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Learning Activities, Exploration, and the Performance of Strategic Initiatives

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This study examines the contingent effect of the degree of exploration characterizing strategic initiatives on the relationship between group-level organizational learning activities (i.e., searching, processing, codifying, and practicing) and the performance of strategic initiatives. Results from a sample of 96 strategic initiatives conducted by three large European insurance corporations provide broad, albeit not unanimous, support for our prediction that the four learning activities are more beneficial when the degree of exploration is high. Moreover, for initiatives with lower degrees of exploration, we found no significant association of searching, processing, codifying, or practicing with initiative performance. These findings suggest that effective organizational learning depends not only on investments in learning activities, but also on the alignment between these investments and the degree of exploration inherent in the learning task.

Keywords: *strategic initiatives; group-level organizational learning; degree of exploration*

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Strategic initiatives are at the core of strategic management (Nag, Hambrick, & Chen, 2007) and represent an important mechanism for organizations to either improve their current capabilities or to explore the development of new ones (Leonard-Barton, 1992; McGrath, 2001). Strategic initiatives can take numerous forms, including new process or product development, corporate venturing, acquisition and integration tasks, or major reorganizations. In spite of their prevalence and importance, however, initiative success rates range from only 30% to 50% (D. Miller, 2002; Saunders, Mann, & Smith, 2008).

The conundrum of how to successfully manage strategic initiatives has inspired a diverse array of studies examining determinants of initiative performance, such as the formal and informal organizational context (Bower, 1970; Burgelman, 1983; Kreutzer, Walter, & Cardinal, 2013; Lechner, Frankenberger, & Floyd, 2010; Lechner & Kreutzer, 2010; Lovas & Ghoshal, 2000; McGrath, 2001; McGrath, MacMillan, & Venkataraman, 1995), or process factors, such as communicating, forcing, compromise (Bryson & Bromiley, 1993), or micropolitical activities (Kreutzer et al., 2013; Lechner & Floyd, 2012). Moreover, prior research has shown that initiatives with different degrees of exploration require different management structures and processes to perform well (Holmqvist, 2004; Winter & Szulanski, 2001).

Less is known about organizational learning processes in strategic initiatives. While prior research suggests that different kinds of learning activities are carried out within groups pursuing initiatives (Brown & Duguid, 1991; Katila & Ahuja, 2002; Lechner & Floyd, 2007; Zollo & Winter, 2002), the more current learning literature has "demystified" organizational learning and suggests that learning processes are not inherently positive and might differ in their significance (Argote & Miron-Spektor, 2011; Crossan & Berdrow, 2003). Prior research offers few clues, however, about the impact of different learning activities—for example, "searching" for information versus "codifying" the newly acquired knowledge—on initiative performance, and whether and how this impact varies under different learning conditions, such as the degree of exploration associated with strategic initiatives.

The purpose of this article is to better understand how different types of learning activities influence initiative performance, contingent on different learning demands. In particular, we build on the organizational learning (e.g., Crossan, Lane, & White, 1999; Edmondson, 2002), dynamic capabilities (e.g., Eisenhardt & Martin, 2000; Zollo & Winter, 2002) and behavioral decision-making perspectives (e.g., M. D. Cohen & Sproull, 1996; Cyert & March, 1963) to argue that the degree of exploration characterizing a strategic initiative moderates the relationships between learning activities and initiative performance. When strategic initiatives target the improvement of an organization's existing capabilities (i.e., the degree of exploration is low), we expect that there will be fewer benefits of learning activities for initiative performance. To the extent strategic initiatives reach beyond the existing capabilities of an organization (i.e., the degree of exploration is high), we expect a stronger link between learning activities and initiative performance.

This study intends to make three contributions. First, we develop and test a conceptual framework of group-level learning activities in strategic initiatives and their impact on initiative performance. By examining organizational learning as a determinant of initiative performance, our study complements prior research on other factors and may thereby help to improve notoriously low initiative performance rates. Second, our findings highlight the behavioral learning activities "codifying" and "practicing" as important group-level activities associated with effective organizational learning. This provides support for the argument that "new ideas are essential if learning is to take place. . . . Without accompanying changes

in the way that work gets done, [however,] only the potential for improvement exists" (Garvin, 1993: 80). Third, we provide evidence of a contingency effect of the degree of exploration on the effectiveness of learning activities. While our findings provide broad support for our argument that investments in learning pay off when they are made in more exploratory initiatives, our results also suggest that investments in learning activities have no effect on the performance of less exploratory initiatives. We therefore build on the trend in the learning literature to challenge the "halo" surrounding organizational learning (Argote & Miron-Spektor, 2011; Crossan & Berdrow, 2003), and suggest a more nuanced, context-specific approach to successful investments in organizational learning.

Theory and Hypotheses

We define *organizational learning* as the process of improving existing or creating new capabilities (Eisenhardt & Martin, 2000; Leonard-Barton, 1992; Zollo & Winter, 2002). An organizational capability, in turn, represents the capacity to deploy tangible or intangible resources to perform a task (Amit & Schoemaker, 1993). According to resource-based theory, such capabilities play a central role in how firms achieve competitive advantage (Barney, 1991; Peteraf, 1993).

As Nonaka (1994) and others have outlined, the ideas underlying the improvement of old capabilities and the creation of new capabilities emerge from individuals. Thus, the learning that accompanies organizational capability development includes the discovery and internalization of new information as well as new experiences and feedback by individuals. For individual-level learning to be transformed into organizational capabilities, however, new ideas and experience must be interpreted and integrated within groups (Chadwick & Raver, 2015; Crossan et al., 1999; Kostopoulos, Spanos, & Prastacos, 2013; Nonaka, 1994). These group-level processes, therefore, are a crucial mediator between learning at the individual level and the development of organizational capabilities (Edmondson, 2002), and are the focus of this study.

Ideally suited for the study of such group-level learning processes are *strategic initiatives*, defined as temporary, coordinated undertakings for improving or expanding the capability base of an organization that have the potential to substantially impact its evolution and performance (Lechner & Kreutzer, 2011). They reflect a common level of analysis for organizational learning and renewal (Edmondson, 2002; Gibson & Vermeulen, 2003), and in contrast to more abstract concepts, such as routines (Cyert & March, 1963; Nelson & Winter, 1982), capabilities (Winter, 2000; Zollo & Winter, 2002), and organizational interpretive schemata (Rerup & Feldman, 2011), they are also easily identifiable and empirically observable (Lovas & Ghoshal, 2000). Moreover, they represent a crucial link between a firm and its external environment (Lovas & Ghoshal, 2000), which is vital for any organizational learning activity (W. M. Cohen & Levinthal, 1990). We thus focus on strategic initiatives as the level of analysis.

Learning Activities in Strategic Initiatives

Several studies have recognized the importance of the interdependence between cognition and behavior in organizational learning (e.g., Argyris & Schön, 1978; Edmondson, 2002; Fiol & Lyles, 1985; Lechner & Floyd, 2007; Thomas, Clark, & Gioia, 1993). For

instance, Simon (1969) defined organizational learning as (a) the growing insights and successful restructurings of organizational problems by individuals, which (b) are reflected in the structural elements and outcomes of the organization. Whereas the early literature has debated whether organizational learning should be defined as changes in cognitions *or* changes in behavior, most current studies agree that in organizational learning processes, cognition affects behavior and vice versa (Argote & Miron-Spektor, 2011; Vera & Crossan, 2004).

As strategic initiatives are charged with improving or extending an organization's capability base, the relevant learning behaviors include not only acquiring, combining, or sharing information and knowledge (Argote, 1999), but also the activities associated with incorporating this knowledge into existing or newly developed capabilities (Zollo & Winter, 2002). The charge of the latter set of activities is to generate alternative solutions and to decide on which of a number of alternative approaches is most effective. This involves asking questions, challenging assumptions, seeking different perspectives from within and outside the organization, and reflecting on what has worked and not worked in the past (Edmondson, 2002; Gibson & Vermeulen, 2003; Van Der Vegt & Bunderson, 2005). Importantly, this also includes experimenting with new arrangements, developing new procedures, and creating pilot projects that demonstrate the feasibility of specific solutions (Edmondson, Bohmer, & Pisano, 2001; Levitt & March, 1988; McGrath, 2001). Thus, in addition to cognitive activities, behavioral activities, or learning by doing, constitute an important part of the learning process within such groups (Leroy & Ramanantsoa, 1997).

Building on the existing literature (see Table 1 for an overview of organizational learning frameworks), we conceptualize group learning activities in strategic initiatives as consisting of four specific activities. *Searching* represents initiative members' receptiveness to and efforts in acquiring new knowledge and information from both within and outside the initiative (Flores, Zheng, Rau, & Thomas, 2012; Garvin, 1993; Huber, 1991; Katila & Ahuja, 2002; Wielemaker, Volberda, Elfring, & Baden-Fuller, 2003). *Processing* represents the information-assimilation process whereby initiative groups analyze data, discuss issues, consider alternatives, and reach decisions about particular courses of action (Crossan et al., 1999; Flores et al., 2012; Garvin, 1993; Huber, 1991; Wielemaker et al., 2003). *Codifying* represents efforts to put concepts, procedures, and the like into written form so that they can serve as guides to coordinated action in the improvement of existing or the development of new capabilities (Crossan et al., 1999; Flores et al., 2012; Gibson & Vermeulen, 2003; Levitt & March, 1988; Szulanski, 1996; Wielemaker et al., 2003; Zollo & Winter, 2002). Without such encoding and institutionalizing of what has been learned, "individuals will have learned but the organization will not have done so" (Argyris & Schön, 1978: 19). Last, *practicing* is the extent to which a group exercises and repeats the behaviors associated with newly gained knowledge and skills (Edmondson et al., 2001; Eisenhardt & Martin, 2000; Flores et al., 2012; Garvin, 1993; Nelson & Winter, 1982; Stacey, 1995).

