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**THEORETICAL FRAMEWORK FOR THE STUDY OF MICROFOUNDATIONS  
FROM STRATEGIC DECISION MAKING**

Seminario para optar al título de  
Ingeniero Comercial, Mención Administración

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Santiago, Chile.  
Julio 2015

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## Theoretical framework for the study of microfoundations from strategic decision making

### Abstract

This article explores two trends of thought related with the achievement of a sustainable competitive advantage in organizations. On the one hand, authors argue that a collective development of organizational capabilities and a proper use and accumulation of differentiating resources allow firms to create a competitive advantage over time. On the other hand, authors maintain that executive individual capabilities are the responsible for achieving this competitive advantage. Based on a literature review, a theoretical framework is developed. This framework incorporates both lines of thought and literature based on four views that connect them. Then, literature is profoundly analyzed and a set of future research opportunities is proposed.

### 1. Introduction

What allows firms to create a competitive advantage over time? A collective development of organizational capabilities and a proper use and accumulation of differentiating resources, or executive individual capabilities? Throughout the years, two currents of thought have been developed addressing each one of these questions. It is important to point out that the second line of thought is based on executive's strategic decision-making; therefore it is essential to study their cognitive capabilities in depth. This article overviews the main representative findings of the literature review related to each perspective, and determines future research opportunities in both fields.

The first trend of thought refers to “Organizational capabilities” and its impact on the achievement of competitive advantage in the firm. The second line of thought postulates that “Individual capabilities” are the responsible for achieving this competitive advantage. For a better understanding, literature is also separated in different views classified as *psychological view*, *behavioral view*, *knowledge view* and *capabilities view*. These topics are directly related with the two lines of thought and also make a linkage between them. The two trends of thought, along with the four views, constitute the theoretical foundation of the microfoundations of dynamic capabilities.

Authors examine “Organizational capabilities” in terms of how organizations can manage their own resources and capabilities to get a sustainable competitive advantage. Argote and Greve (2007) propose an analysis on the social processes that affect organizational decisions. This will support an understanding of how decisions made by different groups or individuals within a firm combine to produce organizational actions. Meanwhile, Eisenhardt and Martin (2000) studied dynamic capabilities in depth. They give a more sophisticated conception of dynamic capabilities, defining them as specific organizational and strategic processes by which managers alter their resource base. Although dynamic capabilities are idiosyncratic in their details and path dependent in their emergence, they have significant commonalities across firms (popularly termed ‘best practice’). Eisenhardt and Sull (2001) propose that companies need to create simple rules in order to pursue opportunities and succeed. Strategy, then, consists on the unique set of strategically significant processes and the handful of simple rules that guide them. Giving a *knowledge view*, Orlitzky (2007) supports that whatever works for one organization may not work for others. There is a tension between possible “best practice” principles and contingency factors. The adoption of recruitment strategies may depend on the hiring practices of other firms, labor market conditions, and industry context, among other variables. In the same sense, Liao and Chuang (2004), made a multilevel study in which was demonstrated that both individual and organizational factors are significantly associated with employee service performance, issue that can give a competitive advantage to the firm. Other point of view about organizational capabilities, with a *psychological view*, is given by Dewey (2002), who argues that it is essential to recognize that conduct covers every act that is judged with reference to better and worse, and that the need of this judgment is potentially coextensive with all portions of conduct. Finally, on a *behavioral view*, Levinthal (2011) proposes that, accepting the fact that we are mortals and that all approaches to strategic decision making operate in the world of ‘second best’ and not in an economic and rational way, the question that organizations should ask themselves is how to act with intelligence and efficacy in strategic contexts. That is the way in which they could achieve a sustainable competitive advantage in dynamic environments.

Authors study “Individual capabilities” emphasizing the importance of a complete understanding of the individuals that compose the organization in order to comprehend the whole organizational performance. They also analyze brain performance and its relation with organizational performance. Gary and Wood (2010) provide empirical evidence for the links

between mental models and performance outcomes and helped to explain why some managers and not others adopt strategies that are ultimately associated with competitive success.

Also looking at the individual level, but focusing on *capabilities*, Teece (2007) suggests that dynamic capabilities enable business enterprises to create, deploy, and protect the intangible assets that support superior long-run business performance. Then, Helfat and Peteraf (2014) explain how specific cognitive capabilities underpin the three classes of dynamic managerial capabilities set forth by Teece.

By the other hand, in a *psychological view*, Ployhart (2012) and Ployhart and Hale (2014) both suggest that industrial-organizational (I-O) psychologists should adopt a more strategic orientation and consider how their research and practice contribute to organizational competitive advantage.

On a *behavioral view*, Greve (2013) argues that there are four main behavioral strategies: momentum strategies, feed-back strategies, inferential strategies and anticipatory strategies. These strategies are interesting because they reflect how boundedly rational decision makers reach different levels of collective rationality in organizational action, and they have consequences for organizational learning and adaptation and, thus, they can give a competitive advantage to the firm. In that regard, Van de Ven and Lifschitz (2013) argue that including a reasonable logic into rationality models can significantly enrich theories and better align them with empirical observations of organizational life.

Finally, with regards to theoretical foundations, Felin and Foss (2005) argue that individuals matter and microfoundations are needed for explanation in strategic organization. While using the term 'organizational' may serve as helpful shorthand for discussion purposes and for reduced-form empirical analysis, truly explaining (beyond correlations) the organization, or any collective for that matter, requires starting with the individual as the central actor. In that regard, Winter (2013) makes a profound analysis of the microfoundations of routines and capabilities. He argues that a suitable individual-level foundation can be found only in an account of individual psychology that gives due weight to habit and clearly distinguishes habit from deliberative decision making. But there are some misconceptions about microfoundations that are discussed by Barney and Felin (2013). The first misconception or

half-truth is related to the conception that microfoundations are only about individuals. The second misconception is that the simple application of borrowed, individual-level concepts to the organizational level constitutes microfoundations. The third one refers to the thinking that they led us to an infinite regress. And the last one is that they deny the role that structure and institutions should play in organizational and social analysis.

Another point of view is given by Argote and Ren (2012), who present transactive memory as a microfoundation of dynamic capabilities and describe how an organizational system for collectively encoding, storing, and retrieving knowledge can facilitate the combinative integration and renovation of an organization's knowledge assets. Because an organization's transactive memory system develops through experience, is idiosyncratic to a particular organization and hard for outsiders to discern, it is a source of competitive advantage. Meanwhile, Foss and Lindenberg (2013) asseverate that proper microfoundations for strategic management must recognize that the management of motivation is first and foremost a matter of the management of cognitions of organizational members. Finally, from a *capabilities view*, Teece, Pisano and Shuen (1997) analyzed two groups of models of strategy that allow firms to get a competitive advantage. The first group clusters models that emphasize the exploitation of market power; while the second group clusters models that emphasize efficiency. These perspectives are complementary but in several important respects are also competitive.

In the following section, we develop an integrative framework based on a deep analysis on literature. In this framework, we connect the two main trends of thought identified between each other through the four defined views. Then, we review the main findings of the most representative literature of the two studied perspectives, in conjunction with the texts that make a linkage between the two lines of thought. Finally, we present research opportunities that have been proposed by authors in literature.

