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Linking strategic flexibility and operational efficiency: The mediating role of ambidextrous operational capabilities

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ABSTRACT

We elucidate the important, though complex, relationship between strategic flexibility and operational efficiency. We incorporate insights from the dynamic resource-based view, ambidexterity literature and managerial practice to explain how two ambidextrous operational capabilities, i.e., mass customization capability and innovative ambidexterity, fully mediate the relationship between strategic flexibility and operational efficiency. Using top-level executive data in India and the United States of America, our structural equation models show that ambidextrous operational capabilities link strategic flexibility and operational efficiency. While informing the debate on developing sustainable competitive advantage, we derive important theoretical and managerial implications for both operations management and strategic management.

1. Introduction

The trade-off between flexibility and efficiency receives increasing attention in managerial practice (e.g., Kaplan and Norton, 2008; Prahalad and Krishnan, 2002) as well as various academic literatures, such as operations management (e.g., Anand and Ward, 2004; Bordoloi et al., 1999; Boyer and Lewis, 2002; Ferdows and De Meyer, 1990) and strategic management (e.g., Ebben and Johnson, 2005; Kotha, 1995). While firms need to be strategically flexible to adapt to unanticipated situations and rapidly changing environments, they also need to optimize their business processes to achieve operational efficiency (Eisenhardt et al., 2010). Hence, prior literature suggests that balancing strategic flexibility and operational efficiency supports sustainable competitive advantage through reconciling long- and short-term objectives (Adler et al., 1999; Eisenhardt et al., 2010).

However, the relationship between strategic flexibility and operational efficiency is associated with various tensions arising from conflicting metrics (Melynk et al., 2004), contradictory competitive priorities (Boyer and McDermott, 1999), and inconsistent orientations within middle management (Guth and MacMillan, 1986). Strategic flexibility supports the adaptive use of resources, the reconfiguration of processes (Sanchez, 1995; Zhou and Wu, 2010), and thus, the ability to quickly respond to dynamically changing environments (Nadkarni and Narayanan, 2007; Schreyögg and Sydow, 2010). Hence, Eisenhardt et al. (2010) classify strategic flexibility as an important dynamic capability[4] that allows effective organizations to constantly create and recombine resources in novel ways (Eisenhardt and Martin, 2000; Helfat and Peteraf, 2009; Teece et al., 1997). Yet, strategic flexibility is also associated with high investment- and opportunity costs (e.g., Bowman and Hurry, 1993). Organizations that overemphasize strategic flexibility may forego other opportunities, such as deriving benefits from economies of scale or operational excellence (Grewal and Tansuhaj, 2001). Consequently, prior literature suggests that strategic flexibility could also be associated with

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[4] Dynamic capabilities are defined as the ability to build, integrate, and reconfigure resources, processes, and capabilities (e.g., Eisenhardt and Martin, 2000; Helfat and Peteraf, 2003; Teece et al., 1997).

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decreasing firm performance (Grewal and Tansuhaj, 2001), short-term profitability (Johnson et al., 2003), and operational efficiency (Baker and Nelson, 2005).

Operational efficiency, though, is associated with cost and time savings that yield short-term benefits (e.g., Kaplan and Norton, 2001). Operational efficiency captures the ratio of outputs to inputs in the value creation process (Madhavan and Grover, 1998; Priem and Butler, 2001) and comprises two dimensions, i.e., cost-based efficiency and time-based efficiency. While cost-based efficiency is related to "costs of quality, costs of engineering changes, and manufacturing costs", time-based efficiency is associated with "[d]elivery speed and reliability, manufacturing lead time, and inventory turnover rate" (Yeung, 2008, p. 496). Managers may also be at risk of overemphasizing operational efficiency at the expense of strategic flexibility. This imbalance, for example, can be induced by stakeholder pressure or simplistic measurement structures, and can result in favoring short-term profitability over long-term adaptability (e.g., Doyle, 1992; George and Van de Ven, 2001; Kaplan and Norton, 2001). Hence, operational efficiency is – similar to strategic flexibility – "a necessary, but insufficient, condition for sustained competitive advantage" (Krause et al., 2013, p. 10).

To disentangle the complex relationship between strategic flexibility and operational efficiency, we build on the dynamic resource-based view of the firm (e.g., Helfat and Peteraf, 2003; Helfat et al., 2007; Teece, 2007; Winter, 2003) to accentuate the role of operational capabilities relating to dynamic capabilities and performance (Helfat and Peteraf, 2003). We follow Helfat and Peteraf (2003, p. 999) and stress that "[d]ynamic capabilities do not directly affect output for the firm in which they reside, but indirectly contribute to the output of the firm through an impact on operational capabilities." While dynamic capabilities relate to the ability to build, integrate, and reconfigure operational capabilities (Helfat and Peteraf, 2003; Mishra et al., 2013; Teece et al., 1997), operational capabilities embrace the development, production, and delivery of products[5] (Kaplan and Norton, 2008). They are also referred to as "how we earn a living now" capabilities (Winter, 2003, p. 992) and can directly influence performance (e.g., Devaraj et al., 2007; Rosenzweig et al., 2003).

