

Knowing What We Know: Uncovering Tacit Knowledge for Improved Organizational Performance

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Tacit knowledge has emerged as an important construct in the scholarly literature dealing with team work, knowledge management, and organizational learning. In this article, we review our evolving understanding of tacit knowledge as well as its role in organizational learning, and we describe advances in the assessment of tacit knowledge. Based on this analysis, we seek to leverage and apply tacit knowledge to improve teamwork, coordination among organizational units, and organizational performance. We conclude with a brief case example showing how various research strategies can be integrated through effective knowledge management to provide an organization with elements of competitive advantage.

INTRODUCTION

Much has been written in the scholarly literature about the intricacies of teamwork (Alexander & van Knippenberg, 2014; Huber & Lewis, 2010; Van der Vegt & Bunderson, 2005), the dynamics of within-organization coordination (Bruns, 2013; Rico, Sanchez-Manzanares, Gil & Gibson, 2008), and the strategic importance of organizational learning and knowledge management (Edmondson, 2008; Garvin, Edmondson, & Gino, 2008; Yamklin & Igel, 2012), while the tacit knowledge construct has received far less attention due to its inherent measurement issues (Rivkin, 2001; Spender, 1993, 2015). Here we take advantage of cumulative advances in the understanding and assessment of tacit knowledge (Ambrosini & Bowman, 2001; McIver, Lengnick-Hall, Lengnick-Hall, and Ramachandran, 2013) and its demonstrated functionality in a recent research effort (Andrews, 2017) to revisit the underlying theory and potential applications linking tacit knowledge with competitive advantage through improved teamwork, coordination, and organizational learning.

Our lives are replete with tacit knowledge based on the learning that occurs from our everyday life experiences; examples include our learned traffic shortcuts, the nuanced way we improved gourmet recipes, and our personalized use of technology. We are literally living tacit knowledge databases. When our experienced-based innovations or improvements occur in the workplace they are often observed by colleagues who may choose to imitate them, or the originators may share their personal knowledge with others to be helpful in solving workplace issues. The imitation and sharing are more likely to occur when workers are functioning as team members. When what we share is widely adopted, it has the potential to

evolve through “conversion processes” (Nonaka, 1994) to become institutionalized (Crossan, Lane & White, 1999; Lawrence, Mauws, Dyck, & Kleysen, 2005) and a source of competitive advantage (Grant, 2010).

While learning is a natural byproduct of experience, many organizations that rely on knowledge and knowledge workers for their outputs now pursue organizational learning through conscious processes to create emerging disciplines the literature calls learning organizations and knowledge management (Argote, 2005; Edmondson, 2008; Rowden, 2001; Smits & Bowden, 2015). Advances in these closely related disciplines, and in our understanding of learning processes (Brown & Duguid, 1991; Wilson, Goodman, & Cronin, 2007) combined with the less-discussed role of tacit knowledge serve as the impetus for this paper. Specifically, here we

- review our evolving understanding of tacit knowledge and its important role in the learning that takes place in organizations;
 - describe cumulative advances in the assessment of tacit knowledge; and
 - discuss the refinement and integration of three emerging disciplines: organizational learning, the learning organization, and knowledge management.
- and with the above inputs serving as background, we leverage and apply tacit knowledge to:
- improve teamwork in terms of both our understanding of recent advances in theory and we provide specific suggestions to improve practice;
 - improve coordination among organizational units, each of which has its own tacit knowledge base; and
 - improve the process of organizational learning so tacit knowledge can be leveraged more effectively and efficiently as a firm-specific competitive advantage.

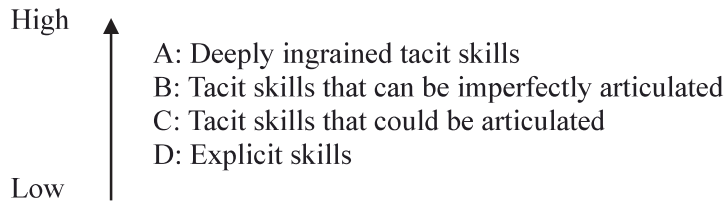
ADVANCES IN UNDERSTANDING AND ASSESSING TACIT KNOWLEDGE

Our Evolving Understanding of Tacit Knowledge

The Context for its Development

Our current understanding of the term *tacit knowledge* owes much to Polyani (1966) who distinguished between objective knowledge and tacit knowledge. According to his definition, objective knowledge, which is essentially scientific knowledge, is abstract, separate from the knower, and divorced from any specific experience; while tacit knowledge is, on the contrary, subjective, profoundly tied to the knower, and embedded in experience or practice. Tacit knowledge functions like a base of raw, unprocessed knowledge from which all types of knowledge stems. Whereas Polyani characterized tacit knowledge as being incommunicable, more recent scholars have taken a more nuanced approach suggesting that some tacit knowledge is accessible, and thus communicable. Spender (1993), for example, posits three types of tacit knowledge which are all highly tied to workplace activity: conscious, automatic, and collective. Conscious tacit knowledge is explicit and can be communicated but still cannot be considered scientific or objective because it is so inextricably bound by the specific context of the workplace that generalization becomes impossible (Spender, 1993). The work of Orr (1990), and Brown and Duguid (1991) demonstrates that practical knowledge may be stored in collective processes, routines, interactions, and relationships. Schein (2010) also posits the existence of collective tacit knowledge in his concept of organizational culture as pattern of shared assumptions which have developed over time out of the daily practices and problem solving experiences of the organization’s members. Even if individuals are unaware that they draw on collective knowledge, which may be partly automatic, such knowledge can be at least partially revealed and/or deducted thanks to observation and/or effective interview strategies.

Ambrosini and Bowman (2001) maintain there are degrees of tacitness, some of which are communicable. Preferring the term “skills” over “knowledge” to emphasize the importance of practice versus an abstract body of knowledge, Ambrosini and Bowman propose four degrees of tacit skills as follows:



(Source: Ambrosini & Bowman, 2001, p. 816)

While deeply ingrained tacit skills (A) cannot be communicated (similar to automatic tacit knowledge described above), and explicit skills (D) can be fully codified and communicated, points B and C lie somewhere between. They can be articulated either imperfectly (point B), for example, indirectly and incompletely through metaphors and narratives; or they can be articulated more straightforwardly (point C) by asking the right questions about how things are done.

