



Strategizing through the capability lens: sources and outcomes of integration

Sources and
outcomes of
integration

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Abstract

Purpose – This paper aims to explore the concept of capabilities and where they come from as well as their impact on integration and performance.

Design/methodology/approach – The paper is presented in the form of a theoretical development and literature review.

Findings – This paper proposes a theory of capability development and discusses the conditions under which a capability is effective. In particular, for a capability to be effective both local and global coherence are required. But a capability effectiveness and coherence has an inverted U shape. It increases with coherence up to a certain threshold then decreases. As a result, the development of capability is a powerful integration mechanism that crosses levels and functions.

Research limitations/implications – This is a theoretical paper; the propositions offered have still to be empirically tested.

Practical implications – Opening up the capability black box might help managers better grasp how to develop and shape organizational capabilities that are deemed to contribute to competitive advantage (e.g. the pricing capability). First, capabilities are not to be equated with competitive advantage. They may lead to a competitive advantage only where the context is favorable. Thus consistency with the environment challenges is an important factor to watch. This suggests that managers should give attention to the relationships between what they perceive to be their capabilities and the nature of the challenges faced by the organization. Further this research might promote the development of tools to measure coherence within a context and manage appropriate levels of dissent to trigger the re-shaping of existing capabilities or the emergence of new one.

Originality/value – The paper bridges highly theoretical questions with practical considerations.

Keywords Competences, Competitive advantage, Organizational development

Paper type Conceptual paper

Introduction

Strategic management's fundamental issue revolves around the question of how organizations achieve competitive advantage. One of the most promising theoretical frameworks is the concept of capabilities. The capability view leads to a deconstructed perspective of strategy where capabilities are foundational components. What is interesting in this perspective is that the traditional dichotomy between thinking and doing (i.e. planning and implementing) fades away since they become intertwined and iterative at all levels of the organization. Instead of focusing managers' energy only about the concept of strategy, managers at different levels, in the capability view, would focus on the sort and level of capabilities that their organization should (and can) acquire or develop to derive a competitive advantage.

Since capabilities bridge the internal and external environments gap through managers' cognition (Penrose, 1997), success will likely come from:



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- a better alignment between long-term objectives, short-term objectives and organizational design;
- a better coordinated management effort between identifying the types of capabilities that can support a new strategic initiative and the nurturing and development of these capabilities; and
- the increased synergies among capabilities when strategic initiatives are grounded in an organization's existing capabilities.

However, such a perspective also raises the importance of integration and differentiation to a whole new level by pushing such concerns, which were traditionally a top management issue, to all levels of the organization. Hence, adopting a capability's perspective, although promising an increased effectiveness of strategy, will also require additional coordination and communication throughout the organization. Moreover, this should lead to new ways of organizing since it is argued that capabilities determine the configuration, coordination, integration and deployment of resources (Teece *et al.*, 1997; Stalk *et al.*, 1992).

However, for a capability perspective to become valuable to practitioners, researchers need to go beyond the present conversation around capabilities which is mostly about the links between capabilities and performance, and try to describe better what capabilities are and how they can be developed. Most researchers approach capabilities as a black box, rarely defining them by what they are but rather by what they do (their effects). Moreover, they are often measured by proxies (Ethiraj *et al.*, 2005; Ahuja and Katila, 2004; Gautam *et al.*, 2004). For example, Miller and Shamsie (1996) measure the number of Oscars garnered by a studio as a proxy for capabilities while Ahuja and Katila (2004) adopt patents as a proxy measure for capabilities.

The capabilities view as it stands today represents a paradox. It is often easier to define what a capability is not, than to define what it is. There are different reasons for such ambiguity: capability is a polysemic word that is used casually in every day's life and in different disciplines where it possesses different meanings depending on the context. Most researchers describe capabilities as a key engine of competitive advantage but few define them (Spanos and Prastacos, 2004; Mascarenhas *et al.*, 1998). Moreover, there is a lack of detailed empirical research that defines the concept from a practitioner's perspective, and a gap of qualitative research that can shed some light on the practical nature of capabilities. Identifying what capabilities are can provide insights into how managers shape organizations in pursuit of competitive advantage (Barney *et al.*, 2001). Looking at capabilities as a black box indicates that most "observed" links between them and performance are speculative. The literature, although fertile with research on capabilities, has a qualitative gap that can be filled by answering the following:

- What are capabilities?
- Where do they come from?
- How does capability development affect performance?

In other terms, what are the ingredients of a capability, how do they interact and what are the determinants of a capability's link to performance? In this paper, we integrate existing research and we extend it with testable propositions that we intend to verify in

a coming work on the pricing capability, conducted through a qualitative research of five companies in five different industries. The first section is an attempt to clarify the language and propose avenues to answer the first question. In the next two sections we explore the other questions and offer a set of propositions to inform our qualitative inquiry. We argue finally that capability formation is an interesting heuristic when one thinks about integrating activities across functions and across levels.

Capabilities: what are they?

For Penrose, the distinction between resources and capabilities is the source of the uniqueness of firms versus markets. Although firms have access to common resources, it is their capabilities to configure and deploy these resources and to obtain distinct services from these resources, which leads to a differentiated offering, a real source of heterogeneity. This does not imply that resources cannot provide firms with rents, but it is capabilities that are a more consistent source of rent since they are more prone to market failure.

Resources

In this article we differentiate between two levels of analyses (see Figure 1) that are often intermingled in the literature, and distinguish between resources and capabilities. We adopt a similar position to Dierickx and Cool's (1989) distinction between flows and stocks. In other words, a capability is usually firm specific whereas resources may be available to many competitors (Makadok, 2001) and while both a capability and a resource might lead to competitive advantage, a capability encompasses resources and expands their potential. Resources are made of tangible and intangible assets (Amit and Shoemaker, 1991) and are an important ingredient of capabilities.