## **2. Development of an integrative framework**

After an in-depth analysis of the literature about microfoundations and routines, processes and capabilities in the organizations; we identify two main lines of thought about how organizations can reach a sustainable competitive advantage. By one side, there is a trend of thought that defends the idea that competitive advantage can be achieved through collective

development of organizational capabilities and the proper use and accumulation of differentiating resources. On the other hand, in recent times it has been developed a school of thought that strongly believes that executive individual capabilities are the ones that allow the organizations to achieve a sustainable competitive advantage over time.

In this article we have also identified four views on the development of dynamic capabilities in organizations. These approaches are directly related with both trends of thought and, together, are the theoretical foundation of the microfoundations of dynamic capabilities.

Down below we present Figure 1, in which the two trends of thought are displayed, together with the four views that compose the theoretical foundations of microfoundations of dynamic capabilities in the last 15 years.

In Table 1, literature is classified in one of the three levels already presented: line of thought, view, or theoretical foundation. Linkage literature between these three topics is also presented in the linkage-exploring review matrix. Some quadrants are empty, as they represent opportunities for further research in those areas, which will be analyzed in a following section.

### **3. Review of literature**

Figure 1 shows in a simple way the relationships between the lines of thought presented in this article and the views that are related to them. In addition, Table 1 shows a classification of the existing literature in (a) the two identified lines of thought, (b) the views that are defined through this article and (c) the theoretical foundations of microfoundations of dynamic capabilities. Next section will review the main findings of the most representative literature of the two studied perspectives, in conjunction with the texts that analyze the four views on the development of dynamic capabilities in organizations.

#### **3.1. Organizational capabilities**

These articles are related to the internal structures and processes of organizations. It is also the issue that is closer to the resource-based view theory. Literature on this topic examines how organizations can manage their own resources and capabilities to get a sustainable competitive advantage.

Figure 1: Theoretical foundation of the Microfoundations of Dynamic Capabilities

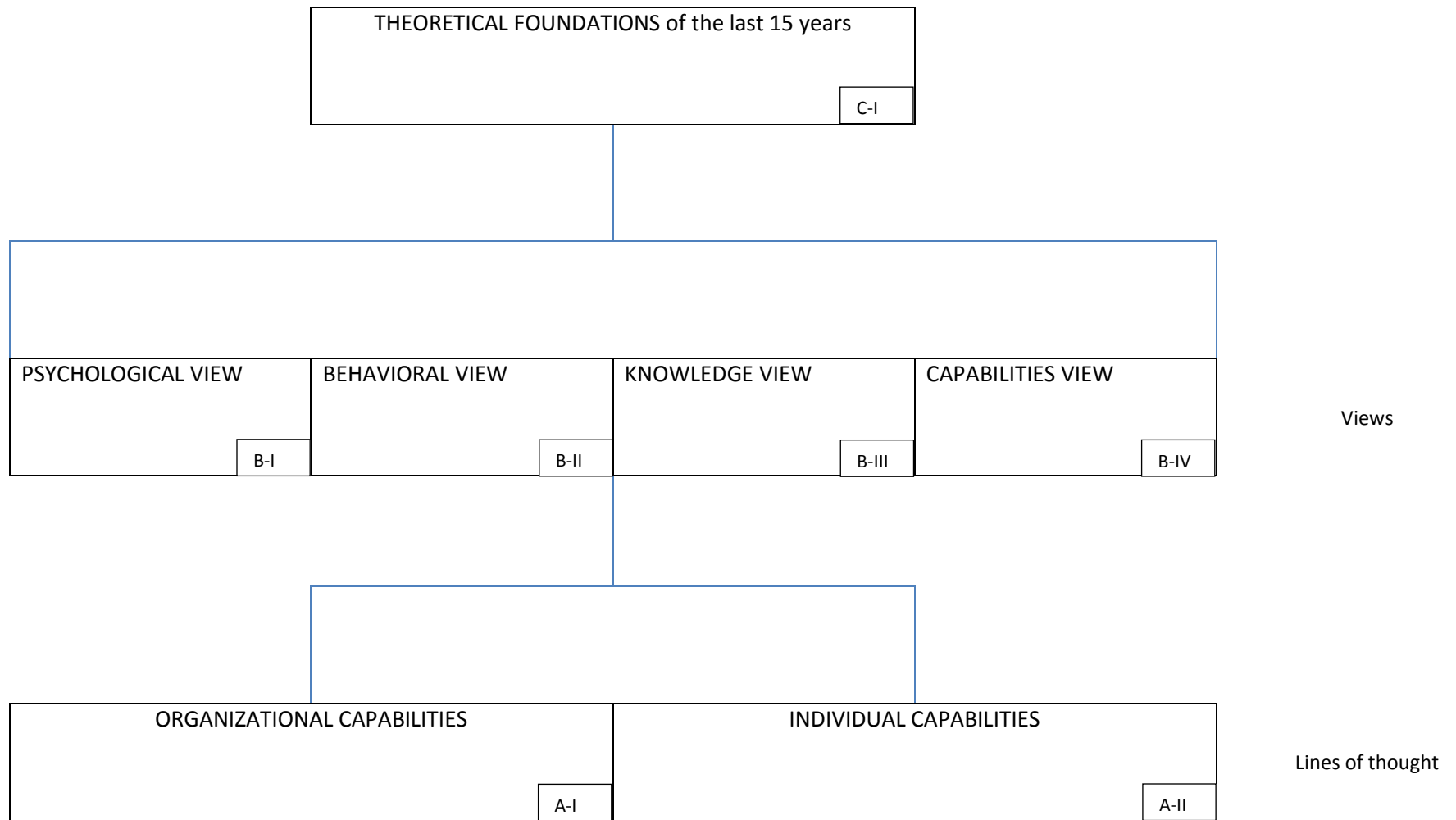




Table 1: Linkage-Exploring Review Matrix

	Organizational Capabilities	Individual Capabilities	Psychological View	Behavioral View	Knowledge View	Capabilities View	Theoretical Foundations
Organizational Capabilities	08 A-I						
Individual Capabilities	A-II A-I	12, 16 A-II					
Psychological View	B-I A-I	B-I A-II	20 B-I				
Behavioral View	01 B-II A-I	B-II A-II	06 B-II B-I	13, 17, 25 B-II			
Knowledge View	04, 19 B-III A-I	B-III A-II	B-III B-I	B-III B-II	18 B-III		
Capabilities View	07, 15, 28 B-IV A-I	14 B-IV A-II	B-IV B-I	B-IV B-II	22 B-IV B-III	26 B-IV	
Theoretical Foundations	02, 09 C-I A-I	05, 10, 11, 27 C-I A-II	21 C-I B-I	C-I B-II	C-I B-III	23, 24 C-I B-IV	03 C-I

On a behavioral view, Argote and Greve (2007) propose a deep analysis on the social processes that affect organizational decisions. For this, they propose four commitments that researchers should do in order to understand how decisions made by different groups or individuals within a firm combine to produce organizational actions. First, they should focus on a small number of key economic decisions made by the firm. They also have to develop process-oriented models of the firm and link them as closely as possible to empirical observations. Finally, they should develop a theory with generality beyond the specific firms studied, in order to summarize concepts and relations that could be used to understand the behavior of a variety of organizations in a variety of decision situations.

