

HETEROGENEOUS SOCIAL MOTIVES AND INTERACTIONS: THE THREE PREDICTABLE PATHS OF CAPABILITY DEVELOPMENT

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Research summary: Limited attention has been paid to the crucial role of individuals' motivation and social interactions in capability development. Building on literature in social psychology and behavioral economics that links heterogeneity in individual social motives to social interactions, we explain how the variation, selection, and retention processes underlying a group's deliberate capability development are affected by the composition of the group in terms of individuals' social motives in interplay with the organizational-level motivational levers designed by managers. Our multilevel theoretical model suggests that individual-level heterogeneity leads to the development of capabilities along different paths. For practice, this implies that, according to the composition of the group in terms of social motives, capabilities are more or less technically and evolutionary adequate and a source of business process performance.

Managerial summary: We propose that when a group of employees engages in developing one of the firm's capabilities, capability development will follow a different path according to what motivates most of the employees composing the group. We identify and discuss three paths. Two of these paths (convergence and congruence) can help improve business process performance in a stable environment, the third one (open-ended) in a dynamic environment. Our work invites managers to not only think in terms of more or less capability development, but also in terms of capability development path(s): the path(s) in which groups in the firm are currently engaged and the one(s) that are desirable given the firm's objectives and the nature of the environment(s) the firm faces in deploying its business processes. © 2016 The Authors. *Strategic Management Journal* published by John Wiley & Sons Ltd.

INTRODUCTION

Understanding capability development is critical to explaining heterogeneity in firm performance (Gavetti, 2005; Zollo and Winter, 2002). For example, Southwest Airlines outperformed competitors over a long period of time, not because

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it controlled extraordinary assets to which other airlines had no access, but thanks to its ability to improve its capabilities faster than competitors (Gittell, 2005). As the case of Southwest Airlines further illustrates, capabilities emerge from purposeful and collective learning processes taking place as a firm's members interact and are motivated to look for new or better ways to solve problems (Zollo and Winter, 2002). This collective character protects capabilities against imitation from competitors (Barney, 1991), but implies that capabilities are neither simply the result of corporate policies (Schreyögg and Kliesch-Eberl, 2007) nor just the outcome of individuals' isolated actions (Vergne and Durand, 2011). They result from social interactions among individuals, which are in turn shaped by these individuals' motivation to invest in collective learning processes.

Theories of capability development have so far paid limited attention to human motivation and social interactions. A variety of motivational assumptions seems to implicitly coexist with bounded rationality (Felin *et al.*, 2012). However, contributions to the resource-based view have pointed out that motivational assumptions matter to explain the emergence of firm-level outcomes (e.g., Bridoux, Coeurderoy, and Durand, 2011; Gottschalg and Zollo, 2007). Furthermore, despite calls for theories of capability development considering social interactions (e.g., Barney and Felin, 2013; Coff and Kryscynski, 2011; Devinney, 2013; Felin *et al.*, 2012; Winter, 2013), the capability view has so far focused on explanations at either the organizational level (e.g., Kale and Singh, 2007; Teece, 2007; Zollo and Winter, 2002) or the level of individual managers (e.g., Helfat and Peteraf, 2015). In this article, we address these gaps by explicitly taking into account motivational foundations to analyze the development of capabilities and the performance of the business process to which these capabilities relate.

In line with most previous research on capabilities (e.g., Helfat and Peteraf, 2003; Vergne and Durand, 2011; Zollo and Winter, 2002), we adopt a socio-evolutionary approach to capability development: we investigate the nature of the social interactions within groups that shape the variation, selection, and retention processes underlying the development of capabilities by these groups. To develop our theoretical model, we start with the literature in behavioral economics and social psychology that

has studied the relationship between, on the one hand, individuals' motivation and cognition and, on the other hand, individuals' behavior in social interactions, i.e., situations in which the outcome of an individual's behavior depends on others' behavior (e.g., De Cremer and Van Lange, 2001; Fehr and Gächter, 2000; Simon, 1990, 1993). This literature has uncovered heterogeneity in the motives driving individuals' behavior in social interactions and distinguishes individualists from reciprocators: (1) individualists' behavior is primarily driven by the pursuit of personal outcomes, which makes individualists very responsive to monetary incentives, while (2) reciprocators care about fairness and others' welfare in addition to their personal outcomes, which makes their behavior very responsive to motivational levers such as organizational justice and social norms (Simon, 1990, 1993; Van Lange, 1999). Drawing on these findings, we relate the composition of groups in terms of social motives (the proportions of individualists and reciprocators) to the variation-selection-retention stages of capability development and, subsequently, to business process performance.

Our work makes three contributions. First, we introduce microfoundations that help bridge multiple levels of analysis relevant to strategy researchers seeking to explain interfirm heterogeneity: our foundations explain the social interactions at the group level on the basis of the heterogeneity in motivation at the individual level and the heterogeneity in motivational levers at the firm level. Second, we identify three stylized paths along which capabilities develop according to group composition. Ceteris paribus, we argue that the trajectory of capability development differs across groups with different compositions: capability development paths are the result of the social interactions at the group level and emerge from individual-level motivational and cognitive differences linked to social motives in interplay with the organizational context. Consequently, the paths can neither be explained by studying the organizational context alone nor by looking only at the motivation and cognition of individuals in isolation. Finally, linking the different capability development paths to the performance of the business process to which the capability relates, we propose that homogeneous groups are better at sustaining technical adequacy and evolutionary adequacy in stable environments, whereas groups counting a significant number of both individualists

and reciprocators are better at adapting capabilities to fast changing environments.

MOTIVATION IN SOCIAL INTERACTIONS KEY TO CAPABILITY DEVELOPMENT

Capabilities are distinct, patterned, and practiced organizational activities (Helfat *et al.*, 2007). These are often large-scale, complex activities that have a recognizable purpose in terms of the significant outcomes that they are supposed to enable, like new product development, customer relationships, supply chain and alliance management (Dosi, Nelson, and Winter, 2000; Grant, 1996a; Kale and Singh, 2007; Schreyögg and Kliesch-Eberl, 2007; Tripsas and Gavetti, 2000). To qualify as a capability, an activity must thus have been practiced enough to work in a reliable manner (Helfat and Peteraf, 2003: 999). This implies that capability development relies intensely on learning (e.g., Eisenhardt and Martin, 2000; Gavetti, 2005; Helfat and Winter, 2011; Kale and Singh, 2007; Teece, 2007), especially deliberate learning (Dosi *et al.*, 2000; Zollo and Winter, 2002). For example, Kale, Dyer, and Singh's (2001) study of 200 organizations revealed that prior alliance experience plays a relatively minor role in the development of an alliance capability when it is not accompanied by deliberate learning efforts.

