Journal of
Social and Administrative Sciences
www.kspjournals.org
Volume 6 March 2019 Issue 1

Dynamic capabilities and entrepreneurial management: A review of selected works of David J. Teece

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Abstract. Dynamic capabilities framework which is the combination of internal processes, resource utilization and structural transformations that have to be strategically formulated and managed for gaining sustained competitive advantage in rapidly changing environments became largely influential not only in strategic management field but had a significant impact on several areas of management (Di Stefano, *et al.*, 2010, Barreto, 2010). After the introduction of the dynamic capabilities approach, the contributions from the initiator of the approach David J. Teece and several other important strategy and management scholars gave way to the development of a new capabilities theory of the "innovative" firm as well the evolution of the fresh domain of *entrepreneurial management*. The current review aims to analyze the antecedents of dynamic capabilities and the development of this new theory through the works of David J. Teece and acknowledge his crucial contribution to fields of management, strategy, and entrepreneurship.
Keywords. Dynamic capabilities, Entrepreneurial management, Competitive advantage.
JEL. L22, L25, L26, M10, M21.

1. Introduction

With the introduction of dynamic capabilities approach to the field of strategic management, new dimensions were added to the long ongoing discussion about why some established or newly founded firms are more capable then others with respect to the creation, identification or exploitation of opportunities gained a new dimension (Zahra, *et.al.,* 2006). Augier & Teece (2009) mentioned the significance of developing dynamic capabilities in any organization as "The possession and employment of dynamic capabilities provides the business enterprise with a chance to generate superior profitability over the long run" (Augier & Teece, 2009).The two seminal papers are written by Teece & Pisano (1994) and Teece, Pisano, & Shuen (1997) on dynamic capabilities became among the most cited articles in the history of management. While the initial stage of dynamic capabilities was criticized by some scholars as

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being vague and unclear, the concept is gaining more clarity with the increasing pace of empirical studies conducted (Danneels, 2016).

The current review targets to analyze the evolution of the dynamic capabilities approach through the works of its creator, David J. Teece. The second section reviews the introductory papers of Teece and his colleagues and explains the elements of the dynamic capabilities framework, whereas the third part investigates how this new approach impacted the recent field of entrepreneurial management.

2. Dynamic capabilities approach

The framework of dynamic capabilities was introduced to strategic management literature with the 1994 landmark article of Teece & Pisano (1994). In the flow of this paper, scholars first explained why they chose the name "dynamic capabilities" for their newly proposed approach to strategic management, holding that organizations need to develop their internal and external skills and resource utilization for achieving adaptation, integration, and reconfiguration to the fast-changing and highly competitive business environments. Therefore, the formulation of timely and accurate strategic responses is vital for success. Here, the capabilities should be selected strategically, considering their potential to meet customer needs, being unique and inimitable. Built upon this base, scholars posited that a firm's dynamic capabilities which also form its strategic dimensions lie within the unique managerial and organizational processes, positions and paths of that firm that are hard to copy. In this framework, *processes* refer to the patterns, practices, and routines inside of a firm, whereas *positions* are described as the technology and intellectual property endowment, together with the market standing and relations with suppliers. The third element is the *paths*, which are the strategic movement or future positioning alternatives undertaken by the firm, shaped by the evaluation of the opportunities existing in the market. The paths or changes naturally vary from one company to another with respect to the existing resources as well as capabilities of the firm, causing the path alternatives to be naturally different. The most important feature of the strategic (or distinctive) capabilities of a company is that they cannot be bought or sold in the market, thus they have to be built within the company.

After this introductory piece, the second and groundbreaking paper written by Teece, Pisano, and Shuen was published in 1997 and became one of the pivotal papers in the field of strategic management, where the authors basically explained why a new outlook is needed in order to fill the gaps in existing theories and approaches of economy and strategy. In the first section, Teece and his colleagues described dynamic capabilities as "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments" (Teece, Pisano, & Shuen, 1997, p.516). In this part, former strategy models were analyzed (and criticized) with respect to a-) power exploitation (Porter's Five Forces model and Shapiro's strategic conflict) and b-) efficiency (resource-based view). The scholars here pointed out the limiting aspect of Porter's industry-centric approach to strategy formulation, and those of the game-theory based approach of Shapiro (1989), arguing that unless the competitors do not have well-established competitive advantages, the game theory-like moves would not perfectly fit with proper formulation of strategies. In the second part, a new model was proposed where the features about required competencies and capabilities of a company, which in fact form that firm's competitive advantages and are largely dependent upon managerial and organizational processes, are explained. In this model, dynamic capabilities are regarded as being able to capture the needs and requirements of rapid changes in the environment. In the final section, the major contribution of this new approach is stated in the form of the proposition that rents (or wealth) can be generated and competitive advantage can be gained only when "they are based on a collection of routines, skills, and complementary assets that are difficult to imitate" (p.524), linking dynamic capabilities with the economy field's main concern of creation and capturing of wealth. According to the approach of dynamic capabilities, companies that identify new market opportunities and develop their organizational structures in an effective and efficient fashion for exploiting them would outcompete their rivals and have a successful and sustainable performance. Within that respect, the paper suggested the combination of outer and inner-looking perspectives for the development of "dynamic capabilities", which was developed further in the following yearswith contributions from several important names of strategy domain (Helfat, *et. al,* 2007). While there is a vastly growing number of conceptual and empirical studies on both dynamic capabilities and the sub-field of dynamic managerial capabilities, scholars still point out the need for the provision of further empirical evidence to key propositions of dynamic capabilities (Kevill, *et. al.,* 2017; Pundziene & Teece, 2016).

