

Problem Solving through the Lenses of Identity, Identification, and Work Groups: A Socio-Cognitive Theory of the Firm

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Strategy management as a phenomenon needs greater integration in order to clarify and progress knowledge development and accumulation (Durand, Grant, and Madsen 2017). In this paper we integrate three canonical pillars of strategy: 1) how firms differ from other firms, 2) why a firm organization differs from a market organization, and 3) the process of strategic decision making. Consistent with others, we view strategic decision making as a problem solving arena in which firms grapple with complex problems and face situations in which goals exist yet the paths that yield an effective solution are indeterminate and not clearly understood, established, or defined. Our first assertion is that the work group is the critical level for problem solving, not the the firm or the individual manager. Our second claim focuses on our socio-cognitive contribution: the social levers of identity and identification are a fundamental design solution when groups are the focal level of analysis for, they align individual and collective interests and cognition, thereby facilitating the work necessary to think about and solve complex problems. Our third claim is that this base model distinguishes firms from each other (e.g., a source of firm differences) as well as firms from hybrid market forms of organization due to: 1) a relational advantage and 2) a cognitive advantage stemming from congruency in organizational and group goal frames. Relational advantages strengthen members' interest in the work group and project at hand, enabling greater levels of knowledge work at individual and group levels. Cognitive advantages occur when organizational and group goal frames are congruent and linked, for when group members' attention is directed by organizational goals, they are primed to think more holistically and thus generate more effective creative solutions. While our model relates to any group charged with problem solving, we envision this model operating: 1) as organizations adapt their businesses processes and products due to changes in the external environment, 2) in sequence with strategic formulation and implementation, 3) for problems that relate to the most important parts of a firm's value chain, and 4) in groups, which may include top managers, R&D specialists, those tasked with business development, or any number of other organizational members.

Problem Solving through the Lens of Identity, Identification, and Work Groups: A Socio-Cognitive Theory of the Firm

Two canonical origins of strategic management inquiry focus on distinguishing a firm organizational form from market governance and distinguishing firms from other firms. These origins took aim at common assumptions in economics, namely that firms are merely a nexus of contracts and that the industry, not the firm, explains variance in firm profitability (Rumelt, Schendal & Teece, 1994). With the development and empirical verification of transaction cost economics, Schumpeterian economics, and behavioral and evolutional theories of the firm, strategic management is no longer questioned as an accepted domain of study, either theoretically or in the classroom. Yet, because the phenomenon of strategy is both dynamic and complex, our theories about why firms differ and whether firms are different than markets must evolve (see also Durand, Grant, Madsen, 2017).

To redirect theorizing regarding these two pillars of strategic management, we add a third: the strategic decision-making process. Consistent with a growing body of research, we view strategic decisions as a problem solving process marked by significant interdependencies among people and organizational processes (Foss, Frederiksen, & Rullani, 2016; Leiblein, Reuer, & Zenger, 2018; Nickerson & Argyres, 2018). Because of this complexity, expertise required to problem solve resides in different people. This represents a significant managerial challenge: how can firms create a problem solving process that reliably aligns individual, group, and firms interests? Can this process then distinguish firm organizations from market organizations? Can this process also distinguish firms from other firms?

Before explaining our problem solving process that addresses these three questions, we want to emphasize the catalyst that primed our thinking: the 21st century is marked not by stability and predictability but by adaptation and turbulence. Over the last 5 to 10 years, we have consistently heard from managers of the seemingly subtle but significant differences in “how the world is changing.” In the language of our textbooks: managers are struggling with strategic fit. Numerous examples exist when we

consider the general and competitive external environment. The values of U.S. millennials are thought to differ from the mindset that is considered characteristic of most baby boomers: acceptance of and obedience to authority. Because millennials increasingly outnumber baby boomers in the workforce, it is important to understand them, how they can be attracted and retained, and whether non-market retention strategies, such as those focused on corporate social responsibility or work-life balance, would be effective. Alternatively, global competition exists in many product markets, which makes it increasingly difficult for companies to realize or sustain a competitive advantage, putting pressure on managers of product categories to continually refresh and modify products, create new products, or rethink their value chain in order to better satisfy customer needs. A third major force of change is technology, which experts predict will continue to modify most companies' value chains as well as introduce wholly new ways of doing things in niche spaces (i.e., new products and entrepreneurship) for the next several decades. A fourth major force of change is political for government policies and directives can have national, international, as well as global impacts. How can managers effectively sift through these complex problem spaces, to determine the 'what and how' of change?

Prior theorizing demonstrates that this space, problem solving, is not easy to navigate. Because complex problems require a broad array of specific knowledge sets, managers do not have the knowledge to solve them and must delegate and rely on those with the requisite diverse yet specific knowledge sets that define the problem space. Complexity increases with the number of interdependencies, and in the context of knowledge, those who possess diverse knowledge sets do not naturally come together and share knowledge even though knowledge set integration (i.e., joint production) can be critical to creating value (e.g., Arrow, 1974). Work in game theory suggests that, even if those possessing diverse knowledge sets were to come together, they would not be prone to cooperation (Axelrod, 1984); additionally, bounded rationality easily constrains effective search which impacts the generation of alternative courses of action triggered by 'problems' and/or unmet expectations (e.g., Simon, 1991). Thus, how can we understand how firms overcome these challenges to solve complex problems?

We build a socio-cognitive theory of the firm in which the work group is the cornerstone of knowledge production, arguing that complex problems require creative solutions and, thus, a group process primed for creativity, and relating two socio-cognitive levers, identity and identification, as mechanisms to motivate and direct a work group tasked with solving a complex problem with a novel and useful solution (i.e., one that serves the group's interests as well as the collective interests of the governing entity). Because group production is notoriously difficult to incentivize, we show how identity and identification are uniquely situated to align self and collective interests. As a theory of the firm and firm differences, we argue that two categories of sources of advantage, relational and cognitive, can moderate how well members and groups work together to create novel and useful-to-the organization solutions.

Our focus on linking identity and identification both extends and challenges prior views on identity, theory of the firm, and knowledge-based views. Kogut and Zander's (1993; 1996: 503) work was foundational and directed our inquiry because of their abstraction envisioning firms as "a social community specializing in the speed and efficiency in the creation and transfer of knowledge." For Kogut and Zander (1996), the employment contract is instrumental in creating the emotive bond of belonging to an organization. Contrary to our focus on complex problem solving as requiring creative solutions and thus an identity primed for creativity, they argue that "identities rule out potentially interesting avenues of innovation and creativity" (pg. 502). The title of this foundational article aptly summarizes their perspective: "What firms do? Coordination, identity and learning."

A second relevant branch of prior research in strategic management focuses on the classification or categories that explain a firm's identity. A firm-level identity is generally viewed as the central, enduring, distinctive characteristics that inform how firms view "what they do" and "who they are" (Albert & Whetton, 1985). This perspective directs attention from economic to cognitive drivers of competitive advantage: "how managers interpret and process information about their own organization, competitors, and the industry" relate to how they formulate and enact competitive actions (Irwin, Lahneman, & Parmigiani, 2018: 270; see also Nadkarni & Barr, 2008, Reger & Huff, 1993). Multiple

cognitive identities exist in organizations (i.e., business, corporate, strategic group, industry) and managers draw on these identities to both formulate and enact product strategy decisions (Irwin et al., 2018). These cognitive identities are not only nested but also linked because organizational goals require internal coherence (Ashforth, Rogers, & Corely, 2011). Prior conceptualization also suggests that an organizational identity may represent a core competence when the firm is able to define its identity, who it is and how it competes, through a distinct position and approach (Barney & Stewart, 2002). Using Koch Industries as one example, Barney and Stewart (2002) show how an organizational identity can take the form of a cognitive and normative schema, becoming a dominant logic that is widely shared among employees, and resulting in more effective strategic decisions.

We build on this literature in two ways. First, we emphasize a particular characteristic, creativity (see Anderson, Potočnik, & Zhou, 2014, George, 2007, Hennessey & Amabile, 2010 for recent reviews), as a necessary part of the identity of a group tasked with solving complex problems. Second, we argue that organizational identity directs member and group attention toward organizational goals and forms the basis of the overarching frame that directs attention toward a more effective solution set to the complex problem. Prior research supports our contention that a more dynamic process model of organizational identification and identity may result in better problem solving (Gioia, Schultz, & Corley, 2000; Jalonen, Schildt, & Vaara, 2018; Schilke, 2018). In our conceptual model, we further argue that managers are a critical factor in the formation of a work group's identity. Managers play a central role in both reinforcing the significance and importance of the group's work and in orienting the group toward thinking differently to solve the complex problem. As Schilke (2018: 1451) suggests, managers that "steer identity salience and content" are likely to benefit when conformity is not the best strategic response. We view identity as representing a language for communicating current strategic concepts and for creating new ones (see Jalonen et al., 2018 for example).