In previous work on capability development the locus of analysis is either the organizational level (e.g., Kale and Singh, 2007; Teece, 2007; Zollo and Winter, 2002) or the individual level (e.g., top manager: see Helfat and Peteraf, 2015; Teece, 2007). In contrast, the literature has been mostly silent about social interactions, which link the individual to the organizational level of analysis and provide an "account of how the participating individuals relate to each other—that is, of the interpersonal or social aspects of behavior" (Winter, 2013: 133) (for an exception, see Kleinbaum and Stuart, 2014). Early research viewed capabilities as blocks of united actions that are repeatable, actionable, and movable within the firm (e.g., Teece, Pisano, and Shuen, 1997), being quasi-independent from the organizational context and its members (Helfat and Peteraf, 2003). Furthermore, at the individual level of analysis, limited attention has been paid to the motivation of individuals throughout the organization (Gottschalg and Zollo,

2007), as most work has focused on managers' cognition (e.g., Gavetti, 2005; Helfat and Peteraf, 2015; Hodgkinson and Healey, 2011; Tripsas and Gavetti, 2000).

Yet, the more deliberate efforts at the basis of the purposeful development of a capability require individuals at the hierarchical level where the capability is employed to be motivated to act and learn collectively. In large- and medium-sized organizations, the development of a capability is not simply the result of (top) managers' plans (Schreyögg and Kliesch-Eberl, 2007), but is a bottom-up process that requires deliberate efforts on the part of the individuals employing the capability (Dosi *et al.*, 2000: 2; Grant, 1996b). Performing a capability may be quite automatic, but its development is "infused with intentionality, conscious deliberation, planning, and expertise" even if intermittent and fragmented (Dosi *et al.*, 2000: 12).

For example, Kale and Singh's work (Kale and Singh, 2007; Kale *et al.*, 2001) shows that the development of an alliance capability relies very heavily on alliance managers' involvement in activities such as knowledge sharing and coaching. Furthermore, capability development is rarely, if ever, an individual activity but usually results from social interactions and crystallizes collective learning (Grant, 1996a; Kogut and Zander, 1996). Unless alliance managers participate in collective activities to develop an alliance capability (such as sharing alliance management know-how by coaching managers who are new to alliances), the knowledge they hold cannot be used by others in the organization and is lost when they leave the firm (Coff and Kryscynski, 2011; Kale *et al.*, 2001). Individuals may, however, not be motivated to work closely with others to develop a capability. They may, for example, be reluctant to share knowledge because they view knowledge sharing as personally more costly than beneficial (Husted and Michailova, 2002) or because they feel threatened by others' negative feedback (Catmull and Wallace, 2014).

Whereas the learning underpinning capability development may not take place at the top of the organization, but rather where the people performing the capability are located (Huy, 2011), top managers do play an important role in facilitating and guiding capability development. For example, establishing a formal structure and systems to support the alliance managers' learning leads to greater alliance success (Kale and Singh, 2007; Kale *et al.*,

2001) and Pixar's CEO Ed Catmull considers it his main job to create an organizational context where social norms favor collective learning (Catmull and Wallace, 2014).

Therefore, our theoretical model tries to explain the development of a capability by a group of individuals who interact in performing the capability (e.g., a group of technicians performing a problem-solving capability) or because they have been tasked to develop the capability (e.g., alliance managers could be asked to form a task force to improve the firm's alliance capability). In the former case, capability development is not the primary goal of the group, but may be an important secondary goal. Groups in our article correspond to the persons interacting regularly and relatively intensely in performing a task. As a result, in large firms, several groups could develop what is initially the same capability but one that could eventually give rise to different capabilities as a result of different social interactions across groups.

We explain the social interactions underlying capability development on the basis of individual-level motivation and cognition in combination with organizational-level motivational levers such as monetary incentive systems and social norms. In a first step, we draw on the large literature in social psychology and behavioral economics about social motives and patterns of social interactions. In a second step, we build on this knowledge to detail three stylized capability development paths and their implications for business process performance. With its focus on explaining social interactions, our theoretical model complements other approaches of capability development. The literature has pointed to a large number of factors influencing capability development, many of which we simply assume constant in building our theoretical model.

HETEROGENEOUS MOTIVES AND BEHAVIOR IN SOCIAL INTERACTIONS

Human behavior in social interactions, in particular, in social dilemmas where personal interests conflict with collective welfare (Van Lange *et al.*, 2013), has been studied extensively in social psychology and behavioral economics. These fields have generated a large body of empirical evidence showing that an individual's behavior

in social interactions can be explained by the interplay between the individual's social motive and situation-specific factors (Bogaert, Boone, and Declerck, 2008; Rusbult and Van Lange, 2003; Van Lange *et al.*, 2013), as pictured in Figure 1. While researchers have used different labels to talk about *social motives* (e.g., "social value orientations," "social preferences," "self vs. other orientation"), they all refer to individual differences in general preferences for distributions of outcomes to self and others in situations where these outcomes are a function of both one's own and others' behavior (e.g., De Cremer and Van Lange, 2001; Fehr and Fischbacher, 2002). Social motives are personality traits in the sense that they are stable over time and not much affected by the dynamics of specific social interactions (e.g., Eisenberg *et al.*, 1999).

Individualists and reciprocators

Although many social motives exist, two social motives in particular are widespread and especially important in explaining individuals' behavior and the resulting collective outcome: individualism and reciprocity. Individualism is the inclination to maximize one's own outcome regardless of the outcome for others (Fehr and Gächter, 2000). Individualists are thus the self-interested individuals described in traditional economics. Reciprocity is the inclination to care positively for the others' outcome and to maximize joint outcome in interdependent situations (i.e., behave prosocially), unless the interdependent others fail to be cooperative or fair (Fehr and Fischbacher, 2004; Kelley and Stahelski, 1970; McClintock and Liebrand, 1988). In their review of the psychology literature on social motives, Au and Kwong (2004) report that most people are classified as reciprocators (46%), but that individualists form a significant minority (38%). In addition, if given the opportunity, a large majority of reciprocators, called "strong reciprocators," are willing to bear a personal cost (1) to reward those who cooperate or are fair and (2) to punish those who do not cooperate or are unfair (Fehr and Gächter, 2000). Strong reciprocators' sanctions are not purely self-centered: strong reciprocators are also willing to punish those who behave unfairly toward or do not cooperate with a third person they care about (Fehr and Fischbacher, 2004). Sixty to 70 percent of all reciprocators are strong reciprocators on the basis of studies of sanctioning by third parties (e.g., Fehr and Fischbacher, 2004).