This set of four learning activities has several appealing features as a basis for our study. First, although the labels vary from model to model, the substance of the activities defined here resonates closely with a host of other conceptual frameworks of how organizations learn (see Table 1 for a comparison). Second, the mix of cognitive and behavioral learning represented by these activities conforms with the emphasis in the more recent literature on considering both forms of organizational learning simultaneously (e.g., Argote & Miron-Spektor,

Table 1
Comparison of Exemplary Organizational Learning Frameworks

	Cyert and March (1963); Argyris and Schön (1978)	Kolb (1984)	Levitt and March (1988)	Huber (1991)	Walsh and Ungson (1991)	Thomas et al. (1993)	Nonaka (1994)	Zollo and Winter (2002)	Crossan and Berdrow (2003); Vera and Crossan (2004)	Gibson and Vermeulen (2003)	Wielemaker et al. (2003)	Flores et al. (2012)
Searching	Acquisition	Concrete experience	Organizational search	Searching and noticing	Acquisition	Scanning		Scanning		Experimentation	Linking	Acquisition
Processing	Processing	Reflective observation	Interpretation of experience	Knowledge acquisition/ information interpretation		Interpretation	Combination/ socialization	Evaluation	Interpreting	Reflective communication	Interpretation	Interpretation
Codifying	Storage	Abstract conceptualization	Organizational memory	Organizational memory	Retention		Externalization	Retention	Integrating/ institutionalizing	Codification	Integration	Integration/ organizational memory
Practicing	Application	Active experimentation	Learning from direct experience		Retrieval	Action	Internalization	Replication				Distribution

2011; Vera & Crossan, 2004). Third, although to our knowledge they have never been studied as a set, each of the four group learning activities has an established relationship with performance outcomes (e.g., Crossan & Berdrow, 2003; Katila & Ahuja, 2002; Zollo & Winter, 2002). This increases their validity as predictors in our model and allows us to set aside the issue of main effects and instead focus on the degree of exploration as a moderator (Hall & Rosenthal, 1991).

Degree of Exploration as a Contingency Variable

Fiol and Lyles (1985: 803) have summarized the traditional learning literature with the statement that "in all instances the assumption that learning will improve future performance exists." More current treatments, however, have acknowledged that learning may affect the performance of the organization, but these performance adjustments may not always be positive. As a result, several authors have argued that there is no evidence to suggest that learning is synonymous with improved performance (Crossan, Lane, White, & Djurfeldt, 1995; Huber, 1991; Levitt & March, 1988), and have called for a "more fine-grained analysis of experience [that] moves forward the specification of when experience has positive or negative effects on learning outcomes" (Argote & Miron-Spektor, 2011: 5). Crossan and Berdrow (2003) have further provided empirical evidence for the argument that learning processes are not inherently positive or negative, and have therefore "demystified" organizational learning, i.e., removed the "halo" that surrounded it in the more traditional literature.

Following this line of reasoning, our study examines the performance impact of engaging in different learning activities, contingent on the degree of exploration inherent in the learning task, that is, the degree to which a strategic initiative is charged with the improvement of existing versus the development of new capabilities (Gupta, Smith, & Shalley, 2006; Lechner et al., 2010; Majchrzak, Cooper, & Neece, 2004; McGrath, 2001). It is important to note, however, that while different degrees of exploration inherent in strategic initiatives may require different levels of investment in learning, we consider the four learning activities to be crucial for *both* initiatives with low degrees of exploration and initiatives with high degrees of exploration (Benner & Tushman, 2003; He & Wong, 2004; March, 1991).

When an initiative is charged with improving an existing capability, the initiative will be largely compatible with the knowledge, skills, technology, systems, values, and norms embedded in the organization's existing capabilities (Burgelman, 1983; Leonard-Barton, 1992). Prior research has described this form of learning as single-loop learning (Argyris & Schön, 1978) or learning that "reinforces" established knowledge (Vera & Crossan, 2004), because the intent is to integrate what is learned within the group into the organization's existing capabilities in order to improve them. To the extent the changes sought are intended to develop new capabilities, however, there will be fewer opportunities to draw on the knowledge, skills, technology, and so on associated with existing capabilities. In such cases, the goal is to broaden the repertoire of organizational capabilities available to the organization (Levitt & March, 1988; Nelson & Winter, 1982). Prior research has described this as double-loop learning (Argyris & Schön, 1978) or as learning that "challenges" established knowledge (Vera & Crossan, 2004), because it often involves pursuing ideas or ways of doing things that are inconsistent with established practice.

As a result, to the extent an initiative is charged with exploring new capabilities, it is more likely to face challenges arising from the structural and strategic context of the organization (Burgelman, 1983) as well as from the established capability set (Benner & Tushman, 2003; Levitt & March, 1988). Because established knowledge cannot be quickly unlearned and forgotten, it interferes with and disrupts the internalization of new ideas (Argote, 1999; W. M. Cohen & Levinthal, 1990). Similarly, the mind-set associated with established capabilities tends to frame how organization members think about and interpret issues related to the development of new capabilities (Floyd & Lane, 2000). This framing makes it difficult to focus attention on and to assimilate discrepant information, despite its potential importance in learning. Newly developed capabilities, in turn, may not be consistent with the established mind-set in an organization. As a result, more fundamental questions about the mind-set may emerge, and tensions may arise between solving specific capability-related problems and enacting a new mind-set that makes sense for the firm (Rerup & Feldman, 2011), which puts much greater demands on organizational learning.

When the degree of exploration is high, the situation therefore demands a substantial amount of learning, and this is likely to enhance the positive effects of investments in learning activities. Some level of learning is likely necessary even when the degree of exploration is low, but at very low levels, the impact of learning activities may be neutralized (Howell, Dorfman, & Kerr, 1986). In particular, when the degree of exploration is low, modest demands for and the associated costs of learning decrease the positive effects of learning activities. In sum, we argue that the relationship between learning activities and initiative performance will be stronger for more exploratory strategic initiatives and weaker for less exploratory initiatives. Below, we develop hypotheses based on this contingency logic for each of the four learning activities.

Hypotheses

Searching. As mentioned above, we conceptualize searching as the extent to which an initiative group is receptive to and actively looking for new ideas and information sources (Flores et al., 2012; Garvin, 1993; Huber, 1991; Katila & Ahuja, 2002; Wielemaker et al., 2003). Searching leads to information from a large number and variety of sources inside and outside of the initiative. Even at lower levels of exploration, some level of searching may be beneficial. It counteracts biases such as "group think" that may plague members of a group working closely together over extended periods of time (Janis, 1972). In addition, improving the technologies, skills, or routines associated with a mature capability may require information that is not immediately available. When the degree of exploration is low, however, any necessary searching activity is likely to be directed (Lumpkin & Dess, 1996), and thus, the overall investment in search required for initiative success is likely to be low.

Searching becomes more important when the degree of exploration increases, because familiar information sources are likely to be less helpful. In particular, searching efforts help counter managers' tendencies to engage in "local" search in the vicinity of existing approaches (Cyert & March, 1963) and to attend to relatively few, well known sources of information (Weitzel & Jonsson, 1989), and thereby help enrich the knowledge pool with new variations (March, 1991), which improves the possibility for finding a new and useful combination

(Katila & Ahuja, 2002). Moreover, since managers' previous experiences and habits may constrain their effectiveness in nonroutine situations such as exploratory initiatives (Argote, 1999; W. M. Cohen & Levinthal, 1990), a search process that encourages contributions from managers above and beyond their formal job responsibilities might be beneficial (Majchrzak et al., 2004). While this informational advantage of searching increases the likelihood that novel ideas are generated, searching also raises the awareness and involvement of other actors in the initiative, potentially strengthening the momentum for change and level of support for a more exploratory initiative (Floyd & Wooldridge, 1992; Saunders et al., 2008). In sum, as the degree of exploration increases, searching becomes more important to overcome both cognitive and social barriers to the success of strategic initiatives. We therefore propose,

Hypothesis 1: The relationship between searching and initiative performance will be stronger for initiatives that are characterized by higher degrees of exploration.

Processing. This learning activity includes the systematic analysis of information and the reliance on this analysis in selecting between alternatives (Crossan et al., 1999; Huber, 1991; Wielemaker et al., 2003). Such an analytical process supports a systematic examination of assumptions and their consequences, thereby helping groups establish more accurate perceptions of cause–effect relations (Priem, Rasheed, & Kotulic, 1995). A structured discussion as part of processing further establishes common assumptions and shared understandings that provide a basis for further action (Floyd & Wooldridge, 1992; Saunders et al., 2008), as well as higher implementation commitment (C. C. Miller, 2008).

When the degree of exploration is low, some processing is likely to be beneficial. In addition to making sense of whatever information is generated in the search effort, processing prevents the uncritical acceptance of "wishful" thinking and forces groups to explore causal linkages carefully and extensively (Brown & Duguid, 1991). This is important as groups seek to understand those specific aspects of a capability that need improving. Processing further focuses attention on particular objectives, thereby helping to prevent the initiative from becoming sidetracked (Dean & Sharfman, 1996). When the degree of exploration is low, however, the need for processing is likely to be lower as initiative members probably have encountered similar issues and problems before, and existing solutions may need only minor adaptations to be effective.

