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Dynamic Managerial Capabilities: Review and Assessment of Managerial Impact on Strategic Change

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The Concept of Dynamic Managerial Capabilities

General Concept

Following the seminal article on dynamic capabilities by Teece et al. (1997), Rosenbloom (2000) argued that some CEOs may have dynamic capabilities that can aid strategic change. Building on this insight, Adner and Helfat originally defined “dynamic managerial capabilities” as “the capabilities with which managers build, integrate, and reconfigure organizational resources and competences” (2003: 1012). Helfat et al. then used the term to refer to “the capacity of managers to create, extend, or modify the resource base of the organization” (2007: 3). Recently, Harris and Helfat (2013) expanded the term to indicate that dynamic managerial capabilities may affect not only the internal attributes of an organization but also its external environment, in line with scholarship on dynamic capabilities more generally (for comprehensive reviews, see Ambrosini, Bowman, & Collier, 2009; Barreto, 2010; Di Stefano, Peteraf, & Verona, 2010).

The functions of dynamic managerial capabilities include what Helfat et al. term “asset orchestration” (2007: 24), involving the search for resources and capabilities; their selection, investment, and deployment (Maritan, 2001); and their reconfiguration. Asset orchestration can create value through the development and bundling of assets that affects “firms’ abilities to adapt to changing conditions in their industry environments” (Sirmon & Hitt, 2009: 1376). Likewise, Augier and Teece highlight managerial discretion in “orchestrating necessary responses to technological and market changes” (2009: 411). Teece continues this line of reasoning by stressing “the role of individual executives in the dynamic capabilities frame- work . . . [in] . . . creative managerial and entrepreneurial acts (e.g., creating new markets) [that] are, by their nature, strategic” (2012: 1395-1397). In related work, Helfat and Martin (in press) note that creativity and innovation within organizations depends in part on the capacity of managers to sense and seize opportunities.

In a framework closely related to the concept of “asset orchestration,” Teece (2007) separates the “microfoundations” of dynamic capabilities into the capacity to (1) sense opportunities and threats; (2) seize opportunities by choosing among possible actions, making investments, and deploying resources; and (3) reconfigure and transform organizations and their resources and capabilities. Building on this framing in their work on ambidexterity, O’Reilly and Tushman argue that dynamic managerial capabilities are critical and emphasize the capacity of “senior managers to ensure learning, integration, and, when required, recon- figuration and transformation—all aimed at sensing and seizing opportunities as markets evolve” (2008: 189). Agarwal and Helfat (2009) further note the importance of dynamic managerial capabilities in strategic renewal (see also Helfat & Peteraf, 2009). In related work, Trahms, Ndofor, and Sirmon (2013) propose that in turnaround situations, asset orchestration by top management may play a key role in the divestment of resources and in the acquisition, bundling, and reconfiguring of resources.

The concept of dynamic managerial capabilities also relates directly to entrepreneurship. As Teece (2012) emphasizes, entrepreneurial managers create markets and orchestrate resources. Thus, in an analysis of dynamic capabilities, Zahra, Sapienza, and Davidsson (2006) highlight the role of the entrepreneur in reconfiguring organizational resources and routines.

Dynamic managerial capabilities have important attributes that characterize capabilities more generally. A capability refers to "the capacity to perform a particular activity in a reli- able and at least minimally satisfactory manner" (Helfat & Winter, 2011: 1244). Several features of this definition are worth noting. First, the activity has an objective (Amit & Schoemaker, 1993) with a specific purpose and an intended outcome. Thus, "capabilities fill the gap between intention and outcome, and they fill it in such a way that the outcome bears a resemblance to what was intended" (Dosi, Nelson, & Winter, 2000: 2). As Dosi et al. note, this intentionality with respect to the purpose of a capability may be most evident during the process of developing the capability; its subsequent use for a specific purpose reflects this intentionality. Second, a capability enables reliable, repeated activity; otherwise, no real capacity to perform an activity exists. Finally, to perform the activity in a minimally satisfactory manner means only that the outcome of the activity is recognizable as such (Helfat & Winter). Not all managers have dynamic managerial capabilities, and possession of a particu- lar capability does not imply superiority: "Just as there are better and worse ways to hit a golf ball . . . there are more or less effective ways" to perform an activity (Eisenhardt & Martin, 2000: 1108).