Problem-defining and problem-solving routines

Although several definitions of capabilities have been suggested, we still lack a homogeneous understanding, from both a theoretical and empirical perspective, of what a capability is. For example, Winter (2000) considers a capability as a high-level routine that is coupled to "input flows", and offers managers "a set of decision options for producing significant outputs of a particular type". Sanchez (2004), on the other hand, describes a capability as a repeatable pattern of action: persistent in time and hence possible to observe. For Conner (1991), capabilities are historical products of strategic choices and resource commitments motivated by effectiveness and profitability, while for Oliver (1997) "capabilities are capacities to coordinate and

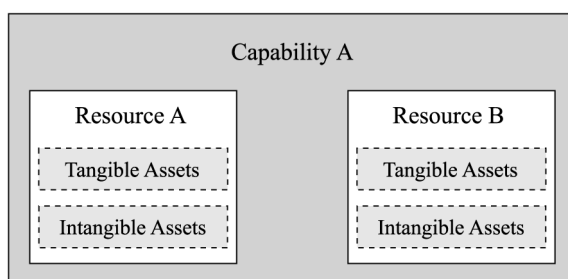


Figure 1.
Resources as ingredients
of capabilities

deploy resources to perform tasks”. Dosi *et al.* (2000) suggest that they can be understood as the organisational know-how that permits firms to perform and extend their characteristic output actions. Finally, Collis’ (1994, p. 145) defines a capability as the “socially complex routines that determines the efficiency with which firms physically transform inputs into outputs,” and as such is an organization’s distinctive competence (Andrews, 1971).

This diversity seems to stem from latent assumptions about the nature of capabilities. Most authors adopt an approach where a capability is measured by positive contributions to objectives pursued, e.g. Oscars won (Miller and Shamsie, 1996). However, as most definitions indicate, capabilities are neither inputs (resources) nor outputs (results/performance) but rather problem-defining and problem-solving routines that allow organizations to make sense of their environment, prioritize issues, and develop and implement solutions. What is critical in this definition is that capabilities are geared towards a solution. In other words, capabilities emerge from problem-solving routines directed towards some perceived constraints faced by the organization. Finally, this definition does not assume that capabilities are creating value for the organization (e.g. increase profits) as a whole, but in general emerge as a response to local constraints (e.g. reduce inventory). Problem-solving routines are an essential component of capabilities. The interweaving of routines, the embodiment of individual skills at an organizational level, into higher functional sets is described commonly as organizational processes (Simon, 1997). We suggest that processes, as complex chains of individual skills and organizational routines, are components of capabilities (see Figure 2).

Structure and culture

Capabilities are organizational elements having as components individual skills, routines and processes, and emerge from links across a mosaic of other organizational elements (Lewin and Volberda, 1999; Collis, 1994). For example, incentive and operating systems (Helfat and Lieberman, 2002; Henderson, 1994), corporate culture elements (e.g. loyalty) or behavior-shaping practices such as encouraging “mistakes” (Orlikowski, 2002) are essential for capability emergence. These organizational elements can be structural, cultural or cognitive (Miller, 2003; Collis, 1994; Amit and Schoemaker, 1991). Capabilities are thus not only an accumulation of know-how and skills, but are also the result of complex social processes integrating resources, knowledge and individual skills (Grant, 1991; Bhatt, 2000): they are a key “product of the organization as an entire system” (Collis, 1994, p. 145). Therefore, we suggest that

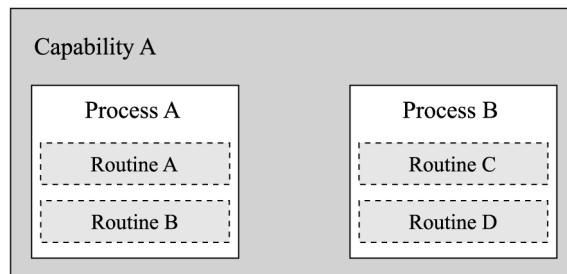


Figure 2.
Processes and routines as
ingredient of capabilities

capabilities are organizational elements emerging from the interactions of cultural and structural elements and have as ingredients processes and resources (see Figure 3).

Knowledge and learning are necessary to build an organization's core competence (Thompson, 1967). They reside in the interplay between individual levels and organizational levels (Nonaka and Toyama, 2002). As a direct product of problem defining and problem solving routines, they are drivers of capabilities, and this highlights the importance of multi-level analyses to grasp the complex facets of capabilities and help build competitive advantage. This complex view of capabilities sheds a light on the organizational elements that influence their emergence such as individual activities – skills and cognition – structural elements such as roles and responsibilities, cultural elements such as norms and values, resources such as budgets and tools, and processes of decision making and resource allocation, and more importantly interactions between individuals within the organization (e.g. communities of practice) or with external partners and clients (Kor and Mahoney, 2005; Miller, 2003). This leads us to our more complete definition of capability as:

An organizational phenomenon emerging from resource deployment activities, undertaken by individuals and groups while defining and solving problems at different levels of an organization. It is driven by the learning and practices of these individuals and groups interacting within structural and cultural organizational elements, and with their environment.

It is useful to note that our definition does not make any assumptions about links between capabilities and competitive advantage and hence avoids the typical tautological trap. Capabilities lead to competitive advantage only when contextualized (Gautam *et al.*, 2004). For example while R&D capability is posited as key for competitive advantage (Dutta *et al.*, 2005; Henderson, 1994), it was shown that the Xerox PARC's R&D capability, arguably one of the best in the industry, did not contribute to competitive advantage. We believe that our definition is more useful for researchers since it allows theorizing about and testing possible configurations of and contingencies under which capabilities are or are not valuable. This complex nature of capabilities also explains their idiosyncratic character, the difficulty to imitate them, and why they cannot be mechanically "built", but rather develop over time through activities and learning.

Where do capabilities come from?

Capabilities emerge, develop, and dissolve as a result of several factors, of which the development cost and timing (Helfat and Peteraf, 2003; Bhatt, 2000). They seem to be shaped by managers (Montealegre, 2002) who can affect them positively or negatively.