Eisenhardt and Martin (2000) analyze behavior from dynamic capabilities in depth. They give a more sophisticated conception of dynamic capabilities, defining them as specific organizational and strategic processes by which managers alter their resource base. Dynamic capabilities depend on market dynamism and are predictable or unpredictable. There are significant common dynamic capabilities across firms, popularly termed 'best practice', that allow them to reach a competitive advantage. This 'best practice' issue is also examined by Eisenhardt and Sull (2001), who propose that companies need to create simple rules in order to pursue opportunities and succeed. Strategy, then, consists on the unique set of strategically significant processes and the handful of simple rules that guide them. These rules should be simple but flexible to seize opportunities in turbulent markets. Like all effective strategies, strategy as simple rules is about being different. This difference arises from focusing on key strategic processes and developing simple rules that can shape those processes.

Another view is given by Orlitzky (2007), who supports that whatever works for one organization, in terms of recruitment strategy, may not work for others. That's why firms should be aware of external factors such as hiring practices of other firms, labor market conditions or industry context that directly and indirectly affects the internal needs of the organization, creating a tension between 'best practice' principles and contingency factors.

Directly in theoretical foundations, Argote and Ren (2012) present transactive memory as a microfoundation of dynamic capabilities and describe how an organizational system for collectively encoding, storing, and retrieving knowledge can facilitate the combinative integration and renovation of an organization's knowledge assets. Because an organization's transactive memory system develops through experience, is idiosyncratic to a particular

organization and hard for outsiders to discern, it is a source of competitive advantage. They argue that transactive memory systems facilitate the development of dynamic capabilities in organizations. In the same sense, Eisenhardt, Furr and Bingham (2010) better explain the individual level and group-level origins of organization-level constructs. They also discuss how the micro level actions of individuals allow collective constructs such as organization structure to change over time. They highlight how a field-level construct, environmental dynamism, can be unpacked to offer a more nuanced understanding of how this construct influences the shape of effective managerial action. Finally, they help to explain the individual-level and group-level cognitive processing mechanisms that aid in the balancing of efficiency and flexibility.

### **3.2. Individual capabilities**

These articles show the importance of a complete understanding of the individuals that compose the organization in order to comprehend the whole organizational performance. They also analyze brain performance and its relation with organizational performance. Mental processes allow managers to achieve superior performance. Gary and Wood (2010) provide empirical evidence for the links between mental models and performance outcomes and helped to explain why some managers and not others adopt strategies that are ultimately associated with competitive success. Decision makers with more accurate mental models have a more comprehensive understanding of the fit between different strategic options and the business environment, formulate more effective strategies, and understand more fully market information and other sources of feedback compared to decision makers with less accurate mental models.

In the same sense, Foss and Lindenberg (2013) asseverate that proper microfoundations for strategic management must recognize that the management of motivation is first and foremost a matter of the management of cognitions of organizational members. They show us that, traditionally, microfoundations of strategic management theory have been located in economics, but there are limits for this perspective; thus scholars began to study microfoundations for strategy through psychology.

Felin and Foss (2005) argue that individuals matter and micro-foundations are needed for explanation in strategic organization. The authors expose that, in fact, to fully explicate

organizational anything – whether identity, learning, knowledge or capabilities – one must fundamentally begin with and understand the individuals that compose the whole, specifically their underlying nature, choices, abilities, propensities, heterogeneity, purposes, expectations and motivations. While using the term ‘organizational’ may serve as helpful shorthand for discussion purposes and for reduced-form empirical analysis, truly explaining (beyond correlations) the organization (e.g. existence, decline, capability or performance), or any collective for that matter, requires starting with the individual as the central actor.

With the intent to connect organizational and individual performance, Winter (2013) makes a profound analysis of the microfoundations of routines and capabilities. First, he shows Dewey’s scheme, in which we can find three determinants of human nature and conduct: habit, impulse and deliberation (intelligence). In Dewey’s scheme, impulse and deliberation play roles that are complementary to the role of habit and produce effects in particular instances that are conditioned by the habits of the individual in question. Winter contrasted this scheme with Daniel Kahneman’s “System 1 vs System 2” distinction. Fast System 1 includes mental activities that become fast and automatic through prolonged practice, which is part of the domain of habit. System 2 deals with activities that require attention, including performing computations or logical operations, following complex instructions, or attending to or identifying particular events or cases within a complex scene, which is part of the domain of deliberation.

### **3.3. Psychological view**

This topic deepens into psychological concepts such as morals and human conduct in organizations. Ployhart (2012) and Ployhart and Hale (2014) both suggest that I-O psychologists should adopt a more strategic orientation and consider how their research and practice contribute to organizational competitive advantage. They show that resource-based view argues that a sustained competitive advantage can occur when resources are not only valuable and rare, but also inimitable and non-sustainable. But simply possessing or having access to the strategic resources is not enough; the firm must also have the ability to deploy in the service of achieving its strategic goals. Hence, how firm chooses to manage its resources is itself an important component of competitive advantage. This choice directly depends on managers decisions and these decisions have everything to do with psychology. That’s why I-O

psychologists could really contribute in the study of microfoundations of strategy and competitive advantage.

In terms of behavioral view, it gives a social and macro perspective to the discussion. Dewey (2002) argues that it is essential to recognize that conduct covers every act that is judged with reference to better and worse, and that the need of this judgment is potentially coextensive with all portions of conduct. This recognition saves us from the mistake which makes morality a separate department of life. Potentially conduct is a hundred per cent of our acts and it is imperative for the organization to be aware of this in order to guide their routines, habits and actions.

### **3.4. Behavioral view**

This topic is related to the influence of the 'second best choice' in the organization. It incorporates to the discussion a new perspective related with the importance of a behavioral perspective of every situation at the organization. Levinthal (2011) propose that, accepting the fact that we are mortals and that all approaches to strategic decision making operate in the world of 'second best', the question that organizations should ask themselves is how to act with intelligence and efficacy in strategic contexts. Of course deliberative reasoning and analysis are important mechanisms, but such processes do not live wholly apart from behavior mechanisms. If rationality is seen as a process and not as an outcome, firms could manage the inherent limitations of such approaches.

In the same sense, Greve (2013) argues that there are four main behavioral strategies: momentum strategies, feed-back strategies, inferential strategies and anticipatory strategies. These strategies are interesting because they reflect how boundedly rational decision makers reach different levels of collective rationality in organizational action, and they have consequences for organizational learning and adaptation. The author first defines each strategy and describes some of the evidence for it. Then he examines how these strategies may inform researchers interested in how organizations make decisions. He compares these strategies with other microfoundations and makes suggestions on the utility of this specific proposal.

Meanwhile, Van de Ven and Lifschitz (2013) argue that including a reasonable logic into rationality models can significantly enrich theories and better align them with empirical

observations of organizational life. Reasonable behavior represents a collective institutional standard of the norms, values and rules that society views as fair. They saw reasonableness as an institutional logic for, and not against, rational behavior. They argued that rational behavior is efficient only to the extent that society also deems it reasonable.

### **3.5. Knowledge view**

This topic analyses the importance of the adoption of recruitment strategies with a view to get a competitive advantage and how knowledge is attained by the organizations. Liao and Chuang (2004) made a multilevel study in which was demonstrated that both individual and organizational factors are significantly associated with employee service performance, issue that can give a competitive advantage to the firm. In that sense, in their employment selection process, managers should consider applicants' capabilities such as level of conscientiousness and extraversion, to improve customer service performance. But it is also really important to allow employees to participate in decisions that affect them, because that impacts directly in organizational climate, which is an important issue in terms of achieving a competitive advantage.