The role of operational capabilities in the dynamic capabilities-performance context requires specific attention (Helfat and Winter, 2011). Here, we refer to prior operations management literature and the role of operational capabilities for balancing trade-offs (Boyer and Lewis, 2002; Klassen and Menor, 2007), such as flexibility and efficiency (Sawhney, 2012), quality, delivery, flexibility, and costs (Kristal et al., 2010), or improvement and innovation (Peng et al., 2008). While the pursuit of various activities in a trade-off situation is referred to as ambidextrous behavior (Rothaermel and Alexandre, 2009), we propose that operational capabilities require ambidextrous traits to mediate the relationship between strategic flexibility and operational efficiency. More specifically, through balancing immediate trade-offs that are directly associated with value creating activities, ambidextrous operational capabilities are also able to influence adjacent trade-offs relating to strategic flexibility and operational efficiency (e.g., Adler et al., 1999). Hence, we define an ambidextrous operational capability as the ability of a firm to balance different value creating activities in a trade-off situation (Patel et al., 2012; Rothaermel and Alexandre, 2009). We draw on prior research that particularly stresses the role of ambidextrous production and innovation capabilities in balancing trade-offs (e.g., Adler et al., 1999) where mass customization capability captures "the ability to quickly produce customized products in large volumes and with a cost, quality, and delivery comparable to that achieved by mass production (MacCarthy et al., 2003)" (Huang et al., 2008, p. 715), and innovative ambidexterity refers to the simultaneous pursuit of both discontinuous and incremental innovations (Jansen et al., 2006; Kortmann, 2014; Tushman and O'Reilly, 1996).

Managerial practice further illustrates the importance of these ambidextrous operational capabilities for combining strategic flexibility and operational efficiency. For example, the German automobile manufacturer BMW is strategically highly flexible in developing entirely new market segments, while remaining competitive in established segments. Being considered a global leader in mass customization capability (Salvador et al., 2009), BMW is producing most of its cars "to order." Modular architectures, an advanced configuration system (Walcher and Piller, 2011), and an elaborated procedure to determine future options via co-creation (Füller and Matzler, 2007), enable BMW to produce and deliver fully customized cars in twelve days at a competitive cost position. Further, BMW develops novel product lines, such as the electric car initiative 'Project i' (Ramsbrock et al., 2013), and simultaneously adapts existing platforms, as in the case of MINI, where one base model was further expanded into seven related models. Both ambidextrous operational capabilities, i.e., mass customization capability and innovative ambidexterity, have thus been instrumental in BMW retaining high operational efficiency.

Building on this discussion and example, we analyze the mediating role of mass customization capability and innovative ambidexterity on the relationship between strategic flexibility and operational efficiency. Using top-level executive data in India and the United States of America, we specifically contribute to the operations management and strategic management literatures in at least three important areas: first, we incorporate insights from the dynamic resource-based view of the firm to clarify how two ambidextrous operational capabilities, i.e., mass customization capability and innovative ambidexterity, link strategic flexibility and operational efficiency, and, thus, support sustainable competitive advantage. Second, we contribute to ambidexterity research by emphasizing the importance of ambidextrous traits of operational capabilities for balancing adjacent trade-offs between strategic flexibility and operational efficiency, as well as for managing immediate trade-offs associated with customized production and mass production as well as discontinuous and incremental innovation. Third, we derive important theoretical and managerial implications that relate to bridging strategic management and operations management in general, as well as the role of ambidextrous operational capabilities for linking strategic flexibility and operational efficiency in particular. These implications include examples from managerial practice as well as important insights for capability-based strategies.[6] Based on a cluster analysis, we then identify three types of capability-based strategies.

2. Theoretical framework

2.1. Strategic flexibility and operational efficiency

While "it is easy to concentrate on flexibility's role in handling uncertainties" at the strategic level, firms often experience difficulties designing specific methods and efficiency-oriented performance objectives at the operational level (Gerwin, 1993, p. 396). This is challenging for practitioners and scholars alike, since characteristics of flexibility, i.e., low levels of bureaucracy, flat

[5] Due to our focus on manufacturing firms, we concentrate on the term 'products', which we use in its broadest sense, comprising tangible products and intangible services.

[6] We define capability-based strategies as strategies that originate in the unique development and combination of interrelated capabilities, which are consciously formulated, developed, implemented, and reconfigured.