

How IT-Enabled Dynamic Capabilities Add Value to the Development of Innovation Capabilities

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INTRODUCTION

Many organizations face intense pressure to transform their current business model and operations toward more sustainability, and innovation-driven organization (Dao, Langella, & Carbo, 2011; Hanelt, Busse, & Kolbe, 2016; Seidel, Recker, & Vom Brocke, 2013).

Major technology trends and developments like big data analytics, robotics, Internet of Things, and the rise of artificial intelligence are making firms' ability to change and adapt its organizations' structure, architecture, and people as crucial as its competitive strategy. However, merely possessing valuable, rare, inimitable and non-substitutional (VRIN) information technology (IT) resources within this day and age, is not enough to enhance organizational benefits and to maintain a competitive edge (Eisenhardt & Martin, 2000). Organizational capabilities, rather than IT assets, resources or products, have been suggested to be a critical competitive differentiator (Strønen, Hoholm, Kværner, & Støme, 2017; Teece, Pisano, & Shuen, 1997). These capabilities represent an organization's potential to achieve specific business strategies and management objectives using focused deployment and are considered the building blocks on which organizations compete within the business ecosystem. Eisenhardt & Martin (2000) suggested that managers use these particular capabilities through integrating, building and reconfiguring internal and external competencies to achieve competitive advantage, rather than 'simply' possessing the capabilities (Eisenhardt & Martin, 2000; Strønen et al., 2017).

As the need to innovate increases in today's business environment, IT is often an important supporting factor through adapting to its environment and meeting new demands while maintaining quality and efficiency (Rowe, Besson, & Hemon, 2017; Van de Wetering, Mikalef, & Helms, 2017). Previous studies posited the term IT capabilities, in this particular context, in an attempt to measure a firm's proficiency in exploiting its IT assets. IT capabilities—firms' ability to mobilize and deploy IT-based resources in combination or co-present with other resources and capabilities in order to differentiate from competition (Bharadwaj, 2000)—, have been viewed by past literature as complex, multidimensional constructs (Kim, Shin, Kim, & Lee, 2011; Pavlou & El Sawy, 2006; Sambamurthy, Bharadwaj, & Grover, 2003). Although there is a growing body of knowledge underscoring the pivotal role IT-enabled capabilities in the process of enhancing an organization's competitive or financial performance gains (Kim et al., 2011; Mikalef, Pateli, & van de Wetering, 2016), there is considerably less scholarship about leveraging IT capabilities and obtaining innovation, and maintain a competitive edge in the business ecosystem through the development of IT-enabled dynamic capabilities (ITDCs) (Agarwal & Selen, 2009; Mikalef et al.,

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2016; Wade & Hulland, 2004). We define ITDCs as an organization's ability to leverage its IT assets, resources, and IT competencies, in combination with other organizational resources and capabilities, in order to address rapidly changing business environments (Mikalef et al., 2016). Organizations that optimally deploy and enable their assets, resources, and organizational IT capabilities are more innovative and effective, and more promptly respond to constitutional changes in industry and market conditions than competitors (Aral & Weill, 2007). Hence, there is a clear call for scholars to investigate and unfold the mechanisms on how IT-enabled innovation is achieved, what the antecedent and conditioning role is of IT flexibility and ITDCs capabilities, and under which market conditions innovation can be achieved (El Sawy & Pavlou, 2008; Mikalef & Pateli, 2017; Van de Wetering, Mikalef, & Helms, 2017).

This chapter aims to investigate whether or not IT flexibility facilitates the formation of ITDCs, as well as if the development of ITDCs results in any significant innovation gains. Also, we want to explore how environmental complexity shapes the effects of ITDCs in this nomological path. We argue that ITDCs reflect a firm's capacity to utilize its flexible IT infrastructure to support evolutionary fitness with the external environment (Helfat & Peteraf, 2009). In sum, we develop a conceptual model and empirically validate this model at 138 Dutch firms. Hence, in this article, we address three research questions:

“(1) To what extent does IT flexibility influence the formation of ITDCs, (II) what is the influence of ITDCs on a firm's innovation capability, and finally (III) what is the conditioning effect of environmental complexity on the above relationships?”

We structured this chapter as follows. In the next section, we outline the theoretical background and propose our research model. Next, we present that methods section, including the data collection and analyses procedures. Then, we present the outcomes of this research and discuss the results. This chapter ends with the limitations of our work, avenues for future research, and conclusions.

BACKGROUND

Resource-Based and Dynamic Capabilities View of the Firm

We ground this current work on the resource-based view of the firm (RBV), as well as the widely acknowledged dynamic capabilities view (DCV). The RBV provides a solid foundation upon which firms can identify and evaluate all relevant resources (including IT assets, infrastructure, resources, and capabilities) toward their importance and deploy them to achieve and sustain competitive advantage (Barney, 2001; Van de Wetering, Versendaal, & Walraven, 2018).

Notwithstanding the theories' pivotal role in the literature, it does not explicitly address and define how they collectively should be leveraged to derive business value. The DCV addressed these particular shortcomings as a means for firms to evolve in changing environments and maintain a competitive edge (Schilke, 2014). The DCV has been one of the most influential theories and perspectives in the study of strategic management and information systems (IS) and attempts to explain—by extending the RBV—the processes through which a firm evolves in changing environments and maintains a competitive edge (Teece et al., 1997). Due to conditions of high environmental uncertainty, market volatility, and frequent change, scholars have raised questions regarding the rate to which traditional operational and existing 'resource-based' capabilities erode and cease to provide competitive gains (Drnevich & Kriauciunas, 2011). In the context of IS literature, previous investigations examined how IS/IT and architectural assets

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