### **3.6. Capabilities view**

This topic is related to the potential impact of individual capabilities in organizational performance. It deepens on the characterization of the attributes that a good manager should have in order to achieve organizational goals. Teece (2007) suggests that dynamic capabilities enable business enterprises to create, deploy, and protect the intangible assets that support superior long- run business performance. He argued that the microfoundations of dynamic capabilities—the distinct skills, processes, procedures, organizational structures, decision rules, and disciplines—which undergird enterprise-level sensing, seizing, and reconfiguring capacities are difficult to develop and deploy. There are obvious tensions and interrelationships between and amongst the three classes of capabilities identified. The managerial skills needed to sense are quite different from those needed to seize and those needed to reconfigure. All functions have a significant 'entrepreneurial' and 'right brain' component. Successful enterprises must build and utilize all three classes of capabilities and employ them, often simultaneously.

In that sense, Helfat and Peteraf (2014) explain how specific cognitive capabilities underpin the three classes of dynamic managerial capabilities set forth by Teece. First, the capacity to sense opportunities before they fully materialize is a critical component of dynamic capabilities and entrepreneurial activity. Environmental scanning is an important part of this, both with respect to recognizing opportunities as they arise and anticipating competitive threats. Sensing opportunities and threats in an uncertain, complex, and often fast-paced environment calls for acute cognitive capabilities with respect to attention. The cognitive capability of attention provides an underpinning for dynamic managerial sensing capabilities. A second arena in which cognitive capabilities provide a foundation for dynamic managerial capabilities is with respect to seizing opportunities and responding to emerging threats. Cognitive capabilities for problem solving and reasoning are likely to underpin business model design as well as the capacity for making sound strategic investments. Finally, the third stream of the dynamic capabilities triad involves sustaining growth and profitability, by enhancing, combining, and reconfiguring the firm's organizational assets—its resources and capabilities. Coordinated adaptation of assets and overcoming resistance to change can benefit from dynamic managerial capabilities for reconfiguration. Helfat and Peteraf argue that these dynamic capabilities are likely to depend on managers' cognitive capabilities for language and communication, and on social cognitive capabilities. (2014, p. 842).

Meanwhile, Teece, Pisano and Shuen (1997) analyze two groups of models of strategy. The first group clusters models that emphasize the exploitation of market power; while the second group clusters models that emphasize efficiency. These perspectives are complementary but in several important respects are also competitive. There is not only one framework that has value for organizations. Indeed, complex problems are likely to benefit from insights obtained from all the paradigms that have been identified. The trick is to work out which frameworks are appropriate for the problem at hand.

### **3.7. Theoretical foundations**

Barney and Felin (2013) discuss four existing half-truths about microfoundations. The first one is related to the conception that microfoundations are only about individuals. But they are not. The problem with reducing everything to individuals is that it ignores the interactions among them as well as the context of the organization itself. Thus reducing, or attempting to reduce, everything to individual is only "micro", not microfoundational. The second

misconception about microfoundations is that the simple application of borrowed, individual-level concepts to the organizational level constitutes microfoundations. But, again, this is only “micro” but not microfoundational. A third half-truth refers to the thinking that they led us to an infinite regress. That is, if organizational and social analysis needs to engage in reduction by looking at lower, micro levels, then where should this reduction stop? Microfoundations, however, do not necessarily demand extreme reduction. Specifically, the infinite regress problem can be “solved” in the sense that there are natural punctuations, initial conditions, and starting points for organizational and social analysis, and the individual provides a particularly salient one. The last misconception about microfoundations is that they deny the role that structure and institutions should play in organizational and social analysis. This simply is not the case. The precise point of the microfoundations program is to systematically look at the origins and nature of the macro: how choices and interactions create structure, the behavior of individuals within structures, and the role of individuals in shaping the evolution of structures over time.

Table 2 summarizes all the literature that has been analyzed in this article. This framework is a comprehensive way to detail the selected papers and their findings.

#### **4. Research opportunities**

As Table 1 shows, some quadrants are empty, as they represent opportunities for further research in those areas. A distinction can be made between two main groups of research opportunities. On the one hand, there are research opportunities about (1) the relationship between views, (2) the relationship between those views and organizational capabilities and (3) their relationship with organizational capabilities. This group is formed by quadrants A-II/A-I, B-I/A-I, B-I/A-II, B-II/A-II, B-III/A-II, B-III/B-I, B-IV/B-I, B-III/B-II and B-IV/B-II. By the other hand, the second group is formed by quadrants C-I/B-II and C-I/B-III, which represent research opportunities linked to theoretical foundations and new views, such as neuroscience and bioengineering.

Table 3 distinguishes between the two main clusters of research opportunities described earlier by grouping them in two different colors.



Table 2: Linkage-exploring studies

Paper	Linkage	Title	Author (s)	Year	Source	Findings	Country
01	A-I B-II	<b>A Behavioral Theory of the Firm - 40 Years and Counting</b>	Argote and Greve	2007	Organization Science	It is important to reinstate the interest in the internal structures and processes of organizations to complement the progress that has been made in understanding their external relationships. It is also important to focus on understanding organizational decision making. This focus will require theory that incorporates the social processes and contextual factors that affect organizational decisions as well as an understanding of how decisions made by different groups or individuals within a firm combine to produce organizational actions.	USA
02	A-I C-I	<b>Transactive Memory Systems: A Micro Foundation of Dynamic Capabilities</b>	Argote and Ren	2012	Journal of Management Studies	In this article, the authors present transactive memory as a microfoundation of dynamic capabilities and describe how an organizational system for collectively encoding, storing, and retrieving knowledge can facilitate the combinative integration and renovation of an organization's knowledge assets. Because an organization's transactive memory system develops through experience, is idiosyncratic to a particular organization and hard for outsiders to discern, it is a source of competitive advantage. Transactive memory systems facilitate the development of dynamic capabilities in organizations.	USA

03	C-I	<b>What Are Microfoundations?</b>	Barney and Felin	2013	Academy of Management Perspectives	There are four half-truths about microfoundations that are discussed in this paper. The first half-truth is that microfoundations are about individuals and are simply equivalent to more micro disciplines like psychology or HR. The second half-truth is that microfoundations are a simple application of borrowed, individual-level concepts to the organizational level. Another misconception about microfoundations is that they lead us to an infinite regress. And finally, the fourth half-truth about microfoundations is that they deny the role that structure and other macro factors should play in organizational and social analysis.	UK USA
04	A-I B-III	<b>Organizational Routines Are Stored as Procedural Memory</b>	Cohen and Bacdayan	1994	Organization Science	New work in psychology on "procedural" memory may help explain how routines arise, stabilize and change. Procedural memory has close links to notions of individual skill and habit. It is memory for how things are done that is relatively automatic and inarticulate, and it encompasses both cognitive and motor activities. Individuals store their components of organizational routines in procedural memory. If routines are stored as distributed procedural memories, this may be the source of distinctive properties reported by observers of organizational routines.	USA