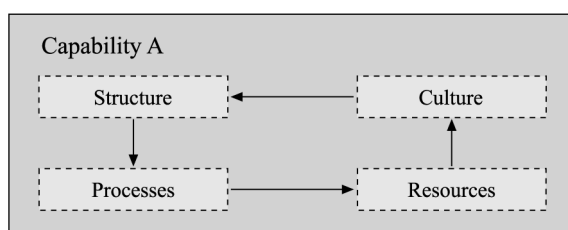


Figure 3.
Capabilities as product of
organizational systems

Moreover, capabilities may be an unintended by-product of organizational growth as Penrose suggested: slack managerial resources might lead to identifying problems that other busier managers may have either overlooked or to which they may have given a low priority. They can also help solve them, thus driving the emergence of new capabilities or reshaping existing ones.

Perception: opportunities and failures

The pursuit of new productive opportunity sets is driven either by the perception of failures to meet certain aspiration levels or by new identified opportunities (Cyert and March, 1963). Hence, capabilities seem to first take form at the cognitive level when individuals within an organizational context interpret “a failure to reach some aspiration level” (Cohen and Levinthal, 1990, p. 137) as an opportunity. They make sense of their environment in a way that allows them to redefine problems, interact with other organizational elements to marshal resources and engage in activities to solve these problems. Hence, at the core of capabilities’ emergence is a perception of a “problem” coupled to individual and organizational learning and doing dynamics. Such a process is cumulative and since it is driven by learning, it is path dependent. Capabilities then emerge from the pursuit of functional objectives in a context of uncertainty and characterized by collective action, interaction between different roles, knowledge coordination, a spectrum of tasks and constrained by cultural and structural contexts:

- P1. Capabilities emerge over time through the activities of individuals, redefining and solving problems at different levels in the organization and reinterpreting them as opportunities.

Incremental learning: setting local objectives

The identification of a problem is a necessary trigger for a capability emergence but is not sufficient. In a context of uncertainty and bounded rationality (Simon, 1997), learning and knowledge accumulation are essential ingredients. Capabilities allow an organization to “surmount the bounded rationality of particular individuals” (Teece *et al.*, 1994, p. 16). Hence, engaging in activities to identify problems, implement solutions and evaluate them is a key driver of capability emergence. For example, setting objectives can be a catalyst for capability emergence since objectives become “problems” to be solved. In other words, organizations do not go about creating capabilities. Rather, they emerge when individuals identify problems, set local objectives, and try to achieve them by identifying and implementing new solutions, which over time become institutionalized. Refinement takes place as some problems gradually dissolve and past solutions become increasingly tacit. This process of capability maturation through solving and dissolving additional problems leads to the persistence of a capability configuration. As the components become more interconnected and institutionalized into routines, they increasingly shape the behavior of individuals:

- P2. Problem defining and problem solving routines further refine the different components of a capability making them more tacit and making the overall configuration more persistent and more effective in shaping individual behavior[1].

This iterative and continuously refined model suggests that capabilities are not generic but rather firm specific. To be relevant they have to be contextualized. They evolve in response to problems defined in a specific context. Each organization develops its own configuration of capabilities shaped by its specific environment, history and future anticipations (Day, 1994). However, their complex nature and the pursuit of a functional goal suggest that they might be equifinal[2]. Hence, although two capabilities can emerge from different elements, they can have similar effects. Hence, the type of resources, the source of these resources and the method of acquisition and investment could lead to different capability configurations that have a similar functional objective:

- P3. There is no single “recipe” with an established list of components for the formation of a specific capability, and different combinations of organizational elements can lead to equivalent capabilities.

Internal coherence: pursuing local effectiveness

This complex nature of capabilities sheds a light on why minor variations can have a major impact on a capability’s effectiveness, and highlights the importance of coherence (Moorman and Miner, 1998; Teece *et al.*, 1994) between the different constitutive elements of a capability. By coherence we mean an orderly and consistent relation between different components, similar to “synergy”. While Teece *et al.* (1994) suggest that “coherence is a measure of relatedness”, which is equivalent to the notion of fit; we suggest that it is subtly different. Fit suggests that two elements correspond to each other statically (Zajac *et al.*, 2000) while coherence is a dynamic term. Coherence is similar to structural coupling. The more elements are structurally coupled to each other, the more the whole is coherent. Porter (1996) suggested that there are three types of coherence:

- (1) simple consistency between each activity and the overall strategy;
- (2) mutual reinforcement; and
- (3) optimization of effort across activities.

Although these definitions are helpful, for our purposes we prefer to bring in two complementary types of coherence:

- (1) local or internal coherence; and
- (2) global or external coherence.

We suggest that a capability’s effectiveness is determined by the synergistic interrelationships between its different components, local coherence, as well as by its interaction with other capabilities (Galunic and Rodan, 1998, p. 1200), global coherence. A high level of local coherence might indicate an increased capability’s local effectiveness and explain their uniqueness and their path dependence. For example, Helfat and Lieberman (2002, p. 741) suggest that Wal-Mart, when developing Walmart.com, had to install new “incentive and operating systems that were compatible with the internet operations, but were incompatible with Wal-Mart’s traditional brick-and-mortar retail business”. Woiceshyn and Daellenbach (2005) describe how increasing (decreasing) local coherence is akin to developing virtuous (vicious) circles where each component reinforces (weakens) the others leading to the emergence of a stable (unstable) configuration. Local coherence is highlighted by

researchers such as Pitt and Clarke (1999) who talk about the importance of enabling “an appropriate fit of structures, processes and cultures” while Majumdar (2000) hints that a capability might crumble “under the weight of internal contradictions”. Hence, we suggest that:

- P4. A capability strengthens and persists as a result of interactions among its components. The higher the level of coherence among the components, the higher the capability effectiveness and the speeds with which it matures[3].