In the following sections, we begin with a critique of the existing solutions to self-interest and collective action and argue that further extensions of the knowledge-based view are necessary to reconcile how the firm organizational form compares to hybrid market forms in solving complex problems. We

introduce a necessary correlate to complex problem solving, creativity, and explain how firms can strengthen a work group identity and member identification in a way that enables greater creativity. We further offer a process that can explain how and why firm differences might arise from relational and cognitive advantages in solving complex problems. Our extension and central challenge is to find a process-based solution that more reliably aligns individual and collective interests in the context of complex problem solving.

GROUP IDENTITY AND IDENTIFICATION AS IMPORTANT LEVERS FOR BRIDGING SELF AND COLLECTIVE INTERESTS AND ACTION

Motivating and coordinating knowledge sharing and integration among individuals to achieve joint production underlies many strategic activities, from new and improved processes and products to corporate-level initiatives that chart a firm's strategic direction. According to the knowledge-based view, sharing, transferring, and integrating knowledge sources are fundamental to firm growth, productivity, and competitive advantage (Argote, 2012; Conner & Prahalad, 1996; Grant, 1996). Yet, significant challenges exist, especially as problems and the requisite knowledge sources become more complex – diverse knowledge sets, bounded rationality, and economic self-interest can easily undermine effective knowledge sharing, transfer, and integration (e.g., Simon, 1991). In this section, we review the challenges that arise when groups are formed to solve complex problems and explain why authority, formal incentives, and organizational identity are insufficient to consistently facilitate joint production.

Existing Solutions to Self-Interest and Collective Action

The primary design challenge for complex tasks is to find levers that will positively and reliably motivate cooperation towards a collective problem. Strategists generally consider the formal distinctions of markets and hierarchies as the critical design factors surrounding knowledge production and problem solving (Dosi, Levinthal, & Marengo, 2003), embracing three core concepts: asset ownership, authority, and incentives (e.g., Hennart, 1993, Libeskind, 1996, Makadok & Coff, 2009, Nickerson & Zenger, 2004). Organizational economics and knowledge-based views are early responses to questions about how

to manage knowledge production.

Organizational economics emphasizes how *governance* choices influence the *costs* of joint production, answering the question of why firms are different from market forms of organization in a succinct fashion: because firms own their assets, this form of organization is uniquely situated to not only protect but to efficiently direct joint production through authority. Thus, firm ownership, or hierarchy, is a fundamental boundary when modeling the costs of knowledge production (Williamson, 1996). Simply put, organizational economics views hierarchy as more efficient (less costly) than hybrid market forms of organization, such as alliances, joint ventures, and long-term trading relationships when the tradeable assets are knowledge-based (Chi & Seth, 2009; Poppo & Zenger, 1998).

More generally, transaction cost economics is based on a discriminating alignment hypothesis in which managers seek to maximize performance and minimize costs by aligning transactions, which differ in their attributes or characteristics, with governance structures, which differ in their costs and adaptive capacities. In this way, managers align incentives within a firm through ownership (Williamson, 1996). Additional advantages of firm organization include selective intervention, fiat, and monitoring. Formal authority and fiat allow managers to redirect and/or resolve disputes without having to negotiate or renegotiate processes as they would in an inter-organizational exchange (Williamson, 1996). This reduces transactions costs and facilitate adaptation relative to market hybrids. In addition, because of formal authority, managers can monitor activities, establishing a level of transparency that market hybrids lack. This allows managers to problem solve with more complete (i.e., valid) information.

Another early response to how to manage knowledge production were knowledge-based perspectives that challenge the above governance logic by removing opportunism as a motive for internalizing production of knowledge assets. Instead, they advance firm-level characteristics to explain why firms better coordinate knowledge production through the unique firm lever of authority, arguing that authority enables efficiencies in knowledge management by directing the use of knowledge, blending it, and adapting it to incorporate learning or unexpected developments (Conner & Prahalad, 1996) and may serve as the microfoundation for capability development (Gavetti, 2005). A second knowledge-based

explanation examines the virtues of firm ownership in knowledge production, emphasizing the firm advantage of shared language and common knowledge in knowledge production that hybrid market forms of organization lack (Grant, 1996). As discussed earlier, a third advantage of knowledge production within a firm is the potential for organizational identity to encourage the formation of a social community that creates efficiencies in knowledge transfer (Kogut & Zander, 1996).

Limitations to Existing Solutions to Self-Interest and Collective Action

While we acknowledge the above benefits and distinctions of organizing knowledge production within a firm, they are incomplete explanations of a process that can more reliably align individual and collective interests. While each factor can remove or decrease some obstacles or hazards, their effects are indirect and therefore second-best solutions: they do not unequivocally connect individual self-interest with the larger interest of the group or firm. For example, by removing authority and invoking low-powered incentives, employees with relevant knowledge and skill sets are empowered to make decisions and *may* choose to exert effort toward sharing and integrating new knowledge when performing an activity. By owning assets, obstacles such as misappropriation of quasi-rents and hoarding of knowledge are weakened, but ownership does not in and of itself *augment* cooperative problem-solving (Milgrom & Roberts, 1988). Similarly, by measuring easy-to-monitor tasks, managers *may* reduce effort in synergistic but hard-to-measure tasks (Makadok & Coff, 2009; Nickerson & Zenger, 2004). Because self-interest in these cases is not fully aligned with group interests, there is still substantial potential for employees to act in ways that are not desirable from a group perspective.

Consistent with this logic, Nickerson and Zenger (2004: 9) counter that the utility of authority is limited: “[a]s problems become more complex and nondecomposable, the cognitive limits of managers to develop useful search heuristics, combined with a manager’s propensity to meddle, contaminates the efficiency of search.” Rather, coordination should be necessarily pooled because the complex, nondecomposable tasks at hand are highly interdependent, requiring extensive interaction among employees in their quest to develop applicable heuristics to solve the problem. Thus, they argue that for

complex problems, consensus among employees best supports search and the formulation of heuristics to guide solutions.

Shared language and common knowledge are also too diffuse to explain why firms better coordinate knowledge production. By their nature, the diverse skills and expertise that are required to solve complex problems can undermine the level of collective effort. Specialization of knowledge typically involves specialization of language (Baer, Dirks, & Nickerson, 2013; Kogut & Zander, 1996) and cognitive frames (Foss & Weber, 2016), creating and emphasizing communication and comprehension barriers. Furthermore, expertise is linked to social categorization based on the member's specialty, and individuals are motivated to prefer and engage more with others with whom they have common social categories, exhibiting higher levels of within-category communication, understanding, and cooperation and higher levels of extra-category bias that negatively affect collective performance (e.g., Van der Vegt & Bunderson, 2005).

Most applicable to our extension of the knowledge-based view is Kogut and Zander's (1996) description of how a shared firm identity fosters convergent expectations among employees, thereby enabling coordination and communication. Similar to Nickerson and Zenger (2004), Kogut and Zander describe consensus produced by these convergent expectations as important to knowledge production but view the mechanism for consensus as shared language, agreed-upon communication channels, and overarching organizational principles. The problem with such an aggregate level of identity is that when sub-groups (e.g., divisions, departments, work groups) share a common superordinate identity (e.g., firm), this shared superordinate identity in and of itself does not necessarily foster a preference to work with one another. Lawler and Yoon (1996) demonstrate this result through a series of behavioral experiments, and across different network structures, they consistently find that a common superordinate identity does not produce a preference for greater engagement (transactions) with the internal unit. Thus, the problem solving advantages of consensus provided by a superordinate identity (i.e., Kogut & Zander, 1996; Simon, 1997) cannot be fully realized at the sub-group level, as group members do not necessarily have an affinity to work together even though they belong to the same organization. We recognize and accept

these views that convergent expectations and heuristics are important to how groups solve complex problems, and our model highlights and extends this process as conditioned and influenced by group- and firm-level identities and goals.

A second limit of knowledge-based extensions of a theory of the firm is the logic restricted the concept of organizational identity to exist only for a firm. Social communities and identification are not unique to firm organizations but can occur with any kind of social group or organizational form (Ashforth & Mael, 1989; Grandori & Kogut, 2002). Well-established in the strategic management literature is that hybrid market forms (i.e., alliances) create social communities that share important sources of new ideas and information (Dyer & Singh, 1998; Inkpen, 2000), which may constitute a unique and productive resource for value creation and synergistic outcomes (Madhok & Tallman, 1998). That is, partners may “invest” in knowledge-sharing routines by establishing shared goals and values as well as committing specific individuals to frequent interactions, meetings, and problem-solving activities (Kale, Dyer, & Singh, 2002). These works suggest that firm ownership may not be a necessary boundary condition for achieving knowledge production.

Simply put, motivating individuals to effectively engage and cooperate in highly interdependent tasks is difficult because it requires interactions among people, tasks, and tools (Argote & Ingram, 2000), direction regarding search, yet, ideally, limited authority (Nickerson & Zenger, 2004; Shalley, Zhou, & Oldham, 2004). Indeed, solving complex problems that truly have the potential to create firm advantages often requires the coordination of diverse knowledge sets (i.e., expertise) and a high level of interaction among individuals with diverse knowledge. Consistent with this, Simon (1991: 33) argues that “intense interdependence is precisely what makes it advantageous to organize people instead of depending wholly on market transactions.” Yet, a challenge remains: how do you motivate and direct effort toward this task?