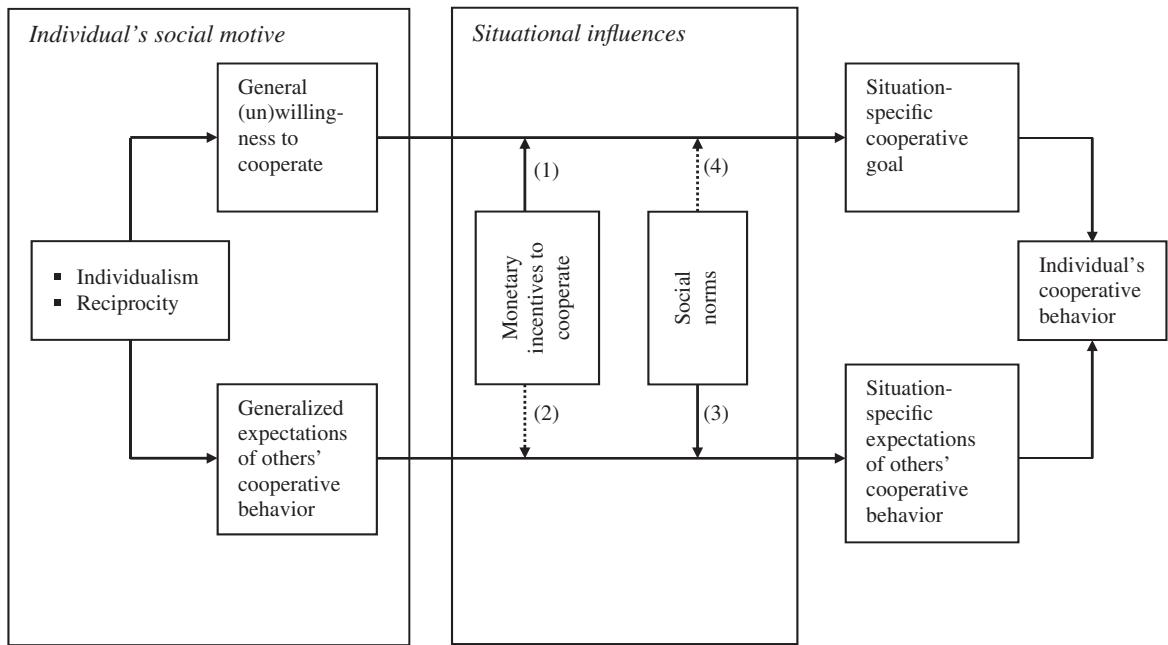


Figure 1. Determinants of individual behavior in social interactions. Figure adapted from Bogaert *et al.* (2008: 455)

Reciprocators and individualists differ with regard to their general willingness to cooperate. Reciprocators are in general ready to cooperate and are better “organizational citizens,” whereas individualists have a tendency to behave in a more selfish, competitive fashion (Rioux and Penner, 2001; Smeesters *et al.*, 2003). Individualists and reciprocators also hold different generalized expectations regarding others’ cooperative behavior because they judge what constitutes appropriate behavior in social interactions on different grounds. Reciprocators tend to judge behavior in terms of morality (what is good or bad for the collective), whereas individualists are inclined to interpret behaviors along the effectiveness dimension (what works, what improves personal outcomes) (De Dreu and Boles, 1998; Liebrand *et al.*, 1986). As a result, reciprocators’ and individualists’ emotional reactions to others’ noncooperation have different origins: reciprocators’ emotional reactions arise from the violation of the fairness norm, while individualists’ emotional reactions arise from effectiveness concerns (Stouten, De Cremer, and Van Dijk, 2005). In contrast to reciprocators, individualists cease to be upset when they learn that their personal outcome will not be affected by others’ noncooperation (Stouten *et al.*, 2005).

Individualists’ and reciprocators’ cooperative behavior

Social motives do not fully determine behavior; they influence cooperative behaviors in interplay with situational factors. Hence, individualists’ and reciprocators’ differences in terms of general willingness to cooperate and generalized expectations regarding others’ cooperative behavior do not systematically translate into different behavior. For example, both individualists and reciprocators exhibit noncooperative behavior toward the end of social dilemma experiments where participants are not given the opportunity to punish noncooperators, but individualists report that they do not cooperate because they want to maximize their personal outcome, while reciprocators stop cooperating as their only way to retaliate against others’ noncooperation (Fehr and Gächter, 2000; Ostrom, Walker, and Gardner, 1992).

As shown in Figure 1, cooperative behavior results from situation-specific cooperative goals and expectations regarding others’ cooperative behavior, which are in turn explained by the interplay of the individual’s social motive with situational factors characterizing the social interaction (Bogaert *et al.*, 2008). In line with the literature in management (e.g., Gottschalg and Zollo, 2007; Ouchi, 1979), social psychologists and behavioral

economists propose that monetary incentives to cooperate and social norms are two key situational factors explaining individuals' cooperative behavior. They add that these factors differentially affect the situation-specific goals and expectations formed by individualists and reciprocators because they exhibit two fundamentally different approaches to social interactions—based on personal outcome for individualists and on conditional cooperation for reciprocators (Bogaert *et al.*, 2008).

With their tendency to focus on their personal outcome, individualists cooperate strategically, i.e., when the payoffs of cooperating are higher than the costs (Van Lange, 1999). This implies that monetary incentives aligning the pursuit of personal outcome with the pursuit of the collective interest can bring individualists to cooperate (arrow 1 in Figure 1). For example, individualists respond positively to reputation incentives: they cooperate when their reputation is at stake, but do not when their reputation will not be damaged by noncooperation (Declerck, Boone, and Kiyonari, 2014). Similarly, in social dilemma experiments where participants can inflict sanctions, the financial sanctions imposed by strong reciprocators on noncooperators increase individualists' cooperative behavior (Fehr and Fischbacher, 2002; Fehr and Gächter, 2002). By comparison, monetary incentives such as monetary and reputation incentives have a much smaller effect on reciprocators' situation-specific cooperative goal, because individual and collective interests are more aligned for these individuals even in the absence of monetary incentives (Boone, Declerck, and Kiyonari, 2010; Declerck *et al.*, 2014).

Reciprocators' cooperation is conditional on others' cooperating too (Fehr and Fischbacher, 2004; McClintock and Liebrand, 1988); otherwise, reciprocators' general inclination to cooperate would make them vulnerable to exploitation by noncooperative others. As a result, reciprocators' cooperation is very sensitive to how they expect others to behave (Bogaert *et al.*, 2008; De Cremer and Van Lange, 2001). This explains why monetary incentives can positively affect reciprocators' cooperation when they reassure reciprocators that individualists will cooperate (arrow 2). It also explains why social norms, as "understood rules for accepted and expected behavior" (Cialdini, Bator, and Guadagno, 1999: 196), are a key moderator of reciprocators' cooperative behavior (arrow 3) (Rusbult and Van Lange, 2003; Smeesters *et al.*,

2003), especially when reciprocators have limited knowledge of others' past behavior.

Compared to reciprocators, individualists' cooperative behavior is much less influenced by expectations about others' cooperative behavior, in general, and social norms, in particular (Smeesters *et al.*, 2003). This is consistent with the finding that individualists do not cooperate when it does not personally pay off to do so, *regardless* of others' expected or actual strategy (Kelley and Stahelski, 1970; McClintock and Liebrand, 1988). However, it does not mean that social norms never affect individualists' cooperative behavior: when individualists expect strong reciprocators to see cooperation as the norm and thus to be inclined to punish a lack of cooperation, they cooperate because the threat of strong reciprocators' punishment changes their monetary incentives (arrow 4) (Fehr and Fischbacher, 2002; Fehr and Gächter, 2002).

