmental change when a firm’s needs to rejuvenate its set of capabilities are greatest. According to Easterby-Smith, and. Prieto, (2008) dynamic capabilities can take on multiple roles in organizations, such as changing resource allocations, organizational processes, knowledge development and transfer, and decision making.

### **3.0 Impact of dynamic capabilities in organizations**

Ambrosini and Bowman, (2009) point that four different outcomes may result from the deployment of dynamic capabilities. First, they can lead to sustainable competitive advantage if the resource base created is not imitated over a long period of time and the rent are sustained. Second they can lead to temporary advantage. Third, they may only give competitive advantage if their effect on the resource base simply allows the firm to operate in the industry rather than to outperform rivals. Finally the deployment of dynamic capabilities may lead to failure if the resulting resource stock is irrelevant to the market. This view is supported by Helfat *et al.* (2007) who cautions that dynamic capabilities do not necessarily lead to competitive advantage. They explain that while the dynamic capabilities may change the resource base, this renewal may not be necessarily valuable, it may not create any resources, i.e. the new set may either only give competitive parity or it may be irrelevant to the market. Thus dynamic capabilities may have a negative or no effect on firm performance.

### **3.0 Theoretical underpinnings.**

According to Auger and Teece (2009) the dynamic capabilities approach builds upon the theoretical foundations provided by Schumpeter (1934), Schumpeter’s ideas were further developed in subsequent literature such as architectural innovation (Abernathy and Clark, 1986), configuration competence (Henderson and Cockburn, 1994), and combinative capabilities (Kogut and Zander, 1992). Henderson and Cockburn (1994) hold that dynamic capabilities build on earlier work on distinctive competence (Learned *et al.* 1969), core competence (Prahalad and Hamel 1990), core capability and rigidity (Leonard-Barton 1992), organizational routine (Nelson and Winter 1982), Cyert and March (1963) work on the behavioral aspects of firms. Ambrosini *et al* (2009), argues that the dynamic capability theory can be considered as an extension of RBV thinking. Extending these studies, Teece et al (1997) developed the notion of dynamic capabilities.

### **3.1 Creative Destruction**

According to Pavlou and El Sawy, (2011), the dynamic capabilities view originates from Schumpeter’s innovation-based competition where competitive advantage is based on the creative destruction of existing resources and novel recombination into new operational capabilities. Schumpeter, (1934) argued that the concept of creative destruction covers the following five cases: One, the introduction of a new good – that is one with which consumers are not yet familiar – or a new quality of a good. Two, the introduction of a new method of production, that is one not yet tested by experience in the branch of manufacture concerned, which need by no means be founded upon a discovery scientifically new, and can also exist in a new way of handling a commodity commercially. Three, the opening of a new market that is a market into which the particular branch of manufacture of the country in question has not previously entered, whether or not this market has existed before. Four the conquest of a new source of supply or raw materials or half-manufactured goods, again irrespective of whether this source already exists or whether it has first to be

created. Five, the carrying out of the new organization of any industry, like the creation of a monopoly position or the breaking up of a monopoly position.

In latter work, Schumpeter, (1942) argued that the fundamental impulse that sets and keeps the capitalist engine in motion comes from new consumers, new goods, and new methods of production, transportation, and new forms of industrial organization that capitalist enterprise creates. The opening up of new markets, foreign or domestic, and the organizational development illustrate a process of industrial mutation that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one. He further opined that every part of business strategy must be seen in its role in the perennial gale of creative destruction. He argued that this process of Creative Destruction is the essential fact about capitalism. It is what capitalism consists in and what every capitalist concern has got to live in.

Schumpeter's contribution to theoretical development of dynamic capability was the recognition of the need to reconfigure resources in order to effectively respond to environmental dynamism. Creative destruction appears to have developed into concept of capability lifecycle.

### **3.2 Architectural Innovation.**

Abernathy and Clark, (1985) challenged Schumpeter's "creative destruction" view and argued that technological innovation imposes change which need not be disruptive for a company. The two scholars analyzed the US automotive industry between 1924 and 1949 and concluded that whereas innovations can disrupt and make the existing competence obsolete, incremental innovations conserve and entrench existing competences. They coined the term architectural innovation to refer to new technology that departs from established systems of production and, in turn, opens up new linkages to markets and users. They argued that innovation of this sort defines the basic configuration of product and process, and establishes the technical and marketing agendas that will guide subsequent development. In effect, architectural innovation lays down the architecture of the industry, the broad framework within which competition will occur and develop.

