



**ENVIRONMENTAL DYNAMIC CAPABILITIES
AND THEIR EFFECT ON **COMPETITIVE
ADVANTAGE AND FIRM PERFORMANCE****

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Review Paper

Environmental dynamic capabilities and their effect on competitive advantage and firm performance

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Present day markets are characterized by increased global integration, innovation and new forms of technology which presents challenges for firms to survive and prosper during times of change. This paper seeks to explore the dynamic capabilities in terms of its relationship with performance, sources of the different perspectives presented through empirical research and theories, its criticisms and explores areas of future research. Dynamic capabilities theory emerged as a complement to Resource Based View (RBV) in an attempt to explain competitive advantage in rapidly changing environment. RBV of the firm conceptualizes the firm as bundle of resources which include assets, capabilities, organizational processes, firm attributes, information, knowledge among others. However, RBV does not adequately explain the reason for competitive advantage during rapid and unpredictable change. This is where the dynamic capability theory comes to provide some explanations. Dynamic capabilities refer to the ability of the firm to utilize its resources effectively so as to achieve congruence with the changing business environment. Further theoretical work is needed to tighten the dynamic capabilities framework, and empirical research is critical to helping us understand how firms get to be good, how they sometimes stay that way, why and how they improve, and why they sometimes decline. As dynamic capabilities are intended to align the internal resource configuration with the firm's environment, the quality aspect of dynamic capabilities indicates to what degree this intended effect is fulfilled. It is not their mere existence but rather their quality that determines the impact of dynamic capabilities on firm performance. The paper also includes a conceptual model which operationalizes dynamic capabilities and explains their effect on firm performance.

Keywords: Competitive advantage, resource-based view, dynamic capabilities.

INTRODUCTION

Dynamic capabilities theory emerged as a complement to Resource Based View (RBV) in an attempt to explain competitive advantage in rapidly changing environment. The theory draws its tenets from the work on organizational routine, core competence, core capability and rigidity, and absorptive capability. In the last decade a growing number of scholars consider dynamic capabilities to be at the heart of firm strategy, value creation and competitive advantage (Teece, 2007). The dynamic capabilities-based view addresses this issue and focuses on the mechanisms of integrating, building, and reconfiguring internal and external competencies and resources. According to Eisenhardt and Martin (2000),

dynamic capabilities are basically processes in terms of strategic or organizational routines through which firms reconfigure their resources to respond to or create market change.

Theoretical framework

Resource-based view theory

According to the resource-based view theory, valuable, rare, inimitable, and non-substitutable resources of the firm are relevant for sustainable competitive advantages (Wernerfelt, 1984). The success of a firm in a competitive environment is dependent on the firm's resources. Resource-based view of firm mainly addresses the

resources that contribute to firm competitive advantage and how these resources enable a firm to achieve superior performance and keep competitive in its industry (Eisenhardt and Martin, 2000). By assuming resource heterogeneity and immobility resource-based theory suggests resources, which are rare, valuable, imitable, and non-substitutable, can contribute to superior firm performance and sustained competitive advantage.

Dynamic capabilities theory

The theory draws its tenets from the work on organizational routine, core competence, core capability and rigidity, and absorptive capability. Dynamic capabilities act as a buffer between firms' resources and the shifting business environment by helping a firm adjust its resource base and thereby maintain the sustainability of its competitive advantage, which otherwise might be eroded. Dynamic Capabilities Perspective (DCP) refers to the ability of a firm to achieve new forms of competitive advantage by renewing competences, organizational resources, to achieve congruence with the changing business environment. This capability is dynamic because the firm must continually build, adapt, and reconfigure internal and external competences to achieve congruence with the changing business environment when time-to-market and product timing are critical, the rate of technological change is rapid, and the nature of future competition and markets are difficult to determine (Teece et al., 1997).