As the degree of exploration increases, the shared understandings produced by processing activities become more important. At higher degrees of exploration, the link between the initiative's task and established mental frameworks in the organization decreases (Rerup & Feldman, 2011). Thus, more processing is necessary to construct the shared mental framework needed to formulate and evaluate alternative courses of action. Moreover, when the degree of exploration is high, the understandings required are more likely to diverge from those implicitly or explicitly associated with current capabilities. More processing may therefore be necessary not only to build a new framework, but also to dislodge existing mindsets (Nelson & Winter, 1982).

Processing is also likely to enhance creativity in the decision-making process (Ford & Gioia, 2000). It tends to be more far-reaching and unbiased by previous experiences and habits, which might be misleading in the novel context of an exploratory initiative, and to generate options that vary widely from existing strategy (Nutt, 2004). Processing further

enables initiative members to obtain a comprehensive view of the available options, recognize trade-offs among competing options, choose an option that best meets the essential objectives of a particular task, and develop alternative or fallback options in case the chosen option proves to be infeasible or ineffective (Janis, 1989). Having simultaneous options available also reduces the escalation of commitment to any one alternative and enables initiative members to quickly shift between options if necessary (Staw, 1981). These arguments suggest that the relationship between processing and initiative performance is moderated by the degree of exploration inherent in an initiative. Formally,

Hypothesis 2: The relationship between processing and initiative performance will be stronger for initiatives that are characterized by higher degrees of exploration.

Codifying. This learning activity deals with the explicit documentation of knowledge in written tools such as manuals or blueprints (Zollo & Winter, 2002), so they can serve as guides to coordinated action in the improvement of existing or the development of new capabilities (Crossan et al., 1999; Flores et al., 2012; Levitt & March, 1988; Szulanski, 1996; Wielemaker et al., 2003; Zollo & Winter, 2002). Codifying improves the understanding of causal relationships among tasks, actions, and performance outcomes that results from the processing activity. This is because documentation forces the clarification of cause–effect relationships that may be only vaguely understood from verbal exchanges (Zollo & Winter, 2002). When insights are documented in a written form, their inconsistencies, contradictions, and assumptions become clearer. Furthermore, codifying facilitates storing capabilities as procedural (M. D. Cohen & Bacdayan, 1994) or organizational memory (Huber, 1991; Levitt & March, 1988; Majchrzak et al., 2004; Walsh & Ungson, 1991) and therefore instills an automatic quality to the knowledge accumulated within groups (Zander & Kogut, 1995). Such codified knowledge also diffuses more rapidly than other kinds of knowledge (Szulanski, 1996), which facilitates coordination and cooperation from both within and outside the initiative (Zollo & Winter, 2002).

When the degree of exploration is low, procedures, blueprints, and the like may only need to be modified based on existing documents rather than created from scratch. While still necessary to highlight these modifications, codifying in such situations is more "editing" than "writing." The benefits of codifying become more important when the degree of exploration is high, for two main reasons. First, the deep embeddedness of current capabilities in the organizational repertoire of routines tends to crowd out more deviant, less routine solutions and impedes the retention of new knowledge (W. M. Cohen & Levinthal, 1990). Deliberate investment in codifying therefore enhances the likelihood of newly acquired capabilities becoming part of an organization's repertoire, which is even more important for exploratory initiatives. Second, in exploratory initiatives, existing documentation is likely to be unrelated to the current initiative, making it necessary to invest in more codifying activity because most of the documentation is being developed from scratch. Moreover, unlike those associated with less exploratory learning, the shared understandings and mental frameworks that emerge in a more exploratory context are not likely to have been sharpened by years of experience and refinement. Codifying is therefore more essential in highly exploratory initiatives as a way to understand the behavioral implications of decisions (Zollo & Winter, 2002). These arguments suggest that the relationship between codifying and initiative performance is contingent on the degree of exploration inherent in a strategic initiative. We therefore propose,

Hypothesis 3: The relationship between codifying and initiative performance will be stronger for initiatives that are characterized by higher degrees of exploration.

Practicing. This learning activity is the extent to which a group exercises and repeats the behaviors associated with newly gained knowledge and skills, typically manifested in prototypes, pilot projects, and other kinds of experimental trials (Edmondson et al., 2001; Eisenhardt & Martin, 2000; Flores et al., 2012; Garvin, 1993; Nelson & Winter, 1982; Stacey, 1995). As an experiential component of learning, it transforms the explicit knowledge developed through processing and codifying into the tacit knowledge required in the improvement of existing and the development of new capabilities (Nelson & Winter, 1982). The learning curve literature, for instance, has provided ample evidence of skill building through repeated execution of a task (Argote, 1999).With enough practicing, behavior becomes installed into the subconscious, equipping individuals and groups with semiautomatic repertoires (Eisenhardt & Martin, 2000). Practicing also enables feedback loops that help clarify whether a proposed solution is working, how behaviors interrelate, and how they need to be modified to improve performance (Greve, 2003, 2008; Rerup & Feldman, 2011).

When the degree of exploration is low, existing capabilities provide a template for internalizing new behaviors. Practicing remains beneficial because even small changes in how things are done may result in significant new behavior; and without practice, groups will lack the feedback necessary to evaluate the quality of their efforts (Greve, 2003, 2008). In such situations, however, practicing is likely to be required for only a limited number of new behaviors, and even these new behaviors are likely to be closely related to the existing repertoire.

Practicing becomes more important when the degree of exploration is high. Since the task is unfamiliar, the behavioral feedback provided by practicing is essential to learning relevant details about new capabilities, and thus more trials are necessary before a group produces satisfactory performance (Greve, 2003, 2008; Rerup & Feldman, 2011). Moreover, since the behavior contemplated by exploratory initiatives is largely unfamiliar, more repetition is needed before new capabilities can become automatic (Eisenhardt & Martin, 2000). Practicing is also an important mechanism by which groups unlearn established habits (Nelson & Winter, 1982), making it even more important when an initiative diverges from established capabilities. In line with these arguments, we propose,

Hypothesis 4: The relationship between practicing and initiative performance will be stronger for initiatives that are characterized by higher degrees of exploration.

Method

Sample and Data Collection

To test these hypotheses, we analyzed survey data on strategic initiatives undertaken by three international corporations headquartered in Europe and operating in the life and property/casualty segments of the insurance industry, which was gathered as part of a larger data collection (Lechner & Floyd, 2012). These three firms, on average, had 8,200 employees and generated average premium income, which is comparable to sales, of $9.24 billion. By selecting firms from a single industry, we were able to limit potentially confounding industry

effects, which ensures better comparability across firms and allows for taking advantage of naturally occurring variability within the industry (Yeoh & Roth, 1999). Moreover, the insurance industry is considered to be conservative and risk-averse, partly due to regulatory constraints, and partly due to the fact that the business itself, that is, risk management, leads to more cautious behavior. However, the insurance industry underwent serious changes during the study period, such as the deregulation and a subsequent consolidation, the economic boom of the late 1990s, and the stock market downturn in 2000 (Ackerman, Erdönmez, & El Hage, 2005). As a result, this industry represented a moderately dynamic environment where a "blend of strategic logics makes sense" (Eisenhardt & Martin, 2000: 1118). Rather than stable or high-velocity environments where, respectively, low and high degrees of exploration tend to dominate, a moderately dynamic industry provides a context suitable for examining how the degree of exploration affects the relationships between learning activities and the performance of strategic initiatives.

The top management of each corporation provided comprehensive lists of all strategic initiatives that had been completed in the last 18 months prior to our study, and helped us verify these lists for completeness, accuracy, and each initiative's relevance to corporate-level strategy. This allowed us to identify 139 initiatives the three firms engaged in, with most initiatives covering one specific market in the country where they operated, and with one having a European-wide scope, covering most major markets.

We pretested our survey with a sample of 40 European executive MBA students, examined the factor structures of the survey items for their consistency with theory, and dropped items to improve the internal consistency of the scales where appropriate. We then distributed surveys by e-mail to the managers supervising each strategic initiative, the initiative leaders, and several members of the initiative team. A reminder e-mail was sent after two and after five weeks to encourage timely completion. The respondents in our study thus represented an expert reference group of key informants (Kumar, Stern, & Anderson, 1993) who were in a good position to observe the constructs of interest (McGrath, 2001), and our sampling strategy captured the perceptions of this group as a whole, which are likely good indicators of the actual activity within the initiatives (Weick & Roberts, 1993). The involvement of the CEO and the use of personal contacts to identify respondents helped increase respondents' motivations to provide complete and accurate responses. We further assured all respondents confidentiality to mitigate the tendency to provide socially desirable answers (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

In total, we collected data on 96 initiatives from 255 respondents. These 96 initiatives represent a response rate of 69.06% from a total of 139 initiatives identified by management. Although we contacted the central contact persons as many as three times, 43 did not reply. Nevertheless, this response rate compares very favorably with recent work on top executives (e.g., Simsek, Heavey, & Veiga, 2010) and the commonly reported 10% to 12% response rates for such surveys (Hambrick, Geletkanycz, & Fredrickson, 1993). All initiatives focused on the key parts of insurance companies' value chains: new product development (18% of sample initiatives), marketing and sales (28%), operations (33%), underwriting (9%), and asset management (12%). Appendix A provides a list of all sample initiatives ordered by their degree of exploration. Moreover, 35.42% of our sample's initiatives were rated 3 or below on initiative performance, which suggests that our sample contains substantial variance with respect to initiative performance and thus is, at the least, not substantively biased toward successful initiatives.