### **3.3 Configuration competence**

Henderson and Cockburn, (1994) viewed configuration competence as consisting of architectural competence and component competence. They used the term Component competence to refer to the local capabilities such as proprietary design rules that are embedded in the knowledge of local groups within the firm that are fundamental to day today problem solving. They observed that over a period of time, these become a source of enduring competitive advantage. They argued that architectural competence consists of the ability to use these component competences and to integrate them effectively and to develop fresh competences as they are required.

### **3.4 Combinative capabilities**

Kogut and Zander, (1992) used the term combinative capabilities to mean the capability of the firm to exploit its knowledge and the unexplored potential of the technology at hand. They argued that the issue of organizing principle underlying the creation, replication and imitation of technology open a window on understanding the capabilities of the firm as a repository of inert resources that are difficult to imitate and redeploy. They held the view that firms are a repository of capabilities as determined by knowledge. The contribution of combinative capability to dynamic capabilities theory lies in the recognition of organizational knowledge as a key resource for responding to environmental changes.

### **3.5 Distinctive Competences**

Learned, Christensen, Andrews and Guth, (1969) argued that the capability of an organization is its demonstrated and potential ability to accomplish whatever it sets out to do. They observed that what a firm can do depends on what resources the organization can muster and not just the opportunities it confronts.

They opined that the real key to a company's success lies in its ability to find or create a competence that is truly distinctive. Distinctive competences are those activities in which a firm or its units does better relative its competitors. According to Michael and Ireland (1985) a firm can develop distinctive capabilities in general administration, operations, finance, engineering, R&D, marketing, personnel, public and government relations. The contribution of distinctive competences to development of dynamic capabilities is that the former brings in the relativity of an organization to competitors.

### **3.6 Core Competences**

Prahalad and Hamel (1990) defined core competencies as the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies. They suggested that core competence is about harmonizing streams of technology, the organization of work and the delivery of value, communication, involvement, and a deep commitment to working across organizational boundaries. They pointed out the skills that together constitute core competence must coalesce around individuals whose efforts are not so narrowly focused that they cannot recognize the opportunities for blending their functional expertise with those of others in new and interesting ways. Teece, Pisano and Shuen, (1997) define core competences as those competences that define a firm's fundamental business as core. They suggest that the degree to which a core competence is distinctive depends on how well endowed the firm is relative to its competitors, and on how difficult it is for competitors to replicate its competences

### **3.7 Core capabilities**

Leonard-Burton (1997) suggests that a core capability is the knowledge set that distinguishes and provides competitive advantage. Its content is embodied in employee knowledge and skills and embedded in technical systems. The processes of knowledge creation and control are guided by managerial systems. The values and norms associated with the various types of embodied and embedded knowledge and with the processes of knowledge creation and control. According to Teece and Shuen, (1990) core capabilities are a set of differentiated skills, complementary assets, and routines that provide the basis for a firm's competitive capacities and sustainable advantage in a particular business. Leonard-Barton, (1997) points out that at any given point in a corporation's history, core capabilities are evolving, and corporate survival depends upon successfully managing that evolution. They argue that core capabilities can turn to core rigidities and hinder development because of manager's reluctance to move away from institutionalized ways of doing things. Core competences bring in the issue of path dependence into the dynamic capabilities theory.

### **3.8 Organizational routines**

Routines are stable patterns of organizational behaviour that characterizes its reactions to variegated, internal or external stimuli (Zollo and Winter 2002). Kochar (1996) suggests that routines are viewed as adapting in response to performance feedback and subsequent search processes. Actions that result in outcomes that are viewed as successful (i.e. above the organization's aspiration level) are positively reinforced, whereas actions that led to performance outcomes that are viewed as unsuccessful (i.e. below the organization's aspiration level) trigger search for modifications in the existing routine. Teece and Pisano, (1994) point that routines are embedded in an organization and its structures and are specific to the context. The concept of routines is important in the study of dynamic capabilities as it sheds light on how dynamic capabilities can emerge from organizational routines. It is however to be noted that Nelson and Winter, (1982) conceptualized organizational routine in the context of evolutionary theory of economic change and not dynamic capabilities. Zollo and Winter (2002) for instance defined dynamic capabilities as the organizational activities dedicated to the modification of operation routines. Like core competences bring, organizational routines in the concept of path dependence into the dynamic capabilities theory.