The Emergence of Tacit Knowledge via Shared Experience

Tacit knowledge has been widely recognized in the management literature as playing a crucial role in how firms develop, innovate, and what makes them distinct from one another. Practices, routines, problem solving strategies, experience-based knowledge of the sector, and personal relationships are difficult to transfer and thus to imitate (Penrose, 1959; Rivkin, 2002; Zander & Kogut, 1995). Moreover, tacit knowledge is integral to Nonaka's proposed modes of knowledge creation—both at the beginning and end of the knowledge creation cycle; tacit knowledge is a potential source of new ideas and valuable practices to be shared (the beginning), and also it is ultimately how new knowledge, once disseminated throughout the organization, gets internalized into practices and routines (the end) (Nonaka, 1994). Similarly, the 4I framework proposed by Crossan et al. (1999)—which includes the key learning processes of intuiting, interpreting, integrating, and institutionalizing—suggests that the tacit knowledge of individuals must be shared through processes of socialization before being institutionalized as potentially useful innovations. Lawrence et al. (2005) build on the work of Crossan et al. by addressing issues of politics and power; their work suggests strategies which management can employ to facilitate the adoption of innovations.

Teams play a vital role as a vehicle not only for sharing individual knowledge and experience and, therefore, for moving knowledge from the individual tacit to the collective level, but also in institutionalizing knowledge and innovations that the firm has consciously decided to adopt, thus helping to move knowledge from the collective to the individual level (Andrews, 2017). The work of Edmondson (1999, 2002, 2008) has focused on how teams learn and share; hence indirectly it deals with tacit knowledge.

The Evolution of Tacit Knowledge within the Organizational Learning Paradigm

Concurring with Crossan et al. (1999), Edmondson (2002) conjectures that organizational learning transpires primarily thanks to interactions among individuals who are part of small groups and/or teams within the larger organization. While group norms which encourage interdependency and open communication have a positive impact on team learning, inappropriate deference to authority has a negative impact on team's ability to productively reflect on work activities (Edmondson, 2002). Edmondson's concept of Psychological Safety (1999, 2002) captures conditions which facilitate open communication and productive reflection:

The term is meant to suggest neither a careless sense of permissiveness, nor an unrelentingly positive affect, but, rather, a sense of confidence that the team will not embarrass, reject, or punish someone for speaking up. This confidence stems from mutual respect and trust among team members. (Edmondson, 2002, p. 354)

Psychological Safety may exist more on one team than another which helps explain why two teams with nearly identical composition demonstrate different levels of learning (Edmondson, 2002). Psychological Safety is one of the components of the Learning Organization Survey developed by Garvin, Edmondson, & Gino (2008), a measurement tool designed to assess the extent to which an organization functions as a learning organization, and to evaluate the relationships among the factors which impact organizational learning.

Referring to the work of Lave and Wenger (1991), Brown and Duguid (1991) define communities of practice as informal groups which spontaneously form outside any formalized company structure; they also suggest that these groups are more important for organizational learning and innovation than formalized groups. We posit that the presence of Psychological Safety is one of the explanations for why such informal groups would be effective vehicles for learning. It follows that more recent iterations of the concept, particularly those developed by Garavan, Carbery, and Murphy (2007), and Yamklin and Igel (2012), who propose purposefully created communities of practice with company determined structures and agendas, would require consciously cultivating and monitoring Psychological Safety to make sure it doesn't diminish in the face of explicit hierarchical differences and company politics.

The Origins of Tacit Knowledge in Work-specific Roles and Experience

Building on the work of Brown and Duguid (2001), Cook and Brown (1999), and Orlikowski (2002), the theoretical framework developed by McIver et al. (2013), referred to as "knowledge-in-practice" deals with tacit knowledge embedded in work-specific roles and activities. According to this framework, various work settings are classified according to two dimensions: knowledge tacitness and learnability. While we might question an underlying assumption that people learn in the same way, the intent of the theory is to avoid blanket applications of knowledge management tools in organizations without regard to the varied knowledge structures inherent to the different activities. The framework serves as a basis on which to develop tools to better understand how much and what types of tacit knowledge are required to accomplish tasks in the workplace.