05	A-II C-I	<b>Is Microfoundational thinking critical to Management thought and practice?</b>	Devinney	2013	Academy of Management Perspectives	Microfoundations are not just about aggregation, nor is aggregation the only essential element. Microfoundations require researchers to think about the necessary I-theories (theories of the individual), O-theories (theories of the collective), and S-theories(theories at the strategic firm level) that make up the management system being investigated as well as the A-theories (aggregation theories) that connect these conceptions in such a way that higher-level O- and S-theories can be explained using I-level conceptualizations.	USA
06	B-I B-II	<b>Human nature and conduct: An Introduction to Social Psychology</b>	Dewey	2002	-	Morals have to do with all activity into which alternative possibilities enter. Only deliberate action, conduct into which reflective choice enters, is distinctively moral, and it is there where enters the question of better and worse. The recognition that conduct covers every act that is judged with reference to better and worse and that the need of this judgment is potentially coextensive with all portions of conduct, saves us from the mistake which makes morality a separate department of life. Potentially conduct is one hundred per cent of our acts.	USA
07	A-I B-IV	<b>Dynamic Capabilities: What are they?</b>	Eisenhardt and Martin	2000	Strategic Management Journal	Dynamic capabilities are a set of specific and identifiable processes such as product development, strategic decision making, and alliancing. They are neither vague nor tautological. Although dynamic capabilities are idiosyncratic in their details and path dependent in their emergence, they have significant commonalities across firms (popularly termed 'best practice'). In moderately dynamic markets, the evolutionary emphasis is on variation. In high-velocity markets, it is on selection.	USA

08	A-I	<b>Strategy as Simple Rules</b>	Eisenhardt and Sull	2001	Harvard Business Review	In turbulent markets, managers should flexibly seize opportunities, but flexibility must be disciplined. Smart companies focus on key processes and simple rules. There are five types of simple rules. They are: how-to rules, boundary rules, priority rules, timing rules and exit rules.	USA
09	A-I C-I	<b>Microfoundations of Performance: Balancing Efficiency and Flexibility in Dynamic Environments</b>	Eisenhardt, Furr and Bingham	2010	Organization Science	First, the authors better explain the individual level and group-level origins of organization-level constructs. Second, they discuss how the microlevel actions of individuals allow collective constructs such as organization structure to change over time. Third, they highlight how a field-level construct, environmental dynamism, can be unpacked to offer a more nuanced understanding of how this construct influences the shape of effective managerial action. Finally, they help to explain the individual-level and group-level cognitive processing mechanisms that aid in the balancing of efficiency and flexibility.	USA
10	A-II C-I	<b>Strategic organization: A field in search of micro-foundations</b>	Felin and Foss	2005	Strategic Organization	Individuals matter and micro-foundations are needed for explanation in strategic organization. In fact, to fully explicate organizational anything – whether identity, learning, knowledge or capabilities – one must fundamentally begin with and understand the individuals that compose the whole, specifically their underlying nature, choices, abilities, propensities, heterogeneity, purposes, expectations and motivations. While using the term ‘organizational’ may serve as helpful shorthand for discussion purposes and for reduced-form empirical analysis, truly explaining (beyond correlations) the organization (e.g. existence, decline, capability or performance), or any collective for that matter, requires starting with the individual as the central actor.	Denmark USA

11	A-II C-I	<b>Microfoundations for Strategy: A Goal-Framing Perspective on the Drivers of Value Creation</b>	Foss and Lindenberg	2013	Academy of Management Perspectives	From the point of view of pragmatic management research, microfoundations matter—not so much because microfoundations are philosophically the right thing to do, but because they furnish substantive implications for theory building that truly matter to practitioners. Proper microfoundations for strategic management theory must recognize that the management of motivation is first and foremost a matter of the management of cognitions of organizational members, an insight that is found in goal-framing theory, an emerging perspective based on cognitive science, behavioral economics, and social psychology.	Denmark Netherlands
12	A-II	<b>Mental models, decision rules, and performance heterogeneity</b>	Gary and Wood	2010	Strategic Management Journal	The results of this paper provide empirical evidence for the links between mental models and performance outcomes and help explain why some managers and not others adopt strategies that are ultimately associated with competitive success. Decision makers with more accurate mental models of the causal relationships in the business environment achieve higher performance outcomes.	Australia
13	B-II	<b>Microfoundations of Management: Behavioral Strategies and Levels of Rationality in Organizational Action</b>	Greve	2013	Academy of Management Perspectives	There are four main behavioral strategies: momentum strategies, feed-back strategies, inferential strategies and anticipatory strategies. These strategies are interesting because they reflect how boundedly rational decision makers reach different levels of collective rationality in organizational action, and they have consequences for organizational learning and adaptation. The author first defines each strategy and describes some of the evidence for it. Then he examines how these strategies may inform researchers interested in how organizations make decisions. He compares these strategies with other microfoundations and makes suggestions on the utility of this specific proposal.	USA

14	A-II B-IV	<b>Managerial Cognitive Capabilities and the Microfoundations of Dynamic Capabilities</b>	Helfat and Peteraf	2014	Strategic Management Journal	They focus on microfoundations at the level of the individual manager. They introduce the concept of “managerial cognitive capability”, which highlights the fact that capabilities involve the capacity to perform not only physical but also mental activities. They identify specific types of cognitive capabilities that are likely to underpin dynamic managerial capabilities for sensing, seizing, and reconfiguring, and explain their potential impact on strategic change of organizations.	USA
15	A-I B-IV	<b>The Dynamic Resource-Based View: Capability Lifecycles</b>	Helfat and Peteraf	2003	Strategic Management Journal	The entire capability lifecycle provides an explanation for the emergence and sustained heterogeneity of capabilities. The capability lifecycle helps to explain the sources of heterogeneity for the firms in which the capabilities reside. In providing a foundation for future research, the capability lifecycle suggests a number of promising directions. Capabilities are not products or firms or industries, and the evolution of capabilities must be investigated as a separate empirical undertaking.	USA
16	A-II	<b>Thinking, Fast and Slow</b>	Kahneman	2011	New York: Farrar, Straus and Giroux	This book presents the basic elements of a two-systems approach to judgment and choice. It elaborates the distinction between the intuitive System 1, which does the fast thinking, and the effortful and slower System 2, which does the slow thinking, monitors System 1, and maintains control as best it can within its limited resources. It also makes the distinction between the experiencing self, which does the living, and the remembering self, which keeps score and makes the choices.	USA

17	B-II	<b>A Behavioral Approach to Strategy: What's the Alternative?</b>	Levinthal	2011	Strategic Management Journal	The most trivial problems require a behavioral act of representation prior to invoking a deductive, 'rational' approach. In this sense, all approaches are behavioral. All approaches to strategic decision making operate in the world of second best.	USA
18	B-III	<b>A Multilevel Investigation of Factors Influencing Employee Service Performance and Customer Outcomes</b>	Liao and Chuang	2004	Academy of Management Journal	The three main findings of this study were: first, fostering a service-oriented climate helps. Employees do not work in a vacuum; their performance is influenced by the messages management sends and by the perceptions employees share among themselves. Second, it pays to involve employees in decision making by, for instance, allowing employees to participate in decisions that affect them and letting them resolve customer complaints on their own. And third, in their employment selection procedures, managers may consider applicants' levels of conscientiousness and extraversion, among other selection criteria, to improve customer service performance.	USA Taiwan
19	A-I B-III	<b>Recruitment Strategy</b>	Orlitzky	2007	The Oxford Handbook of Human Resource Management	Whatever works for one organization may not work for others in terms of recruitment strategy. There is a tension between possible "best practice" principles and contingency factors. The adoption of recruitment strategies may depend on the hiring practices of other firms, labor market conditions, and industry context, among other variables.	UK