### **3.9 Organizational behavior**

The behavioral theory of the firm was built around a political conception of organizational goals, a bounded rationality conception of expectations, an adaptive conception of rules and aspirations, and a set of ideas about how the interactions among these factors affect decisions in a firm (Cyert and March, 1963). In their work on the behavioral aspects of firms Cyert and March (1963) viewed the organization as a coalition of stakeholders ie customers, employees, managers, suppliers, and shareholders. They opined that it is the interaction the stakeholders in the coalition that shape the organization. Zollo and Winter, (2002) state that Because individuals have limited capacities, and limited time, to devote to any particular aspect of the organizational system, coalition members are motivated to develop mutual control systems, such as the budget and the allocation of tasks by the division of labor and specialization. A budget becomes a precedent for future budgets; an allocation of tasks becomes a precedent for future task allocations. Thus, coalition agreements are institutionalized into semi-permanent or even permanent arrangements. These arrangements a foundation upon which dynamic capabilities can be built.

### **3.10 Resource Based View (RBV)**

Collis and Montgomery, (1995), opine that the dynamic capabilities approach constitutes an extension to the resource-based perspective. Drawn from at least four theoretical sources (the study of distinctive competencies, Ricardian economics, Penrosian economics and the study of the anti-trust implications of economics, the RBV of the firm provides the theoretical underpinnings for understanding how resources can be managed strategically (Ireland, Michael, Hitt and Sirmon 2003). RBV proponents argue that simultaneously valuable, rare, inimitable and non-substitutable resources can be a source of superior performance and may enable the firm to achieve sustained competitive advantage. RBV assumes that firms can be conceptualized as bundles of resources (Mahoney and Pandian 1992, Penrose, 1959, Wernerfeldt, 1984). According to Barney, (1991), the concept of resources includes all assets, capabilities, organizational processes, firm attributes, information, reputation and knowledge controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness. The RBV theory suggests that the resources possessed by a firm are the primary determinants of its performance, and these may contribute to a sustainable competitive advantage of the firm. RBV and its streams: capabilities, core competency and the knowledge based view has recently been instrumental in explaining firms' competitive advantage.

### **4.0 Dynamic capabilities Theory**

According Ambrosini and Bowman, (2009), Teece's (1990) working paper is probably the first contribution developing explicitly the notion of dynamic capabilities. He explained that the RBV was not able to provide explanations as to how some successful firms demonstrated timely responsiveness and rapid and flexible product innovation, along with the management capability to effectively coordinate and redeploy internal and external competences. He further argued that it is essential to consider the changing nature of the external environment and hence the role of strategic management, which is principally about 'adapting, integrating and reconfiguring internal and external organizational skills, resources and functional competencies toward the changing environment Teece et al,(1997, 2007) saw competitive advantage in turbulent environments as a function of dynamic capabilities rather than competitive positioning or industry conflict. They used the term "dynamic" to reflect "the capacity to renew competences so as to achieve congruence with the changing environment" Teece *et al.* (1997) highlighted the importance of path dependencies, and the need to reconfigure a firm's resources to enable the firm to change and evolve.

Earlier on, Teece (1988) while on a study on "profit from innovation" (PIF), analyzed the work of other writers key among them Schumpeter, (1934). He observed that Schumpeter did not give particulars about what it was about large firms that gave the competitive advantage but his explanation was limited to