We obtained data from at least three respondents for 75 initiatives, and single responses for an additional 21 initiatives, where respondents either did not forward the survey or where additionally identified persons did not respond. We used the Kolmogorov–Smirnov *z*-test to compare multiple- and single-respondent data. All measures scored below the commonly used threshold value of 0.4, suggesting that there was no reason to assume that responses came from different populations (Wonnacott & Wonnacott, 1990). The single-respondent data were therefore incorporated to improve statistical power.

To mitigate any common-method concerns, we used the data obtained from the manager who was supervising each strategic initiative to create our dependent variable, and for the 75 of the 96 strategic initiatives in our sample for which data were available from multiple respondents, we used the data obtained from these multiple respondents (excluding the initiative supervisor) to create our independent and control variables. We averaged items to form scales and calculating means across respondents, thus obtaining a group-level aggregate value for each variable. An advantage of such aggregation is that it tends to average out any biases in individual responses and to compress the overall amount of variance in the measures, allowing more conservative statistical inferences (Gresov, Drazin, & van de Ven, 1989). Normality assumptions are more easily justified for such data, enhancing confidence in statistical results (McGrath, 2001).

To examine whether such aggregation of individual responses to the initiative-level was warranted, we first calculated within-group agreement using the r_{wg} statistic (James, Demaree, & Wolf, 1984). As evident in Table 2, the lowest r_{wg} was .65, only slightly under George's (1990) suggested value of .70, while all others were above this value. Moreover, we calculated interrater reliability and the reliability of the group mean using ICC(1) and ICC(2) (Bliese, 2000). While no strict cutoffs exist regarding ICC scores, James (1982) reported that the median observed ICC(1) value in the management literature is .12, and Glick (1985) suggested the use of .60 as the ICC(2) cutoff. In our study, both ICCs exhibited excellent values with the lowest ICC(1) equaling .50 and the lowest ICC(2) equaling .75, providing further evidence that the aggregation to the group level was justified. Moreover, we had respondents assess the constructs at the initiative level and thus made the initiative the referent point. In particular, our learning constructs, which could apply to the individual level as well, exhibited a referent shift to the initiative level (Chan, 1998) and thus provided a homogeneous context that facilitated the aggregation of individual responses to the initiative level (Kozlowski & Klein, 2000).

Measures

Very few prior studies have empirically conceptualized learning activities, which led Flores et al. (2012: 649) to conclude their literature review of the most recent work on organizational learning by stating that "[t]he current literature lacks a standard scale for measuring the learning subprocesses simultaneously." In spite of this dearth of empirical measures in the organizational learning literature, we used, or at least adapted, established measurement instruments from related literatures to operationalize our theoretical constructs, with minor modifications to reflect the specific context of our study (see Appendix B for all items). To enhance accuracy of recall, we followed recommendations in the literature (Freeman, Romney, & Freeman, 1987) and formulated each of our items as specific as possible. We also

Table 2
Descriptive Statistics

Variable	*M*	*SD*	α	ICC(1)	ICC(2)	r_{wg}	1	2	3	4	5	6	7	8	9	10	11
1. Firm 1	0.40	0.49															
2. Firm 2	0.40	0.49					–.66**										
3. Initiative type	0.59	0.49					.02	.11									
4. Initiative duration	2.73	0.93					.01	–.24*	–.09								
5. Initiative size (log)	3.37	1.06					–.16	–.20*	–.15	.34**							
6. Slack resources	2.86	0.97	.90	.65	.86	.85	–.06	.14	.00	–.04	–.18						
7. Degree of exploration	3.43	0.98	.96	.84	.94	.77	–.02	–.12	.01	.16	.21*	–.32**					
8. Searching	3.27	0.89	.82	.57	.80	.71	.07	.01	–.01	.09	–.00	.39**	–.24*				
9. Processing	3.14	0.98	.78	.50	.75	.65	–.08	.14	–.03	–.01	–.11	.40**	–.26*	.70**			
10. Codifying	3.34	1.10	.93	.74	.90	.86	–.01	–.04	–.09	.10	–.00	.27**	–.09	.67**	.62**		
11. Practicing	3.03	0.99	.88	.67	.86	.79	–.14	.15	–.04	.11	.00	.33**	–.15	.76**	.71**	.72**	
12. Initiative performance	3.30	1.01	.88				–.03	.14	.06	.08	–.05	.25*	–.26*	.65**	.56**	.61**	.68**

Note: $N = 96$.
*$p < .05$. **$p < .01$ (two-tailed tests).

asked respondents to assess typical situations and contexts within the sample initiatives, which prior research has found can be recalled with higher accuracy (Freeman et al., 1987).

Independent variables. Consistent with prior conceptualizations of the construct (Lechner et al., 2010; McGrath, 2001), we measured the *degree of exploration* as the extent to which an initiative was compatible with the three dimensions of organizational capabilities—skills and technical systems, administrative systems, and values and beliefs (Leonard-Barton, 1992)—represented by multiple items each. A principal component analysis yielded one factor for the 16 items. After calculating the average of all 16 items for each respondent, we reversed this measure so that higher values represent greater degrees of exploration.

For the first two learning activities, instead of developing a new measure, we capitalized on the close relationship between organizational learning and behavioral decision making (e.g., Cyert & March, 1963; Duncan, 1974; Walsh & Ungson, 1991) and adapted instruments from this literature. In particular, our four-item scale for *searching* assesses the extent to which the initiative members searched for information, relied on new sources of information, were able to contribute beyond their job descriptions and/or levels of authority, and had new ideas presented to them (1 = *never*, 5 = *very often*; Ford & Gioia, 2000; Garvin, 1993; Sharfman & Dean, 1997). Our three-item scale for *processing* captures the extent to which initiatives engaged in a systematic analysis of the acquired information (1 = *not at all*, 5 = *extensively*), and how effective the group was at focusing its attention on crucial information and ignoring irrelevant information (1 = *not at all effective*, 5 = *very effective*; Garvin, 1993; Papadakis, Lioukas, & Chambers, 1998). For *codifying*, we developed a four-item scale based on prior work (Gibson & Vermeulen, 2003; Zollo & Winter, 2002) to assess respondents' agreement on the extent to which newly gained knowledge was converted into an explicit form, that is, written down, documented, or formalized (1 = *strongly disagree*, 5 = *strongly agree*). For *practicing*, we generated a four-item scale based on prior work (Eisenhardt & Martin, 2000; Winter, 2000) that indicates respondents' agreement on the extent to which groups exercised newly gained skills and knowledge (1 = *strongly disagree*, 5 = *strongly agree*).

Dependent variable. We used the measure of *initiative performance* developed by McGrath and colleagues (McGrath, 2001; McGrath et al., 1995) and employed in prior research on strategic initiatives (Lechner et al., 2010). Respondents were asked to assess the performance of an initiative along eight dimensions on a 5-point scale (1 = *very unsatisfactory*, 5 = *highly satisfactory*). The dimensions were derived from generic business objectives, described in the innovation and corporate venturing literatures as more or less universal (McGrath et al., 1995). A principal component analysis yielded one factor.

Control variables. To control for *firm* fixed effects, we included two dummy variables coding the firm in which each initiative was located. To control for differences between product- and process-focused initiatives (Wielemaker et al., 2003), each initiative was classified independently by one of the authors and a PhD student based on the descriptions provided by the initiative leader. The two researchers initially agreed on about 95% of the cases and were able to resolve the disagreements in a subsequent discussion. Based

on this classification, we created the dummy variable *initiative type*, with 0 being product-focused and 1 being process-focused. As the duration of the initiative may influence organizational learning, because capabilities are only improved or acquired over time (Nelson & Winter, 1982), we also controlled for the *duration* of each initiative (McGrath et al., 1995), measured as the number of months from start to finish. As large initiatives have more resources at their disposal, which may enhance their ability to succeed, we also controlled for the *size* of each initiative (Lechner et al., 2010; McGrath, 2001), measured as the logarithm of the number of people involved. Last, as the availability of slack resources affects strategic behavior and performance (Cyert & March, 1963; Singh, 1986), we controlled for *slack resources* that were available to the initiative, measured with a three-item instrument adapted from Sharfman and Dean (1997) and Chattopadhyay, Glick, and Huber (2001).

Adequacy of the Measures: Reliability, Validity, and Potential Biases

We first examined the distributions of all variables for normality, but none showed significant signs of skewness or kurtosis. The variance inflation factors and conditioning indices for the variables further suggested no need for concern with respect to multicollinearity (Hair, Black, Babin, & Anderson, 2009). A test of the homogeneity-of-variance assumption using the Levene statistic also produced satisfactory results.