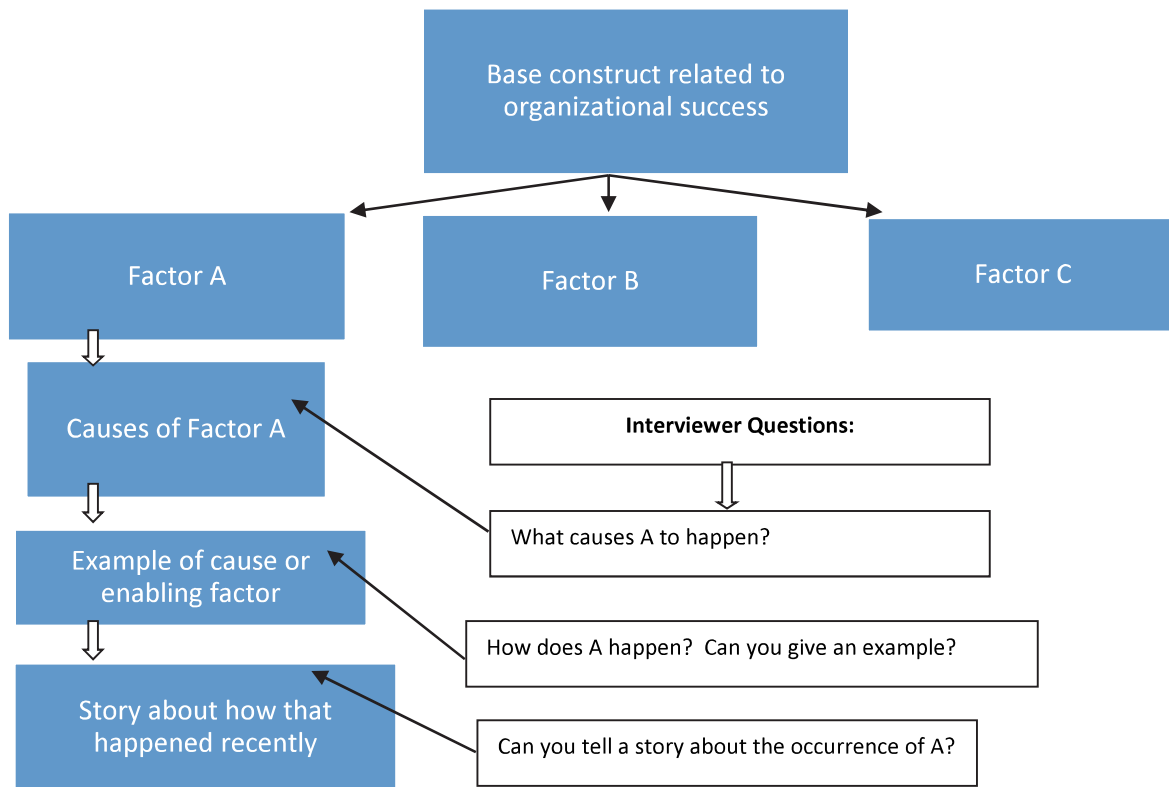
Advances in Assessing Tacit Knowledge

Causal Mapping

There are many inherent challenges to studying tacit knowledge. Such knowledge is vast, ambiguous, often subjective, highly context-specific, and rooted in practice. What makes tacit knowledge potentially valuable for a company, that it is difficult to transfer and to imitate, is also what makes it difficult to operationalize. Intrinsic tension arises when a researcher attempts to capture clearly delineated and generalizable elements of this knowledge from employees' daily practices and routines.

Based on the understanding of tacit knowledge described above, Ambrosini and Bowman (2001) propose a semi-structured interview approach whereby the researcher asks the "right questions" and generally guides the interview process to elicit tacit skills in the form of direct answers to questions, or in the form of narratives and metaphors. The process starts by eliciting base constructs related to organizational success, such as customer satisfaction or innovation. Once these base constructs have been established, the mapping process begins with a view to revealing underlying causes and enabling factors of these constructs.

FIGURE 1
RESEARCHING TACIT SKILLS: A SUMMARY OF THE PROPOSED METHOD



(Adapted from Ambrosini & Bowman, 2001, p. 823)

The causal mapping method proposed by Ambrosini and Bowman (2001) represents a significant advance in our ability to assess tacit knowledge because it has the potential to surface this knowledge from multiple points of view without direct observation or participation, which is consuming for the researcher and intrusive for the organization. By gathering comments, narratives, metaphors and insights across a range of activities, levels of hierarchy, and departments, the researcher can achieve a reasonable degree of generalization without getting overwhelmed by the minute details of daily practice. An additional advantage of the method is that causal mapping is an iterative process which allows for overlap between data gathering and analysis. The data gathering approach can be continuously adjusted if the responses to questions do not lead to useful data. Moreover, the semi-structured interview technique, as a form of collective sense making, encourages the sharing of knowledge and thus contributes to organizational learning. The interviews may generate insights not only for the researcher(s) but also among the participants.

Knowledge-in-practice-framework

The knowledge-in-practice framework, briefly described above, is a knowledge management tool developed by McIver et al. (2013) which “describes knowledge characteristics of work practices along two dimensions: tacitness and learnability” (p. 597). The authors contend that there are sometimes mismatches between knowledge management tools and the contexts they are supposed to apply to which result in much lower than anticipated performance improvement. The purpose of the framework is

therefore to help researchers and practitioners develop more effective knowledge management planning and application approaches.

Based on the two dimensions referred to above, McIver et al. (2013) propose the following four practice types:

1. Enacted information = high learnability, low tacitness (example: a grocery store cashier)
2. Accumulated information = low learnability, low tacitness (example: a tax auditor)
3. Apprenticed know-how = high learnability, high tacitness (example: a roofer or carpenter)
4. Talent and intuitive know-how = low learnability, high tacitness (example: an artist or an athlete) (p. 601)

The first practice type, enacted information, is considered relatively easy to learn because it requires primarily explicit, codified knowledge which is limited in scope; furthermore, the activity is repetitive and tends to remain stable over time. The second practice type, accumulated information, is harder to learn because of the amount and the complexity of the information required, although the knowledge can be codified, stored, and thus separated from its context to some extent—hence low tacitness. The third practice type, apprenticed know-how, is considered relatively easy to learn in so far as the activity can be observed and imitated but is high in tacitness because it is context specific. Learning this activity requires considerable on-the-job practice and experience. Finally, the fourth practice type, talent and intuitive know-how is highly tacit, difficult to learn and is rarely transferrable—here the required knowledge is complex, constantly evolves and can only be acquired through what the authors refer to as “idiosyncratic experience” (McIver et al., 2013, p. 602).

Obviously these are ideal types which seldom exist in their pure form. Many job activities cut across the four types with elements of two or more of them; the framework offers a tool for assessing the underlying knowledge structures of work activities which can be broken down and analyzed according to the following questions:

- What is high performance?
- How is high performance achieved?
- What needs to be known?
- How does knowing take place?
- How is knowing applied?
- Examples of types of work?

(McIver et al., 2013, pp. 605-606)

Learning Organization Survey

Based on the multidimensional theoretical construct of the learning organization (Garvin 1993/2000; Kirwan, 2013; Marquardt, 1996; Pedler, Burgoyne, and Boydell, 1991; Senge 1990/2006), the Learning Organization Survey developed by Garvin et al. (2008) is designed to measure learning which transpires in any operational unit where there are shared and/or overlapping work activities. By gathering information from a sample of the organization’s members, the cross-section descriptive survey assesses employee perceptions of workplace learning. It consists of Likert Items in the form of statements (e.g., “If you make a mistake in this unit, it is often held against you.”) which the participants rate on a one-to-seven scale ranging from highly inaccurate to highly accurate.

The survey is built on the assumption that three key components, referred to as building blocks, must be present for organizational learning to occur: a supportive learning environment; concrete learning practices; and leadership that reinforces learning. The first two building blocks include subsections such as Psychological Safety, already discussed above, and Appreciation of Differences (for the first building block), or Experimentation and Information Collection (for the second building block)—this list is not exhaustive, a complete example of the survey can be found at the following link: https://hbs.qualtrics.com/jfe/form/SV_b7rYZGRxuMEyHRz The benchmark scores compiled by the survey’s authors allow for both external comparison (the organization versus other organizations) and internal comparison (across subunits within the same organization).

Applying Tacit Knowledge

In this section, we apply tacit knowledge to key areas of organizational performance.