This difference in sensitivity to social norms corresponds to a major cognitive difference between individualists and reciprocators and explains why reciprocators are generally willing to cooperate. Specifically, Simon (1990, 1993) suggests that reciprocators are more apt to accept and act on the social information captured by social norms. Relying on social norms is beneficial as it helps learn knowledge and skills that boundedly rational individuals could not acquire independently, on the basis of their own experience. However, at the same time, relying on social norms brings reciprocators to behave in ways that are beneficial for the collective but personally costly, such as cooperating in social dilemmas and enforcing cooperation in others (Simon, 1990, 1993). Korsgaard, Meglino, and Lester (1996, 1997) provided empirical evidence for the link proposed by Simon: they showed that individuals concerned with the welfare of others—a characteristic of reciprocators—are more responsive to social norms than individualists.

Group composition and managerial levers to guide deliberate capability development

The motivational and cognitive differences between individualists and reciprocators explain why a group's social interactions are shaped by the proportion of individualists and reciprocators in the group, together with the organizational context in which these interactions take place (Bridoux *et al.*, 2011). As the key actors in the creation of the organizational context, managers are able to

actively support capability development if they use the adequate motivational levers given the composition of the group (Bridoux *et al.*, 2011). For the sake of parsimony, we consider here three types of group in terms of composition: mostly individualists (hence, very few reciprocators), mostly reciprocators (hence, very few individualists), and a significant number of both individualists and reciprocators.

Following the above discussion, for a group composed mostly of individualists, monetary incentives that reward individuals for their contributions to capability development are the key managerial lever for guiding capability development (Amabile, 1997). Designing monetary incentives can be tricky. As Repenning and Sterman's (2002) case study illustrates, incentives aimed to encourage capability development sometimes have the opposite effect.

For a group composed mostly of reciprocators, the key managerial levers to guide capability development are social norms supporting capability development and perceptions of fairness. First, managers can attempt to shape prevailing social norms to make them supportive of capability development, e.g., by formulating a vision for the firm that emphasizes change, learning, and continuous improvement (Chatman and Cha, 2003). Second, managers should ensure perceptions of fairness because reciprocators' cooperative behavior is very sensitive to their perceptions of organizational justice. If reciprocators feel that the firm and its managers treat them fairly, they will be ready to reward the firm by contributing to realizing its objectives beyond what is personally rewarded. In contrast, if reciprocators feel treated unfairly they will reciprocate by contributing little and strong reciprocators may even punish the firm (Fehr and Gächter, 2000). Punishing the firm's perceived unfairness can take the form of lower productivity, less cooperation, theft, and lower product quality (Cowherd and Levine, 1992; Greenberg, 1990; Pfeffer and Langton, 1993).

Finally, for a group containing significant proportions of both reciprocators and individualists, managers should not only design monetary incentives rewarding capability development (lever 1), promote social norms supportive of learning and change (lever 2), and ensure organizational justice (lever 3), they should also put in place sanction mechanisms that strong reciprocators can use to discipline individualists (lever 4). Examples of sanction mechanisms are: involving group

members in each other's performance appraisals, using team-based bonuses that group members divide among themselves, and letting the group select its members. When strong reciprocators are unable to discipline individualists, individualists will focus their efforts on the tasks that are rewarded to the detriment of tasks that could contribute more to the development of capabilities but are not rewarded. Confronted with individualists' limited contribution to capability development, reciprocators will stop contributing as a form of retaliation (De Cremer and Van Lange, 2001; Liebrand *et al.*, 1986).

CAPABILITY DEVELOPMENT PATHS

Many authors have adopted a socio-evolutionary approach to theorize about capability development (Durand, 2006; Helfat and Peteraf, 2003; Zollo and Winter, 2002). This approach relies on a conception of organizations as selective environments, wherein various action patterns emerge and are selected and retained in the organization (Vergne and Durand, 2011). This variation-selection-retention model has been largely applied at the industry–firm interface, explaining which types of organizations tend to survive (Aldrich and Ruef, 2006; Durand, 2006). In the capability view, it has been used to explain the deliberate learning and the associated knowledge activities underlying capability development (e.g., Zollo and Winter, 2002).

In the variation stage, group members generate action patterns new to the group by making new combinations, either by combining pieces of the group's existing knowledge in a novel way or by combining pieces of the group's existing knowledge with external stimuli that were thus far not connected to them (Burgelman, 1991; Kogut and Zander, 1992). These new combinations form in the minds of individuals (Argote and Miron-Spektor, 2011) but are fed by social interactions. For example, social interactions provide the forum for new combinations when individuals share their knowledge and experiences and engage in knowledge integration (Nonaka, 1994).

In the selection stage, some of the new action patterns are eliminated, whereas others become candidates for retention (Aldrich, 1999; Durand, 2006) on the basis of first an individual, then a collective assessment of their potential. At the collective level, the selection of new action patterns generated by the

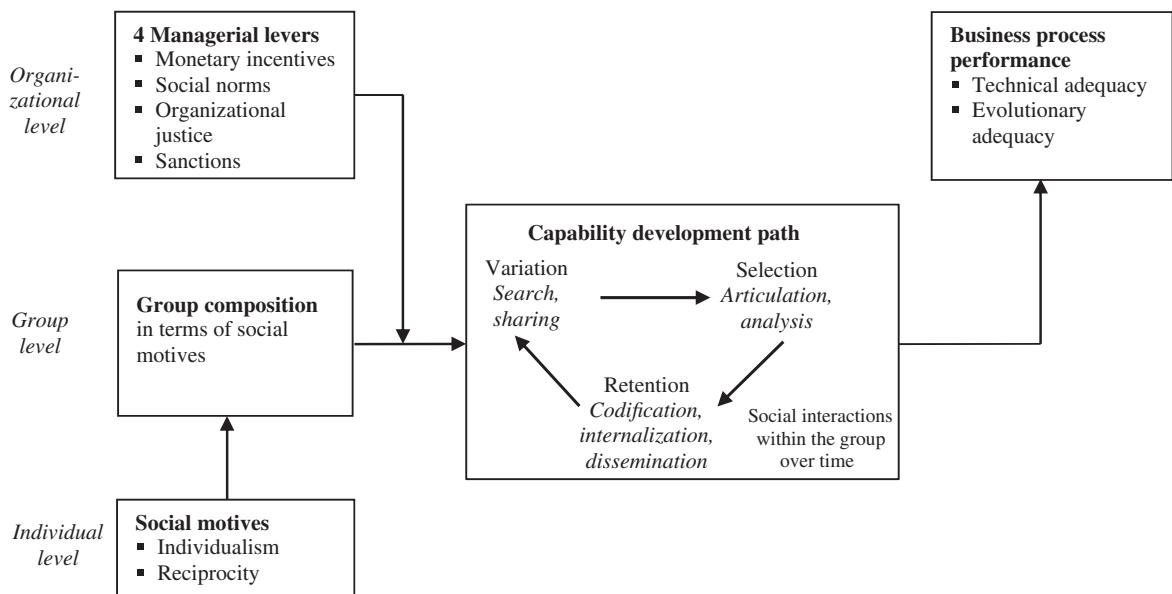


Figure 2. Variation-selection-retention stages and capability development path

group members and shared with the group involves “a collective investment in articulation, analysis, and debate of the merits and risks” connected to them (Zollo and Winter, 2002: 343). According to the strategy literature, the main selection criteria at play are internal to the firm and linked, *inter alia*, to social norms and monetary incentives (Aldrich, 1999: 26; Burgelman, 1991; Vergne and Durand, 2011), which are the very same situational factors that social psychologists and behavioral economists have found to affect behavior in social interactions. Our microfoundations add to the strategy literature that social norms and monetary incentives operate differently as selection criteria according to group composition.