Aligning local and global objectives

However, the pursuit of local coherence, pushed too far may lead a capability towards architecture of simplicity (Miller, 1993). This local imbalance could transform core capabilities into core rigidities (Leonard, 1998). For example Haas and Hansen (2005) found that a belief that high levels of knowledge acquisition enhanced performance led teams to become less performing the more they developed their knowledge acquisition capability. We suggest that capabilities can become rigidities if local coherence is pursued beyond a certain threshold that can be assessed.

Moreover, problem identification is often based on individual initiative. Since individuals in an organization have different cognitions, context and motivations, their perceptions of possible problems can differ. For example, some individuals (e.g. sales or operations) might notice the failure of reaching sales objectives while others might not (e.g. marketing). Further, even if different individuals perceived the same problems, their solutions could be different, uncoordinated and hence end up not solving the problem or worse, exacerbating it. In a much cited example, Hau Lee tells the story of Volvo which had too many green cars:

[...] marketing decided to discount them without telling the supply-chain folks. Over in Volvo's supply-chain management system, demand for green cars suddenly took off, so the system quickly added more production to meet the new demand. This resulted in an even worse inventory problem (Greenbaum, 2003).

This supports the contention that capabilities can influence each other positively or negatively. Dutta *et al.* (1999) indicate that in high technology markets, R&D capabilities and marketing capabilities are synergistic, and Danneels (2002) showed that marketing and R&D work at cross purpose in shaping the evolution of a firm's product development capability. Tripsas (1997) showed that while some capabilities might be essential for competitive advantage, their effectiveness is affected by other capabilities. We suggest that not only a capability's elements need to be coherent (local coherence) but also a capability needs to be coherent with other capabilities (global coherence). Hence, while focusing on local coherence, by eliminating local problems, can increase a capability's effectiveness it can also, if not balanced by global coherence, transform it into a rigidity. To avoid the traps that may be related to a focus on local doing and learning, it is important to complement local solutions with global ones. Hence, we suggest that balancing local and global coherence can increase a capability's effectiveness:

- P5. The relationship between a capability's effectiveness and local coherence has an inverted U shape. Effectiveness increases with local coherence up to a threshold then decreases[4].

- P6. The threshold point at which the level of a capability local coherence leads to reduced effectiveness is affected by the level of global coherence[5].

Global coherence: pursuing global effectiveness

Local coherence is essential for a capability's emergence and development. However a capability's effectiveness is also contingent on its relationship to a firm's strategies (Barney, 1991; Selznick, 1957). As suggested above, capabilities and competitive advantage relationship is affected by the former's contributions to a firm's products and services in the market (Figure 4). Hobday *et al.* (2005, p. 1137) find that the "external environment has a strong shaping effect on the development of capabilities". Most capabilities described in the literature have a component that provides a link with the environment such as "understanding the market" (Miller, 2003; Teece *et al.*, 1997; Henderson, 1994), "monitor the environment" (Woiceshyn and Dallenbach, 2005; Spanos and Prastacos, 2004; Zahra and George, 2002; Grant, 1996; Mascarenhas *et al.*, 1998; Day, 1994; Cohen and Levinthal, 1990), "customer intimacy" (Hobday *et al.*, 2005; Kor and Mahoney, 2005; Knott, 2001; Prahalad and Ramaswamy, 1999; Capron and Mitchell, 1998; Mascarenhas *et al.*, 1998; Tripsas, 1997; Iansiti and Clark, 1994), "supplier interaction" (McEvily and Marcus, 2005; Capron and Mitchell, 1998; Tripsas, 1997; Brown and Eisenhardt, 1998), and "external networks" (Smith *et al.*, 2005; Baker *et al.*, 2003; Orlikowski, 2002; Eisenhardt and Martin, 2000; Rindova and Khota, 2001; Lane and Lubatkin, 1998; Zander and Kogut, 1995).

Global coherence arises as a firm's capabilities, the potential value creation and capture activities that it engages in and the products and services it delivers to customers are all aligned. It is about shaping capabilities that contribute to deliver products and services for which customers are willing to pay a profitable price. Capabilities can contribute directly to a firm's products or services such as product development capabilities or manufacturing capabilities, or indirectly such as R&D capabilities or customer support capabilities. Hence, the more capabilities are coherent with the external environment of the firm, the more they can contribute to a firm's overall performance:

- P7. Increasing global coherence can increase a firm's performance.

This external coherence can also be the trigger for a capability's emergence. Many cases describe how firms identify a market opportunity and collaborate with early customers to create a new market by developing a suitable new product or service, and in so doing trigger the emergence of new capabilities. For example, Magnusson *et al.*

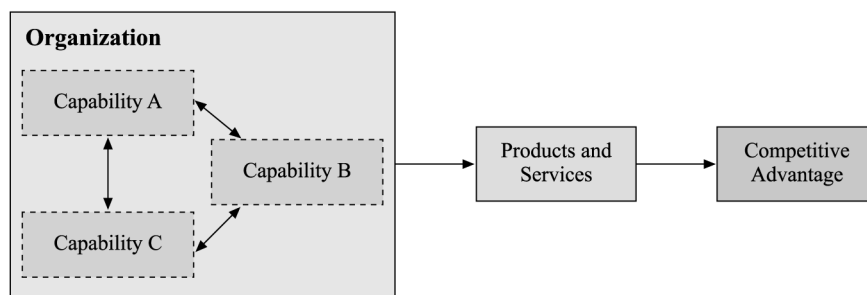


Figure 4.
Capabilities and the link to
competitive advantage

(2005) describe how a power plant manufacturer starts by finding a “sympathetic customer” who will be offered incentives to compensate for its collaboration:

P8. Pursuing global coherence triggers the emergence of new capabilities.