To Improve Teamwork

With the increased use of teams to deal with the dynamic complexity of the workplace has come an increase in theory development and research about what contributes to their successful functioning. Let us begin with Jones and George (1998) whose observations connect to our construct of tacit knowledge. They argued that unconditional trust among team members was a prerequisite to high levels of functioning, and that such functioning involves the development and exchange of tacit knowledge:

Interpersonal cooperation and teamwork necessitate a high degree of involvement...when unconditional trust is present in relationships, organizational members are more likely to cooperate and develop synergistic team relationships ... leading to the development of tacit knowledge.... The intense interactions in teams, facilitated by unconditional trust, are both the generators and actualizers of tacit knowledge. (Jones & George, 1998; pp. 542-543)

Similarly, Somech and Drach-Zahavy (2011) studied 96 primary care teams to assess what made teams creative and the linkage between team creativity and innovation implementation, and they reported:

First, we found a positive link between team composition (creative personality and functional heterogeneity) and team creativity. ... But this finding may also suggest that teams provide a social and interpersonal context in which people are encouraged to propose new and improved ways of doing things. (2011, pp. 698-699)

Teams that have high levels of trust and conditions of Psychological Safety (Edmondson, 1999) function in a social and interpersonal context where tacit knowledge (new ways of doing things) can be shared and explored. Such a social context is what Nonaka's (1994) SECI Model refers to as "Socialization", which is the first step in knowledge conversion where tacit-to-tacit knowledge, garnered from experience, is exchanged.

Alexander and van Knippenberg (2014), after stating that "innovation has become the Holy Grail for many organizations." (p. 423), contend that when firms structure their innovation around dedicated teams, the changes are incremental, rather than radical, and less advantageous in the long run in terms of competitive advantage. Teams designed to drive organizational change (Yamkin & Igel, 2012), incremental or radical, face the challenges of melding experience, knowledge, and creativity, and, in the process, must bond sufficiently to achieve their goals (Brown & Duguid, 1991). The relevant point here is that whether the change is incremental or radical, teams serve as a recognized vehicle for innovation. How well those teams function moderates the amount of innovation attained.

Team functioning is influenced by a number of factors in addition to trust and Psychological Safety. Van Der Vegt and Bunderson (2005) found that the strength of team member identification with the team influenced whether multidisciplinary teams benefited from diversity: "In teams with low identification, expertise diversity was negatively related to learning and performance; where team identification was high, those relationships were positive" (p. 532). Identifying with a team is not always easy because skilled knowledge workers often belong to multiple teams; for example, their discipline-specific teams, and one or more multidisciplinary teams (O'Leary, Mortensten & Woolley, 2011). While acknowledging some benefits within multiple team memberships, they conclude that "the benefits in terms of productivity and learning come with high costs owing to fragmented attention and coordination overload" (O'Leary, et al., p. 474).

Huber and Lewis (2010) worked with groups engaged in tasks that required the application of diverse knowledge and member independence for successful task completion via processes they labeled as cross-understanding: "Cross-understanding refers to the extent to which group members have an accurate

understanding of one another's mental models ... *Mental model* refers to a person's mental representation of a system and how it works." (p. 7). They found that the level of cross-understanding impacts communication, coordination, task-relevant knowledge exchanges, collaborative behaviors, and group outcomes. They concluded that groups with both high levels of cross-understanding and diverse mental models, produced high-quality outcomes and smoothly coordinated processes.

In summary, when creative people in a socialized, multidisciplinary team, with high levels of trust, share experiences and exchange tacit knowledge, the result often emerges as some form of innovation. Whether the innovation moves beyond the team to other units of the organization depends on how well the organization manages its knowledge inputs up the system. Organizations rely on teams for continuous quality improvements and in some instances, radical innovation. Teams function more effectively as innovators when members identify closely with the team and its purposes, and when they engage in behaviors that share mental models. So the challenge is to structure teams around functional diversity to cope with dynamic complexity while engaging in processes that promote collective identity, shared mental models, and cross-understanding. We contend that challenge cannot be met without substantial exchanges of tacit knowledge among team members. When those tacit exchanges resonate across diversity, creativity is stimulated, and innovation results.

To Improve Coordination among Organizational Units

The relationship between tacit knowledge and coordination differs at two levels: within teams, and among teams, and other organizational units. Within team coordination traditionally involves "the use of strategies and behavior patterns aimed at aligning the actions, knowledge, and objectives of interdependent members with a view to attaining common goals" (Rico et al., 2008, p. 163). The traditional approach is focused on planning and communication; but in the dynamic work environments of today, those formal methods are too slow and too unreliable (Edmondson, 2008). Rico and associates (2008) argue for implicit coordination within teams:

Implicit coordination takes place when team members anticipate the actions and needs of their colleagues and task demands and dynamically adjust their own behavior accordingly without having to communicate directly with each other or plan the activity. ... We argue that the underlying mechanism that enables implicit coordination is the existence of team-level knowledge structures – team situation models (TSMs) that are shared and accurate. TSMs are dynamic, context-driven mental models concerning key areas of the team's work. (p. 164)

We would describe the shared, context-driven mental models as the result of much tacit-to-tacit knowledge exchange.

Bruns (2013) did an ethnographic study of coordination and collaboration among specialists in cancer research centers. Discussing how challenging cross-domain coordination and collaboration can be, she observed: "Complexity and expertise diversity make coordination both more necessary and more precarious" (p. 62). By definition, all organizations need coordination to function effectively and efficiently. While Rico and associates (2008) make a strong case for implicit team coordination, and we do not contest it, such coordination within teams adds to the challenge of coordination among teams. As stated earlier, teams naturally learn from experience and develop their own *modus operandi*. And the knowledge underlying how they operate often has a strong tacit component. With multiple teams at all levels of the organization operating with their own implicit coordination, misunderstandings are bound to occur until a common, coordinating culture is developed, but that can take several years (Smits, Bleicken, & Icenogle, 1994). The solution might be shared causal mapping results as demonstrated by Andrews (2017, 2018).

To Improve Organizational Learning and Competitive Advantage

Earlier we reviewed concepts and tools from the fields of organizational learning, the learning organization, and knowledge management. In that review, we outlined how tacit knowledge developed at the level of the team can move up the organization to become more and more explicit and finally institutionalized and mandated as a preferred, or best, practice (Crossan et al., 1999; Lawrence et al., 2005). That is an example of how tacit knowledge can be managed upward by an organization to provide competitive advantage. Here we conclude with a brief case example showing how causal mapping (Ambrosini & Bowman, 2001), knowledge-in-practice (McIver, et al., 2013), and the learning organization's building blocks (Garvin, et al., 2008) can be integrated through effective knowledge management to provide the organization with potential elements of competitive advantage.