Finally, to develop a capability, the new action patterns that have been selected must be reused over time and across space (Durand, 2006; Zollo and Winter, 2002). In the retention stage, “selected variations are preserved, duplicated, or otherwise reproduced” (Aldrich, 1999: 30). A single instance of successful problem-solving can trigger the development of a capability, but it does not as such constitute a capability unless this new pattern becomes a *habitualized* one (Schreyögg and Kliesch-Eberl, 2007). Several knowledge activities contribute to the group’s retention of new action patterns: the codification of the new action patterns to store them in organizational repositories such as rule books, structures, best practices, and stories (Kale and

Singh, 2007; Levitt and March, 1988; Zollo and Singh, 2004), the current group members’ internalization and application of these patterns (Nonaka, 1994), the socialization or coaching of new group members to retain the new action patterns in the face of member turnover (Kale *et al.*, 2001; Nonaka, 1994), and the diffusion of the new action patterns to other places in the firm where they may be useful (Trichterborn, Knyphausen-Aufseß, and Schweiger, 2016).

As shown in Figure 2, our goal is to investigate how the social interactions among group members shape these variation, selection, and retention processes. We simplify reality and reason *ceteris paribus*: we assume all factors to be the constant across cases besides the proportion of individualists to reciprocators in the group and the organizational context—specifically, the four managerial levers. Furthermore, we focus on the cases where the organizational context is supportive of capability development given the group composition. The organizational context could be unsupportive because managerial levers are not used in accordance with the group composition (as described above) or are primarily designed to encourage the group to pursue another goal than capability development (e.g., meeting short-run production targets in Repenning and Sterman, 2002). If the organizational context is not supportive, the group will not develop capabilities to the same extent

Table 1. Group composition and capability development paths

Group composition	Variation ^a	Selection ^a	Retention ^a	Path
<i>Mostly individualists</i>	Low and local, based on individualists' personal experimentation	Action patterns less new to the group but financially rewarded are preferred over more novel ones	Low retention of selected action patterns, limited to what is rewarded	Convergence: capability development guided by monetary rewards
<i>Mostly reciprocators</i>	Medium, nurtured by reciprocators' sharing and integrating their knowledge	Action patterns less new to the group but preserving social cohesion are preferred over more novel ones	High retention of selected action patterns	Congruence: capability development guided by social norms
<i>Significant proportion of individualists and reciprocators</i>	High, coming from the synthesis of individualists' personal experimentation and reciprocators' knowledge that is enabled by reciprocators	Application of multiple selection criteria leads to greater acceptance of action patterns newer to the group	Medium, retention level is higher than in a group composed mostly of individualists but lower than in a group of reciprocators	Open-ended: capability development guided by monetary rewards and social norms

^a By comparison with the other cases of group composition.

because individuals' motivation is lower. Assuming that the organizational context is supportive enables us to reveal heterogeneity in capability development paths and, thus, ultimately heterogeneity in business process performance *even* among groups whose members are motivated to develop capabilities. Table 1 summarizes our discussion of the three capability development paths corresponding to the three main group compositions introduced earlier (mostly individualists, mostly reciprocators, and a significant number of both).

Path 1: convergence path

New combinations in a group of individualists come first and foremost from personal experimentation because of individualists' cognitive makeup and because of the dynamics in such a group. In general, individualists rely more on personal experimentation and less on vicarious learning than reciprocators (Simon, 1990, 1993). In addition, a group composed mostly of individualists faces substantial cognitive and motivational barriers to engage in the knowledge activities supporting the generation of new combinations beyond what personal

experimentation allows. As individualists learn more from personal experience, they have limited information, heuristics, and meanings in common to help them communicate. This lack of common knowledge forms a cognitive hurdle to knowledge sharing and integration (Grant, 1996a; Kogut and Zander, 1992, 1996; Nonaka, 1994). Motivation to share and integrate knowledge is also relatively low in a group composed mostly of individualists because individualists' efforts are directed by monetary incentives, which can only imperfectly reward individuals' contributions to knowledge activities because these contributions are often difficult to define *ex ante*, observe, and measure (Bartol and Srivastava, 2002; Cabrera and Cabrera, 2002).

In the selection stage, individualists, who aim to maximize their personal outcome and value local efficiency at their level (De Dreu and Boles, 1998; Liebrand *et al.*, 1986), tend to share new action patterns with the group that they believe will improve their personal cost–benefit balance, by increasing their individual rewards for the same investment of resources (e.g., their own time and effort) or by saving on resources for the same rewards. In other words, they tend to not voice new

action patterns that came to their mind but that are not serving their personal interests based on a personal cost–benefit analysis, and so operating a first selection at the individual level. For example, observing a dysfunction in reporting errors, an individualist may come up with an idea to fix this problem, but may refrain from sharing the idea because, in the absence of monetary incentives rewarding improvements to the reporting system, advocating the idea and developing the solution would mean using one's time inefficiently.

In turn, at the group level, among the new action patterns generated by its members and shared with the group, a group composed mostly of individualists will select only the ones that gather support from enough group members, which requires that enough group members expect these new action patterns to lead to a better personal cost–benefit balance. Consequently, monetary incentives creating competition for rewards among group members foster the status quo and are detrimental to capability development. With such incentives, a new action pattern serving the interests of one group member will hurt the interests of other group members and be rejected vigorously by these members. Individualists will not hesitate to engage in overt conflicts to protect their personal interests because they often see social interactions in an economic context as means to an end and even as competitive games in which personal success is the ultimate objective (De Dreu and Carnevale, 2003). Even monetary incentives that do not spur competition among group members and align individual- and group-level interests encourage capability development in a specific direction. The firm's incentive system is usually fine-tuned to reward action patterns that managers identified as successful in the past (Gottschalg and Zollo, 2007). As a result, a group composed mostly of individualists will tend to select action patterns that are in line with past successes and to select out action patterns that are very new to the firm and, consequently, not (yet) rewarded by the incentive system, even if group members recognize their superior potential to improve the capability.

In the retention stage, not all the new action patterns selected by the group are retained and diffused. Retention involves costs that individuals may be reluctant to incur (Levitt and March, 1988). This barrier to retaining new action patterns is especially relevant for a group of individualists. As is the case for the knowledge activities related to variation, individualists limit their retention efforts

to what is rewarded by the firm. So, for example, individualists will only invest in knowledge codification to facilitate the group's replication of new action patterns over time (e.g., by developing recommendations, checklists, and templates; Trichterborn *et al.*, 2016) if the incentive system rewards their codification efforts.