In his 2007 paper, Teece re-defined dynamic capabilities as "the distinct skills, processes, procedures, organizational structures, decision rules, and disciplines required for creating an entrepreneurial enterprise and a superior long-run business performance" (Teese, 2007: p.1319). This paper discusses why dynamic capabilities are required for sustained performance in today's intensely competitive business setting. In this new understanding, the old ways of doing things in order to gain efficiency have to be replaced with a-) the innovation of products and processes, b-) changing organizational structures when required and c-) entrepreneurial managers who are needed to orchestrate and coordinate the resources and processes while at the same time developing strategies for the company's future.

The author differentiated between ordinary and dynamic capabilities stating that ordinary capabilities are operational and are mostly concerned with *technical efficiency* as they aim to do things right, whereas dynamic capabilities are to a large extent strategic by nature and are about achieving *evolutionary fitness*, targeting doing the right things, in his 2017 paper. A precise evaluation of external environment, finding the right timing for the right actions, sustained product and process innovation, orchestration, and management of internal processes and a culture focused on continuous renewal and transformation are among the major elements of dynamic capabilities framework (Teece, 2017, p.698).

3. Entrepreneurial management

In the 2002 paper by Teece, Pierce, and Boerner, authors implied the importance of organizational learning and the capabilities regarding the processing of information as well as the role of managerial capabilities for sensing the opportunities in rapidly changing market conditions, which lead to achieving sustainable competitive advantage for the firm (Teece, *et. al.,* 2002). In the above mentioned 2007 paper published in the Strategic Management Journal, Teece once again highlighted the innovative nature of the dynamic capabilities approach, thereby laying out the micro-foundations of the new theory of entrepreneurial management. In this paper, the authorargued that the companies that develop strong dynamic capabilities both have to possess the ability to adapt to their ecosystems but also the capability of shaping their environments by innovating and collaborating with the other elements of these ecosystems. Therefore, these structures are largely entrepreneurial by their nature. Dynamic capabilities framework employs all the vital elements of an entrepreneurial organization, as they refer to a-) sensing and shaping of opportunities and threats, b-) seizing of these opportunities, and finally c-) achievement of sustained competitiveness by the enhancement, combination, protection and at times reconfiguration of the company's assets.

Dynamic capabilities approach correlates sustainable firm growth and competitiveness with the identification and exploitation of opportunities as well as understanding and overcoming threats by the orchestration and allocation of resources and conducting required transformations (Teece, 2010). Thus, in this perspective, the company is both an actor and a shaper of its environment.

In his 2016 paper on the dynamics of entrepreneurial management, the author posited that in an entrepreneurial company the individuals at managerial positions get involved in entrepreneurial acts and carry out the functions of an entrepreneur and a leader (Teece, 2016). With this unique perspective, the paper offers new insights to thefresh field of entrepreneurial management about the main question of *how organizations can reach sustained competitiveness in rapidly changing contexts?* and also questions the traditional and mostly negative approaches that by and large label managers as "pursuers of personal interests"as in the propositions of agency theory. The author suggests a more positive perspective towards managers, recognizing their leadership and entrepreneurial functions as decision-makers and the developers of the dynamic capabilities of the firm, which were largely ignored in the old "doing things right" views to management (Teece, 2016). As the author stated, the managers play significant entrepreneurial roles in large corporations that operate in highly competitive global environments, including sensing and seizing of opportunities, the orchestration of company resources, making R&D and other important investment decisions and new business model development (Teese, 2016, p.207). Teece underlined this aspect of dynamic capabilities approach as "Entrepreneurs exist not in just start-ups, but also in large organizations (p.213).

This newly addressed role of managers was once again strongly highlighted in Teece's 2017 paper, where he criticizes the classical economics view to firms both for treating companies like "homogeneous black boxes run by opportunistic managers" (Teece, 2017), and ignoring the proactive entrepreneurial and leadership roles of managers (p.716). The framework of dynamic capabilities in thisregard helps to explain how entrepreneurial companies that prioritize innovation over efficiency, act in accordance with changing market trends and enhance their intrapreneurship system can gain the sustainable competitive advantage over their rivals in the long-run (p.698). In the dynamic capabilities approach, the managerial emphasis is on entrepreneurial orchestration of assets/resources and leadership in terms of sensing and seizing of market opportunities, embedded into a strong organizational culture of innovation. Here, the role of managers in sensing, seizing and transforming are critical for determining the potential of a company in achieving high performance under deep uncertainty (p.709), since firm-level entrepreneurship, learning, innovation, and appropriate strategies are crucial (p.714).

4. Conclusion

The game-changing approach of dynamic capabilities to strategy and the new research line of entrepreneurial management where managers are recognized as individuals who engage into entrepreneurial acts within their companies, helped the historically distant disciplines of management and entrepreneurship to get closer. Some scholars explained this with the lack of "an integrative theory and specific framework" (Paek & Lee, 2017), while the shift of mindset both in terms of competitive behavior of firms under high uncertainty and the role of managers in the continued successful performance of firms as both entrepreneurs and decision-makers already gained a lot of support and interest from management scholars and is likely to lead to the formation of the capabilities theory of the "innovative" firm (Teece, 2017) in the near future, which as Teece noted is a requirement to fill the gaps of the existing ones (p.711).

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