In addition to the internal consistency of the scales (see Table 2 and Appendix B for details), we also examined their convergent and discriminant validities. For convergent validity, we calculated the average variance extracted (AVE) for our independent variables. All AVE scores showed values of .5 or higher and thus indicated adequate convergent validity (Hair et al., 2009). For discriminant validity, we took a two-step approach. First, we estimated a confirmatory factor analysis for all independent and dependent variables in our model. Values in a confirmatory factor analysis exceeding .90 for incremental fit index (IFI) and comparative fit index (CFI) and below 5 for the χ^2/df ratio are generally considered to indicate acceptable fit (Bollen & Long, 1993). Our results showed acceptable fit with IFI = .91, CFI = .91, $\chi^2 = 964.22$, and a χ^2/df ratio of 1.41. Furthermore, the root mean square error of approximation (RMSEA) for the model was .07, which is below the .08 cutoff for indicating good fit (Hu & Bentler, 1995, 1999; Mulaik, James, Alstine, Bennett, Ling, & Stilwell, 1989). In a second step, we estimated whether our learning constructs better fit a four-factor solution or whether they should be subsumed under one latent construct. The four-factor solution for searching, processing, codifying, and practicing exhibited excellent fit (IFI = .97, CFI = .97, and RSMEA = .06) and was superior to the one-factor solution (IFI = .87, CFI = .87, and RMSEA = .12). The chi-square difference test also indicated that the four-factor solution exhibited superior fit, $\chi^2_{\text{difference}}$ (90-84) = 218.31-112.36 = 105.95, $p < .001$. We also ran a number of additional permutations for three- or two-factor solutions, which all yielded a worse fit than our proposed four-factor solution. For example, a two-factor solution combining searching and processing, and practicing and codifying, yielded a structural equation model with worse fit than the four-factor solution, IFI = .90, CFI = .90, RMSEA = .11, and the $\chi^2_{\text{difference}}$ (89-84) = 183.70-112.36 = 71.34, $p < .001$. These findings therefore indicate high convergent and discriminant validity of our measurement constructs.

We also addressed the potential for endogeneity/reverse causality in our study. In particular, the effects of the four learning activities could potentially be an artifact of the performance evaluation of the strategic initiative itself. To address this issue, we utilized three instrumental variables, absorptive capacity, interdepartmental integration, and past performance (see Appendix B for items) for each of our four learning constructs. We then used Stata 11.0 and the programs IVENDOG and IVREG (Baum, Schaffer, & Stillman, 2002) to calculate a two-stage least-squares regression (Hamilton & Nickerson, 2003) and the Wu–Hausman F test and the Durbin–Wu–Hausman test. Nonsignificant F tests and nonsignificant chi-square tests as part of the Durbin–Wu–Hausman test suggest that the independent variables in question are exogenous, and that their estimates are unbiased (Davidson & Mackinnon, 1983). The results from this analysis indicate that reverse causality was not a concern (searching: $F = 1.91$, $p = .17$, and $\chi^2 = 2.15$, $p = .14$; processing: $F = 2.12$, $p = .15$, and $\chi^2 = 2.39$, $p = .12$; codifying: $F = 1.00$, $p = .32$, and $\chi^2 = 1.14$, $p = .29$; practicing: $F = 0.05$, $p = .83$, and $\chi^2 = 0.06$, $p = .81$).

Finally, since it was the dependent variable in our study, we were especially cautious in ensuring the validity of our measure of initiative performance. In line with prior research (Lechner & Floyd, 2012; McGrath, 2001), we established criterion validity by examining the correlation between the criterion and a "test" (Carmines & Zeller, 1979). In our case, the questionnaire measure of initiative performance may be considered the "test." To validate this measure against an objective criterion, we obtained independent assessments from contacts within corporate headquarters as to the success or failure of each initiative. In each company, headquarters and business units had agreed on objectives (such as risk-adjusted internal rates of return, etc.), and our contacts' job responsibilities made them privy to this information. Since all initiatives were completed recently, our contacts were able to assess their performance objectively on the basis of whether it had met the expected objectives. Correlations between this categorical assessment and the questionnaire measure indicated acceptable validity (Pearson correlation = .77, $p < .01$; Spearman's rho = .75, $p < .01$). A similar test for the degree of exploration also confirmed its criterion validity (Pearson correlation = .83, $p < .01$; Spearman's rho = .76, $p < .01$).

Results

Table 2 presents means, standard deviations, and correlations for each of the variables. Consistent with theory, all four learning activities exhibit positive and significant bivariate correlations with initiative performance. Moreover, the degree of exploration characterizing a strategic initiative has a negative and significant effect on initiative performance. Results from an ANOVA comparing the performance between initiatives with high (higher than median value) and low (lower than median value) degrees of exploration further shows that initiatives with high degrees of exploration are significantly less likely to exhibit high performance ($p < .001$). In particular, 53.19% of initiatives with higher levels of exploration (higher than median), but only 18.37% of initiatives with lower levels of exploration (lower than median) were considered unsuccessful (3 or below for initiative performance).

The results of our moderated ordinary least squares regression analyses are shown in Table 3. We centered the independent and moderator variables before creating the

Table 3
Regression Results for Initiative Performance

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
Constant	1.74*	(0.69)	0.85	(0.62)	1.91**	(0.69)	1.34†	(0.71)	1.42*	(0.67)	1.50*	(0.69)
Controls												
Firm 1	0.30	(0.30)	0.26	(0.22)	0.26	(0.21)	0.23	(0.22)	0.25	(0.22)	0.28	(0.22)
Firm 2	0.50	(0.31)	0.39†	(0.23)	0.36†	(0.22)	0.40†	(0.23)	0.39†	(0.22)	0.37†	(0.22)
Initiative type	0.10	(0.21)	0.17	(0.15)	0.21	(0.15)	0.17	(0.15)	0.19	(0.15)	0.18	(0.15)
Initiative duration	0.15	(0.12)	0.07	(0.09)	0.07	(0.08)	0.09	(0.09)	0.09	(0.09)	0.09	(0.09)
Initiative size (log)	0.03	(0.11)	0.02	(0.08)	0.04	(0.08)	0.02	(0.08)	0.03	(0.08)	0.04	(0.08)
Slack resources	0.24*	(0.11)	–0.07	(0.09)	–0.10	(0.08)	–0.07	(0.09)	–0.09	(0.09)	–0.11	(0.09)
Main effects												
Degree of exploration			–0.15†	(0.08)	–0.23**	(0.08)	–0.19*	(0.09)	–0.18*	(0.08)	–0.20*	(0.08)
Searching			0.23	(0.15)	0.20	(0.14)	0.21	(0.15)	0.17	(0.15)	0.17	(0.15)
Processing			0.02	(0.12)	–0.04	(0.12)	0.01	(0.12)	–0.04	(0.12)	–0.04	(0.12)
Codifying			0.23*	(0.10)	0.15	(0.10)	0.20†	(0.11)	0.22*	(0.10)	0.19†	(0.10)
Practicing			0.33*	(0.14)	0.26†	(0.14)	0.27†	(0.15)	0.30*	(0.14)	0.32*	(0.14)
Interaction effects												
Searching × exploration					0.37**	(0.12)						
Processing × exploration							0.16	(0.11)				
Codifying × exploration									0.20*	(0.09)		
Practicing × exploration											0.21*	(0.11)
ΔR^2			.460		.043		.010		.023		.021	
ΔF			17.545***		9.032**		2.013		4.589*		4.168*	
R^2	.100		.560		.603		.570		.583		.581	
Adj. R^2	.039		.502		.545		.508		.522		.520	
F	1.640		9.701***		10.495***		9.167***		9.655***		9.575***	

Note: $N = 96$. Unstandardized coefficients shown, with robust standard errors in parentheses. ΔR^2 and ΔF values are based on Model 2.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$ (two-tailed tests).

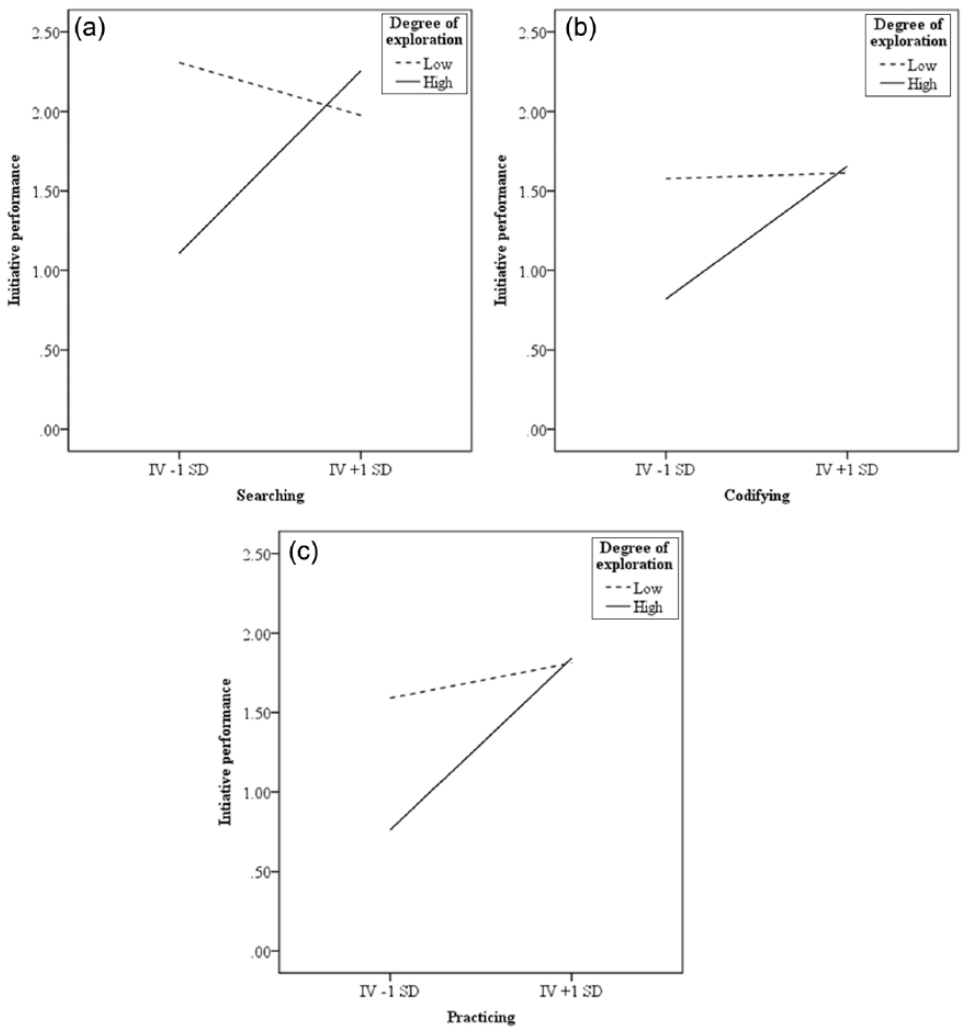
interaction effects and entered the variables in a stepwise approach (Hair et al., 2009). Model 1 includes only the control variables and explains 10.0% of variance in the dependent variable. Model 2 includes the four learning activities and the degree of exploration as independent and moderator variables and explains an additional 46.0% of variance. In line with the learning literature, codifying and practicing are positively and significantly related to initiative performance, whereas the effects of searching ($p = .13$) and processing ($p = .88$) are not significant. We then examined the hypotheses in a series of four regressions. While a confirmatory factor analysis reported above provided support for the four learning activities representing distinct constructs, they are positively and significantly correlated with each other. In line with prior research (McGrath, 2001), we therefore entered each of the interaction terms separately (Models 3 to 6). All four interaction terms are positive, and three are statistically significant, which provided initial support for interactive effects of the degree of exploration with, respectively, searching, codifying, and practicing on initiative performance. We further plotted the three significant interactions following the recommendations by Aiken and West (1991). Figures 1a to 1c show the simple slopes of the regressions of searching, codifying, and practicing on initiative performance one standard deviation above and one standard deviation below the mean value of the degree of exploration.