20	B-I	<b>The Psychology of Competitive Advantage: An Adjacent Possibility</b>	Ployhart	2012	Industrial and Organizational Psychology	I–O (industrial-organizational) psychology has much to offer in the understanding of competitive advantage, and moving into a strategic adjacent possible has many benefits. The field of strategy has recently sought to understand the microfoundations of competitive advantage, and I–O psychology brings much expertise to inform the study of such microfoundations.	USA
21	B-I C-I	<b>The Fascinating Psychological Microfoundations of Strategy and Competitive Advantage</b>	Ployhart and Hale	2014	Annual Review of Organizational Psychology and Organizational Behavior	Using theories of resource emergence to connect operational performance and operational behavior to strategy and competitive advantage is the most direct way to align micro and macro disciplines and to contribute to an understanding of the psychological microfoundations of strategy and competitive advantage.	USA
22	B-III B-IV	<b>Managing Firm Resources in Dynamic Environments to Create Value: looking inside the Black Box</b>	Sirmon, Hitt and Ireland	2007	Academy of Management Review	Each component of the resource management process is individually important, but, to optimize value creation, they must be <i>synchronized</i> . Firms especially need to be able to develop new capabilities, in that discontinuous environmental changes can greatly reduce the value of their current capabilities. Managers need to be able to acquire, accumulate (develop), and divest (when necessary) resources to have the most effective resource portfolio at any given time. Managers should also have the skills necessary to bundle resources to create effective capabilities.	USA



23	B-IV C-I	<b>Explicating Dynamic Capabilities: the Nature and Microfoundations of (sustainable) Enterprise Performance</b>	Teece	2007	Strategic Management Journal	Dynamic capabilities enable business enterprises to create, deploy, and protect the intangible assets that support superior long- run business performance. The microfoundations of dynamic capabilities—the distinct skills, processes, procedures, organizational structures, decision rules, and disciplines—which undergird enterprise-level sensing, seizing, and reconfiguring capacities are difficult to develop and deploy. The framework advanced can help scholars understand the foundations of long-run enterprise success while helping managers delineate relevant strategic considerations and the priorities they must adopt to enhance enterprise performance and escape the zero profit tendency associated with operating in markets open to global competition.	USA
24	B-IV C-I	<b>Dynamic Capabilities and Strategic Management</b>	Teece, Pisano and Shuen	1997	Strategic Management Journal	In this paper four paradigms (models) of strategy are discussed. There are two (“attenuating competitive forces” and “strategic conflict”) that emphasize the exploitation of market power; and other two (“resource-based perspective” and “dynamic capabilities perspective”) that emphasize efficiency. These perspectives are complementary but in several important respects are also competitive. While this should be recognized, it is not to suggest that there is only one framework that has value. Indeed, complex problems are likely to benefit from insights obtained from all of the paradigms that have been identified. The trick is to work out which frameworks are appropriate for the problem at hand.	USA

25	B-II	<b>Rational and Reasonable Microfoundations of Markets and Institutions</b>	Van de Ven and Lifschitz	2013	Academy of Management Perspectives	Individual rational behavior (from neoclassical economics) and collective reasonable behavior (from jurisprudence) serve as the microfoundations of markets and institutions, respectively. Incorporating a collective standard of reasonable behavior can significantly enrich mainstream theories of organization and management that are based largely on a model of individual rational behavior.	USA
26	B-IV	<b>Capabilities: Their Origins and Ancestry</b>	Winter	2012	Journal of Management Studies	When a capability first appears at a specific site, there is a continuum in which common mechanisms operate, in varying proportions, at all points. Even the most straightforward re-enactment of existing knowledge necessarily involves new learning if it involves a new performer - and the more so in a new context.	USA
27	C-I A-II	<b>Habit, Deliberation and Action: Strengthening the Microfoundations of Routines and Capabilities</b>	Winter	2013	Academy of Management Perspectives	Intrinsic to the call for “microfoundations” is the acknowledgment that there is an existing body of work and the inquiry goes to the adequacy or persuasiveness of the foundation for that work. Thus, the primary test for a response to the call is not the identification of fruitful new directions, but the strengthening of the case for the existing program. A suitable individual-level foundation can be found only in an account of individual psychology that gives due weight to habit and clearly distinguishes habit from deliberative decision making.	USA

28	A-I B-IV	<b>Understanding Dynamic Capabilities</b>	Winter	2003	Strategic Management Journal	The strategic substance of capabilities involves patterning of activity, and costly investments are typically required to create and sustain such patterning – for example, in product development. Firms can accomplish change without reliance on dynamic capability, by “ad hoc problem solving.” Whether higher order capabilities are created or not depends on the costs and benefits of the investments relative to ad hoc problem solving, and so does the “level of the game” at which strategic competition effectively occurs.	USA
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Table 3: Research Opportunities

	Organizational Capabilities	Individual Capabilities	Psychological View	Behavioral View	Knowledge View	Capabilities View	Theoretical Foundations
Organizational Capabilities	A-I						
Individual Capabilities	A-II A-I	A-II					
Psychological View	B-I A-I	B-I A-II	B-I				
Behavioral View	B-II A-I	B-II A-II	B-II B-I	B-II			
Knowledge View	B-III A-I	B-III A-II	B-III B-I	B-III B-II	B-III		
Capabilities View	B-IV A-I	B-IV A-II	B-IV B-I	B-IV B-II	B-IV B-III	B-IV	
Theoretical Foundations	C-I A-I	C-I A-II	C-I B-I	C-I B-II	C-I B-III	C-I B-IV	C-I

#### **4.1. Organizational capabilities**

Argote and Greve (2007) suggest future research directions that are likely to advance our understanding of particular research questions developed in *A Behavioral Theory of the Firm*. They strongly encourage a resurgence of interest in the internal structures and processes of organizations to complement the progress that has been made in understanding their external relationships. They also encourage more explicit acknowledgement that many decisions in organizations are made by standing groups, such as top-management teams or boards of directors, or by looser collections of individuals, such as Cyert and March's dominant coalition. Much work in economics treats the firm as if it is an individual making a decision. Although there was a rich body of research on group decision making in psychology, that work has primarily been conducted in the laboratory where small groups come together for brief periods and members do not have a history of interaction or exist in a larger social context. Authors encourage a greater focus on understanding organizational decision making. This focus will require theory that incorporates the social processes and contextual factors that affect organizational decisions as well as an understanding of how decisions made by different groups or individuals within a firm combine to produce organizational actions.

Helfat and Peteraf (2003) argue that the entire capability lifecycle provides an explanation for the emergence and sustained heterogeneity of capabilities. By implication, the capability lifecycle helps to explain the sources of heterogeneity for the firms in which the capabilities reside. In providing a foundation for future research, the capability lifecycle suggests a number of promising directions. More empirical research regarding each of the stages of the capability lifecycle is high on the research agenda. Capabilities are not products or firms or industries, and the evolution of capabilities must be investigated as a separate empirical undertaking. The evolution of organizational resources, from both an analytical and an empirical perspective, merits additional research as well. Like the evolution of capabilities, the evolution of organizational resources is a key component of the dynamic RBV. A more complete understanding of the joint evolution of resources and capabilities also merits further research. Only then we can more fully understand evolution and change of competitive advantage and disadvantage of firms over time.