The foregoing characteristics apply to dynamic managerial capabilities, in that such capabilities have an intended purpose (e.g., orchestration of assets for a particular purpose) and have outcomes that are recognizable as such (e.g., reconfigured assets). These capabilities also support patterned behavior and activity. As Dosi et al. note, such patterning extends to "intentional, deliberate . . . processes involved in skill . . . deployment" by individuals (2000: 3).

Underpinnings: Managerial Cognition, Social Capital, and Human Capital

Dynamic managerial capabilities draw on a set of underlying managerial resources, namely, managerial cognition, managerial social capital, and managerial human capital (Adner & Helfat, 2003). These resources provide the basis for the patterned aspects of managerial intentionality, deliberation, decision making, and action (Martin, 2011b). These managerial resources also underpin managerial capabilities that sustain current operations or what might be termed "managerial operational capabilities." However, our interest here concerns the dynamic aspects of these underpinnings and the ways in which these managerial resources enable managers to effect strategic change, rather than other aspects of the broad literature on managerial cognition, social capital, and human capital. Next, we briefly survey the theoretical literature on each of these underpinnings as they relate to dynamic managerial capabilities and the potential for strategic change, substantially extending and updating the discussion in Adner and Helfat.

Managerial cognition. Managerial cognition consists of mental models and beliefs (also termed "knowledge structures"; Eggers & Kaplan, 2013; Walsh, 1995), mental processes (and managerial cognitive capabilities; Helfat & Peteraf, in press), and emotions (Hodg- kinson & Healey, 2011). Given the large amount and variety of information that managers confront, they employ "knowledge structures to represent their information worlds" (Walsh, 1995: 280). These knowledge structures influence managers' biases and heuristics that come into play in anticipating market changes, understanding the implications of different choices, and ultimately taking action (Garbuio, King, & Lovallo, 2011).

Evidence indicates that managers have difficulty transferring their knowledge structures from one context to another. Gavetti (2012), however, argues that some managers have the capacity to make associations between knowledge structures in different contexts that enable them to sense cognitively distant yet superior market opportunities. In addition, research sug- gests that when a manager has been exposed to change in a source context, the capacity to transfer knowledge to different contexts increases in the long run (Gary, Wood, & Pillinger, 2012). By implication, managers with prior experience in changing markets and organiza- tions are more likely to have developed knowledge structures that they can apply in multiple contexts.

In addition to knowledge structures, mental processes and emotions underpin dynamic managerial capabilities. With respect to mental processes (also termed "mental activities"), Helfat and Peteraf point to "managerial cognitive capability"—defined as "the capacity of an individual manager to perform one or more of the mental activities that comprise cognition" (in press)—as a critical underpinning of dynamic managerial capabilities. These mental activities include attention and perception, reasoning and problem solving, language and communication, and more. With respect to emotions, Zott and Huy argue that the capacity for "emotion regulation" ("the management and modification of one's own emotions"; in press) is an important element of dynamic managerial capabilities.

Managerial social capital. Managerial social capital consists of goodwill derived from relationships, both formal and informal, that managers have with others and can use to obtain resources and information (Adler & Kwon, 2002). Thus, formal and informal work relations provide managers with conduits for information that may be helpful in sensing new opportunities (Adner & Helfat, 2003). For example, managers who are in brokerage positions, and thereby link individuals in different networks within and across companies, can obtain more diverse information (Burt, 1992) that, in turn, may facilitate environmental scanning and subsequent identification of new opportunities.

Managerial social capital is likely to underpin dynamic managerial capabilities for seizing and reconfiguring as well. For example, social ties outside of the organization can provide access to resources, such as financing and skilled personnel, needed for investments to seize opportunities (Pfeffer & Salancik, 1978). Advantageous positions in an internal social net- work, such as a position of centrality, also may confer power over resources that are useful in seizing opportunities. Similarly, internal power and influence derived from social capital (Coleman, 1988) may facilitate alterations in personnel, organizational structure, and physical assets involved in reconfiguration. Thus, in discussing social capital and dynamic capabilities, Blyler and Coff argue that "firms would be unable to acquire, recombine, and release resources" (2003: 680) without the social capital of individuals.