Figure 1a supports Hypothesis 1, which proposes that searching will have a stronger effect on initiative performance for higher degrees of exploration, which is indicated by the steeper slope of the solid line. Similarly, Figures 1b and 1c indicate that codifying and practicing, respectively, have stronger effects on initiative performance for higher degrees of exploration, thereby providing support for Hypotheses 3 and 4. As the interaction effect for processing is not significant, we find no support for Hypothesis 2. Moreover, simple-slope *t* tests (Aiken & West, 1991) showed that for searching ($b_{low} = –.16$, $p_{low} = .41$; $b_{high} = .57$, $p_{high} < .01$), codifying ($b_{low} = .02$, $p_{low} = .86$; $b_{high} = .41$, $p_{high} < .01$), and practicing ($b_{low} = .11$, $p_{low} = .51$; $b_{high} = .54$, $p_{high} < .01$), the simple slopes for low degrees of exploration are not statistically different from zero, whereas the simple slopes for high degrees of exploration are positive and significant. These results indicate that searching, codifying, and practicing—while being beneficial for high degrees of exploration—do not have significant effects on the performance of initiatives with low degrees of exploration.

Robustness Tests

Although not hypothesized, we also examined whether the learning activities interacted with each other in their influence on initiative performance. For example, as organizational capabilities are mainly tacit, codification alone is unlikely to establish the newly acquired knowledge. Instead, practicing activities are necessary for individuals to learn relevant details, adopt behavioral routines, and unlearn established practices (Nelson & Winter, 1982). Similarly, repeated practice provides rapid feedback loops that help clarify which solutions work, how they interrelate, and how they have to be modified (Stacey, 1995). If a particular solution fails, feedback triggers continued search and processing efforts until a satisfying approach is found; if a solution works, proof of viability strengthens the impetus behind an initiative and likely triggers further codification and repetition of the associated capabilities. Based on a simulation study, Knudsen and

Figure 1
Interaction Effects



Levinthal (2007) further argue that very precise processing activities (or, what they call evaluation processes) would diminish the benefits obtainable from searching activities as the latter would be short-circuited and thus lead to considerable variance in performance. In spite of these intuitive theoretical arguments, we found no significant two-way interactions between learning activities. We also examined three-way interactions between different permutations of two learning activities and the degree of exploration, but found no significant three-way interactions either.

As some prior studies suggested the possibility of nonlinear effects of our four learning activities—C. C. Miller (2008), for instance, proposed a nonlinear effect of processing (or in his terminology, analytical comprehensiveness) on firm performance, such that at very high levels, the returns to processing will diminish—we performed robustness tests of our results including squared terms for the four learning activities. However, the results for searching ($b = –.05$, $p = .65$), processing ($b = .07$, $p = .43$), codifying ($b = .07$, $p = .47$), and practicing ($b = .09$, $p = .33$) did not provide any support for the existence of such nonlinear effects in our data.

Discussion

Our analysis of 96 strategic initiatives conducted by three large European-based insurance corporations provides broad, albeit not unanimous, support for our argument that the effectiveness of organizational learning activities is contingent on the degree of exploration associated with a specific initiative. In particular, searching, codifying, and practicing are more beneficial for more exploratory initiatives. Our findings also show, however, that these three learning activities do not have significant effects on the performance of less exploratory initiatives, thereby emphasizing that learning activities are not inherently positive but have to be managed in a more nuanced, context-specific way.

Several arguments can explain these nonsignificant effects of searching, codifying, and practicing for less exploratory initiatives as well as the nonsignificant interaction effect for processing. First, prior studies found that searching can potentially hurt strategic initiatives through increasing technological and organizational challenges and, thus, the costs of knowledge integration (Katila & Ahuja, 2002; McGrath, 2001). For instance, integrating new knowledge reduces the coherence of proposals with the existing knowledge base (Bower, 1970; Burgelman, 1991), which is particularly problematic for less exploratory initiatives, which focus on the improvement of existing capabilities, and therefore require focus and efficiency in order to achieve high performance. As one interviewee in Burgelman (1991: 244) recommends, "Focus on a few things and do them right." Moreover, new but contradictory information may slow down the decision-making process within the initiative, with a negative impact on its performance (Eisenhardt, 1989). As a result, the benefits of searching for initiative performance seem to trade off against its direct and indirect costs (i.e., integration and speed), which, in the case of low degrees of exploration, may lead to the benefits being neutralized.

Second, prior research has argued that when the newly improved capabilities deviate only marginally from established ones, as is the case for less exploratory initiatives, then the lessons acquired as a result of past learning activities likely still apply (Levitt & March, 1988). This makes extensive processing at best pointless, and potentially even detrimental for initiative success, as unnecessary processing tends to produce redundant and trivial information, which, in turn, could needlessly distract decision makers and compromise useful information (C. C. Miller, 2008).

Third, Zollo and Winter (2002: 342) remind us that "[t]he fact that in most cases articulated knowledge is never codified bears witness to additional costs incurred when stepping up the learning effort from a simple sharing of individual experience to developing manuals and other process-specific tools." The substantial costs related to codifying new capabilities

are difficult to justify when a strategic initiative is tasked with simply improving an organization's existing capabilities, which may explain the nonsignificant effect of codifying on the performance of less exploratory initiatives.

Fourth, while the benefits of practicing newly acquired capabilities have been well established in the literature (for reviews, see, e.g., Argote & Miron-Spektor, 2011; Huber, 1991; see also Katila & Ahuja, 2002), these benefits likely diminish with decreasing degrees of exploration. When newly improved capabilities deviate only marginally from the firm's established repertoire, low levels of practicing should allow the firm to attain proficiency. In line with the arguments above, any additional investments in practicing should, at best, have decreasing rates of return or might even be inefficient.

Theoretical Implications

Our contingency view on organizational learning activities and their effects on initiative performance has important implications for the literature on organizational learning. Although searching, processing, codifying, and practicing have been identified as relevant organizational learning activities, prior theory largely failed to consider how their importance may vary under different learning conditions. By identifying the kinds of activities that facilitate organizational learning—as well as the contextual conditions that support the realization of the potential inherent in such learning activities—our study provides an answer to Argote and Miron-Spektor's (2011) recent call for prescriptions for how to design organizations to promote organizational learning.

Our study also complements and extends prior research on strategic initiatives, such as Bryson and Bromiley's (1993) exploratory work on the influence of process and outcome factors, McGrath's (2001) work on the role of structural and goal autonomy, and Lechner and colleagues' work on the embeddedness of (Lechner et al., 2010) and political activities inherent in strategic initiatives (Lechner & Floyd, 2012). While most prior studies focus on the performance implications of the formal and informal context surrounding strategic initiatives (Kreutzer et al., 2013; Lechner et al., 2010; Lechner & Kreutzer, 2010; Lovas & Ghoshal, 2000; McGrath, 2001; McGrath et al., 1995), our study extends the fledgling research stream highlighting the management of activities *within* initiatives. The combination of these studies provides the basis for a more comprehensive perspective on the variables associated with the successful management of strategic initiatives. Perhaps most important, however, their combined results suggest that the successful management of strategic initiatives depends on recognizing the degree of exploration inherent in an initiative.