The core components of dynamic capabilities

Capabilities thus describe the effectiveness in undertaking processes relative to the competition and the literature has also shown a close link between capabilities and their underlying processes (Sambamurthy et al., 2003). Sensing capability reflects the ability to sense the environment and understand customer needs and market dynamics better than competitors. Firms with higher absorptive capability demonstrate stronger ability of learning from partners, integrating external information and transforming it into firm-embedded knowledge (Woiceshyn and Daellenbach, 2005). Sensing capability, absorptive capability, integrative capability and innovative capability are the most important components of dynamic capabilities and underpin a firm's ability to integrate, reconfigure, renew and recreate its resources and capabilities in line with external changes. The four components are correlated, but conceptually distinct. Absorptive capability highlights the importance of taking in external knowledge, combining it with internal knowledge and absorbing it for internal use. Integrative capability impacts dynamic capabilities by effectively allocating resources, assigning tasks, and synchronizing activities. Innovative capability effectively links a firm's inherent innovativeness to marketplace-based advantage in terms of new products and/or markets. Thus, innovative capability explains the

linkages between a firm's resources and capabilities with its product market (Lazonick and Prencipe 2005).

Dynamic capabilities and organizational process

Eisenhardt and Martin (2000), suggests that dynamic capabilities are not abilities but processes to address or initiate market change. Zahra and George (2002) regard dynamic capabilities neither as a firm's abilities nor as processes but as capabilities to match customer demands and competitor strategies routines (Zott, 2003). Helfat and Raubitschek (2000) give further support for the idea that dynamic capabilities are embedded in organizational processes. Eisenhardt and Martin (2000) comment that dynamic capability processes comprise "specific and identifiable routines" which have been extensively researched. In particular, they suggest that several processes can be used as examples of dynamic capabilities such as product development (combining various skills in cross-functional teams), strategic decision making (pooling of diverse business, functional and personal expertise), alliance and acquisitions routines (new resources, pre- and post-acquisition routines) and many others.

Dynamic capabilities and functional competencies

While the value of the notion of dynamic capabilities is still challenged by some scholars, there seems to be an emergent consensus in the literature that they differ from functional or operational competences by emphasizing change (Winter, 2003). Functional competences are described as the purposive combinations of resources that enable an organization to perform operational activities, such as logistics, marketing and sales or manufacturing. Dynamic capabilities are those that enable a firm to constantly renew functional competences and therefore achieve long-term competitive advantage.

Dynamic capabilities and environment

In stable environments there are external changes, but these changes are largely predictable and incremental, and the rate of change is low, relative to that experienced by other firms in other environments. Where firms are facing fast paced change, unpredictable events and unanticipated discontinuities in dynamic environments resource advantages are likely to be rapidly eroded. Dynamic capabilities are at play in both stable and dynamic environments. The RBV explains what the sources of sustained advantage are in stable environments, and the dynamic capability view offers an explanation as to how firms can sustain resource-based advantages in dynamic environments (Priem and Butler, 2001).

Dynamic capabilities and competitive advantage

Zahra *et al.* (2006) argue that the mere existence of dynamic capabilities in a firm does not result in competitive advantages or high performance. The

relationship results from the idea that dynamic capabilities originate and define the firm's individual resource configuration, which shapes the firm's competitiveness and therefore performance (Zott, 2003). Zhu (2004) views e-commerce as higher-order capability that requires alignment among organizational factors, changing technology and business environments. Consistent with IT-related RBV literature, e-business serves as a resource enabler or catalyst that supports organizations in reconfiguring resources and capitalizing on opportunities to adapt to the fast-changing environment.

Dynamic capabilities and firm performance

A firm's ability to integrate knowledge from external sources is positively related to its research productivity, measured by patent counts. Zollo and Singh (1998) in their study of post-acquisition integration processes in the banking sector, provide evidence that acquirers who invested more effort in codifying their integration processes achieve superior profitability performance compared to competitors. Research personnel quality or alliance formation processes are significantly related to the number of newly developed products in the biotechnology sector. Collis (1994) suggests that dynamic capabilities, which can be defined as higher-order or meta-capabilities are important because they may help firms to avoid path dependencies imposed by their current lower-order competences. Therefore, a firm has to develop capabilities to learn and redefine its resource base in order to overcome the trap laid by their existing competences and create new sources of competitive advantage.