Case Study Description and Results

The three assessment models referred to above were successfully combined in a mixed methods case study of a young e-commerce company which provided e-commerce services to apparel brands (Andrews, 2018). The study involved the participation of 42 employees (36% of the total population) who represented all levels of the hierarchy—directors, middle managers, and technical employees. The knowledge-in-practice framework (McIver et al., 2013) was integrated into the causal mapping method proposed by Ambrosini and Bowman (2001) to create a semi-structured interview protocol which allowed us to explore the key organizational success constructs of the company, as well as their causes and enabling factors, while simultaneously assessing the underlying knowledge structure of various work activities, and the knowledge required to accomplish tasks. The qualitative data resulting from these interviews provided context for interpreting the quantitative survey data about the employees' perceptions of the company's learning environment and processes.

Because the work of Ambrosini and Bowman (2001), and McIver et al. (2013) share important theoretical assumptions about tacit knowledge, integrating the framework into the mapping method was coherent; they both emphasize work practices as opposed to abstract bodies of knowledge, and they share a nuanced understanding of tacit knowledge as something which can be expressed and analyzed in varying degrees. Moreover, there is a shared understanding that tacit and explicit knowledge, rather than being opposed, each represent dynamic aspects of knowledge in the larger sense.

FIGURE 2
INTEGRATING THE KNOWLEDGE-IN-PRACTICE FRAMEWORK INTO THE
CAUSAL MAPPING METHOD

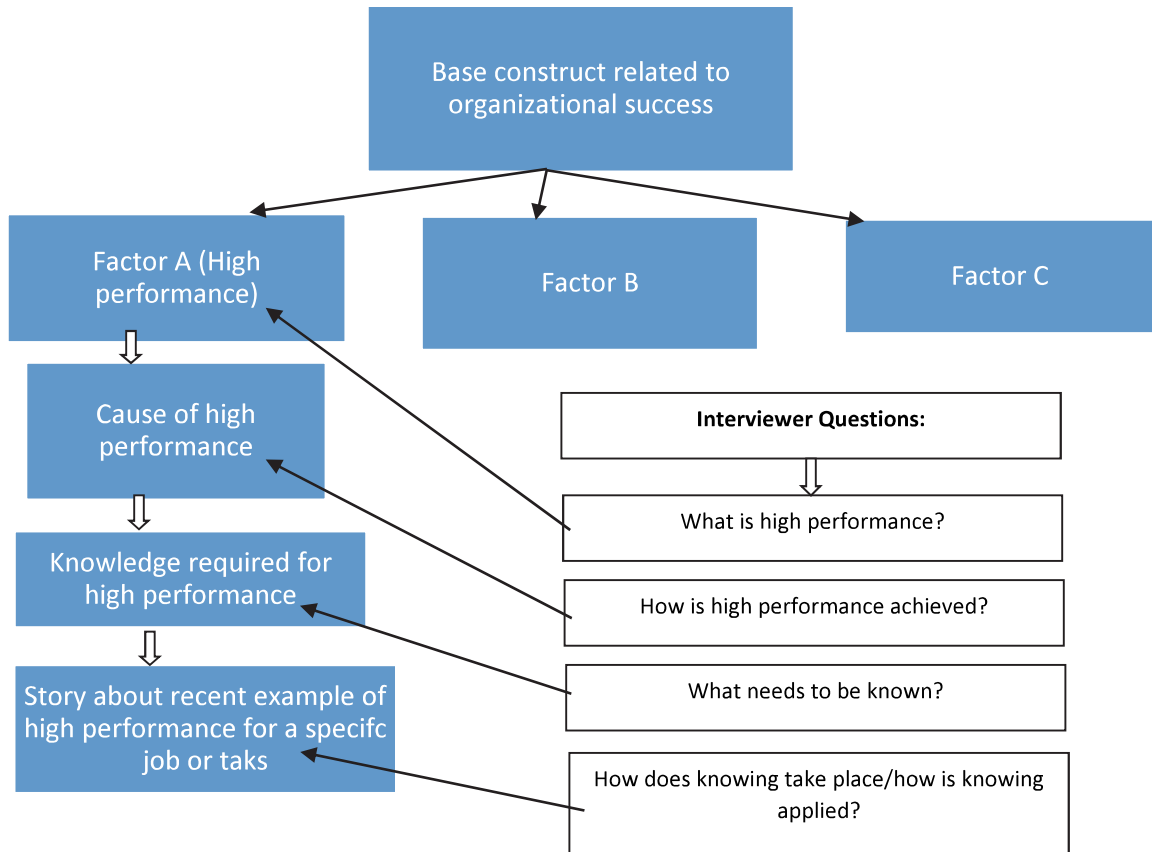
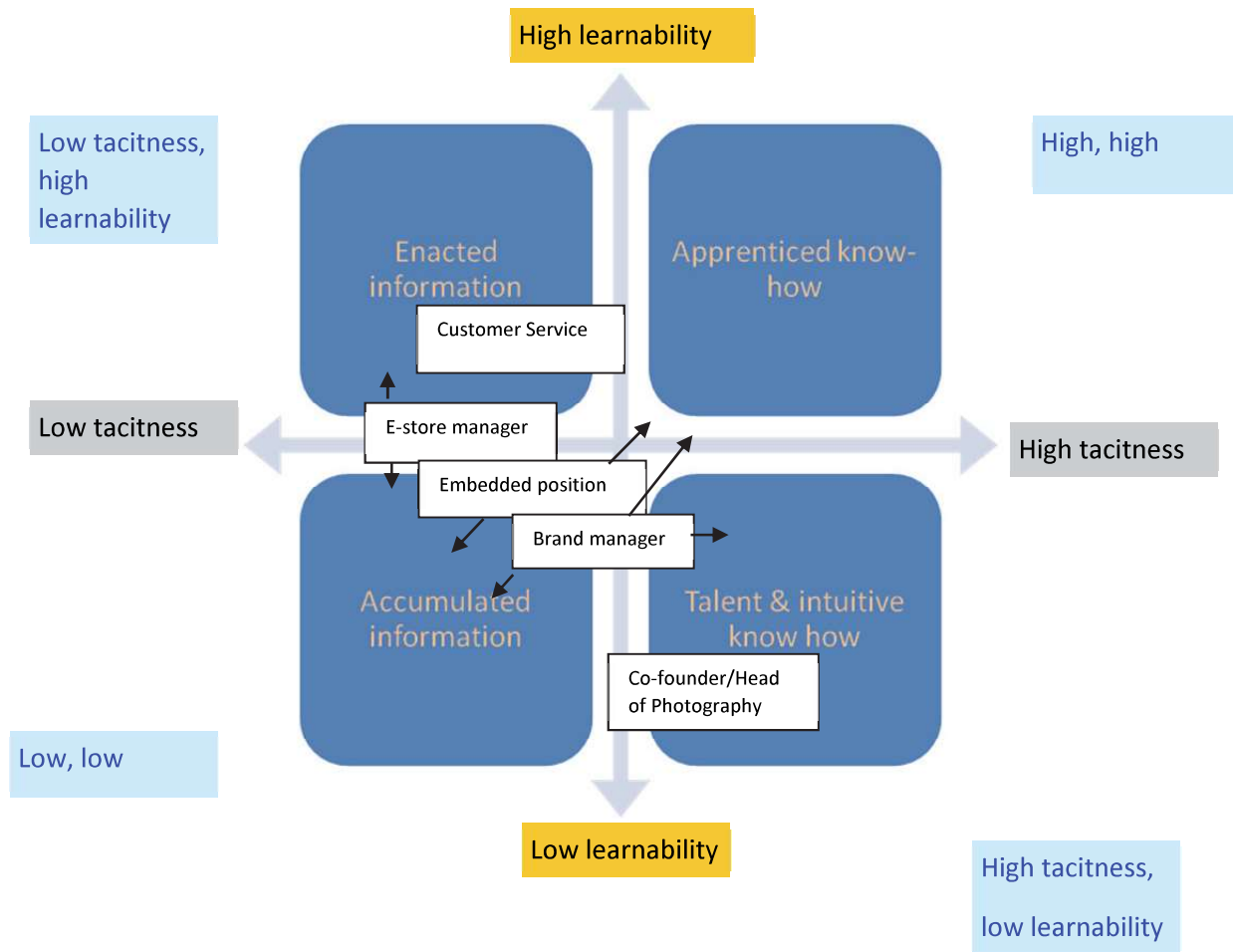