Last, our study also contributes to the literature on strategic renewal, which frequently emphasizes the problems presented by inertia and core rigidities. Several authors point to an organization's experience and the tacit character of its established capabilities as the principle source of inertia (Crossan & Berdrow, 2003; Crossan et al., 1999; Lechner & Floyd, 2007; Leonard-Barton, 1992). Our study suggests codifying and practicing as important, and relatively unexamined, means to overcome these problems. One reason for this may be that codifying and practicing provide a way to integrate cognitive and experiential modes of learning. Unlike historically accumulated experience, codifying and practicing produce, respectively, *new* explicit and tacit knowledge because they are designed in a way that disconnects experience from existing capabilities. Together with the feedback and reflection

that typically follow, this makes codifying and practicing both behaviorally and cognitively intense. Such intensity is useful not only in cementing unfamiliar capabilities, but also in breaking the bonds of the existing mind-set (Nelson & Winter, 1982), which explains the strong relationships among codifying, practicing, and initiative performance particularly for highly exploratory initiatives.

Managerial Implications

Our study also has implications for the management of strategic initiatives. In particular, prior work has cautioned against managers' tendency to *under*invest in learning activities associated with their firms' strategic initiatives, particularly when it comes to initiatives that go beyond the existing knowledge and capability domain of the firm (Lechner & Floyd, 2007). Shedding light on the flipside of this issue, our findings suggest that there are pitfalls to managers *over*investing in such learning activities as well, particularly when they do so in an indiscriminate manner, that is, without regards for the different learning demands imposed by initiatives with higher versus lower degrees of exploration. Moreover, as our findings did not show any interaction effects between the four learning activities, managers' attempts to enhance or even substitute one learning activity with another may not prove effective either. Together, these findings suggest the benefits of managers carefully calibrating their learning investments in order to avoid having initiatives fall short of their intended goals on the one hand, and avoid inefficient (or even detrimental) investments in organizational learning on the other hand.

Moreover, our study also emphasizes the need for initiative management to invest in both cognitive *and* behavioral learning activities. In fact, we found that for initiatives with average degrees of exploration, codifying and practicing are the only two learning activities that have a positive main effect on initiative performance. If investments in the codification of key insights emerging from the initiative are wanting, the departure of even one key member of the initiative could result in initiative members (including his or her replacement) having to start from scratch (see Lechner & Floyd, 2007, for a cautionary example in this regard), which, given today's increasingly mobile work force (Jacobs, 2012), represents an increasingly common occurrence. Moreover, given the increasing complexity and sophistication characterizing firms' capability renewal attempts (Teece, 2007), practicing, or the development of prototypes, pilot projects, and other types of experimental trial runs early on in the life of a strategic initiative offers initiative management a valuable feedback mechanism to assess the progress a given initiative has made (as well as any unanticipated complications that have arisen), and thereby allows for a more informed, flexible, and time-sensitive management of this process. In sum, then, the management of strategic initiatives is well advised to not neglect this crucial behavioral component of the learning process.

Finally, the nonsignificant results of processing seem to suggest that managers (at least in insurance firms) do not need to put additional emphasis on this learning activity. One might argue that a thorough, systematic analysis of information is a "natural" behavior of data-driven organizations such as insurance firms. It happens more or less automatically, but as everybody is doing it, it offers less potential for making initiatives succeed. Processing might be so prevalent in such organizations that any additional investment in this activity would be more beneficial for initiative performance if focused on the other learning activities instead.

Limitations and Future Research Opportunities

A first limitation of our study is our choice of a single-industry research design. While helpful as a control for industry-specific influences, it limits the generalizability of our results. It would be interesting, for instance, to compare our findings to results in different industry contexts characterized by higher or lower degrees of dynamism, complexity, and munificence (Dess & Beard, 1984). Second, our focus on direct, or experiential organizational learning activities (Huber, 1991; Kolb, 1984) did not consider indirect or vicarious learning (Eisenhardt & Martin, 2000; Srinivasan, Haunschild, & Grewal, 2007). In view of increasingly complex and multidisciplinary organizational learning activities, neglecting the acquisition of capabilities from outside the firm constitutes a limitation of our analysis. Moreover, our focus on learning activities within a focal strategic initiative creates opportunities for future research on a potential transfer of the acquired knowledge to other strategic initiatives as well as on how learning activities transform both strategic initiatives and the broader organizations they are embedded in. Third, we focused on the effects of the four organizational learning activities themselves, irrespective of initiative members' willingness to engage in such learning activities as well as their temporal sequence. Concerning the former, it would be interesting to examine whether or not the degree of exploration characterizing a given initiative would actually trigger organizational learning activities. That is, while the findings from our cross-sectional analyses suggest that learning activities are beneficial for more exploratory initiatives—at least searching, codifying, and practicing—future, longitudinal research might want to examine the extent to which firms understand these benefits and respond to more exploratory initiative demands with higher learning investments. Concerning the latter, prior research has shown that different learning sequences differentially affect learning outcomes (Bingham & Davis, 2012), suggesting that future research might want to account for the temporal sequence of different learning activities. Such an approach is particularly important as our study found that the four individual learning activities do not interact with each other in their influence on initiative performance. This suggests that if different learning activities are performed at the same time, they might "sabotage" each other vying for resources rather than amplifying initiative performance. Fourth, while we controlled for the degree of exploration, duration, and size of a strategic initiative, which might serve as proxies, we did not directly examine the complexity of the tasks performed in the context of strategic initiatives, which represents both a limitation of the current study as well as another opportunity for future research. Fifth, our article focused on initiative performance as the outcome variable, yet future research may also want to investigate more proximal outcomes. For example, the resulting degree of innovativeness of the initiative, or subsequent organization-wide adoption decisions could be important dependent variables to be investigated.

In conclusion, our study complements and extends prior work on organizational learning and strategic initiatives by providing insights into the context-specific efficacy of investments in organizational learning activities. As our results suggest that searching, codifying, and practicing—in contrast to their beneficial effects on exploratory initiatives—have no effect on the performance of less exploratory initiatives, and processing does not have any benefits irrespective of the degree of exploration, such a nuanced, context-specific approach is key to successful investments in organizational learning.

Appendix A

List of Sample Initiatives (Sorted by Degree of Exploration)

Firm 1

1. Optimization and overhaul of existing marketing processes (e.g., market and customer analyses, customer segmentation, etc.) with the support of modern e-technologies. (1.69)
2. Consolidation of several IT units into one plus harmonization of IT platforms/backbone systems. (2.00)
3. Customer-retention initiative for clients with multiple contracts in the retail business. (2.03)
4. Development and installation of five knowledge-management systems related to product offerings, compliance, and sales support. (2.13)
5. Development and sale of a new insurance product for luxury goods comprising both an assessment component as well as a pricing component related to this assessment. (2.19)
6. Program for efficiency improvement in the sales units in Germany, Austria, and Switzerland. (2.28)
7. Cost-reduction program in the support functions of the property and casualty businesses. (2.29)
8. Set-up of a phone and Internet-based service center for retail customers to more efficiently handle less complex (mass) insurance cases. (2.38)
9. Initiative for the development of mission and objectives for all operating units and the level below. (2.50)
10. Development of low-priced commodity insurance products that can be offered and sold through the Internet. (2.53)
11. Development and launch of a new website containing focused information for senior citizens related to targeted insurance solutions. (2.56)
12. Consolidation of life-insurance business knowledge for Croatia, Slovenia, and Serbia into one unit. (2.63)
13. Development of new product offerings for professional craftsmen in the housing industry. (2.94)
14. Set-up of a virtual marketplace for machinery equipment and the parallel offering of related insurance products. (3.06)
15. Optimization of existing management-development programs for top achievers. (3.44)
16. New underwriting process based on evaluation of existing practices for multinational clients. (3.56)
17. Broad initiative related to sustainability targets in terms of eco-efficiency. (3.59)
18. Analysis and adaptation of sponsoring activities in coordination with operating units. (3.63)
19. Development of a rating tool for existing clients. (3.63)
20. New product line for financial/banking/asset-management products sold through the insurance sales force. (3.63)
21. Consolidation of several decentralized units for the registration of cars into one unit. (3.66)
22. Development and build-up of a network of small and medium-sized firms with common business interests and the subsequent support of this network with insurance products and services. (3.69)
23. Market entry into Eastern European country based on organic growth. (3.69)
24. New insurance product that helps corporations handle risk positions not covered by existing insurance solutions. (3.75)
25. Integration and harmonization of several existing product bundles for expatriates. (3.91)
26. Development of online insurance engine for the automotive markets (“Car World”). (4.00)
27. Optimization and overhaul of existing sales processes (i.e., the interaction with individual customers to analyze their needs, provide advice, and sell insurance products) with the support of modern e-technologies. (4.06)

28. Human resource planning program covering the top 1,000 managers worldwide. It also includes the harmonization of career and compensation plans. (4.09)
29. Cross-selling initiative for property and casualty products for the sales force of life insurance and *vice versa* in the Italian market to achieve better market penetration. (4.19)
30. New actuarial product for shipping business. (4.19)
31. Development of activity-based costing systems for all operating units. (4.31)
32. Development of an e-commerce platform for the fixed-income asset class for European retail investors. (4.31)
33. New cooperation with insurance broker for the cross-selling of insurance products in the automotive industry. (4.31)
34. Development of consulting-related product offerings (e.g., adding of captives to property insurance business). (4.47)
35. Comprehensive bundling and streamlining of insurance products related to workplace management. (4.50)
36. E-based platform for the trading of energy-related risks. (4.63)
37. Introduction of homogenous systems and processes for intranet solutions. (4.63)
38. Optimization and new concept for the transfer and sharing of premiums across countries. (4.63)