Zander and Kogut (1995), make a case for distinctive or superior competencies which are even better if matched to environmental exigencies or opportunities. These capabilities are physical (For example, specialized equipment, geographic location), human (For example, expertise in chemistry) and organizational (For example, superior sales force) assets. It is effective usage rather than their mere possession that generates a competitive advantage and enhances successful performance. There is increasing evidence that firm performances is affected by firm's ability to integrate, build and reconfigure their resources and competencies. Henderson and Cockburn (1994) attest that 'architectural competence' in the pharmaceutical industry, that is, a firm's ability to integrate knowledge from external sources, is positively associated with research productivity, as measured by patent counts.

Dynamic capabilities and firm performance as an indirect link

Dynamic capabilities cannot in themselves be a source of sustainable competitive advantage but they contribute to the achievement of superior firm performance by combining and renewing functional competences which in

turn affect performance. Dynamic capabilities build and reconfigure resource positions, zero-order capabilities, operational routines or operational capabilities and, through them, affect performance (Winter, 2003). This chain of causality designates an indirect link between dynamic capabilities and performance. Dynamic capabilities create and shape a firm's resource positions, capabilities, operational routines, and activities. In turn, these mediating variables determine the firm's product market position and therefore its performance. The processes by which firms accumulate their strengths and capabilities, which Amit and Schoemaker (1993) characterize as 'intermediate goods' generated by the firm to provide enhanced productivity of its resources, are a logical prior to firms' resources and capabilities.

Another set of criteria introduced by Barney (1991) suggests that only resources that are valuable, rare, and inimitable can serve as a basis for sustainable competitive advantage. Unfortunately, these conditions have only limited validity when applied to dynamic capabilities. Consider two firms that possess identical dynamic capabilities, thus leaving the condition of heterogeneity unfulfilled. Even in these circumstances, firms may use their capabilities to build different resource positions, which may then lead to differing firm performance. For example, if a firm with strong transfer capabilities (Zander and Kogut, 1995) has a rival with similar capabilities, the firm may simply move into a different, more profitable market faster than its rival. If a firm with strong acquisition competence faces a competitor who is also an eager and skilled acquirer, the firm may simply locate a different target firm.

The quality aspect of dynamic capabilities and firm performance

The quality aspect allows the classification of a dynamic capability according to its quality level. Every firm has various dynamic capabilities as it also possesses various processes which result in a modification of a resource or a set of resources (Eisenhardt and Martin, 2000). Firms which possess dynamic capabilities of high quality outperform their competitors with dynamic capabilities of low quality (Chang and Hou, 2007). A configuration of the dynamic capability with a high and positive effect on performance is of high quality, while those with a lower positive or even negative effect on performance are of lower quality.

Conceptual framework

The Conceptual framework above shows the various linkages that represent the relationships of the variables from the determinants to the outcomes (figure 1). Studies have shown that there is a significant relationship between organizational resources and capabilities (Ainuddin *et al.*, 2007). Research findings have indeed shown that organizational resources and capabilities are significantly related to each other. Zollo and Winter