However, as described by Christensen (1997), the pursuit of external coherence can lead to an “Innovator’s dilemma”. Firms which focus exclusively on their customers’ needs and develop products and services to fulfill such needs, are rewarded as long as the current customers are representative of the needs of the larger market. However, environmental uncertainty, a result of disruptive technologies, and radical change, may lead markets to evolve in unexpected direction, thus investments could be lost and capabilities could become useless. Hence, we suggest:

P9. The relationship between a capability’s effectiveness and global coherence has an inverted U shape. Effectiveness increases with coherence up to a certain threshold then decreases.

P10. The threshold point at which a capability effectiveness starts decreasing is affected by environmental uncertainty.

External and global coherence: the hierarchy of strategy

The discussion above allowed us to identify several characteristics of organizational capabilities. The most important is that capabilities are geared towards local functional effectiveness. This highlights the difference between local (functional) performance and global (firm-level) performance. Hence while a capability can be effective, it does not necessarily contribute to competitive advantage; it might even have a negative impact on competitive advantage. This allows us to highlight two key concepts for managers pursuing competitive advantage: local coherence among an organizational capability components and global coherence among a firm’s capabilities. This suggests that the firm should be seen as a portfolio of capabilities which themselves are configuration of organizational components. Thus developing a competitive advantage is about managing an organizational capability local and global coherence.

Capabilities as ingredients of competitive advantage require managers at all levels to be involved in shaping and developing them. Based on the above analysis, managers’ role cannot be limited to identifying the appropriate capabilities from a pre-existing set but should also cover nurturing, shaping, and possibly dissolving capabilities. We suggest that the roles of managers in capability development are multifaceted, depending on where they are in a structure.

At the local level, managers’ role is to increase the effectiveness of current capabilities without falling into a competency trap where the capabilities become irrelevant or detrimental to the organization as a whole. Moreover managers at this level need to shape the meaning of local problems to help their teams make sense of the diversity and flow of events at the local level ensuring a minimum level of coherence. Sense-making activities cannot be only directed to building coherence around existing capabilities (e.g. customer service responding to customer complaints or questions) but also to sense the possible need for new capabilities emergence (e.g. the local Ritz Hotel does not wait for customers to call, rather it calls its customer to ensure satisfaction). This is a key role for managers at this level since their teams might be too focused on operational routines to perceive the need for new capabilities.

Middle managers' role, linking senior and local managers, is to support local managers in their attempts not to fall into competency traps by ensuring the coherence among different functional capabilities or encouraging the development of cross-functional ones. For example, perceiving the inconsistency at HP between manufacturing and marketing, a middle manager's role is to bridge the two "departmental thought worlds" (Dougherty, 1992) by helping them into a new understanding of problem identification and problem solving where a whole set of capabilities may be involved.

Finally, we suggest that senior managers' role is to engage in an innovative management of global coherence. Global coherence is based on perceiving problems at the firm level (e.g. new market opportunities, competitors' strategy) and set appropriate objectives to stimulate the emergence of new capabilities (if needed) or the development and evolution of existing ones. Global coherence can be managed through setting and establishing a clear vision (Collins and Porras, 1997), which becomes a referential for all capabilities to contribute to. This passive element does not preclude senior managers from managing the firm's portfolio of capabilities (Eisenhardt and Galunic, 2001). This involves developing new capabilities, modifying existing ones and dissolving others.

Conclusion and implications

The propositions that we have suggested in this article indicate some avenues of answers to the questions asked in the introduction. We suggested that capabilities are conceptual heuristics that allow managers to make sense of their organizations. A capability is a phenomena emerging from the interactions of different organizational elements such as structure, systems and values. They emerge through the activities – physical and cognitive – of individuals interacting with each other within a context. Hence, a capability is at the same time a collection of activities and a body of knowledge. Capabilities do not have a knowledge component and an activities component soldered together, but from a capability perspective knowledge is activities and activities are knowledge, as if they were fractal components of each other. We could also conceptualize a capability as a potential (knowledge) exercised through action.

Individuals, trying to make sense of their world and acting within a specific context inside organizations, are the source of capabilities. Individuals able to make sense of their context (Bower, 1972) keep on perpetuating it and contribute, consciously or not, to the resilience of existing capabilities. In contrast, we expect individuals who have difficulties making sense of their context to tinker with it while solving the "problems" that they perceive. In so doing, they contribute to changing the existing capabilities or to developing new ones. In essence, capabilities emerge from the marshalling of knowledge and other resources within a specific context by boundedly-rational individuals acting to solve perceived problems. Hence, individuals are themselves components and drivers of capabilities.

Capabilities, most often, deal with local issues and add value at a local level. This highlights the importance of framing when discussing capabilities since local is relative. Looking at the literature, we can see that some capabilities are very detailed such as "franchising" (Knott, 2001) while others are rather fuzzy such as "innovative capability" (Cohen and Levinthal, 1990). Where framing helps is by suggesting that

however a capability is defined, there is always something beyond it with which it needs to interact. The point is that managers focusing on making a single capability effective are not necessarily contributing to their firm's competitive advantage. A firm is a portfolio of capabilities that needs to be optimized both at the local level (functional) and at the global level (portfolio). This perspective echoes the traditional organization theory dilemma between differentiation and integration of work (Dougherty, 2001) as first highlighted by Lawrence and Lorsch (1967). Moreover, this local/global dynamics applied at the capability level can be used in a spatial dimension (two different capabilities can negatively/positively influence each other) or even in a time dimension where the development of one capability at a specific time will set the organization down one path enabling it or preventing it from developing another capability in the future. As described by Tripsas (1997), the success of the Fotosetter delayed the firm investments in capabilities in electronics and caused it to miss the new market.

The implications of this work, as we foresee them now, can be numerous. From an academic perspective, the propositions offered in this work can be the basis of a more thorough theory development. This is now being undertaken by the authors. Through an interview, and case-based constructivist research (Mir and Watson, 2000), the development of what is now seen as a key capability, Pricing, is studied in detail in five companies of different industries. Such a work will help confirm the capability definitions proposed earlier, delineate the specific steps involved in capability development, and the conditions under which a capability can be more or less effective.