To sum up, in a group composed mostly of individualists, the variation, selection, and retention processes that constitute learning and the related knowledge activities will be guided and constrained by the system of monetary incentives. Individualists will find new ways, primarily through personal experimentation, to save on the resources they deploy (e.g., own time and effort) in the pursuit of action patterns and outcomes that are rewarded. This will lead the group to develop a capability along a path of growing efficiency in the use of the firm's existing resources to achieve the objectives selected and rewarded by managers. We label this path *convergence*, as the incentive system put in place by managers enables the convergence of individual and collective interests to support capability development.

Path 2: congruence path

Capabilities will develop in a different direction in groups composed mostly of reciprocators. If they feel that the firm treats them fairly, which we assume here, reciprocators are motivated to reciprocate the firm's fairness by contributing to the firm's objectives beyond what pays off personally given the incentive system in place (e.g., Fehr, Klein, and Schmidt, 2007). Reciprocators are thus willing to engage in collective knowledge activities even if these activities are not or are only partly rewarded by monetary incentives (Bridoux *et al.*, 2011).

In the variation stage, the new combinations that form in reciprocators' minds build more on knowledge acquired from others and less on knowledge coming from personal experimentation than is the case for individualists. Reciprocators' concern for others makes them more receptive to social norms than individualists (Korsgaard *et al.*, 1996, 1997; Simon, 1990, 1993), more motivated and capable to take others' perspective (Grant and Berry, 2011), and "understand, in a nonjudgmental way, the thoughts, motives, and/or feelings of a target, as well as why they think and/or feel the way they do" (Parker, Atkins, and Axtell, 2008: 151). Perspective taking is critical to social coordination

and cooperation (see Galinsky, Ku, and Wang, 2005 for a review). At the individual level, thanks to their capacity to take others' perspective, reciprocators are cognitively more able than individualists to absorb the knowledge developed elsewhere in the firm and to build on it to make new combinations that can increase the utility of the capability for its "users," e.g., colleagues, managers, the firm, and clients (cf., Grant and Berry, 2011). At the group level, perspective taking and reliance on social norms facilitate the collective knowledge activities that are beneficial to the generation of new action patterns, such as integrating knowledge. Members' reliance on the same social norms and capacity to take others' perspective ease communication among group members (Grant, 1996b; Kogut and Zander, 1992; Nonaka, 1994) and foster the sharing, discussion, and integration of viewpoints and information (Hoever *et al.*, 2012).

In the selection stage, social norms play a key role. By defining what is appropriate, social norms guide and constrain reciprocators' selection of new combinations (Miron-Spektor, Erez, and Naveh, 2011; Simon, 1990, 1993) both at the individual and group levels. At the individual level, reciprocators' selection is not driven exclusively by what is good for them personally; when selecting which new action patterns to share with the group, reciprocators are more able and motivated to take others' perspective in order to determine which new action patterns are most useful in satisfying others' needs (De Dreu, Weingart, and Kwon, 2000; Grant and Berry, 2011). Yet, reciprocators will not voice to the rest of the group all new action patterns that come to their mind and could better serve their own or other's interests; they will filter out the new action patterns that, they fear, conflict with what social norms prescribe as appropriate. Voicing new action patterns that are potentially inappropriate given the prevalent social norms puts one at risk of being frowned upon and socially sanctioned by strong reciprocators (e.g., being gossiped about and isolated from the group), whereas voicing concerns about new action patterns that threaten the collective will be met with social approval. Social approval matters more to reciprocators than individualists; reciprocators want to be seen as good relationship partners because they value social relationships not only for the material ends social interactions may help them achieve but also for their own sake, even in an economic context (Bridoux and Stoelhorst, 2014).

At the group level, the selection among the new action patterns voiced by the group members is similarly shaped by social norms, reinforcing the selection effect of these norms. A group composed of mostly reciprocators aspires to social cohesion: it avoids conflicts in order to protect the social relationships inside the group and between the group and other parties from the damages conflicts can cause to relationships (De Dreu and Carnevale, 2003). This preference for social cohesion hampers the collective articulation, analysis, and debate of the merits and risks of new action patterns. The few very new action patterns voiced by group members may be quickly discarded by the group as potential threats to existing social relationships, because adopting these new action patterns means changing the interactions within the group and of the group with other parties. In contrast, action patterns that are less new but in line with prevalent social norms form much less of a threat to social relationships because they comply with the formal and informal rules governing social interactions and can be justified to the relational partners as appropriate on the basis of these shared rules. As a result, and because social norms reflect the knowledge that has accumulated in the firm over time (Prahalad and Bettis, 1986), relying on them as selection criteria will make a group composed mostly of reciprocators unlikely to adopt new action patterns that diverge significantly from existing practices.

In the retention stage, the members of a group of reciprocators will be willing to invest effort in retaining the selected action patterns and sharing them with other groups in the firm as a contribution to the common good, even if retention activities are not incentivized with monetary rewards. This is especially the case if social norms encourage the codification of knowledge and communication activities within and across group boundaries.

To sum up, in a group composed mostly of reciprocators, the variation, selection, and retention processes will be guided and constrained by social norms. Reciprocators will find new ways to better serve the needs of the actors who benefit from capability development, including the organization itself, as long as these new action patterns conform to social norms and are thus unlikely to endanger social cohesion and existing relationships. This will lead the group to learn and develop capabilities along a path of growing utility for the users of the capability under the guidance of social norms. We label this path *congruence*, as the

social cohesion that social norms enable supports a capability development congruent with them.

Path 3: open-ended path

In a group containing a significant proportion of both individualists and reciprocators, the variation and selection processes at the individual level do not differ from the ones described for the two other profiles: reciprocators in the group generate new combinations based on knowledge and experiences accumulated in the firm, whereas individualists rely primarily on personal experimentation. What is markedly different are the dynamics at the group level. In the variation stage, the coexistence of two types of members creates the cognitive and motivational conditions conducive to greater variety in new combinations than in homogeneous groups. As reciprocators and individualists rely on different information to generate new combinations, the group has access to diverse perspectives. Diversity in perspectives can increase collective learning because the synthesis of different perspectives is superior to each of these perspectives taken separately; yet, this synthesis is not easy to realize (Boland and Tenkasi, 1995; Kilduff, Angelmar, and Mehra, 2000). Cognitively, this synthesis is possible in a mixed group thanks to reciprocators' perspective-taking ability (Grant and Berry, 2011). Perspective taking is important in a mixed group because people high on this trait are better able to frame messages so as to be understood by people who have another viewpoint and to constructively appraise the ideas of others, even if these others do not share their values (Hoever *et al.*, 2012).

Next to this role of cognitive facilitation, reciprocators also provide the motivational stimulant for the exchange of ideas, the surfacing of assumptions, and the integration of diverse perspectives and alternatives. As explained above, if, as we assume here, a firm's social norms promote change, learning, and continuous improvement, strong reciprocators who feel treated fairly by the firm are willing to discipline individualists into contributing to knowledge activities in order to help the firm achieve its objectives and so reciprocate the firm's fair treatment. As a result, a group containing significant proportions of both reciprocators and individualists is able to sustain a level of knowledge sharing and integration comparable to a group composed mostly of reciprocators if strong reciprocators have access to sanctions (Bridoux *et al.*, 2011).