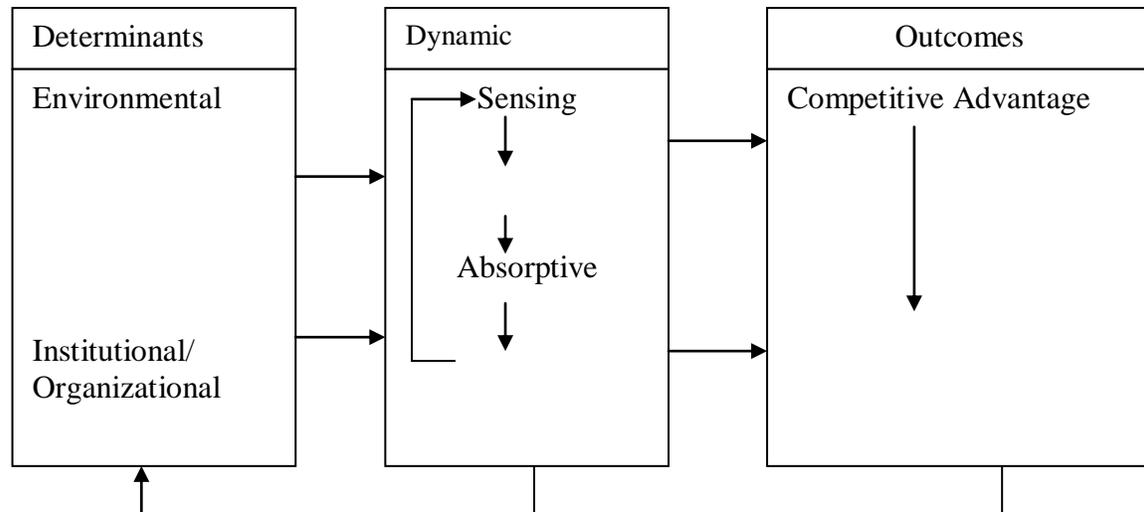


Figure 1: Conceptual framework

(2002) regard dynamic capabilities as patterns of collective activity. Sensing capability, absorptive capability, integrative capability and innovative capability are the most important components of dynamic capabilities and underpin a firm's ability to integrate, reconfigure, renew and recreate its resources and capabilities in line with external changes.

Absorptive capability highlights the importance of taking in external knowledge, combining it with internal knowledge and absorbing it for internal use. Integrative capability impacts dynamic capabilities by effectively allocating resources, assigning tasks, and synchronizing activities (Lazonick and Prencipe 2005). There is a significant relationship between organizational resources, capabilities, systems and competitive advantage (Morgan *et al.*, 2004) have also put forward the idea of the significant positive relationship between organizational resources, capabilities, systems and competitive advantage.

Dynamic capabilities build and reconfigure resource positions, zero-order capabilities, operational routines or operational capabilities and, through them, affect performance (Winter, 2003). Competitive advantage and performance are significantly related. As illustrated by the empirical studies by Morgan *et al.*, (2004), competitive advantage was shown to be able to significantly predict the variance in firm performance. Studies have shown that there is a significant relationship between organizational resources, capabilities, systems and performance (Barney, 1991; Wiklund and Shepherd, 2003; Bowen and Ostroff, 2004; Morgan *et al.*, 2004).

CONCLUSIONS AND AREAS OF FURTHER RESEARCH

Reviewing the content of the empirical contributions, it becomes obvious no study works with multidimensional constructs of dynamic capabilities; instead, they employ

simple proxies or constructs for investigating firms in general. Many empirical articles tend to use the theoretical perspective of dynamic capabilities only as an explanation approach without enhancing or even referencing the concept of dynamic capabilities in their empirical work. The theory of dynamic capabilities involves various processes and has thus far failed to provide clear constructs (Zahra *et al.*, 2006). Some theoretical articles hint at an influence of the configuration of dynamic capabilities on firm performance but providing no clear concept. The quality aspect of dynamic capabilities and its impact on firm performance represent a clear research gap.

Strategy should also be a battle for sustained development of the firm's organizational capabilities (Teece *et al.*, 1997) and not just a battle for strong market positions. Focusing on the identification of dynamic capabilities, rapidly changing environments is necessary for the existence of dynamic capabilities. An analysis of the most important definitions of dynamic capabilities reveals fundamental contradictions. Expanding the analysis to more articles leads to the identification of further inconsistencies.

Some researchers (Anand and Vassolo, 2002) tend to link the firm's possession of dynamic capabilities to firm success. If this is the case, it would mean that unsuccessful firms do not have any dynamic capabilities and considers this understanding as unsatisfactory and tautological. Dynamic capabilities have often been criticized for being tautological, vague and not operational. Furthermore, while organizational performance has been a core issue in the research on dynamic capabilities the question of whether and how they affect performance is still open (Helfat *et al.*, 2007).