From a practice perspective, opening up the capability black-box might help manager better grasp how to develop and shape organizational capabilities that are deemed contributing to competitive advantage (e.g. the pricing capability). First, capabilities are not to be equated with competitive advantage. They may lead to a competitive advantage only where the context is favorable. Thus consistency with the environment challenges is an important factor to watch. This suggests that managers should give attention to the relationships between what they perceive their capabilities and the nature of the challenges faced by the organization to be. Further this research might promote the development of tools to measure coherence within a context and manage appropriate levels of dissent to trigger the re-shaping of existing capabilities or the emergence of new one. Measurement of coherence is still to be developed in our coming research. However, for example, to avoid falling into local competency traps, managers could encourage a minimal level of inconsistencies among a capability's components or with its relationship with other capabilities. This should increase its effectiveness and prevent it from becoming rigid. Specifically, they could pursue moderately conflicting objectives (e.g. increase revenues and margins) or deviate from accepted practices in activities that are not central to the actual competitive position.

Another implication is that capability effectiveness could and should be monitored. It is affected by coherence among capability components, coherence among organizational capabilities, and coherence with overall vision and environmental position. The balance among these is the source of a capability effectiveness and ultimately of the firm's competitive advantage. Finally, capabilities bridge levels within and with the environment. They can thus be seen as a tool to evaluate and build consistency and competitive advantage within an organization faced with competition.

Notes

1. In our research interviews on the pricing capability, we intend to identify the triggers that led to the emergence of the pricing capabilities and how it has evolved: the events/practices that shaped it.
2. Equifinality suggests that a system's state can be reached from different initial states and in different ways.
3. In our research interviews, we look for events/practices that impeded the pricing capability, slowed its development or limited its effectiveness.
4. In our research interviews we look for evidence of how other capabilities such as sub components of pricing, marketing and manufacturing affect positively or negatively the pricing capability.
5. The differences among companies in different global coherence situations will help assess the link between threshold and global coherence.

References

- Ahuja, G. and Kattila, R. (2004), "Where do resources come from? The role of idiosyncratic situations", *Strategic Management Journal*, Vol. 25 Nos 8-9, pp. 887-907.
- Amit, R. and Schoemaker, P. (1993), "Strategic assets and organizational rent", *Strategic Management Journal*, Vol. 14 No. 1, pp. 33-46.
- Andrews, K. (1971), *The Concept of Corporate Strategy*, Irwin, Homewood, IL.
- Baker, T., Miner, A. and Eesley, D. (2003), "Improvising firms: bricolage, account giving and improvisational competencies in the founding process", *Research Policy*, Vol. 32 No. 2, pp. 255-76.
- Barney, J. (1991), "Firm resources and sustained competitive advantage", *Journal of Management*, Vol. 17 No. 1, pp. 99-120.
- Barney, J., Wright, M. and Ketchen, D. (2001), "The resource-based view of the firm: ten years after 1991", *Journal of Management*, Vol. 27 No. 6, pp. 625-41.
- Bhatt, G. (2000), "A resource-based perspective of developing organizational capabilities for business transformation", *Knowledge and Process Management*, Vol. 7 No. 2, pp. 119-29.
- Bower, J.L. (1972), *Managing the Resource Allocation Process*, Harvard Business School Press, Boston, MA.
- Brown, S. and Eisenhardt, K. (1998), *Competing on the Edge: Strategy as Structured Chaos*, Harvard Business School Press, Boston, MA.
- Capron, L. and Mitchell, W. (1998), "The role of acquisitions in reshaping business capabilities in the international telecommunications industry", *Industrial and Corporate Change*, Vol. 7 No. 4, pp. 715-30.
- Christensen, C. (1997), *The Innovator's Dilemma, Why New Technologies Cause Great Firms to Fail*, Harvard Business School Press, Boston, MA.
- Cohen, W. and Levinthal, D. (1990), "Absorptive capacity: a new perspective on learning and innovation", *Administrative Science Quarterly*, Vol. 35 No. 1, pp. 128-52.
- Collins, J. and Porras, J. (1997), *Built to Last: Successful Habits of Visionary Companies*, HarperCollins, London.
- Collis, D. (1994), "How valuable are organizational capabilities?", *Strategic Management Journal*, Vol. 15 No. 5, pp. 143-52.