Orlitzky (2007) suggests that more sophisticated theory is required to clarify the dimensions of recruitment strategy. One obvious dimension is internal versus external recruitment. To

advance recruitment research further, recruitment scholars need to develop a comprehensive, theoretically coherent and succinct model of recruitment strategies. Such a model could then be used to circumscribe more definitively our knowledge of how and why recruitment works. Because an effective recruitment strategy would, most likely, have to create language-based mental models of “employee choice”, greater focus on sociological-linguistic theories may be important in the future to build micro-macro theory bridges. Prescriptively, we must study which features of recruitment communications have the greatest organizational impact. At the same time, we must descriptively examine how line managers and HR professionals actually make decisions about the aforementioned five central questions related to recruitment strategy.

#### **4.2. Individual capabilities**

Winter (2013) suggests that a direction for future progress involves explicating the multiple relationships of the deliberative or “System 2” activities of individuals to organizational routines and capabilities. These relationships cover a broad range. At one end there is the infusion of thought that Dewey (2002) mentioned, which solves surmountable problems around the edges of existing skills and routines, thereby enhancing the scope and adaptability of existing habits and perhaps producing long-run evolution as well. At the other end there are the carefully considered decisions to invest in the building of new habits, or perhaps to attempt to escape from undesired ones. It may be a decision to learn a new language, or to learn how to use new software, or to enroll in an appropriate training course or educational program, or to experiment with a different route for commuting to work. Uncertainty reigns across all such investment situations because the idiosyncrasies of the actor and the situation are inevitably important factors in determining what the established habit/skill will turn out to be like if it is successfully acquired.

Meanwhile, Gary and Wood (2010) are optimistic that future research will continue to advance the measurement of mental models. An ideal measure would capture the formation and evolution of mental models over time, and would identify how knowledge about causal relationships informs beliefs about gestalt system behavior. There is also an opportunity for future research to identify different components of mental models and examine the conditions under which different sources of inaccuracy are important. More research investigating the types of misperceptions and errors in mental models that are most damaging

is needed. Future research should assess the generalizability of our findings by testing the relationships between mental models, decision rules, strategies, and performance both in the field and in laboratory experiments across a variety of management contexts and decision makers. Recent developments in measuring knowledge in the field may provide opportunities to accurately estimate knowledge levels in domains where the objectively right answers are not known a priori (Borgatti and Carboni, 2007). Prior research also suggests possible ways to operationalize decision environment complexity in field settings (Sutherland, 1980), potentially providing a path for exploring the impact of complexity on mental models, strategic decisions, and performance in the field. More work is also needed to isolate the small set of enduring causal relationships underpinning a wide range of management problems and challenges. Research on interventions to develop reflection and deframing skills to help managers question their own mental models and decision rules are also needed. Such skills may prevent managers and firms from prematurely locking into inaccurate mental models and decision rules (Rivkin and Siggelkow, 2003; Tripsas and Gavetti, 2000). There are also opportunities for research examining heterogeneity in the decision rules connecting high-level strategies with decision-making processes on the front lines (Cyert and March, 1992; Simon, 1991). Research on decision errors and biases has primarily focused on identifying the mean or modal effects of specific types of errors (Camerer and Lovallo, 1999; Kahneman and Tversky, 2000; Paich and Sterman, 1993; Zajac and Bazerman, 1991). More work is needed to understand the heterogeneity in decision rules and heuristics and how differences in decision rules impact performance. This is particularly important for strategy scholars trying to explain heterogeneity in strategies and performance among firms. Additional research is also called for on the formation of decision rules and the links to mental models to help us better understand the origins of strategy. Gary and Wood findings provide much needed empirical evidence that differences in mental model accuracy explain why decision makers adopt different strategies associated with different levels of competitive success. This represents an important step forward and provides a number of opportunities for future research to examine the cognitive aspects of strategy and identify mechanisms to support better strategic thinking and decisions.

### **4.3. Psychological view**

Ployhart and Hale (2014) argue that future research should focus on how do individual differences and psychological processes contribute to organizational differences, performance, and competitive advantage. Also, it should focus on analyzing in what ways do theoretical predictions and empirical findings in organizational psychology and organizational behavioral change when trying to predict competitive advantage. Also it is important to find out if it is possible to integrate theory and empirical findings in OP/OB with strategic microfoundations.

It is crucial to understand how do the scholarly silos in organizational psychology and organizational behavioral (e.g., selection, groups and teams, attitudes) integrate with the management of human capital resources (i.e., their acquisition, accumulation, and divestiture). It is also essential to find out what are the temporal and multilevel diseconomies that exist as one moves from lower to higher levels and how do these diseconomies affect the emergence and consequences of collective psychological resources.

Finally, future research should also focus on how can human capital resource emergence be managed or influenced.

### **4.4. Behavioral view**

Levinthal (2011) suggests that behavioralists have, arguably, been too generous or too self-effacing to their rational choice colleagues. There tends to be an implicit agreement that the rational choice approach reflects normatively desired behavior. While buying into that supposition, behavioralists then go on to suggest that such behavior is hard to achieve and that their accounts may be more descriptively accurate. He suggests that all approaches to strategic decision making operate in the world of second best. We should not privilege one approach as having a universal a priori claim of superiority. To do so creates false divides in the field and obscures terribly important lines of future inquiry.

Meanwhile, Greve (2013) proposes that behavioral strategies are already being investigated with considerable excitement by multiple communities of scholars. Yet it is important to identify and name this movement, because doing so opens up new opportunities that tend to be overlooked when different communities of scholars who study the same behavioral



strategies do so in separate silos. Thus, it is by design that the behavioral strategies examined in his text have examples from different research traditions that are viewed as separate, such as the work on momentum and on relational embeddedness. Furthermore, although the work within each behavioral strategy encompasses a range of approaches, where they overlap in the basic approach and findings is fertile ground for comparison and dialogue. A second opportunity lies in the possibility of developing a set of extensions and comparisons of behavioral strategies. If we are interested in how organizations adapt, then it helps to investigate the relative occurrence of different behavioral strategies and to explore their adaptive implications. If we are interested in how individual cognition and choice influence organizations, then we should examine how the observed behavioral strategies may be linked to lower-level processes. Everything starts by knowing the behavioral strategies, however, and even at this basic level we still have much work to do. Research on behavioral strategies thus presents opportunities for researchers across a wide spectrum of interests. It is a movement that has not yet been identified and formulated clearly enough to crystallize around a common agenda, but we seem to be getting closer.

#### **4.5. Knowledge view**

Liao and Chuang (2004) argue that future research should directly measure training effectiveness and the transfer of training to actual service performance in order to examine the impact of training on performance. The reason for the lack of association between performance incentives and service performance may be that our dummy-coded performance incentive measure was an improper “operationalization” of this construct. Or it could be the case that it is the intensity, not the existence, of performance incentives that matters. Additionally, the effectiveness of performance incentives hinges on the presence of an accurate performance appraisal system; if good performance does not receive favorable evaluations in a consistent and timely way, the instrumental connection between performance and outcomes will be decreased, and the motivational effect of performance incentives will be decreased in turn. Future research should measure the accuracy and consistency of performance evaluation processes in conjunction with the intensity of performance incentives. Finally, although they examine the impact of monetary incentives and promotion opportunities, future research should examine the role of intrinsic factors such as informal recognition in motivating service performance.