REFERENCES

Ainuddin RA, Beamish PW, Hulland JS, Rouse

- MJ (2007). Resource attributes and firm performance in international joint ventures. *Journal of World Business*, 42 (2007) pp. 47- 60.
- Amit R, Schoemaker PJH (1993), Strategic assets and organizational rent, *Strategic Management Journal*, Vol. 14 No. 1, pp. 33-46.
- Anand J, Vassolo RS (2002). *An examination of dynamic capabilities: Is evolutionary theory under-determined*. Paper presented at the Annual Conference of the Strategic Management Society 2002 in Paris.
- Barney JB (1991). Firm resources and sustained competitive advantage, *Journal of Management*, Vol. 17 No. 1, pp. 99-121.
- Bowen DE, Ostroff C (2004). Understanding HRM-Firm performance linkages: The role of the "strength" of the HRM system. *Academy of Management Review*, 29(2): 203-221
- Chang HR, Hou JJ (2007). Organizational change and dynamic capabilities; A case of high-tech company. *Industrial Forum*, 9 (1), 15-29.
- Collis DJ (1994). How valuable are organizational capabilities? *Strategic Management Journal*, *Winter Special Issue* 15:143-152.
- Eisenhardt KM, Martin JA (2000). Dynamic capabilities: What are they? *Strategic Management Journal* 21(10-11): 1105-1121.
- Helfat CE, Raubitschek RS (2007). Product sequencing: Co-evolution of knowledge, capabilities and products. *Strategic Management Journal* Special Issue 21(10-11): 961-979.
- Henderson R, Cockburn I (1994). Measuring competence? Exploring firm effect in pharmaceutical research. *Strategic Management Journal* 15(Winter Special Issue): 63 84.
- Morgan NA, Kaleka A, Katsikeas CS (2004). Antecedents of export venture performance: A theoretical model and empirical assessment. *Journal of Marketing*, 68: 90-108.
- Priem R, Butler J (2001). Tautology in the resource-based view and the implications of externally determined resource value: further comments. *Academy of Management Review*, 26: 57-66.
- Sambamurthy V, Bharadwaj AS, Grover V (2003). Shaping agility through digital options: Reconceptualizing the role of IT in contemporary firms. *MIS Quarterly*, 27 (2): 237-263.
- Teece DJ, Pisano GP, Shuen A (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal*, 18(7), pp. 509-533.
- Teece DJ (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance, *Strategic Management Journal*, 28(13): 1319-50.
- Wernerfelt B (1984). A resource-based view of the firm, *Strategic Management Journal*, Vol. 5 No. 2, pp. 171-80..
- Wiklund J, Shepherd D (2003). Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses. *Strategic Management Journal*, 24: 1307-1314
- Winter SG (2003). Understanding dynamic capabilities. *Strategic Management Journal*, 24: 991-995
- Woiceshyn J, Daellenbach U (2005). Integrative capability and technology adoption: evidence from oil firms. *Industrial and Corporate Change*, 14 (2), 307
- Zahra S, Sapienza H, Davidsson P (2006). Entrepreneurship and dynamic capabilities: a review, model and research agenda, *Journal of Management Studies*, 43, pp. 917–955.
- Zahra SA, George G (2002), Absorptive capacity: a review, reconceptualization, and extension, *Academy of Management Review*, Vol. 27 No. 2, pp. 185-203.
- Zander U, Kogut B (1996). What firms do? Coordination, identity, and learning. *Organization Science*, 7 (5), 502-518.
- Zander U, Kogut B (1995). Knowledge and the speed of the transfer and imitation of organizational capabilities: an empirical test, *Organization Science*, Vol. 6 No. 1, pp. 76-92.
- Zhu K (2004). The Complementarity of Information Technology Infrastructure and E-Commerce Capability: A Resource-Based Assessment of Their Business Value, *Journal of Management Information Systems* (21:1), pp. 167-202.
- Zollo M, Winter SG (2002). Deliberate Learning and the Evolution of Dynamic Capabilities, *Organization Science*, vol. 13, no. 3, pp. 339-351.
- Zollo M, Singh H (1998). The impact of knowledge codification, experience trajectories and integration strategies on the performance of corporate acquisitions. *Academy of Management Best Paper Proceedings*, San Diego, CA.
- Zott C (2003). Dynamic Capabilities and the Emergence of Intraindustry Differential Firm Performance: Insights from a Simulation Study. *Strategic Management Journal*, 24(2), pp. 97- 125.