Undermining the desired collective effort is the self-interest of individuals with specialized knowledge who have a natural monopoly position and may exercise opportunistic bargaining by hoarding their knowledge, withholding effort, leaving the organization, or directing the search process toward the

use of their knowledge rather than recombining it with other knowledge sets or searching for new knowledge (Nickerson & Zenger, 2004). Others similarly argue that creating incentives that overcome self-interest and motivate this type of collective effort is challenging. For example, measuring an individual's contribution to the joint task is difficult because individual contributions are complementary and intertwined (Makadok & Coff, 2009). Additionally, the diverse knowledge sets among employees make it harder for peers to assess one another's contributions, both in terms of quality and quantity. Because of the potential for strategic misrepresentation (e.g., self-report) or noise in observing one another's efforts, such incentives can derail employee motivation in joint production. Additionally, absent strong, group-based incentives, inter-role conflict may also undermine effort put toward the collective task. When individuals engage in a joint task, they often face the tradeoff of time spent on one's self (individual role) versus time spent on the collective task (collective role). When role identity is most salient, conflict will occur as individuals prioritize the individual role as more salient and critical than the collective role, thereby participating less in the collective effort (Ashforth & Mael, 1989).

Firm Differences in Problem Solving

Why firms have differences is a central foundation of strategic management, distinguishing the field of strategy from economics (Rumelt et al., 1994). While most agree that these differences originate because decision rules, resources, and capabilities are idiosyncratic to firms and are path dependent, the emphasis on what constitutes advantage differs. The classic view of advantage, characteristically conveyed in strategic management textbooks, emphasizes sources of resources and capabilities and the ease of copying, imitating, or trumping them through a strategic equivalent (Barney, 1996). For others, however, the static framework is inherently limited and shortsighted for, if rent-producing strategies attract imitation, they cannot be a sustainable source of rents. As an alternative, Schumpeterian economics emphasize creative destruction, making salient that idea that better questions to advantage may be based on dynamic junctures (Schumpeter, 1934). This leads evolutionary theories of the firm to emphasize routines as the key catalyst for change and the source of a dynamic capability: "successful firms can be understood in terms of a hierarchy of practiced organizational routines" which is "the key building block

under our concept of core organizational capabilities" (Nelson, 1994: 260). For some, the capabilities underlying innovative responses to technological change define firm heterogeneity and advantage (Henderson & Clark, 1990; McGahan, 2004). Others focus on the classification of firms in an industry into different types, de novo entrants (truly new firms) or diversified entrants, to explore capability differences in survival, growth, and performance (Cantner, Kruger, & Rhein, 2009; Carroll, Bigelow, Seidel, & Tsai, 1996; Chen, Williams, & Agarwal, 2012; Ganco & Agarwal, 2009).

Our theory, however, extends an under-researched alternative posited by Williams (1994): adaptive search by managers explains why firms differ. Similar to decision-making models present in the literature at the time, Williams proposes that problemistic search is driven by differences in expectations: when managers find that a project's value is either not understood, misrepresented, or not justified using traditional financial analysis firms, firms execute search to develop clarity. Yet, because the search patterns differ, "no two strategists will identify the same array of options for the firm" (Williams, 1994: 237), and firm differences evolve over time. Uncertainty is a critical assumption of this dynamic foundation because executives' expectations of the project value will constantly change due to competitors' search for rents, development of capabilities, and execution of strategies, driving adaptive search. While our model builds on this proposition, it differs in two important ways. First, Williams argues that decision-making and search are goal-focused responses to changes in the competitive environment that impact rents from capabilities; we focus on situations in which the external environment is changing, threatening a firm's fit and forcing the firm must adapt to achieve its goal though the path forward is indeterminate. Second, for Williams, the single manager searches for solutions, but for us, complex problems require a group, not a single manager, to create an effective solution. By recognizing that the group, not the individual, creates solutions to complex problems, our model addresses organizational and socio-cognitive processes that enable rather than disable problem solving. Thus, while Williams assumes capabilities distinguish firms due to idiosyncratic search and path dependencies, our process model may represent a problem solving capability which, if manifested as a routine, enables some firms to better solve complex problems than other organizational forms.

SOCIO-COGNITIVE FOUNDATIONS OF COMPLEX PROBLEM SOLVING

The idea that strategic management theory still needs greater reformulation of its socio-cognitive underpinnings is not new. Take for example:

“The assumption that firm heterogeneity stems from economic barriers does not align with what we know about human cognition, emotions, learning, social interactions and institutions. Until theories of firm heterogeneity fully incorporate psychology, the empirical facts will continue to frustrate our attempts to explain them, and researchers will find it impossible to integrate theory with strategy practice” (Powell, Lovallo, & Fox, 2011: 1377).

Similarly, the theory of the firm is restricted by treating an organization as monolithic entity and suffers by not considering how people intentionally make choices and behave. There are certainly notable efforts to integrate the macro-micro divide. King and colleagues (2010) argue that an organization is a social actor that acts intentionally, is influenced by external stakeholders, and fundamentally gains coherence through identity and goals. Others frame strategic decisions as complex judgments and call attention to two fundamental challenges: 1) the cognitive processes underlying judgment, which are often plagued by mental error, faulty attentional and decision processes, and the parallel track of a solution in the form of an architecture that can produce better judgment (e.g., Levinthal, 2011; Powell et al., 2011), and 2) motivational challenges, for self-interest often undermines collective effort, and the parallel track of incentive-alignment solutions (Makadok & Coff, 2009). Our unique contribution is pairing identity and identification at organizational and work group levels, and the specification of two sets of factors that may account for firm advantages over other firms as well as quasi-market forms of organization: social factors which influence the strength of member attachment to the more proximal entity, the group, and cognitive factors, specifically congruent goals, which enable groups to create more effective solutions to complex problems.

Our Conceptual Building Blocks

Human beings are motivated to reduce uncertainty associated with their environment. One way in which we do this is to find a basis of similarity with a part(s) of the social environment. For many, this social psychological process is largely automatic – when we enter a new space, we look to see if there are

others that are like us. As we scan this space, finding and then grouping ourselves with others that share a social membership reduces uncertainty triggered by the social environment. Relatedly, as we introduce ourselves to others in a new social environment, we are likely to describe ourselves in terms of the social groups we belong to or “identify” with or perceive ourselves as belonging to (Ashforth & Mael, 1989) such as our age, profession, religion, marital status, or parental status.

Our human focus on identity and identification naturally extends to the workplace where various groups have members with shared, central, and enduring characteristics that characterize the identity of those groups and make them targets for identification (Albert & Whetton, 1985). Employees identify with the firm they work for, the department they are part of, and the profession that defines their expertise and skills when they consider themselves to be a part of those groups and their membership in those groups to be an important part of their personal identity (Ashforth & Mael, 1989; Gioia & Thomas, 1996; Whetten, 2006). As a process, identification occurs as an individual explores his or her self-concept or seeks to answer the question “Who am I?” (Ashforth & Mael, 1989: 21). Because identity informs individuals’ sense of self and subsequent behaviors, identification “is at the core of why [people] approach their work the way they do and why they interact with others the way they do during that work” (Ashforth, Harrison, & Corley, 2008: 334).

Drawing on this literature, we showcase the socio-cognitive mechanism of identification, for it is uniquely suited to motivate and coordinate joint production: when an individual identifies with their work group, the strength of their identification with the work group will trigger behaviors that enable the individual and the group to effectively problem solve. That is, work group identity and identification are social levers that, by definition, create a collective orientation that aligns self-interest, enabling effective and creative problem solving (See Figure 1). While the literature provides insights on the importance of members’ propensity for identification with collectives, our review of the literature indicates that little is known about how a collective identity is formed at the work group level (Poppo, Schloemer, & Rogers, In Press). This begs the question, how can a work group identity be formed, serve as an attractive target of identification for members, and prime the group for collaborative problem solving and knowledge

creation? We thus begin this section by describing autonomous group formation processes and how such processes may construct a strong group identity and cue and prepare a group for creativity.

Next, we argue that firms (i.e., a simple hierarchy) possess a distinct relational advantage over market hybrids in this process. Every firm can be viewed as a social category such that members identify with their place of employment. This organizational identity can then positively moderate the strength of the work group identity that results from group formation processes in the following ways: by increasing (1) the perceived salience of the work group as a proximal target over more distal identification targets, (2) the group's ability to meet members' needs for belonging , and (3) the perceived status of the work group. Each of these firm advantages strengthens and directs effective problem solving in the work group. As a result, these socio-cognitive foundations of complex problem solving view the challenges of organization (i.e., bounded rationality, coordinating interdependent knowledge sets, cooperation, and adaptation) as a forum in which organizational identity and member identification with the work group become the basis of a firm advantage over market hybrids. To further elucidate our logic, we also examine how the salience of the work group as an identification target, the ability of the work group to satisfy members' needs for belonging, and the perceived status of the work group are likely to vary within different hybrid organizational forms.