monopoly power. Schumpeter (1934) had claimed that firms possessing monopoly power were likely to use their capital and skilled power in combination with their ability to effectively appropriate innovation to give them advantage over small firms and new entrants. Although the PFI framework utilised capabilities thinking in a cursory way, he did not use the term at that time. He argued that complementary assets might represent capabilities and that if the firm did not have , it could build them and if it could not build, it could buy. He observed that the theory in Penrose, (1959) did not address dynamism but did not pursue that because the PIF framework was innovation specific and did not seek to answer the question on what factors are likely to lead to sustainable competitive advantage at the enterprise level. In 1997 he pursued the gap left in the PIF framework and developed the dynamic capabilities framework. Casting it against Porter's five forces, he suggested that in the latter, sustainable advantage comes from hiding behind market structures, erecting entry barriers or building them if they did not exist. He argued that in the dynamic capabilities framework, market structure does not matter. He states that in the new framework, sustainable advantage comes from shapping internal processes , structures and procedures to generate innovations , be they technological or organizational. He further argued that the dynamic capabilities framework recognizes analytical functions which must be performed at the enterprise level to sustain success. Teece et al.'s (1997) study paved the way to numerous attempts by researchers from different backgrounds using different theoretical perspectives to understand the nature of dynamic capabilities.

### Summary of Theoretical underpinnings of Dynamic capabilities

THEORETICAL UNDERPINNING	CONTRIBUTORS		
<b>Creative Destruction</b>	Schumpeter (1934)	Schumpeter (1942)	
<b>Architectural Innovation</b>	Abernathy and Clark, 1986)	Henderson and Clark, (1990)	Colin and Cheng , (2013),
<b>Configuration Competence</b>	Henderson and Cockburn, 1994)		
<b>Combinative Capabilities</b>	Kogut and Zander, 1992)		
<b>Distinctive Competence</b>	Learned <i>et al.</i> 1969),	Selznick, 1949, 1952, 1957	Michael and Ireland (1985
<b>Core Competence</b>	Prahalad and Hamel (1990)	Teece, Pisano and Shuen (1997)	Zollo and Winter(2002)
	Kochar (1996)		
<b>Core Capability and Rigidity</b>	Leonard-Barton 1992	Teece and Shuen (1997)	
<b>Organizational Routine</b>	Nelson and Winter (1982)	Zollo and Winter(2002)	Kochar (1996
	Teece and Pisano (1994)		
<b>Behavioral Aspects Of Firms</b>	Cyert and March (1963)	Zollo and Winter (2002)	Kochar (1996
<b>Resource Based View</b>	Barney (1991),	Mahoney and Pandian (1992	Penrose, (1959)
	Wernerfeldt, (1984)	Hoffer and Schendel, (1978).	Collins, and Montgomery (1995),

### 5.0`Theoretical Gaps

According to Easterby-Smith, Lyles and Peteraf, (2008), despite the wide usage of the dynamic capabilities construct, a universally accepted definition has been slow to emerge. Scholars from different research traditions have viewed dynamic capabilities with different lenses reflecting their different backgrounds. Zollo and Winter, 2002) for example define dynamic capabilities in terms of routines, a central feature of evolutionary economics (Nelson and Winter, 1982). In contrast, Eisenhardt and Martin, (2000) define them in terms of processes whose nature varies with the degree of market dynamism taking the form of simple

rules (Eisenhardt and Sull, 2001) in high velocity environments (Eisenhardt, 1989). Dynamic capabilities have also been criticized for their lack of precise definition, empirical grounding, and measurement (Williamson, 1999), and attempts to measure dynamic capabilities have used distant proxies (e.g., Henderson and Cockburn, 1994). The poor understanding of dynamic capabilities and the lack of a measurable model makes it difficult to study how dynamic capabilities can be used in actionable managerial decision making (Pavlou and El Sawy 2011). The lack of universally accepted definition is because dynamic capabilities have been explained in terms of theoretical underpinnings. Because lack of a universally accepted definition, there is no universal way of measuring, and no universal unit of measurement of dynamic capabilities before they demonstrate themselves.

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## **6.0 Conclusion**

This paper has presented a review of literature on the underpinnings of dynamic capabilities theory. It has found that the theory of dynamic capabilities has evolved from evolutionary economics, and organizational theory, entrepreneurial theory and organizational learning. Dynamic capabilities theory seeks to explain what it is that enables organizations adapt to environmental changes to either sustain or acquire competitive advantage. Perhaps a study involving all the relevant theories can unravel a universal definition which can bring more focus to any study on the underpinnings of Dynamic capabilities.



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