- Conner, K. (1991), "A historical comparison of resource-based theory and five schools of thought within industrial organization economics: do we have a new theory of the firm?", *Journal of Management*, Vol. 17 No. 1, pp. 121-54.
- Cyert, R. and March, J. (1963), *A Behavioral Theory of the Firm*, Prentice-Hall, Englewood Cliffs, NJ.
- Danneels, E. (2002), "The dynamics of product innovation and firm competences", *Strategic Management Journal*, Vol. 23 No. 12, pp. 1095-121.
- Day, G. (1994), "The capabilities of market-driven organizations", *Journal of Marketing*, Vol. 58 No. 4, pp. 37-52.
- Dierickx, I. and Cool, K. (1989), "Asset stock accumulation and sustainability of competitive advantage", *Management Science*, Vol. 35 No. 12, pp. 1504-13.
- Dosi, G., Nelson, R. and Winter, S. (Eds) (2000), *The Nature and Dynamics of Organizational Capabilities*, Oxford University Press, Oxford.
- Dougherty, D. (1992), "Interpretive barriers to successful product innovation in large firms", *Organization Science*, Vol. 3 No. 2, pp. 179-202.
- Dougherty, D. (2001), "Reimagining the differentiation and integration of work for sustained product innovation", *Organization Science*, Vol. 12 No. 5, p. 612.
- Dutta, S., Narasimhan, O. and Rajiv, S. (1999), "Success in high-technology markets: is marketing capability critical?", *Marketing Science*, Vol. 18 No. 4, pp. 547-68.
- Dutta, S., Narasimhan, O. and Rajiv, S. (2005), "Conceptualizing and measuring capabilities: methodology and empirical application", *Strategic Management Journal*, Vol. 26 No. 3, pp. 277-85.
- Eisenhardt, K. and Galunic, C. (2001), "Architectural innovation and modular corporate forms", *Academy of Management Journal*, Vol. 44 No. 6, pp. 1224-44.
- Eisenhardt, K. and Martin, J. (2000), "Dynamic capabilities: what are they?", *Strategic Management Journal*, Vol. 21 Nos 10/11, p. 1105.
- Ethiraj, S., Kale, P., Krishnan, M.S. and Singh, J. (2005), "Where do capabilities come from and how do they matter? A study in the software services industry", *Strategic Management Journal*, Vol. 26 No. 1, pp. 25-45.
- Galunic, C. and Rodan, S. (1998), "Resource recombinations in the firm: knowledge structures and the potential for Schumpeterian innovation", *Strategic Management Journal*, Vol. 19 No. 12, p. 1193.
- Gautam, R., Barney, J. and Muhanna, W. (2004), "Capabilities, business processes, and competitive advantage: choosing the dependent variable in empirical tests of the resource-based view", *Strategic Management Journal*, Vol. 25 No. 1, pp. 23-37.
- Grant, R. (1991), "The resource-based theory of competitive advantage: implications for strategy formulation", *California Management Review*, Vol. 33 No. 3, pp. 114-35.
- Grant, R. (1996), "Prospering in dynamically-competitive environments: organizational capability as knowledge integration", *Organization Science*, Vol. 7 No. 4, pp. 375-87.
- Greenbaum, J. (2003), "No more big bang, no more black box, and much more forecasting", available at: www.softwaremag.com/L.cfm?Doc=2003-02/JoshuaGreenbaum (accessed February 3, 2006).
- Haas, M. and Hansen, M. (2005), "When using knowledge can hurt performance: the value of organizational capabilities in a management consulting company", *Strategic Management Journal*, Vol. 26 No. 1, pp. 1-24.

- Helfat, C. and Lieberman, M. (2002), "The birth of capabilities: market entry and the importance of pre-history", *Industrial and Corporate Change*, Vol. 11 No. 4, pp. 725-60.
- Helfat, C. and Peteraf, M. (2003), "The dynamic resource-based view: capability lifecycles", *Strategic Management Journal*, Vol. 24 No. 10, p. 997.
- Henderson, R. (1994), "The evolution of integrative capability: innovation in cardiovascular drug discovery", *Industrial and Corporate Change*, Vol. 3 No. 3, pp. 607-30.
- Hobday, M., Davies, A. and Prencipe, A. (2005), "Systems integration: a core capability of the modern corporation", *Industrial and Corporate Change*, Vol. 14 No. 6, pp. 1109-43.
- Iansiti, M. and Clark, K. (1994), "Integration and dynamic capability: evidence from product development in automobiles and mainframe computers", *Industrial and Corporate Change*, Vol. 3 No. 3, pp. 557-605.
- Knott, A. (2001), "The dynamic value of hierarchy", *Management Science*, Vol. 47 No. 3, pp. 430-48.
- Kor, Y. and Mahoney, J. (2005), "How dynamics, management, and governance of resource deployments influence firm-level performance", *Strategic Management Journal*, Vol. 26 No. 5, pp. 489-96.
- Lane, P. and Lubatkin, M. (1998), "Relative absorptive capacity and interorganizational learning", *Strategic Management Journal*, Vol. 19 No. 5, pp. 461-77.
- Lawrence, P. and Lorsch, J. (1967), *Organizations and Environment*, Irwin, Homewood, IL.
- Leonard, D. (1998), *Wellsprings of Knowledge: Building and Sustaining the Sources of Innovation*, Harvard Business School Press, Boston, MA.
- Lewin, A. and Volberda, H. (1999), "Prolegomena on coevolution: a framework for research on strategy and new organizational forms", *Organization Science*, Vol. 10 No. 5, pp. 519-34.
- McEvily, B. and Marcus, A. (2005), "Embedded ties and the acquisition of competitive capabilities", *Strategic Management Journal*, Vol. 26 No. 11, p. 1033.
- Magnusson, T., Tell, F. and Watson, J. (2005), "From CoPS to mass production? Capabilities and innovation in power generation equipment manufacturing", *Industrial and Corporate Change*, Vol. 14 No. 1, pp. 1-26.
- Majumdar, S. (2000), "Sluggish giants, sticky cultures, and dynamic capability transformation", *Journal of Business Venturing*, Vol. 15 No. 1, pp. 59-78.
- Makadok, R. (2001), "Toward a synthesis of the resource-based and dynamic-capability views of rent creation", *Strategic Management Journal*, Vol. 22 No. 5, pp. 387-401.
- Mascarenhas, B., Baveja, A. and Jamil, M. (1998), "Dynamics of core competencies in leading multinational companies", *California Management Review*, Vol. 40 No. 4, pp. 117-32.
- Miller, D. (1993), "The architecture of simplicity", *Academy of Management Review*, Vol. 18 No. 1, pp. 116-38.
- Miller, D. (2003), "An asymmetry-based view of advantage: towards an attainable sustainability", *Strategic Management Journal*, Vol. 24 No. 10, pp. 961-76.
- Miller, D. and Shamsie, J. (1996), "The resource-based view of the firm in two environments: the Hollywood film studios from 1936 to 1965", *Academy of Management Journal*, Vol. 39 No. 3, pp. 519-43.
- Mir, R. and Watson, A. (2000), "Strategic management and the philosophy of science: a case for a constructivist research agenda", *Strategic Management Journal*, Vol. 21 No. 9, pp. 941-53.
- Montealegre, R. (2002), "A process model of capability development: lessons from the electronic commerce strategy at Bolsa De Valores De Guayaquil", *Organization Science*, Vol. 13 No. 5, pp. 514-33.