Then, we examine the effects of identity and identification on creativity. Substantial work in the organizational behavior literature around creativity and innovation has resulted in the development of a broad understanding of the individual, group, organizational, and contextual factors that affect creativity and innovation at the individual, group, and organizational levels (see Anderson et al., 2014, Garud, Tuertscher, & Van de Ven, 2013, George, 2007, and Hennessey & Amabile, 2010 for recent reviews). This literature finds its multilevel roots in the componential model of creativity (Amabile, 1988), which suggests that the factors that affect creativity and innovation are inherently multilevel and multifaceted. According to this model, individuals and groups must possess domain-relevant skills (i.e., subject matter expertise, knowledge diversity), creativity-relevant skills (e.g., cognitive flexibility, risk orientation), and intrinsic task motivation to be creative, and these factors must be met with organizational resources,

techniques, and motivation to produce innovation. Significant additional work has provided increased nuance and contextualization of this model.

Inherent to this literature is the assumption that any individual or group can be creative under the right circumstance and that an individual's ability to contribute to the creative mission of a job or organization is not bounded by their job title. The organizational behavior and psychology literatures view creativity as a highly contextualized phenomena, as is evidenced in the dominant method of measuring idea creativity: the Consensual Assessment Technique (Amabile, 1996; Baer, Kaufman & Gentile, 2004). In this method, multiple assessors with some level of subject matter expertise in the focal context are asked to independently rate a produced idea on its "creativity," allowing the assessors to interpret the meaning of "creativity" based on their own experience with the context and using the existence of multiple-raters to control for the error inherent to this subjective measurement. This measurement approach allows the meaning of creativity to become highly contextualized and allows for creative potential in all situations: artists, scientists, and engineers can be creative but so too can bank tellers, garbage collectors, and factory workers so long as the meaning of creativity is suitably contextualized.

The focal outcome of research on creativity is typically creativity itself, rather than organizational outcomes. Though the link between creativity and organizational outcomes like firm performance is generally assumed to be positive, work suggests that these relationships may be weaker and/or more complex than assumed (e.g., Boso et al., 2017; Gong, Zhou, & Chang, 2013; Khedhaouria, Gurău, & Torrès, 2015). Because the focal outcome of the creativity literature is the phenomena itself rather than what creativity enables a firm to do, there is limited linkage between creativity and strategic decision-making.

We view creativity as the root of complex problem solving, as generating new knowledge requires novel insight. Creative thought, by definition, considers and evaluates new ideas (Amabile, Barsade, Mueller, & Staw, 2005), yet this aspect of knowledge generation is surprisingly lacking in the problem solving literature. We view individual creativity as a principal driver of problem solving, and the

challenge is that individual creativity can easily be derailed by fears, upon reflection, that the idea is not really a good one (Edmondson & Mogelof, 2006). This is not surprising since creating new solutions for complex problems is hard – many ideas will not move the needle regarding usefulness or novelty. We argue that a strong member identification with the work group identity enables creative discourse by fostering positive affect and psychological safety. A strong work group identity also provides direction for member creativity through the alignment of goals, prompting of creativity and direction of attention toward problem solving efforts.

Creativity and the knowledge work necessary to engage in effective complex problem solving both require cooperative behaviors. We argue that identification encourages the requisite collective-other behaviors and encourages knowledge work more directly. To fully foster effective problem solving, it is necessary that problem solutions are not only generated but also implemented, and we argue that identification with the collective promotes the implementation of collectively generated problem solutions due to increased member ownership of the solutions and the potential for group successes to satisfy members' self-enhancement motives. We further argue for a firm cognitive advantage in generating effective work group solutions: armed with a common organizational identity, members share a collective goal frame. By drawing attention to these firm-level strategic goals, expectations converge, and work group members are more likely to devise a solution that is not only creative, but also effective. That is, members' sensemaking of the organization's identity – its strategic purpose, including how its mission, goals, and relevant activities create value through its key services/products – provides an overarching frame that defines how a creative solution must also create value for the organization. We argue that in the firm context as opposed to the hybrid market context, group members generate more valuable solutions because, when the work group identity is nested within the organizational identity, members attend to organizational goals as they form solutions.

Insert Figure 1 about here

Our Boundary Conditions

As we develop our conceptual model, we wish to acknowledge several boundary conditions.

First, our model focuses on the formation of new teams in organizations that are tasked with solving complex problems, as complex problems require interdisciplinary collaborations, or, more simply, an array of diverse knowledge sets. These teams could be composed of top managers, R&D specialists, those tasked with business development, or any number of other organizational members. We assume that each member of the group has unique expertise or knowledge pertaining to the problem at hand, creating moderate diversity of expertise at the group level (Grant, 1996), as identity is most effective at fostering knowledge sharing and integration for moderately diverse knowledge sets (Van der Vegt & Bunderson, 2005). We assume that, with some cognitive effort, group members can define and elaborate on some of the knowledge sets associated with the problem, which they either possess or can access through search. Following the terminology of Nickerson and Zenger (2004), the group's focal problem is characterized on the continuum between nearly decomposable and not decomposable; it requires a moderate to high level of interaction among knowledge sets in which some of the knowledge sets are known *ex ante*, but others are recognized during the process of search and knowledge sharing. It requires some level of directional search, as leaders must validate and endorse the problem space as well as the allocation of resources.

Finally, we view the solution or solution set as emerging from a creative process in which its effectiveness is in part a function of the group's attention to translating relevant characteristics of the organizational identity, specifically goals and/or drivers of value creation, from the organizational level to the project level. We introduce the concept of a cognitive goal frame to describe this advantage for organizational identity in the firm context. We further note that this concept is not necessarily inconsistent with Nickerson and Zenger's (2004: 5) use of the term "heuristics," defined as "simplified representations of the solution set." We simply highlight that organizational-level cognitive goal frames are critical in creating solution sets that will be judged as valuable.

As stated above, we assume complex problems of this kind require a creative solution, where creativity is defined as "the production of novel, useful ideas or problem solutions" (Amabile et al., 2005: 368). This common definition of creativity implies that creative solutions are inherently effective (i.e.,

useful) and includes the process of generating ideas as well as the outcome: a novel and useful solution (Amabile et al., 2005; Anderson et al., 2014). In strategic management, useful solutions must create value – either by making processes more efficient, thereby reducing costs, or by adding, extending, or modifying products or services which consumers value and thus are willing to pay for. However for our purposes, the exact way or the dimensions that make the solution useful and valuable are not presently known and must be created and/or discovered by the group. The assumption is consistent with popularized practice of ‘design thinking’ in which general objectives defining value can be specified, but the way in which the solution achieves value is presently unsolvable, and thus requires creativity (Liedtka, Ogilvie, & Brozenske, 2014).

The problem space that defines the work group must be viewed worthy of dedicating resources – that is, authority must be willing to allocate resources toward investigating the problem space and solutions. We further assume that the teams have an innovative purpose and are tasked with being part of its implementation (Anderson et al., 2014; George, 2007), remaining together for the duration of creative problem-solving and implementation of the solution. In addition, there is some oversight of the group, but it takes the form of updates to upper management regarding its current progress, issues, and challenges. Accordingly, one identity of interest is at this work group level, and we follow the view of collective identity in organizations as socially constructed and largely residing in the perceptions of members (e.g., Corley & Gioia, 2004; Dutton & Dukerich, 1991; Ravasi & Schultz, 2006). The second identity of interest is the organizational identity. We assume that members identify with their organization in the firm context, such that they belong to it, derive positive status from it, and at a cognitive level, understand the various components of its strategy, especially the facets that enable value-creation or advantage in the market place. We refer to this aspect of identity as a cognitive goal frame.

Priming for Creativity in Groups

Complex problems by definition are messy, characterized by indeterminate solutions that take shape through the sharing, assimilation, and integration of moderately diverse knowledge sets. In order to best support problem solving of this kind, creativity must be a central characteristic of a complex problem

solving group, shared by members as part of their self-definition as well as part of the collective work group purpose. Our focus in this section is how to prime members and the work group to view their work as a creative act. That is, creativity must be central as they develop who they are, their shared meaning, purpose, mission, and end-results (goals) so they are prepared for and prompted to engage in creative problem solving.

Pratt (2003: 168-169), following Albert and Whetten's (1985) definition, describes a collective identity as "those characteristics that members feel are central, enduring, and distinctive." Implicit in this conceptualization is the notion of shared, and at least somewhat overlapping, beliefs about the group. When members so deeply share an identity, they are said to identify with the group (Ashforth & Mael, 1989). When an individual identifies with a collective, his or her self-concept expands to include this larger group; the collective becomes part of the self, and the individual at least partially defines him or herself as a part of the collective, allowing the collective to help the individual answer the question "Who am I?" (Ashforth & Mael, 1989: 21). The extent of identification with a collective has a significant impact on individuals' behaviors and self-concepts, making identification a core factor in how individuals go about their work and approach their work relationships (Ashforth et al., 2008).