In the same sense, Sirmon, Hitt and Ireland (2007) suggest that we need to understand how to effectively structure the firm's resource portfolio, bundle resources into valuable capabilities, and formulate leveraging strategies that exploit the firm's capabilities to create value for customers. Some research exists on acquiring, developing, and divesting certain types of resources (e.g., human capital). But more research is needed on acquiring and developing other types of resources, as well as on structuring the total resource portfolio. Much more empirical research is needed on bundling and leveraging resources. The theoretical model they presented provides a base for a new major research stream on the management of resources.

#### **4.6. Capabilities view**

Helfat and Peteraf (2014) propose that we know relatively little about how the interaction of cognitive capabilities of individuals in the top management team affects team decision making, particularly with regard to strategic change. Research has often used demographic diversity of top management teams as a proxy for cognitive diversity, and has produced mixed results regarding the impact of such diversity on organizational performance (Finkelstein et al., 2009: 132). Future research could investigate whether diversity of managerial cognitive capabilities within a team helps or hinders strategic change. More generally, investigation of managerial cognitive capabilities and their impact within and across different levels of the organization, as well as investigation of the limits that organizational context may place on the impact of managerial cognitive capabilities, may lead to a richer and deeper understanding of dynamic capabilities and strategic change. Finally, their analysis suggests an opportunity for research on the relationship between dynamic managerial capabilities and organizational dynamic capabilities, and their joint contributions to strategic change and organizational performance. For example, dynamic managerial capabilities and the underlying managerial cognitive capabilities may help to create, extend, or modify organizational capabilities (including dynamic ones) that in turn affect organizational performance. In addition, organizational dynamic capabilities and their underlying routines may involve managerial input and decisions (e.g., choice of research and development projects), such that dynamic managerial capabilities and their associated cognitive capabilities become intertwined with dynamic organizational capabilities. Untangling the relationships between managerial and

organizational capabilities both theoretically and empirically remains a largely unexplored but important terrain for future research.

Meanwhile, Teece, Pisano and Shuen (1997) merely sketch an outline for a dynamic capabilities approach. Further theoretical work is needed to tighten the framework, and empirical research is critical to helping us understand how firms get to be good, how they sometimes stay that way, why and how they improve, and why they sometimes decline. Researchers in the fields of strategy need to join forces with researchers in the fields of innovation, manufacturing, and organizational behavior and business history if they are to unlock the riddles that lie behind corporate as well as national competitive advantage. There could hardly be a more ambitious research agenda in the social sciences today.

#### **4.7. Theoretical foundations**

Barney and Felin (2013) discuss the implications of their arguments on questions of the origins of capability and competitive advantage, concurrently highlighting opportunities for future research. Theories of strategy, such as factor markets (Barney, 1986), as well as theories of the firm (cf. Malmgren, 1961) have generally focused on the information and expectations of singular actors: firms or singular “entrepreneur-coordinators” who—for convenience of the theory (and not because it necessarily represents reality)—are said to make decisions on behalf of the organization (e.g., Coase, 1937). While this firm-level theorizing has led to many central insights, microfoundations are also needed. In particular, they thought that further understanding organizational capability and heterogeneity ought to rest on questions of microfoundations: how capabilities are built, how the matching of individuals with organizations occurs, the role of specific actors in building capability, and other, more general questions related to aggregation. Furthermore, there are related questions about the decision-making associated with building capabilities and the emergence of heterogeneity in markets. The concern, then, is with various collective “givens” that need to be unpacked to understand factors such as organizational capability and performance. As March noted decades ago: “The composition of the firm is not given; it is negotiated. The goals of the firm are not given; they are bargained” (1962, p. 672). The same can be said for preferences, information, and expectations. These matters have not been addressed systematically in the literature on organizational capabilities, or the literature on competitive advantage. The hard work of aggregation needs to occur with regard to the extant theories of strategy and the

theory of the firm (cf. Felin & Zenger, 2011). The first-order questions, then, should focus on the composition of the organization: Who—with what skills, abilities, capability, and knowledge—selects into (or leaves) organizations, with what aggregate effects? How is capability, in the aggregate, built? Where do firm level expectations and information come from? How is information aggregated? What is perhaps most directly relevant to organizational and strategy scholars, specifically those interested in capabilities, are questions of organizational design. Organizational design and structure play a central role in how information is aggregated (Stinchcombe, 1990). Design and structure is a way of purposefully delineating who interacts and communicates with whom, who has ultimate decision rights over what, and so forth. The capabilities of individuals, and thus organizations, may remain dormant or latent if organizations are poorly designed (Felin, 2012). We do, for example, know that certain designs or organizational forms—such as polyarchy—can have beneficial outcomes for organizational decision making compared to other forms, such as hierarchy (Sah & Stiglitz, 1986; cf. Knudsen & Levinthal, 2007). The architectures of human and social interaction are central for determining the aggregate outcomes and collective capabilities we might observe. These architectures can constrain or enable collective action. Of course, not all aggregation in organizations is “planned” or designed; organizations may also rely on more market-like, spontaneous order (see Foss, 2003). Recent literature in the domain of innovation has also wrestled with questions about the aggregation of information and knowledge in organizations (e.g., Afuah & Tucci, 2012; Jeppesen & Lakhani, 2010; Nickerson & Zenger, 2004). The central question raised by this research is essentially both a microfoundational and aggregational one: How do we identify who has the correct information? Or, if information is dispersed, how do we aggregate it? Firms are striving to tap into the market’s proverbial “wisdom of crowds” via various practices such as crowdsourcing and prediction markets (cf. Felin & Zenger, 2011). Many questions remain about how factors such as incentives affect the identification of appropriate sources of knowledge and the aggregation of dispersed information and the evolution of capabilities. The fields of strategy and organization theory should specifically be concerned with the organizational level, and thus these fields also need to address the organization itself—beyond the individuals in them, and beyond their environments. Beyond aggregation, how do we properly specify the organizational factors associated with capability development and performance? Instead of merely ascribing individual-level attributes to organizations or simply borrowing individual-level theories and

applying them to organizations—both quite common in extant work—we need to move to the next step of actually articulating what makes capability development in organizations unique. This does not excuse us to ignore individuals in organizations; rather, it requires us to understand how the organization itself, as a social context, affects and shapes individual behavior and (both individual and organizational) performance. Barney and Felin (2013) thought is not sufficient to simply say that because individuals suffer from biases, so do organizations, or that because individuals learn, organizations learn. Rather, we need theories of organization and strategy that properly deal with the fact that aggregate capability development is happening within an organization. There are very few theories that explicitly deal with both the aggregate and contextual factors in organizations. As articulated by Heath and Sitkin (2001), we need theories not just of behavior, but of behavior both in and of organizations. Shades of this issue were foreshadowed by Art Stinchcombe, who argued that any theory of organization must “explain how organizations can be more rational than individuals (though of course they are not always)” (1990, p. 341). Barney and Felin (2013) though there are significant opportunities for management, strategy, and organizational scholars to begin to address microfoundations: micro-macro links and social aggregation in organizations. This means that organizational work, beyond applying theories and insights from other disciplines, needs proper theories of aggregation, unique to organizations.

## **Conclusion**

This paper has shown the two main lines of thought related with the achievement of a competitive advantage in the organization. It has also paid more attention to the second perspective, which responds to the last trend in strategic studies. Understanding individual capabilities is essential for researchers. An important area in which there are research opportunities is neuroscience, so a main goal of this paper is to encourage further investigation in this area. Future research should also focus on cognitive capabilities of the executives and how to make recruitment strategies for the purpose of finding heterogeneity in managers’ capabilities in order to survive in a changing environment.

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