- Moorman, C. and Miner, A. (1998), "Organizational improvisation and organizational memory", *The Academy of Management Review*, Vol. 21 No. 4, pp. 698-723.
- Nonaka, I. and Toyama, R. (2002), "A firm as a dialectical being: towards a dynamic theory of a firm", *Industrial and Corporate Change*, Vol. 11 No. 5, pp. 995-1009.
- Oliver, C. (1997), "Sustainable competitive advantage: combining institutional and resource-based views", *Strategic Management Journal*, Vol. 18 No. 9, p. 697.
- Orlikowski, W. (2002), "Knowing in practice: enacting a collective capability in distributed organizing", *Organization Science*, Vol. 13 No. 3, pp. 249-73.
- Penrose, E. (1997), "The theory of the growth of the firm", in Foss, N.J. (Ed.), *Resources, Firms and Strategies*, Oxford University Press, Oxford, pp. 27-39.
- Pitt, M. and Clarke, K. (1999), "Competing on competence: a knowledge perspective on the management of strategic innovation", *Technology Analysis & Strategic Management*, Vol. 11 No. 3, pp. 301-16.
- Porter, M. (1994), "What is strategy?", *Harvard Business Review*, Vol. 74 No. 6, pp. 61-78.
- Prahalad, C.K. and Ramaswamy, V. (1999), "Co-opting customer competence", *Harvard Business Review*, Vol. 77 No. 1, pp. 79-87.
- Rindova, V. and Kotha, S. (2001), "Continuous morphing – competing through dynamic capabilities, form and function", *Academy of Management Journal*, Vol. 44 No. 6, pp. 1263-80.
- Sanchez, R. (2004), "Understanding competence-based management: identifying and managing five modes of competence", *Journal of Business Research*, Vol. 57 No. 5, p. 518.
- Selznick, P. (1957), *Leadership in Administration. A Sociological Interpretation*, Row, Peterson and Company, Evanston, IL.
- Simon, H. (1997), *Administrative Behavior*, Free Press, New York, NY.
- Smith, K., Collins, C. and Clark, K. (2005), "Existing knowledge, knowledge creation capability, and the rate of new product introduction in high-technology firms", *Academy of Management Journal*, Vol. 48 No. 2, pp. 346-57.
- Spanos, Y. and Prastacos, G. (2004), "Understanding organizational capabilities: towards a conceptual framework", *Journal of Knowledge Management*, Vol. 8 No. 3, p. 31.
- Stalk, G., Evans, P. and Shulman, L. (1992), "Competing on capabilities: the new rules of corporate strategy", *Harvard Business Review*, February, pp. 5-12.
- Teece, D., Pisano, G. and Shuen, A. (1997), "Dynamic capabilities and strategic management", *Strategic Management Journal*, Vol. 18 No. 7, pp. 509-33.
- Teece, D., Rumelt, R., Dosi, G. and Winter, S. (1994), "Understanding corporate coherence: theory and evidence", *Journal of Economic Behavior & Organization*, Vol. 23 No. 1, pp. 1-30.
- Thompson, J. (1967), *Organizations in Action*, McGraw-Hill, Maidenhead.
- Tripsas, M. (1997), "Unraveling the process of creative destruction: complementary assets and incumbent survival in the typesetter industry", *Strategic Management Journal*, Vol. 18 No. 1, pp. 119-42.
- Winter, S. (2000), "The satisficing principle in capability learning", *Strategic Management Journal*, Vol. 21 Nos 10-11, pp. 981-96.
- Woiceshyn, J. and Daellenbach, U. (2005), "Integrative capability and technology adoption: evidence from oil firms", *Industrial and Corporate Change*, Vol. 14 No. 2, pp. 307-42.
- Zahra, S. and George, G. (2002), "Absorptive capacity: a review, reconceptualization, and extension", *The Academy of Management Review*, Vol. 27 No. 2, pp. 185-203.

-
- Zajac, E.J., Kraatz, M.S. and Bresser, R.K.F. (2000), "Modeling the dynamics of strategic fit: a normative approach to strategic change", *Strategic Management Journal*, Vol. 21 No. 4, p. 429.
- Zander, U. and Kogut, B. (1995), "Knowledge and the speed of the transfer and initiation of organizational capabilities: an empirical test", *Organization Science: A Journal of the Institute of Management Sciences*, Vol. 6 No. 1, pp. 76-92.

Further reading

- Dosi, G., Nelson, R. and Winter, S. (2002), "Introduction: the nature and dynamics of organizational capabilities", in Dosi, G., Nelson, R. and Winter, S. (Eds), *The Nature and Dynamics of Organizational Capabilities*, Oxford University Press, Oxford.
- Dutta, S., Bergen, M., Levy, D., Ritson, M. and Zbaracki, M. (2002), "Pricing as a strategic capability", *MIT Sloan Management Review*, Vol. 43 No. 3, pp. 61-6.
- Hamel, G. and Prahalad, C.K. (1994), *Competing for the Future*, Harvard Business School Press, Boston, MA.
- Johnson, G., Melin, L. and Whittington, R. (2003), "Micro strategy and strategizing: towards an activity-based view", *Journal of Management Studies*, Vol. 40 No. 1, pp. 3-21.
- Mintzberg, H. (1979), *The Structuring of Organizations*, Prentice-Hall, Englewood Cliffs, NJ.
- Reed, R. and DeFillippi, R. (1990), "Causal ambiguity, barriers to imitation, and sustainable competitive advantage", *The Academy of Management Review*, Vol. 15 No. 1, pp. 88-102.
- Tripsas, M. and Gavetti, G. (2000), "Capabilities, cognition, and inertia: evidence from digital imaging", *Strategic Management Journal*, Vol. 21 Nos 10/11, pp. 1147-61.
- Wernerfelt, B. (1984), "A resource-based view of the firm", *Strategic Management Journal*, Vol. 5 No. 2, pp. 171-80.
- Zollo, M. and Winter, S. (2002), "Deliberate learning and the evolution of dynamic capabilities", *Organization Science*, Vol. 13 No. 3, pp. 339-51.

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