Figure 2 above shows how the framework and causal mapping method were integrated into a single semi-structured interview protocol. We followed a similar scheme designed to uncover tacit knowledge shown in Figure 1 while adapting the questions from the knowledge-in-practice framework to reveal the underlying knowledge structure of work activities. The results of the semi-structured interviews yielded a mapping of some of the key positions in the company according to the knowledge-in-practice framework as presented below.

FIGURE 3
KNOWLEDGE-IN-PRACTICE DIAGRAM WITH KEY JOB POSITIONS
FROM THE CASE COMPANY



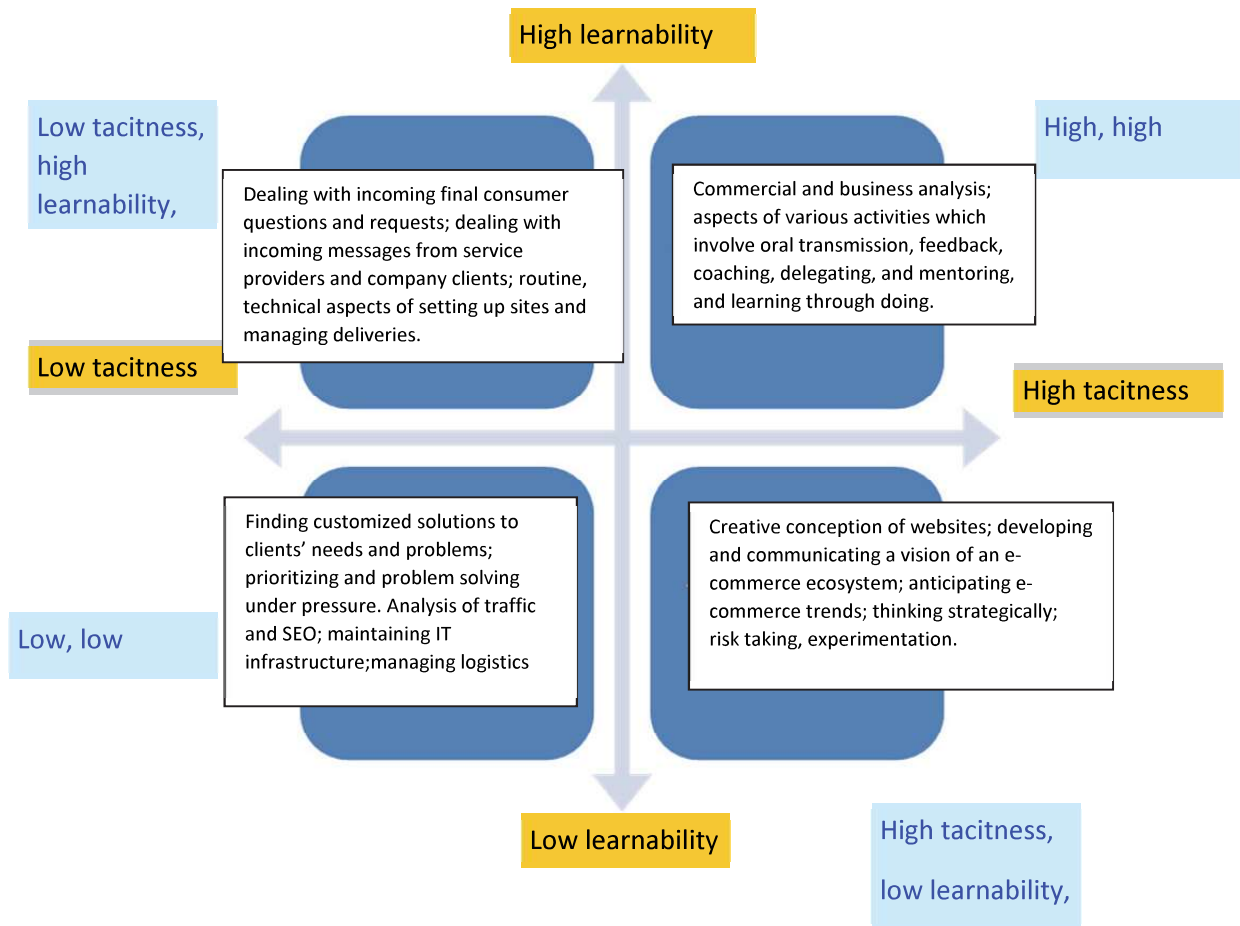
(Knowledge-in-practice framework adapted from McIver et al., 2013, p. 601)