Autonomy in Purpose, Mission, and Goals. In order to create common beliefs and meanings that define "who we are" as a group, members must understand the collective's purpose, mission, and goals with a particular focus on the complex problem and the interdependencies that unite the group. Common to both social identity theory and perspectives on creativity is that autonomy and autonomous motivation can lead to behaviors that facilitate complex problem solving (Rousseau, 1998; De Dreu & Nauta, 2009; Hennessey & Amabile, 2010). At an individual level of analysis, autonomy is a well-accepted determinant of creativity. Hennessey and Amabile (2010: 584) explain:

"Autonomy in work, leading employees to feel a degree of empowerment, has long been postulated as an important feature of work environment fostering creativity. The theoretical argument is that to the extent that employees feel a degree of ownership in and control over their work, they will be more intrinsically motivated and thus more likely to fully engage their cognitive processes in solving problems in the work."

We assert that, at the group level, autonomy is also critical in collective determination of the group's

meaning, purpose, and goals, for, if individuals do not perceive ownership and control, they will not be primed for creative work (Rousseau, 1998). Given that members are likely to come from different functional backgrounds, the shared construction and resulting shared perception of goals, purpose, and mission are likely necessary to create the commonality and perceived similarity between group members that strengthen members' understanding of "who we are" – their identity – as a distinct entity (cf. Dawes, Van de Kragt, & Orbell, 1988) and the extent to which members identify with the group by incorporating this shared identity into their own identity (Ashforth & Mael, 1989).

We also see the groups' determination of goals that explicitly incorporate creativity as important to the formation process. Research shows that the focus of stated goals must effectively prime members for creative problem solving. Shalley (2008) suggests in her review of this literature that if managers desire creative activity and outcomes, they should set creative goals or creative job requirements to ensure that the work context is supportive of creativity. Consistent with this logic, research shows that most employees can readily recognize and acknowledge whether creativity is part of their job (Shalley, Gilson, & Blume, 2000), and such creative role requirements encourage creative performance (Unsworth, Wall, & Carter, 2005). The implication is that employees are more likely to engage in creativity if they are assured that this is part of their job. Thus, explicitly discussing and agreeing upon goals and including creativity in those goals will incorporate creative problem solving into the members' shared perceptions of what is central, distinctive, and enduring about "us" as a group.

A critical part of these interactions is a forum for beginning to legitimate a process in which "no one knows" the right answer, let alone how all the pieces of knowledge will come together to form a solution. These impromptu remarks reinforce the meaning of a creative process, and how the nature of working together will be different than in situations focused on the execution of well-defined tasks that require interdependence. Members may share prior experiences of work characterized by complex problems and others may discuss and share processes to facilitate the education of one another, all encouraging a mutual openness to learning, "not knowing," and creating. In this way, as members share information, interpret past events, and converge on the meaning of the new group, they are creating a

blueprint or cognitive frame that will influence and direct subsequent behaviors and decision-making (Santos & Eisenhardt, 2005).

Spontaneous Communication. Identity formation is thought to largely take place through conversations between members (Narayanan, Zane, & Kemmerer, 2011). Thus, an additional behavior that may further assist identity formation is spontaneous communication – informal, unplanned interactions that often simultaneously occur among individuals as they jointly process the meaning and purpose of the group. Prior work suggests that informal, unplanned conversations often spill into task-related conversations increase awareness of others' moods (Olson, Teasley, Covi, & Olson, 2002) and strengthen connectedness and community (Sarbaugh-Thompson & Feldman, 1998). Such spontaneous conversations are positively related to a shared identity (Hinds & Mortensen, 2005). We believe a critical facet of unplanned conversation is members' sharing of themselves, especially when meaningful identities separate from group life are discussed (e.g., as a parent, member of a church). Group members' awareness of such other identities may prime greater attachment for individuals as they prefer consistent and convergent identities (e.g., Ashforth & Mael, 1989). Thus, spontaneous communication may facilitate perceptions of connectedness, a shared community, and a strong collective identity as well as member identification with the group identity.

Effects of Priming and Autonomous Formation Processes on Group Identity and Member Identification. We argue that identity strength, the perception that individuals form a coherent group (Campbell, 1958), is facilitated by group formation processes in general and a shared formation of purpose, mission and goals as well as frequent spontaneous communication specifically. Identity strength is largely determined by the extent to which the identity – what is central, distinctive, and enduring about the group – is shared by members (Kreiner & Ashforth, 2004). Driving identification is the assumption that individuals have fundamental needs, such as self-esteem, achievement, and a feeling of belonging to others, and thus seek to understand and perceive themselves by locating and comparing themselves within the larger social structure or environment (e.g., Ashforth & Mael, 1989; Rousseau, 1998). Motivating the self-definition process is the attempt to reduce subjective uncertainty “about one’s perceptions, attitudes,

feelings, and behaviors and ultimately, one's self-concept and place within the social world" (Hogg & Terry, 2000:124). The result of this formation process is a strong, shared identity (i.e., one with which members identify), a cognitive representation or belief that occurs when a person forms a connection with a group represented in the larger social structure. As a cognitive state, identification is distinct from and more fundamental than a specific behavior or a particular motivation and thus can influence behavior and motivation toward satisfying the collective goals, values, and ambitions (Ashforth et al., 2008; Rousseau, 1998). In sum:

Proposition 1: Priming for creativity and autonomous formation processes positively affect the strength of group identity and promote high member identification with the work group.

Relational Sources of Comparative Advantage

Research in organizational behavior commonly points to three additional factors that further influence the strength of a work group identity: its salience, ability to satisfy need for belonging, and ability to provide opportunities for self-enhancement. This literature also argues that employees generally view their multiple identities within a firm as nested and convergent when the firm is operating in a relatively stable as opposed to a dynamic, transitional environment (Ashforth et al., 2011). Thus, while we view a complex problem solving requiring firms to adapt to the external environment, our focus is on incremental changes, not radical changes which redefine the structure, goals, normative frameworks that underlie how social actors relate to the organization. We use these assumptions as a basis to argue that organizations are uniquely situated to further strengthen and influence the direction of the work group identity.

Superordinate Identities & Salience. Though identification with salient and structurally proximal groups (e.g., group, family, function) is generally stronger than identification with less salient or more distal groups (e.g., organization, nation; Ashforth et al., 2008; Ashforth & Rogers, 2012; Ellemers, De Gilder, & Haslam, 2004), identifications with organizational targets (e.g., organization, work group) provide identities that are commonly nested (Ashforth et al., 2011), and "these identities and identifications are likely to both converge and combine to some degree such that they become a loose

gestalt" (Ashforth et al., 2008: 359). We extend this logic to firms and hybrid markets. Because members within a firm share both a common superordinate identity as well as work group identity, this convergence will cause them to automatically process the work group identity as more salient and thus direct more attention and meaning to their membership and their identification with this work group.

For market-hybrids, however, there is no central, shared superordinate identity among group members. As a result, there is no boost to the strength of a work group identity and member identification provided by nesting identifications. The dominant dynamic reported in alliances is the vacillation between cooperation and competition (Ring & Van de Ven, 1994; Zajac & Olsen, 1993): the coordination and cooperation necessary to create value exist in a context of competitive self-interest where alliance members maintain a concern for individualized value creation and capture even when the alliance relationship is characterized by a high level of cooperation. We argue that the existence of such competing identities in hybrid market organizations undermines group cohesion and can be played out in a number of different ways as groups fracture along "faultlines" and experience intragroup conflict as sub-groups formed based on various attributes (Lau & Murningham, 1998) become salient identification targets. For example, lacking a superordinate identity, group members in a hybrid market organization may favor a sub-group identity that is based around their nationality (e.g., Italian vs. British) particularly if this national identity also corresponds to the host-country of each parent company. This type of in-group/out-group dynamic within a work group undermines cohesion by causing communication and coordination difficulties as one member (British) finds fault with the type of engagement of the other (Italian) and justifies the conflict because of the sub-group difference (see for example Salk & Shenkar, 2001). Similar conflicts may arise due to group members' strong identifications with their parent company organizational identity, their professional identity, or any number of other labels. Previous work suggests that groups are more likely to fracture along faultlines when individuals consider themselves "delegates" from external entities (i.e., identify more strongly with a sub-group identity; Li & Hambrick, 2005: 794). Fractured groups are less able to benefit from communication (Lau & Murningham, 2005) and have less effective group processes (Hackman & Morris, 1975), and at an intra-firm-level, faultlines have

been linked to alliance dissolution (Heidl, Steensma, & Phelps, 2014). The lack of a superordinate identity allows faultlines to weaken the strength of the workgroup identity in hybrid market organizations, compromising complex problem-solving performance.

Consistent with this logic, work shows that a superordinate identity serves to mitigate the differences, biases, and conflicts among *competing* subunits (Van Der Vegt & Bunderson, 2005). A set of experiments further illustrates this effect: competition among units coupled with no common organizational identification (e.g., market exchanges) produces dramatically different exchange behavior from that which occurs under a common firm-level identification (Lawler & Yoon, 1998). For market transactions (e.g., where parties are competitors with interests in trading with others but have no superordinate identity), parties are less cohesive, and as a result less motivated to engage with others, resulting in a lower frequency of transactions compared to parties involved in intra-organizational exchanges (e.g., where the parties are part of a large corporation). Not surprisingly, differences in the allocation of profit are greater (less equal) between the two transacting firms than between two transacting sub-units within the same organization. In addition, parties in the market transaction condition report they are less likely to continue to transact with the other, indicating a lower level of loyalty. Alternatively, members of the intra-organization exchange condition report greater levels of pleasure and satisfaction from the transaction than participants in the inter-organizational group condition. Lawler and Yoon's (1998) experimental study highlights the significant impact and power of a very simple manipulation: a shared superordinate identification with a firm. That is, trading parties that share a common superordinate identification, engage in more frequent task interaction and report more positive feelings about the task negotiations, which in turn enhances the degree to which the two parties view their exchange relations as cohesive and enduring.