In the selection stage, social norms are less stringent selection forces in a group containing significant proportions of both individualists and reciprocators, than in a group composed mostly of reciprocators. Strong reciprocators are likely to enforce only what they perceive to be the most important among the social norms, as it would be very costly for strong reciprocators to monitor and sanction individualists so as to get them to adhere to the prevailing social norms in every aspect of their behavior. This leaves room for individualists to champion new action patterns that come from personal experimentation and are not completely aligned with the prevailing social norms, but that they expect to lead to a better personal cost–benefit balance given the firm's incentive system. Consequently, monetary incentives, as well as social norms, guide the selection of new action patterns in a mixed group; but both exercise weaker selection pressure than in homogeneous groups. Finally, in line with what we have argued for the variation stage, retention is relatively high when strong reciprocators are motivated and able to compel individualists to contribute to these knowledge activities.

To sum up, in a group containing significant proportions of both individualists and reciprocators, the variation, selection, and retention processes will be guided by monetary incentives and social norms, but this guidance will be looser than is the case in homogeneous groups. This creates room for the generation, selection, and retention of more novel action patterns, which makes the capability development less predictable in terms of direction. Reciprocators' pursuit of increasing utility for those who benefit from the capability (e.g., clients, colleagues, managers, and the firm) will be disrupted by individualists' pursuit of greater efficiency in the use of resources. These efficiency gains, in turn, free up resources that reciprocators can leverage to address needs better. As a result, the capability development path is *open-ended*, with more potential for radical changes to capabilities than the other two paths.

IMPACT ON BUSINESS PROCESS PERFORMANCE

We now relate the heterogeneity in capability development paths stemming from group composition to business process performance (see Table 2). According to Ray, Barney, and Muhanna (2004), the performance of the activity to which the capability

Table 2. Consequences for management and business process performance

Group composition	Path	Managerial levers	Technical adequacy	Consequences for business process performance ^a	
				Evolutionary adequacy	
				Stable environment	Dynamic environment
Mostly individualists	Convergence	Monetary incentives	Steady increase: the capability becomes more and more cost effective	Potential for sustained or increasing performance if top-down adaptation of incentive system	Decreasing performance because top-down adaptation of incentive system is too slow
Mostly reciprocators	Congruence	Fairness and social norms	Steady increase: the capability serves better and better its intended function	Potential for sustained or increasing performance if adaptation of social norms	Decreasing performance because the adaptation of social norms is too slow
Significant proportion of individualists and reciprocators	Open-ended	monetary incentives, fairness, social norms, and sanctions	Increase halted by the adoption of very new action patterns	Performance is jeopardized as very new action patterns give rise to excessive costs	Potential for increase in performance thanks to very new action patterns

^a By comparison with the other cases of group composition.

relates is the appropriate dependent variable to examine the performance impact of capabilities. Following Helfat *et al.* (2007), we consider both the technical and the evolutionary adequacy of the capability developed by the group¹. Technical adequacy refers to “how effectively the capability performs its intended function when normalized (divided) by its costs,” whereas evolutionary adequacy “relates to how well the capability enables the firm to make a living” (Helfat *et al.*, 2007: 7).

On the basis of the capability development paths, we can conclude that technical adequacy increases faster when the capability is developed by a homogeneous group than by a group counting both a significant proportion of individualists and reciprocators. A capability developed by a group composed mostly of individualists will steadily become more and more efficient in the use of resources along the dimensions identified by management as enabling success and duly incentivized. A capability developed by a group composed mostly of reciprocators

will satisfy better and better the needs of the actors who benefit from the capability (e.g., colleagues, managers, the firm, and clients). By comparison, the technical adequacy of a capability developed by a group counting significant proportions of both individualists and reciprocators will not increase as steadily: it will halt and may even decrease in periods where the group adopts very new actions patterns, significantly reconfiguring resources in attempts to pursue both efficiency in the use of resources and utility for the users of the capability.

Looking beyond technical adequacy, which is defined internally, is important because the performance of a business process eventually depends on the nature of the external environment in which the firm deploys this business process (Helfat *et al.*, 2007). A capability must not only be technically but also evolutionarily adequate in the sense of providing a firm with a survival advantage and avoiding a situation in which the firm is locked in a suboptimal state of affairs (Helfat *et al.*, 2007; Teece, 2007; Vergne and Durand, 2011) and is increasingly tied to its previous strategic choices, thereby making it difficult to change strategic direction (Burgelman,

¹ We prefer to use the term adequacy over that of “fitness” used by Helfat *et al.* (2007) because fitness implies some ex ante appreciation that the outcome associated with the actions is necessarily positive (see Durand, 2006: 24).

2002: 326). Evolutionary adequacy depends in particular on the degree of environmental dynamism (Eisenhardt and Martin, 2000). Some external environments change slowly and predictably, whereas others are characterized by shocks and dramatic alterations.

The higher the environmental dynamism, the quicker and more extensively a capability needs to change in order for the business process to keep performing at a satisfactory level. Specifically, evolutionary adequacy depends on “quickly created new knowledge and iterative execution to produce adaptive but unpredictable outcomes” in highly dynamic environments, while it depends extensively on “existing knowledge and linear execution to produce predictable outcomes” in more stable environments (Eisenhardt and Martin, 2000: 1106). Thus, small incremental changes to a capability using the firm’s existing knowledge are enough to maintain or enhance the value-creating potential of the capability in a more stable environment, but more radical changes are needed in a more dynamic environment. Group composition and the social interactions it generates influence whether a group is able to develop a capability to an extent and with the speed that match the changes in the external environment of the business process.

A group composed mostly of individualists is unlikely to develop a capability quickly and extensively enough to keep up with the changes characterizing a highly dynamic environment. As long as monetary incentives stay the same, the group will keep pursuing the same objectives with limited regard for changes in the external environment. This means that the capability will not be modified to match environmental changes unless managers adapt the incentive system on time to reflect those external changes². Ensuring evolutionary adequacy through a top-down alteration of the incentive system is more feasible when the environment is

changing slowly because incentives cannot be constantly revised without the firm incurring high costs, such as the opportunity costs of managerial attention that could go to other activities (Baker, Jensen, and Murphy, 1988) and a loss in productivity as employees need time to learn to be productive under a new incentive regime (Obloj and Sengul, 2012).

By comparison, reciprocators are more likely than individualists to perceive when the activity is at odds with external needs because they are better at taking others’ perspective (De Dreu *et al.*, 2000; Grant and Berry, 2011). In other words, the sensing capacity described by Teece (2007) is comparatively more the forte of reciprocators than of individualists. In addition, if they feel that they are treated fairly reciprocators are willing to participate in adapting the capability to changing external demands, even if participating does not benefit them personally. This implies that with a group composed mostly of reciprocators a capability could be adapted over time from the bottom up, with only limited managerial intervention. Yet, this bottom-up adaptation will be relatively slow because capability development is constrained by the maintenance of social cohesion under the guidance of social norms. Given that social norms change slowly, it follows that it takes time for very new action patterns to become socially acceptable and thus no longer form a threat to social cohesion (e.g., Ostrom, 1990). Thus, in a highly dynamic environment, a group composed mostly of reciprocators is unlikely to develop the capability fast enough for the activity to keep performing satisfactorily.