Figure 3, above, shows that the two clearest examples of knowledge-in-practice types in the company were, first, the customer service activity, which, because of its repetitive structure and reliance on codified, explicit knowledge, fits the enacted information practice type; and, second, the co-founder/head of photography, which, because it is highly tacit and intuitive in nature, fits the talent and intuitive know-how practice type. The other positions are mainly clustered around the accumulated information practice type because of a strong emphasis on complex technical skills and training, but they all have elements of other practice types as indicated by the arrows. The “embedded position” refers to an e-commerce employee of the study company who was placed in one of the client brand companies to work directly in their e-commerce service in order to optimize the working relationship. This role required significant on-the-job practice, honing skills, feedback from colleagues, and experience to complement the required technical training—it thus has significant elements of the apprenticed know-how practice type. Meanwhile, the brand manager’s role, because it requires complex technical knowledge of e-commerce combined with business development foresight and the ability to work closely with the client brands, is a hybrid of the accumulated information and the talent & intuitive know-how practice types.

Figure 4, below, shows the main activities of the company distinct from specific positions. This is meaningful because, as noted in Figure 3, several positions straddle knowledge-in-practice types;

moreover, the company culture encourages employee flexibility; taking the initiative and thinking beyond rigidly delineated job descriptions is appreciated. Figure 4 also makes it easier to see which activities involve a high degree of tacitness because these all appear on the right side of the diagram.

FIGURE 4
KNOWLEDGE-IN-PRACTICE DIAGRAM WITH KEY ACTIVITIES



(Knowledge-in-practice framework adapted from McIver et al., 2013, p. 601)

In addition to revealing the knowledge structure of work activities, the semi-structured interviews suggested causal and enabling factors linked to key organizational constructs. For example, innovation was linked to the ability to forecast trends, and to think holistically and creatively. Maintaining good relations with client brands was linked to individual, group, and organizational communication skills, as well as to team work skills. Client development was linked to knowing what information to share with the client, not to mention how and when to share this information. Employee development was linked to people management skills such as delegating tasks, and asking the right questions to team members and subordinates. Most of these skills and underlying knowledge structures correspond to the right side of the diagram in Figure 4, in other words, they are highly tacit.

The results of the Learning Organization Survey (Garvin et al., 2008) demonstrated that the study company had an emergent learning organization culture but one in need of reinforcement in some key areas. The external benchmark comparison showed the company was reasonably strong in the first

building block, Supportive Learning Environment, particularly for the items, Appreciation of Differences, and Psychological Safety. For the Learning Environment Composite, which was a combined average of all the items for this building block, the study company was slightly more than one point above the median benchmark score provided by the survey's authors. However, the comparison indicated weaknesses across the board in the second building block, Concrete Learning Processes and Practices, particularly for the items, Education and Training; and Information Transfer. For the Learning Processes Composite, which was a combined average of all the items for this building block, the study company was more than 11 points below the median. The results of the internal comparison across departments and levels of hierarchy were largely convergent with the external comparison.

An example of how the semi-structured interview data and the survey data complemented each other to yield deeper insights about the case study company can be found in the links made between the low survey scores for the second building block, and the knowledge and/or skills required for the key organizational construct, maintaining good relations with the client. Several participants described instances where the company failed to maintain good relations with the clients due to lack of trained staff and/or ineffective processes for sharing information internally. This was experienced both within teams and across teams and/or departments. A convergence of the results of the different methods was therefore useful in developing recommendations for practice both for the study company and for the e-commerce sector, in general.

DISCUSSION

Team-level and interpersonal interactions are often the starting point for the development of tacit knowledge. Identifying tacit knowledge and institutionalizing it for competitive advantage is the ultimate leadership challenge. Garvin et al. (2008) acknowledge the crucial dimension of leadership by making leadership that reinforces learning the third building block of the Learning Organization Survey (Garvin et al., 2008). For this building block, the study company scored just one point below the median score suggesting leadership reasonably committed to building and maintaining a healthy learning environment. The organizational learning framework developed by Crossan et al. (1999), and the contribution to this framework proposed by Lawrence et al. (2005) suggest ways of analyzing the results of the study which could help the leadership take the learning culture in the enterprise to a higher level, and better leverage firm specific tacit knowledge.

TABLE 1
TACIT SKILLS REVEALED DURING SEMI-STRUCTURED INTERVIEWS ANALYZED
ACCORDING TO CROSSAN ET AL'S (1999) LEARNING PROCESSES