Organizational Tenure & Need for Belonging. In addition to being superordinate and drawing attention to and strengthening a member's identification with their work group, organizational identification is further associated with an emotional attachment, such as members' feelings of solidarity or pride in their organization (Ashforth et al., 2008; Riketta, 2005). Members of an organization are partly

motivated to seek out a target of identification because of their need for belonging (Ashforth & Rogers, 2012; Baumeister & Leary, 1995). The primary benefit of firms over hybrid markets in this matter is the ability to strengthen the emotional attachment to the work group because of the lasting nature of the firm, compared to the relative transience of a typical hybrid market structure. One critical correlate is employee tenure with the firm: in order to satisfy a need to belong, the individual must view his or her relationship with the firm as long lasting, positive, and significant (Baumeister & Leary, 1995). This leads others to speculate that the individual's length of engagement with an organization is positively linked to his or her identification with the work group (Mael & Ashforth, 1992).

Various rationales exist to explain this emotional attachment and bond. First, while the identification literature has not specified in detail the identification process, central elements include that identification is dynamic and turbulent and unfolds over time as individuals reconcile and integrate cues and daily activities with their life concept (Ashforth et al., 2008). For a deep integration of the self with the organization, as in deep-structure identification, successive interactions of the worker with the work setting are needed so the individual can form a mental model that transcends situational cues (Rousseau, 1998). Thus, time is an essential element for a relationship to develop a strong emotional bond between the individual and the collective, which can then transform an individual's self-concept to that of a collective. The transient nature of hybrid market governance structures reduces the time available for these bonds to develop.

A second factor is symbolic: the employment contract with the firm. The employment contract provides the necessary stability and duration for individuals to see their membership with the work group as further serving their organizational attachment (Barley & Kunda, 2004). Consistent with this logic, Kogut and Zander (1996) argue that the firm has become a modern-day group to which individuals seek to belong as social structures have changed, supplanting the family or clan as social groups in favor of work affiliations. Alternatively, for hybrid-market groups, the positive effect of expected tenure (e.g., belonging) to a work group is weaker because members view their future and security as resting with the parent company, not with the work group. Thus, members will continue to prioritize their firm identity as

serving their needs, not the work group identity. While empirical work in this space is limited, the scant research that exists suggests that in a hybrid-market context, the natural dominant identity is members' immediate work group within their parent firm rather than the work group that spans members from two organizations (Salk & Shenkar, 2001).

Leaders' Endorsement & Enhancement. Another factor driving group members' identification with the group identity is the desire for self-enhancement, as being a member of a group with positive characteristics increases the positivity associated with one's sense of self (Ashforth & Mael, 1989; Tajfel & Turner, 1979). Leader-dictated rewards and recognition may also be critical determinants of identity strength and member identification. Individuals who view membership in the work group as contributing to a broad spectrum of rewards, such as work support, social support, participation in decision-making, and access to information are more likely to identify with the work group (Rousseau, Sitkin, Burt, & Camerer, 1998). One way in which firms can further strengthen the salience of the work group identity is by providing meaning and endorsing the significance of the group's work by, for example, highlighting its potential impact and importance. By drawing attention to the value and contribution of each group member as well as to the group as a whole, leaders within a firm can feed perceptions that the group and its membership are overarching or superordinate (Hirst, van Dick, & van Knippenberg, 2009). For members, this allows the attraction of the work group identity as a target for identification to ultimately supersede that which is provided by membership in a particular department, function, or division or by any other identity (e.g., nationality).

When work groups are situated in a hybrid market form, leadership is more complex, requiring integration and direction from leaders from two organizations, instead of one. This complexity is best viewed as a tension, often highlighted in the alliance literature by academics and practitioners alike as challenges related to trusting each other's intentions and concerns about knowledge misappropriation and spillovers, contracts, and learning (e.g., Chi & Seth, 2009; Gulati & Singh, 1998; Lavie, Haunschild, & Khanna, 2012; see Cao & Lumineau, 2015 and Krishnan, Geyskens, & Steenkamp, 2016 for recent reviews). This tension arises because the knowledge stocks necessary to think about and solve a complex

problem are typically tacit and valuable. When leaders across both organizations highlight the dueling interests of ‘sharing enough, but not too much’ and ‘learning from the other,’ the collective interest of the work group tasked with problem solving loses strength in favor its organizational or focal work group identity.

In the language of identification, members resolve this conflict by “ordering, separating, or buffering the identities” and “deferring to the most subjectively important or valued identity” (Ashforth & Mael, 1989: 30) which, in the face of such dueling interests, is the organizational identity rather than the work group identity. Thus, members of a group will attempt intergroup differentiation to provide themselves with the most positive self-evaluation and self-meaning. In a hybrid market context where identity conflicts are commonplace, this weakens member identification with the work group identity.

Effect of Governance Form on Identity and Identification. The strength of a work group’s identity and members’ identification with the group are driven by the extent to which the identity is salient and satisfies members’ needs for belonging and desires for self-enhancement. We argue that firms, compared to hybrid market governance forms, are uniquely situated to provide a superordinate identity that reinforces the work group identity and reduces conflict amongst nested identities. Firms are also better able to satisfy group members’ need for belonging because they offer stable working arrangements with expectations of long duration and tenure, making identification targets within the firm, like the focal work group, more appealing. Leaders have additional power to support members’ identification with the work group in a firm setting by reinforcing and elevating the importance of the group and its work, providing members with opportunities to experience self-enhancement if they identify with the decorated and important collective.

Thus, we propose:

Proposition 2a: The relationship between the collectively-formed work group identity and members’ identification with the work group is stronger when group members belong to a common firm, as opposed to hybrid market organizational forms due to (a) the salience of the shared superordinate identity, (b) the need for belonging satisfied by the organizational tenure of the employee, and (c) enhancement opportunities provided by leaders’ endorsement of the group.

Having outlined the comparative advantage of firms over hybrid market organizational forms in promoting a strong relationship between a collectively-formed work group identity and members' identification with the work group, we focus here on exploring the nuances of the work group identity-member identification relationship in different types of hybrid market organizations as a way to bring further clarity to the relationship between governance forms and our focal socio-cognitive processes. In this section, we examine the relative effectiveness of three types of organizational forms in promoting these processes within work groups: an organization composed significantly of contract labor, a purely contractual alliance, and a joint venture.

Contract Labor

Organizations' use of professionals through contract labor is common and increasingly popular , with its use changing over the last few decades: companies, many of which of technology oriented, increasingly rely on a temporary supply of highly skilled professionals to provide unique expertise that employees lack, perform supplemental but important tasks, and may in these capacities join an understaffed project team (Barley & Kunda, 2004; Mayer & Nickerson, 2005). Thus, a plausible alternative to a work group comprised of permanent employees is one that relies on the use of some temporary employees, professional contractors, to assist in the joint production of highly interdependent tasks. As corporate and legal policies clearly distinguish them from permanent employees, these temporary employees do not formally belong to the organization (Mayer & Argyres, 2004). The temporary employment status of the worker means that they will not seek the organization or group as a collective to fulfill the basic need for belonging with others and are more likely, instead to fulfill this need by identifying with their occupation or profession (Barley & Kunda, 2004; Hughes, 1958; Van Maanen & Barley, 1984; Callero, 1985; Hogg, Terry, & White, 1995). Because there is an absence of a shared superordinate identity between contractual workers or between contractual and permanent workers, contract workers experience a less salient version of the work group identity, making the work group identity weaker and a less attractive target for member identification.

A critical distinction for contractors is that they have a temporary employment status, and, unlike permanent employees who can expect to satisfy their needs for belonging within an organization due to the presence of organizational tenure and a long-term employment contract, contractors' identification with the work group is necessarily controlled by external cues – their sense of self-worth is tied to their conditional performance over the temporary interval of employment and their identification as a member of their occupation or profession (Barley & Kunda, 2004; Hughes, 1958; Van Maanen & Barley, 1984; Callero, 1985; Hogg et al., 1995). As a result, they do not deeply internalize the values or goals of the group and view the collective goal as their own. Instead, contractors view their professional identification as most salient and meaningful since it defines the unique individual qualities that they bring to the work to be done (van Dick et al., 2004). This effect is amplified by socialization practices that encourage the formation of distinct identities between contractors and formal employees. By treating them differently, both socially and symbolically, organizations undermine the temporary professional's identification with the organization and/or work group. Consistent with this assertion, Barley and Kunda (2004) found that temporary professionals do not join the organization in a symbolic manner, such as attending staff meetings, business meetings, and holiday parties, bearing different badges, or receiving the company t-shirt, and managers are reluctant to integrate temporary employees.