Managerial human capital. Human capital, as conceptualized by Becker (1964), refers to learned skills and knowledge that individuals develop through their prior experience, training, and education. Recent work has expanded the concept to include not only knowl- edge and skills but also psychological attributes of cognitive ability (general intelligence) and other abilities (personality, values, and interests) of individuals, termed "KSAOs" (knowledge, skills, [cognitive] ability, and other abilities; Ployhart & Moliterno, 2011). For purposes of this review, we separate human capital from cognition and related abilities and discuss their interrelationships below. Thus, we use the term "human capital" to indicate "the core characteristics that human capital comprises . . . knowledge, education, experience, and skills" (Wright, Coff, & Moliterno, 2014: 361). Some managerial human capital is specific to particular teams, units, functional areas, technologies, firms, and industries, and other knowledge is generic (Bailey & Helfat, 2003; Castanias & Helfat, 1991, 2001; Kor, Mahoney, & Michael, 2007). All of these forms of managerial human capital can be beneficial to the firm. As Campbell, Coff, and Kryscynski (2012) note, human capital need not be firm specific to create value for organizations.

Managers can draw on their knowledge and expertise to sense opportunities and threats, seize opportunities, and reconfigure organizational resources, capabilities, and structure. Managers with different functional area, technological, industry-specific, and firm-specific expertise are likely to differ in their absorptive capacity (Cohen & Levinthal, 1990) for different types of information and, therefore, to differ in the opportunities that they sense. With respect to the seizing function of dynamic managerial capabilities, managers are likely to differ in the investments and other commitments that they make as a result of differences in their learned expertise. Similar logic applies to reconfiguration; differences in managerial expertise derived from human capital are likely to cause managers to differ in their reconfiguration of organizational resources.

In addition to the human capital of individual managers, the concept of dynamic managerial capabilities encompasses teams of managers (Martin, 2011a, 2011b). This leads to considerations of unit-level managerial human capital at the level of a team (Ployhart & Moliterno, 2011) and suggests that complementarities between team members in their human capital may have a positive impact on firm performance (Wright et al., 2014).

Multiple underpinnings in combination. The three underpinnings of dynamic managerial capabilities—managerial cognition, social capital, and human capital—not only have separable effects but also interact with one another (Adner & Helfat, 2003). All three underpinnings develop through prior experience; therefore, the same experience may contribute simultaneously to the three underpinnings of dynamic managerial capabilities (Beck & Wiersema, 2013). In addition, each of the underpinnings may affect one another. Managerial cognition affects the development of human capital by influencing the search for, and absorption of, information during education, training, and work experience, as well as how managers interpret and utilize this information. Ployhart and Moliterno developed a model that shows how unit-level human capital "is created from the emergence of individuals' knowledge, skills, abilities, and other characteristics" by explicating an "emergence enabling process" (2011: 128) that amplifies and transforms individual cognition into valuable human capital resources. In addition, human capital can affect managerial cognition. For example, in an experimental study, Melone (1994) found that the attention (an aspect of cognition) that executives paid to different business issues in potential acquisitions depended on their expertise (human capital).

Social capital also affects the development of human capital through the knowledge that managers obtain from their social relationships (Castanias & Helfat, 2001; Coleman, 1988). For example, in a study of executives in a leadership development program, Leitch, McMullan, and Harrison (2013) found that skill development (enhancement of human capital) benefited from social ties among executives (social capital) during the program.

Managerial human capital may also affect the development of social capital as managers seek to form social relationships in order to tap the expertise of others or are sought after for their expertise (Adner & Helfat, 2003).

Finally, social capital may affect cognition and vice versa (Adner & Helfat, 2003). Information obtained from social ties may influence managerial beliefs about the external environment and internal firm competencies. In addition, elements of managerial cognition, such as perception and attention, are likely to affect which social ties managers seek to establish.