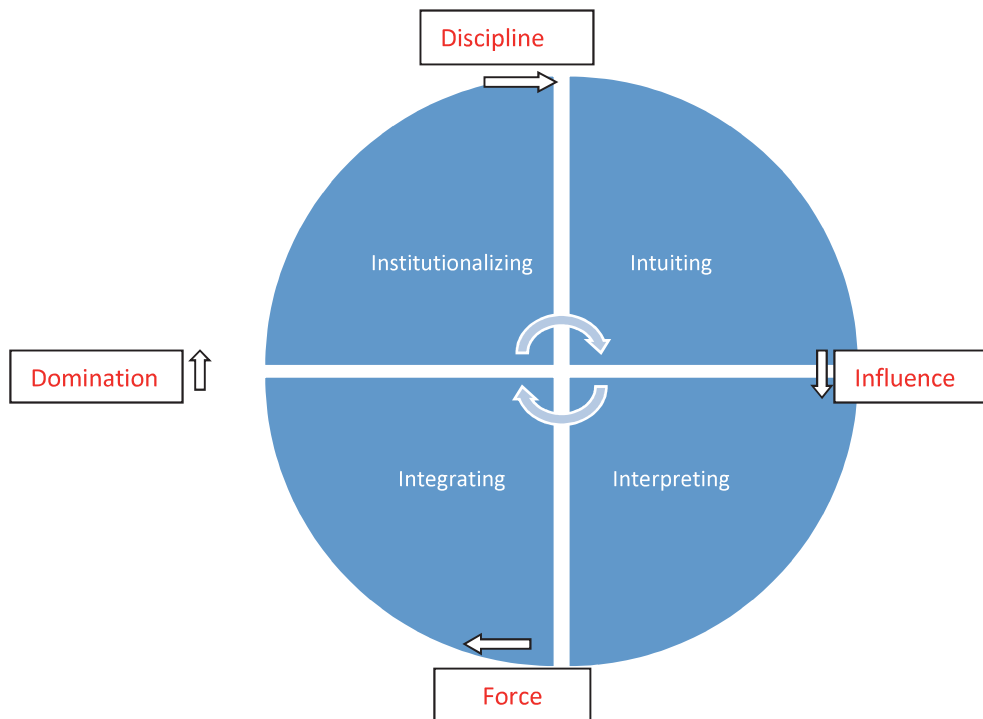
Organizational learning processes	Key organizational constructs from semi-structured interviews			
	Innovation	Commercial success	Good relations with clients	Client and/or employee development
Intuiting (individual-level)	Knowledge gained through experience about the sector, knowledge of brands. Anticipating trends, thinking creatively to exploit the trends/opportunities.	Communication skills – how to be credible, charismatic, etc. when dealing with the client.	Knowledge gained through experience in the sector, knowledge acquired about brands. Specific knowledge of the individual client's priorities, corporate culture.	Understanding the client's point of view. Knowing what information should be shared with the client.
Interpreting (individual-level or among several individuals)	Discussing how to turn ideas and "vision" into concrete reality. Discussing how to exploit trends and opportunities.	Exchanges among employees about what works and what doesn't, sharing experience. Listening to the client and making a customized offer.	Communication within teams/departments and across teams/departments.	Honing communication skills thanks to feedback – how to be credible, charismatic, etc. when dealing with the client.
Integrating (group-level)	Getting people to work together in groups to realize projects, offer services, find clients.	Implementing a sales strategy, building commercial teams.	Effective teamwork skills like flexibility. Cooperation across different departments to deliver the sites and services.	Management practices such as asking the right questions and delegating.
Institutionalizing (organization-level)	Implementing departments and company policies. Development of an e-commerce platform	Rubrics used by commercial team to analyze client needs.	Management of work flows and flow of information. Training new employees.	Employee training, rubrics and criteria used during interview/hiring process.

Table 1 presents the skills and knowledge revealed during the semi-structured interviews organized in rows according the key processes of Crossan et al.'s 4I framework (1999): intuiting, interpreting, integrating, and institutionalizing. The columns correspond to the organizational constructs revealed by the causal mapping method. This table facilitates making connections across the skills, the organizational

success factors, the key learning processes, and the levels at which the learning takes place. For example, the organizational construct, commercial success, in the second column, involves individual intuiting to develop effective communication skills and charisma when dealing with clients; these skills and knowledge can then be interpreted in small groups and/or informal interactions (i.e. articulated and discussed), before being integrated (i.e. developed into coordinated and coherent actions), and then finally institutionalized (i.e. implemented into the company structures and policies). Although Crossan et al. argue that intuiting is purely individual versus institutionalization which is purely collective, they posit overlap between the processes of interpreting and integrating. This suggests, for example, that the interpreting processes for commercial success, which involve discussing effective practices among colleagues, and listening to the client, would be hard to separate, in reality, from the integrating processes of developing a sales strategy and building sales teams.

Company leaders would also do well to consider the implications of Lawrence et al. (2005) who assert that Crossan et al.'s 4I framework (1999), while successfully identifying learning processes, does not sufficiently account for why some useful innovations are adopted enthusiastically by organizations while others are not. According to these scholars, power plays a key role in explaining this but is absent in the key processes model. In an effort to address this weakness, Lawrence et al. outline political strategies for exercising power which most effectively leverage the four learning processes. They describe two individual strategies which are: influence (persuasion and negotiation), and force (agenda setting, limiting alternatives, firing employees); and they describe two organizational strategies which are: domination (design of material technologies, information systems, and physical layout), or discipline (socialization, training, team-based work).

FIGURE 5
INTEGRATING POLITICAL STRATEGIES INTO THE 4I LEARNING
PROCESSES FRAMEWORK



(Adapted from Lawrence et al., 2005)

Figure 5, above presents, in a circular knowledge cycle, the four learning processes proposed by Crossan et al. (1999) in their 4I framework, and the political strategies proposed by Lawrence et al. (2005). This diagram indicates where, in the cycle, the political strategies could be the most effective at disseminating useful innovations. It has important theoretical and practical implications for how the company's leaders can make sense out of the results of the survey and semi-structured interviews. For instance, Figure 5, implies that, if the company intends to encourage productive innovations on an individual level, discipline would be the most effective political strategy (i.e. investments in training, and in developing good team-work practices). This may appear somewhat counterintuitive because discipline is an organizational political strategy with a collective rather than an individual focus; but Lawrence et al. argue that this strategy will encourage individual employees to identify with the company, and that these employees will then better assimilate the company's expectations. The model also suggests that the interpreting process, where ideas gain acceptance, is difficult to control because it is driven by unique individual abilities, such as charisma, as much as by the formal authority of hierarchical positions. Thus a hands-off approach might be most effective to allow potential intuition to emerge from anyone in the company, not just managers and leaders. Then, however, the model suggests that, in order for the company to effectively integrate new knowledge and innovation into collective action, the leaders may need to back ideas using their formal authority (force). Finally, the model implies that, if the company intends to implement innovations on an institutional level, the most effective political strategy would be to embed them into the organizational structure, policies, floor plan, and/or the technology which employees use.

CONCLUSION

This paper heeds the call of contemporary international business, management and strategy scholars such as Barney and Felin (2013), Coviello, Kano and Liesch (2017), Foss and Lindenberg (2013), Kano and Verbeke (2015), and Van de Ven and Lifschitz (2013) to appraise how micro interactions among individual employees and/or among members of small groups are linked to firm specific advantages and firm-level outcomes. Tacit knowledge may develop out of individual intuitions and may also come from combining explicit knowledge and experience to produce insights which are unique to various entities operating within the larger organization. Tacit knowledge influences how various groups perform their functions thus creating firm-specific elements of competitive advantage. If captured and applied, tacit knowledge can improve teamwork, coordination across organizational units, and promote organizational learning. The application of tacit knowledge to improve firm-level outcomes is made possible by improvements in assessing tacit knowledge.

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