Relatedly, because contract workers are so often treated as members of an out-group rather than integrated into the group, they are unable to benefit from any endorsement or enhancement of the group by organizational leadership. Such temporary professionals reframe their outgroup status in terms of its positive value: contractors are paid more than employees because they have expertise that employees lack; however, within the organization, employees are more likely to reinforce the negative and outsider perceptions of contractors, discouraging contractor identification with the work group. In an especially insightful ethnographic study, Barley and Kunda (2004) spent two years in a technology company examining contingent labor, the temporary hire of technical, highly skilled professionals. They found that formal employees (including managers) are likely to focus on attributes that reinforce the contractors' out-group status, such as the contractors' lack of commitment and loyalty. Employees tend to be suspicious

about the quality of the work done by contractors, fearing that contractors lack the persistence and long-term responsibility necessary for quality work. On the other hand, contractors constantly feel the pain of estrangement, are less willing to take on extra-role behaviors, and often leave without finishing the assigned job. In contrast, permanent employees, with more open-ended job descriptions, are more willing to exert extra-role efforts because they are committed to the well-being of the company (Barley & Kunda, 2004).

Based on the above logic, contractually employed workers are less likely to perceive a work group identity as a salient or attractive target for identification, and organizations composed significantly of contract labor are less likely to have members that strongly identify with their work groups.

Contractual Alliance

A central challenge in alliances is how to further the shared alliance interest without compromising the self-interest of the parent firms (e.g., Poppo et al., In Press; Ring & Van De Ven, 1994; Williamson, 1996). This tension is particularly salient when the alliance is purely contractual in nature and lacks a significant foundation for many of the informal, relational mechanisms that can support alliance performance (see Cao & Lumineau, 2015 for a recent review). In such a contractual governance setting, superordinate identities are present; however, they are the identities of the parent companies and are not shared by members of the inter-organizational work group, making the work group identity a less salient and attractive target for identification as it is less able to fulfill members' need for belonging. Additionally, work group members in a contractual alliance perceive that there is an expiration date to their group tenure, either literally as a contractual end date or figuratively in the form of project or goal completion. As discussed previously, empirical work suggests that members are more likely to identify with a work group housed within their parent firm rather than an inter-organizational work group (Salk & Shenkar, 2001). These group members view their parent firm as the setting of their future work and source of security and thus prioritize their identification with their parent firm rather than the work group.

Similarly, while there are leaders present that can endorse the alliance venture, these leaders are not unified in their concerns or their message as they belong to the two parent companies, weakening the

strength and clarity of their endorsement and its potential to make the work group an attractive setting for self-enhancement. The endorsement may also be less powerful one set of leaders' endorsements are likely to have limited influence on the other firm's employees. Even in the case that a singular leader emerges within the inter-organizational work group, parent firm leaders will continue to have influence. As discussed previously, the effect of these complex leadership structures on work group member identification is further weakened by the difficulty of delivering a unified endorsement across both organizations as leaders likely vary in how they strategically balance the shared alliance interest and parent firm interest in their endorsement.

Because contractual alliances provide weaker incentives and support for member identification with the work group, such governance structures are less likely to have highly identified work group members than a more unified governance form. However, the presence of parent firms as potential attractive and salient targets for identification and sources employment stability and parent firm leaders as potential work group endorsers may allow for some member identification with the work group if these characteristics can be highlighted.

Joint Venture

A joint venture is an alliance form where it is most likely that these characteristics can be highlighted, as there is greater potential for a dedicated venture organization, an expectation of prolonged venture existence and, dedicated venture leaders. Previous work has established that mechanisms similar to identification guide joint production in long-term inter-organizational exchanges, including establishing joint goals, procedures and routines to guide coordination, reward or punishment parameters for performance as well as strong relational bonds, namely trust (e.g., Das & Teng, 1998; Dyer & Singh, 2002; Shah & Swaminathan, 2008).

A joint venture has the potential to provide a shared superordinate identity for work group members when the joint venture takes the form of a legal entity that is separate from the parent firms but governed by a board comprised of members from both organizations. In such a case, members' identification with their parent firm may become more distal than their identification with the venture

entity, reinforcing the salience of the work group identity as a target for identification. In a joint venture, members will also view their employment as stable as they are permanent employees, either of different organizations or the same organizational entity (i.e., joint venture), enabling them to view the work group as a collective entity to which they may want to belong. Yet, the positive effect of member tenure on work group identification is weakened when parties view their future and security as lying with the parent company, not with the joint venture. That is, as boundary spanners, these group members may struggle to reconcile conflict or the disparate demands placed on them by the organization that employs them and the demands of the joint venture. Related to this, if they view the parent organization as their source of future employment, members will continue to utilize their relationships with persons in the parent firm for information, influence, and promotions (Salk and Shenkar, 2001). Thus, employees of a joint venture may see their role in the venture as a temporary assignment, thereby lacking stability and making the work group and joint venture less attractive targets for identification. When the members' source of particularistic resources such as status, work support, social support, participation in decision making, and access to information is primarily through the parent organization rather than the joint venture, then identification with the parent organization is stronger than with the work group (Rousseau, 1998).

A joint venture has the potential to suffer from the same complex leadership structures and weak endorsement effects that a contractual alliance may experience; however, if the joint venture is a separate, superordinate entity with its own leadership, the endorsement of the work group by those leaders may increase the potential for the work group to provide members with positive self-evaluations and self-meaning, making the work group an attractive target for identification.

Consistent with the above logic, hybrid market governance forms vary in the extent to which they support members' identification with the work group identity, though a superordinate firm governance structure provides the greatest enhancement of work group member identification. Thus, we propose:

Proposition 2b: Though weaker than in a firm, the relationship between the collectively-formed work group identity and members' identification with the work group in a hybrid market form is stronger when the governance structure provides (a) a more salient, shared superordinate identity, (2) tenure expectations to satisfy members' need for belonging, and (c) leaders capable of providing meaningful endorsement of the group to satisfy members' self-enhancement motives.

Identification and Creative Problem Solving Behaviors

In the above section, we predict that the strength of member identification with the work group varies systematically with the salience of the shared superordinate identity, employee tenure expectations and leaders' endorsement of the work. This has dramatic implications for the effort and motivation to partake in the work that defines complex problem solving. Prior research suggests that members who do not identify with a collective are less cohesive, less motivated to engage with others, and less likely to learn from others, resulting in a lower frequency of interactive behavior and lower group performance than occurs when members strongly identify with the group identity (Lawler & Yoon, 1998; Kane, 2010). For highly-identified members of a group, which we argue are more likely to characterize work groups within a common firm, withholding effort toward achieving group goals threatens their self-definition, which includes the collective, and there may be social costs, such as stress or distress, from breaking a bond with the collective group (Akerlof & Kranton, 2005; Burke, 1991). There exists, then a feedback loop where members are motivated to act in ways that further the collective (Rousseau, 1998) to avoid weakening their bond with the group and “feel[ing] bad about themselves...los[ing] utility” (Akerlof & Kranton, 2005: 9).

In this section we address the ways in which identification with a collective can overcome self-interest and motivate behaviors that encourage creative problem solving. Specifically, we identify two categories of individual behaviors, which as a set, lead to creative problem solving: directed individual creativity and cooperative knowledge work, and we discuss the ways in which highly identified individuals are more motivated to close the loop on creative problem solving by pursuing solutions to their implementation.

Directed Individual Creativity. We believe that strong work group identification amongst group members will prime and foster cooperative behaviors central to individual creativity and complex problem solving. In developing this logic, we first argue that identification primes creative behavior at the individual level. Identification with an attractive collective is closely linked to positive affect, as

individuals “want to feel positively about their membership… and thus may generally feel an abiding sense of positiveness” (Ashforth et al., 2008: 329). Evidence from the study of creativity suggests that such positive affect primes individuals to be creative by supporting their intrinsic motivation to engage in creative ideation (Isen & Reeve, 2005) and by promoting flexible or divergent thinking and problem solving (Amabile et al., 2005; Hirt, Melton, McDonald, & Harackiewicz, 1996; Isen, 2000).

A second factor that primes individuals to generate and share their creative ideas is also linked to a positive affective experience: psychological safety. Edmondson and Mogelof (2006) propose that psychological safety is critical for creative problem solving within groups because creativity involves risk taking and frequent failure (see also George, 2007, Hennessey & Amabile, 2010). By creating a setting in which group members perceive that the social consequences of presenting a failed idea are minimal, group members perceive that the group is a “safe” setting for creative activities such as curiosity, brainstorming, and idea sharing (Harrison & Rouse, 2014; Yuan & Woodman, 2010). In the absence of psychological safety, there are incentive barriers that inhibit the sharing of ideas and thoughts for fear of judgment or ridicule and also discourage the generation of such ideas and thoughts in the first place because there cannot be potential group-level returns on generation efforts when the generated ideas cannot be shared. Belonging to a group with a shared identity heightens members’ psychological safety such that they believe others will respond positively when they bring up concerns, mistakes, or new ideas.