Firm 2

39. New product line for risks associated with the ownership of animals. (1.38)
40. Extension of specialized offering for burial services in Southern European countries. (1.63)
41. Development and implementation of a new compensation program for the top 300 managers of the corporation. (1.69)
42. Overhaul and adaptation of shipping-related portfolio. (1.72)
43. Overhaul and optimization of car-insurance pricing with insurance brokers. (1.78)
44. Group-level integration and offering of mainframe base for all country units. (1.88)
45. Offering of newly developed pension-based life product with guarantees from the state government. (1.88)
46. Training and support for marketing and sales units with a newly created approach. (1.88)
47. Development and implementation of new IT system for life insurance contracts. (1.91)
48. Second wave of Internet-related services for various business lines and support functions. (1.91)
49. Divesture of private retail business portfolio in the South-Italian market. (2.16)
50. Strategic alliance with more than 400 credit union banks in home country for the sale of life and non-life insurances based on commissions. (2.25)
51. Divesture of small and mid-sized firm portfolio in the South-Italian market. (2.38)
52. Redefinition of client segmentation criteria and corresponding new structure for sales and marketing units. (2.50)
53. Negotiation and set-up of a strategic alliance with a bank in the Italian market for selling life-insurance products via its branches. (2.53)
54. Integration of agents network into one coherent structure. (2.94)
55. Consolidation of back-office activities related to policies and data management. (3.69)
56. Creation and marketing of index-linked products in life businesses across the group. (3.72)
57. First wave of Internet-related services for various business lines and support functions. (3.73)
58. Initiative to capture market share for self-employed business segment based on pension obligations in conjunction with injuries. (3.81)
59. Third wave of Internet-related services for various business lines and support functions. (3.83)

60. Assessment and harmonization of IT unit across all business lines. (4.00)
61. Adaptation of group structure based on new regulatory guidelines. (4.06)
62. Specialized offering for car distributors that enables them to sell cars in combination with an integrated car insurance. (4.09)
63. Starter package for young entrepreneurs covering provision of all insurance needs when founding their own firms. (4.16)
64. Creation of a new business unit specialized in the development and sale of unit-linked fund products in the Benelux countries. (4.22)
65. Focused program for senior citizens (50 years-plus) taking care of their specific needs (combination of insurance and banking products). (4.25)
66. Complementary services around private property and casualty insurances charged either individually or in combination with premium insurance package. (4.38)
67. New product line for fund-related life insurance contracts. (4.38)
68. Analysis and introduction of new asset allocation mechanism for all business segments through the corporate center. (4.41)
69. Special, time-limited initiative for new business related to casualty insurance. (4.41)
70. Integration and offering of IT services for a smaller insurance firm in home market. (4.44)
71. Management development program for the top 300 managers and subsequent evaluation of their performance. (4.44)
72. Concentration of administration centers and support of insurance brokers in home country. (4.47)
73. Consolidation of reinsurance business at the corporate level and transfer of business from the country units to the corporate level. (4.56)
74. Intranet-application for several services. (4.56)
75. Optimization of storage and back-up systems. (4.56)
76. Internal process optimization program in home country with the objective to speed up internal business processes. (4.63)

Firm 3

77. Set-up of a claims network across home country consisting of 28 help points that clients can directly contact and that are able to handle insurance cases (property and casualty business). (2.13)
78. Specialized offering for business segment of private hunters across Europe. (2.56)
79. Large data-analysis procedure with all existing retail customers and the application of algorithm-based analytical techniques (e.g., increased rating precision with regards to floods). (2.41)
80. Set-up of life-product center with the objective of generating new life products (unit- and index-linked) and market and sell them across the sales-agent channel. (2.65)
81. Reduction of small agencies and merging them with larger agencies in order to gain critical mass for specialized professionals and to improve efficiency. (3.00)
82. Set-up of value-added services around core products in the automotive market. (3.75)
83. Integration of multiple lines of business with their separate customer service centers into one consolidated center for dealing with retail clients (24-hour service center). (3.88)
84. Service center for medical insurance in the health-care business segment. (3.92)
85. Integration of several data warehouse applications into one consolidated data warehouse (plus termination of legacy systems). (3.94)
86. Offering for professional service firms' coverage along various work-related risks (litigation, health insurance, business interruption, etc.). (3.94)

87. Adaptation of existing contracts for transnational contracts in the commercial market segment. (3.97)
88. Integrated offering for new entrepreneurs covering both information as well as insurance coverage across a variety of topics (employment of people, pension fund coverage, etc.). (4.00)
89. Outsourcing of low-value services to external parties inside and outside of home market. (4.09)
90. Introduction of a benefits program for all retail clients in cooperation with multiple business organizations. (4.19)
91. Process optimization of several insurance processes in the property and casualty business with the intention of reducing costs by a pre-specified target. (4.28)
92. Introduction of new underwriting policies in the small and mid-size market segment (e.g., underwriting expertise in the directors and officers business). (4.31)
93. Initiative with the objective of reducing handling time for selected processes (such as underwriting, policy production, and claims processing). (4.34)
94. New accounting and actuarial system that is able to calculate profitability of each client relationship in an integrated manner. (4.34)
95. Set-up of a network of points-of-sales that combine insurance as well as banking products in an integrated manner. (4.41)
96. Insurance coverage for mountain-related businesses in Germany, Switzerland, and Austria. (4.63)

Appendix B

Measurement Items

Slack resources (adapted from Sharfman & Dean, 1997, and Chattopadhyay, Glick, & Huber, 2001; α = .90). During the time when the initiative was under development, how would you describe the resource situation for the organization as a whole? (1 = *not at all difficult*, 5 = *very difficult*)

1. How difficult was it at that time to get approval for a medium-sized capital project that was worth doing?
2. To what extent did your organization have difficulty obtaining sufficient funds to produce its products and/or services?
3. To what extent did your organization have difficulty gaining access to resources for growth and expansion?

Degree of exploration (α = .96). When the initiative was launched, how compatible was the initiative with regard to the following characteristics of the organization? (1 = *low compatibility*, 5 = *high compatibility*)

1. Management skills.
2. Employee skills.
3. Information technologies.
4. Business process systems.
5. Technical systems.
6. Operational technologies.
7. Employee knowledge.
8. Management knowledge.
9. Long-term strategic plan.

10. Budget.
11. Investment guidelines.
12. Financial control systems.
13. Beliefs about what makes the organization successful.
14. Organizational values.
15. Assumptions in the organization about how things are done.
16. Informal norms in the organization about how to do things.

Searching (α = .82; 1 = never, 5 = very often)

1. How often did the group rely on new sources of information in discussing the initiative?
2. How often were novel or original ideas presented during the discussion?
3. How extensively did the group look for information regarding the initiative?
4. How often were people able to contribute to the initiative in ways that did not strictly match their job description or level of authority?

Processing (α = .78; 1 = not at all, 5 = extensively)

1. How extensively did the group analyze relevant information before making a decision?
2. How extensively were quantitative analytic techniques used in the initiative?

(1 = not at all effective, 5 = very effective)

3. In general, how effective was the group at focusing its attention on crucial information and ignoring irrelevant information?

Codifying (α = .93; 1 = strongly disagree; 5 = strongly agree)

1. New knowledge and experience was written down.
2. New approaches were translated into formal procedures.
3. Documents were created to capture new processes.
4. New insights were documented.

Practicing (α = .88; 1 = strongly disagree, 5 = strongly agree)

1. New approaches were practiced several times, until they were finally mastered.
2. During the process, crucial elements of the initiative were repeatedly tested.
3. People gained new knowledge by making mistakes.
4. New procedures were tried out and revised before being implemented.

Initiative performance (α = .88). Please assess the performance of the initiative over the last three months, on each of the following dimensions (1 = *very unsatisfactory*, 5 = *highly satisfactory*):

1. Meeting time expectations.
2. Meeting quality parameters.
3. Meeting cost parameters.
4. Meeting efficiency parameters.
5. Meeting user/client satisfaction expectations.

6. Meeting service expectations.
7. Meeting revenue expectations.
8. Meeting profit expectations.

Absorptive capacity (for endogeneity tests; adapted from Lane, Salk, & Lyles, 2001; α = .91). The following items refer to the organization's ability to absorb things such as new technology, new products, competitor behavior, etc. How would you describe your organization as a whole? (1 = *strongly disagree*, 5 = *strongly agree*)

1. The organization is able to acquire knowledge coming from outside the organization.
2. The organization is able to understand and comprehend external knowledge.
3. The organization is able to internalize and adapt external knowledge to the needs of the organization.

Interdepartmental integration (for endogeneity tests; adapted from Sharfman & Dean, 1997, and Chattopadhyay et al., 2001; α = .84). In assuring the match among the decisions in one area (e.g., marketing) with those in other areas (e.g., operations), to what extent are *in general* the following integrative mechanisms used in your organization? (1 = *used rarely*, 5 = *used very frequently*)

1. Interdepartmental committees which are set up to allow departments to engage in joint decision making.
2. Task forces which are temporary bodies set up to facilitate interdepartmental collaboration on specific projects.
3. Liaison personnel whose specific job is to coordinate the efforts of several departments on specific projects.

Past performance (for endogeneity test; adapted from D. Miller, Droge, & Vickery, 1997; α = .92). For the three-year period prior to the initiative and for the organizational unit where the initiative was developed, how would you compare performance relative to the unit's nearest competitors (1 = *much worse than competitors*, 5 = *much better than competitors*).

1. Return on assets.
2. Return on equity.
3. Net profit margin as a percentage of sales.
4. Rate of growth in sales.
5. Rate of growth in profit.

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