A group containing a significant number of both reciprocators and individualists has the potential to change a capability faster than either type of homogeneous groups. Reciprocators provide knowledge about the changes in external demands and strong reciprocators can enforce participation in the knowledge activities needed to develop the capability. The presence of individualists, in turn, increases the diversity of new action patterns the group can select from. Furthermore, the internal selection criteria are looser, creating more space for action patterns that are very new to the firm. This supports evolutionary adequacy in a highly dynamic environment. In contrast, in a stable environment, changes in the capability are likely to be more extensive than needed, hurting the performance of the business process because they give rise to additional costs. For instance, more extensive changes require larger investments of employees’ effort and time in

² Pay-for-individual performance systems cannot automatically reflect changes in the firm’s external environment. These systems rely on managers translating the desired firm-level outcomes into desirable individual-level outcomes or behaviors, which are then measured and rewarded. In this translation process, even if they aim to incentivize learning and innovation, managers are likely to be biased toward past successes as illustrated by cases such as Polaroid (Tripsas and Gavetti, 2000) and Intel (Burgelman, 2002). An alternative to “managerial translation” is a pay-for-firm performance system, such as a profit-sharing plan. The advantage is that firm performance is directly linked to the firm’s changing environment. The disadvantage, however, is that, unless the firm is very small, individualists would shirk with a pay-for-firm performance system as it creates a social dilemma.

the knowledge activities supporting deliberate capability development, to the detriment of deploying the group's existing capabilities to create value in the business process.

DISCUSSION

Theoretical contributions

Many of the organizational phenomena that interest strategy scholars are the result of social interactions rather than of independent individual actions. Consequently, it is important for strategy research to avoid the pitfall of extreme methodological individualism whereby researchers attempt to explain social phenomena in terms of individuals alone, as if individuals' decisions and actions occurred in isolation from group life (Hodgson, 2007) and as if a group behaved like a single and (most often than not in prior research) benevolent individual. By building on the very rich literature in social psychology and behavioral economics that has studied individuals' decisions and actions in social interactions, our article introduces microfoundations that avoid the pitfall of methodological individualism and enable multilevel theorizing for strategy research aiming to explain interfirm heterogeneity.

A second contribution of our article is to use these microfoundations to analyze the variation, selection, and retention processes that underlie deliberate capability development by a group of employees. We have first argued that the levers managers should use to guide deliberate capability development differ as a function of group composition because individualists and reciprocators respond differently to the organizational context. We have also argued that group composition in terms of social motives helps explain heterogeneity in capability development paths. This heterogeneity is not only quantitative, with some groups developing capabilities more than others because of an organizational context that matches better group composition, but also qualitative, with groups developing capabilities in different directions even if they are relatively equally motivated. As such, our multilevel theorizing complements existing work on the sources of performance heterogeneity: the heterogeneity of the resources and capabilities that are built in firms emerges, at least in part, from motivational and cognitive heterogeneity at the individual level, in conjunction with heterogeneity in managerial levers at the organizational level.

Third, by linking the internal heterogeneity in capability development to environmental dynamism, our article contributes an original perspective on the underpinnings of organizational evolution and performance. Whereas traditional evolutionary perspectives start with variation as given and selection as external to entities (Aldrich and Ruef, 2006; Durand, 2006), we propose an in-depth explanation of the processes of variation and selection at the entity level (here the group), what can be considered the "raw material" of evolutionary perspectives. Tracing relationships between sub-entity characteristics, both in terms of cognition and motivation of individuals, on the one hand, and the relative adequacy to the selective environment of the capabilities emerging at the group level (from the interactions among these sub-entities), on the other hand, provides an interesting avenue for researching the endogenous determinants of organizational performance.

Managerial relevance

Our work points to different channels through which managers can affect capability development if the pursuit of other objectives does not completely constrain their choices. In the shorter term, by emphasizing some managerial levers over others as a function of the composition of the firm's current workforce, managers can increase group members' motivation to invest in capability development. More importantly, our work invites managers to not only think in terms of more or less capability development, but also in terms of capability development path(s): the path(s) groups in the firm are currently engaged in and the one(s) that are desirable given the firm's objectives and the nature of the environment(s) the firm faces in deploying its business processes. The convergence path corresponds to the traditional case of the organization using monetary incentives to align the employees' interests with those of the firm. Many not-for-profit organizations espouse the congruence path with a vast majority of employees motivated by a social mission (e.g., poverty reduction). And, we observe the open-ended path in some professional service firms that pursue goals related to different logics simultaneously (e.g., healthcare organizations that have health-related and financial objectives).

In the longer term, managers can influence the capability development path of a group by managing its composition. Indeed, group composition is

partially under managers' control through selection and self-selection mechanisms (Bridoux and Stoelhorst, 2014; Coff and Kryscynski, 2011). Managers can select and retain employees on the basis of their social motives (a selection effect). For example, Southwest Airlines is careful to screen prospective employees based on their attitudes more than their skills in order to select applicants who will cooperate with others to get the work done (Gittell, 2005). In addition, Southwest's managers are attentive to correcting potential hiring mistakes: new hires who do not adopt Southwest's teamwork approach are either fired or counseled out (Gittell, 2005). Managers can also influence the capability development path through employees' self-selection. Managers' emphasis on some of the levers described above makes the firm more or less attractive to individuals depending on their motives (Bridoux *et al.*, 2011). For example, a strong emphasis on individual monetary incentives is more attractive to individualists and a strong emphasis on fairness is more attractive to reciprocators, which connects capability development paths with compensation policies.

Future research

As a first attempt to shed light on the social interactions underlying capability development, our ambition was to pave the way for future developments that together will enable us to integrate motivation and social interactions to the same extent as cognition in our strategy theories. Many other factors, which we have assumed constant in our analysis, deserve attention in future research as they are likely to influence deliberate capability development by affecting the nature of the social interactions in a group. First, heterogeneity in the experience or functional background of group members could benefit deliberate capability development through an increase in variation, but at the same time this heterogeneity engenders social interactions characterized by heightened task and relational conflict, which are known to hurt group performance (De Dreu and Weingart, 2003). In the same vein, future research could address the influence of (formal and informal) leaders on the social interactions in groups of different composition in terms of social motives. We would expect effective leadership to take quite a different form depending on group composition. Finally, managers outside of the group can play a role in capability development that goes beyond shaping the organizational

context: they may feed the variation stage (e.g., by imposing the adoption of a new IT system) and be personally involved in selecting the new action patterns championed by the group.

In conclusion, our objective has been to connect the literature on capability development to the existing research on the heterogeneity of social motives in order to uncover how group composition in terms of the proportions of individualists and reciprocators influences the capability development process (variation, selection, and retention), and to outline the consequences for the management of capability development and business process performance.

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