Measuring the Performance of Dynamic Managerial Capabilities

Managers clearly differ with respect to the three underpinnings, and these differences are likely to result in differential outcomes. Measuring the impact of these capabilities on outcomes raises issues that are important to address before discussing the empirical evidence. In particular, it is important to avoid a potential tautology of measuring dynamic managerial capabilities as firm performance (Grant & Verona, 2013; Helfat et al., 2007). Therefore, Helfat et al. recommend that empirical assessments of the performance of dynamic capabilities of all types use a two-step process that first traces their impact on intermediate outcomes in the form of strategic change and then assesses the impact of such change on measures of firm performance, such as survival, growth, and financial performance. Although measuring any type of capability independent of its outcomes can pose challenges, studies of dynamic managerial capabilities can use a two- step process to first trace the impact of the managerial resources that underpin dynamic managerial capabilities on strategic change and then assess the contribution of such strategic change to firm performance. This empirical approach separates the intermediate outcomes of dynamic managerial capabilities from subsequent organizational performance (Martin, 2011a; Patel, Bachrach, & Martin, 2014). An alternate approach that avoids a tautology involves tracing the relationship of each of the managerial resources to firm performance under conditions of change without assessing intervening strategic change.

Discussion and Conclusion

The dynamic managerial capabilities concept is distinct in its singular focus on the capacity of managers, individually and in teams, to effect strategic change. The theory argues that firms whose managers have superior dynamic managerial capabilities can adapt and change more successfully than firms whose managers have less effective or no dynamic managerial capabilities. This, in turn, has implications for competitive advantage and disadvantage as firms and industries evolve. We began our review by first clarifying and extending the concept of dynamic managerial capabilities, including with respect to the three core underpinnings of dynamic managerial capabilities: managerial cognition, managerial social capital, and managerial human capital. These underpinnings support key functions of dynamic managerial capabilities, including asset orchestration and the closely related functions of sensing, seizing, and reconfiguring. In our theoretical review, we integrated many strands of research on these underpinnings and their role in asset orchestration and other aspects of strategic change and illuminated interrelationships among the three underpinnings.

To assess the empirical evidence, we first discussed methods for estimating the contribution of dynamic managerial capabilities to strategic change and performance under conditions of change. Then we brought together findings from many different streams of literature. Overall, the empirical evidence suggests that firms differ in their dynamic managerial capabilities and that these differences are an important source of heterogeneity in firm performance under conditions of change (e.g., Peteraf & Reed, 2007; Sirmon & Hitt, 2009). Moreover, differences in strategic change and firm performance are underpinned by differences in managerial cognition (e.g., Zott & Huy, in press), managerial social capital (e.g., Prashantham & Dhanaraj, 2010), and managerial human capital (e.g., Sirmon & Hitt). Studies have also found that these underpinnings have a joint effect on strategic change. For example, Davidsson and Honig (2003) found that both managerial human capital and social capital influenced actions taken by entrepreneurs in starting a business, as well as time to first sales and profitability. In addition, Kaplan (2008) found that both managerial human capital and cognition influenced firms' investments in new technical domains, positioning the firms to adapt to changing markets.

Our review also points to many unanswered questions and opportunities for future research. First, with regard to the empirical evidence on the underpinnings of dynamic managerial capabilities, the evidence regarding managerial social capital is sparser than for the other underpinnings, suggesting a need for additional research regarding the impact of managerial social capital on strategic change. In addition, no studies of which we are aware have incorporated all three underpinnings together as predictors of strategic change and/or performance under conditions of change. Incorporating the three underpinnings together would help us better understand which underpinnings matter most for strategic change. Moreover, most studies that included multiple underpinnings of dynamic managerial capabilities did not assess their interactions. Ascertaining whether such interactions have a positive or negative effect on dynamic managerial capabilities is an important avenue for future research. For example, although research suggests that greater managerial social capital and cognitive ability (general intelligence) increases human capital (Burt, 1992; Ployhart & Moliterno, 2011), more extensive social ties may also lead to information overload and a reduction in cognitive capacity available for information processing regarding any one issue (Khanna et al., 2014).

There is also relatively little evidence about how the social capital and cognition of individual managers interact, aggregate up to the team level, and then affect strategic change. Ployhart and Moliterno (2011) and Moliterno and Mahony (2011) point to the need to understand cross-level effects in the emergence of managerial cognition and social capital.