Member identification with a strong group identity further supports creative problem solving because it provides direction for individual creativity. Identification with a collective provides an opportunity to develop an overarching set of goals that members of the collective ascribe to and accept as personal goals (Burke, 1991). If given a creative frame, these goals and the cognitive frame they produce can serve as creativity prompts, stimulating and motivating creative problem solutions (Anderson et al., 2014; Shalley, 2008). Additionally, this shared understanding of what constitutes success for the group serves to direct members’ attention and creative efforts so that problem solving activities and energies are complementary and result in positive group performance outcomes (Popo et al., In Press).

Cooperative Knowledge Work. While much remains unknown regarding creativity in groups,

studies suggest additional collective-other behaviors that underlie creative problem solving (Hülsheger, Anderson, & Salgado, 2009; Hennessey & Amabile, 2010). Additionally, the prototypical language in knowledge-based work focuses on knowledge sharing, consideration, and integration or transfer (e.g., Argote & Ingram, 2000; Nickerson & Zenger, 2004), and knowledge work requires members to carefully process ideas exchanged in a group, taking their time to fully reflect on ideas following an exchange of information (Paulus & Yang, 2000). Supportive behaviors are often necessary for these effortful and often time-consuming processes. In this section, we argue that identification with the work group collective encourages the behaviors that support complex problem solving.

In an experimental study of knowledge transfer dynamics, Kane and colleagues (2005) showed that group members are more likely to engage in knowledge transfer when they share a superordinate identity. They interpret their findings to mean that groups are more receptive to ideas, even from non-group members, when they perceive each other as sharing such an identity. More recent work has offered additional nuance to these findings. In their review of this literature, Hennessey and Amabile (2010: 580) summarize Hargadon and Bechky's (2006) qualitative study of six professional services firms, which "identified four sets of interrelated behavioral patterns that can move teams beyond individuals' insights: (a) help seeking, (b) help giving, (c) reflective reframing, and (d) reinforcing." We argue that work group identification fosters high levels of these behaviors that, in turn, motivate and direct attention to the problem-solving task. That is, members will expend more cognitive resources to search for, share, consider, and integrate new and existing knowledge sources as they work toward solving the problem. Our logic is consistent with prior work that argues that identification motivates persistent effort (Hirst et al., 2009), directs attention toward the problem-solving tasks (Ocasio, 1997), motivates them to think deeply, rather than rely on short cuts (Kane, 2010), and more critically analyze the value of knowledge and assumptions as well as consider different opinions within the group (Van der Vegt & Bunderson, 2005).

In the absence of a strong identification, "self-concern is known to stimulate information search and processing on individual-level attributes and self-relevant consequences," but in the context of

identification with a group identity the resulting “other-orientation, in contrast, is known to focus information search and processing on group-level attributes” (De Dreu & Nauta, 2009: 913). The collective-other behaviors that are motivated by a strong group identification encourage members to be more creative, cooperate with each other, and direct their attention and effort towards solving the complex problems with which the group has been tasked. Identification with a strong group identity fosters positive affect and psychological safety and provides direction for creative energies though internalized group goals that serve as creativity prompts and direct creative efforts to be complementary. Both identification with a strong group identity and the resulting cooperative behaviors also serve to support the knowledge work, in the form of knowledge search, consideration, and integration, that are necessary for effective group creative problem solving.

Motivated Solution Implementation. While the generation of an effective solution to a complex problem is essential, it is also necessary to implement the generated solution. Empirical work (e.g., Baer, 2012), suggests that the process of creative idea generation and implementation (i.e., innovation) are only loosely connected, and the mere presence of a creative problem solution does not guarantee its implementation (Anderson et al., 2014). The act of implementation is inherently effortful, as group members may need to gather additional buy-in from others outside of their group, further develop and refine the solution, disseminate the solution, and oversee its implementation (Garud et al., 2013). A strong member identification with the work group can provide the motivation and direction of effort necessary to implement the generated solution. Strongly identified group members are more likely to take ownership of a solution generated by the group and will perceive group successes as personal successes (Ellemers et al., 2004; Hirst et al., 2009; Rousseau, 1998). As a result, they are not only motivated to engage in group and individual efforts to generate a solution to the focal complex problem but are also motivated to engage in efforts to implement the generated solution because they view it as the fruits of their own effort, in part, and experience the enhancement resulting from successful implementation at a personal level.

Proposition 3: The stronger the group identity and member identification, the greater the degree

of individual-level creative efforts, cooperative behaviors, and knowledge work motivated and directed toward group-level problems and the greater the motivation to implement the generated solution set, resulting in the production and implementation of a more novel and effective solution set.

Cognitive Advantages in Solution Set Generation

In order to assess the value of a generated solution set, direction is necessary. As discussed in this literature, direction can be imposed by authority when a manager centralizes and thus chooses the solution that best realizes value for the organization. In this way, authority establishes direction when members may not necessarily understand how to direct solutions to the problem in a manner that fulfills organizational goals (Conner & Prahalad, 1996). The use of managerial expert knowledge is not only efficient, but also effective. Yet, as problems grow in terms of their complexity, problem-specific direction, including goals, become indeterminate. Thus, the challenge for a problem solving perspective is to articulate how group members consider value and usefulness when creating solutions. In this section we develop the concept of a cognitive goal frame, which is based on members' sensemaking of the organization's identity – specifically its purpose, including its mission, goals, and relevant activities that provide an overarching frame for how their creative solution, once implemented, creates value for the organization. We argue that within a firm, identification is going to be stronger and more aligned with organizational goals, encouraging group-generated solutions that are more valuable to the organization than would be the case in a hybrid market organization.

We use the theoretical underpinning of attention to develop the construct of cognitive goal frames. As a cognitive decision-making process, attention is directed and informed in organizations, through “noticing, encoding, interpreting, and focusing of time and effort by organizational decision-makers on... problems, opportunities, and threats; and... the available repertoire of action alternatives” (Ocasio, 1997: 189). This perspective extends the structuring of attention in Simon's (1997) seminal work on bounded rationality by examining “the effects of the social structure on the channeling and distribution of decision-makers' attention” (Ocasio, 1997: 188) while acknowledging that individuals in organizations cannot possibly pay adequate attention to all stimuli. In effect, its central tenant is that actions are guided

by the sorts of things individuals attend to, on their own or with organizational direction, and the context in which they attend to them.

Cognitive Goal Frame Congruency. As previously discussed, we argue that identification with a firm increases the strength of a work group identity, in part through the symbolic value of a shared superordinate identity. In effect, a superordinate identity enables cohesion as members attach to the work group and view it as a more meaningful and important assignment than that which occurs in hybrid market forms of organization. In this section, we focus on how identification with firm can also direct members' cognition (i.e., problem solving) to consider how the problem relates to not only the group's goals but also the organizational goals. When members identify with a firm, they should have access and internalized a deep understanding of the organizational goals. This cognitive goal frame can broadly influence group member behavior and motivation toward satisfying the goals, values, and ambitions of the collective, which in this case is the organization (Ashforth et al., 2008; Rousseau, 1998). In our simple conceptualization of a firm, we assume that there is transparency and significant leadership communication and reinforcement of the specific goals that create value for their firm in the marketplace. This assumption however may well vary across firms due to leadership and path dependencies.

Within firms, as members make sense of the organization's key characteristics or identity, they focus on the organization's strategic purpose and intent at the business level of analysis: its mission, vision, goals, and relevant activities that describe their primary services and/or products offering. Consistent with this logic, recent work suggests that organizational identity is likely used to develop business-level strategies that improve competitive positioning (Irwin et al., 2018), extending prior conceptualization that differentiation resides in the cognition and capabilities of the firm (Eggers & Kaplan, 2013). Organizational identity need not be narrowly thought of in terms of developing the next best innovation to support a product – it may instead be construed as more relational in terms of the many stakeholders it aims to serve (e.g., consumers, employees, and communities). Thus, in order to take advantage of the many different venues that can direct complex problem solving, we suggest a broad number of goal-specific facets of organizational identity (see Table 1). When group members share a

common organizational identification, they are more likely to apply their collective understanding of the organizational goals as well as their knowledge of its value chain and stakeholders to form solutions to the complex problem. This broader reference point will inform, redirect, and/or integrate with the objectives at the group level, which leads to a more effective solution set.

In contrast, when group members do not share the same superordinate identification, members will vacillate between serving the collective goals of the work group and the collective goals of their primary organizational identification, resulting in a less effective solution set. The logic is straightforward: in hybrid markets each parent firm has a broader set of values and goals which are less likely to be jointly considered when problem solving. Simply put, the lack of consistency or coherence of the joint organizational identities makes it more difficult maintain a joint orientation (Das & Teng, 1998). As a result, group members are not likely to integrate critical organizational goals in a systematic way as the costs of integration, unless initially vetted and approved by alliance board members, requires a non-trivial degree of cospecialization or sunk costs. This likely explains why learning motivates alliance formation (Kale et al., 2002) in an effort to increase innovation output (Hess & Rothaermel, 2011), but alliances often terminate prematurely (Bakker, 2016; Greve, Baum, Mitsuhashi, & Rowley, 2010) for a variety of reasons, including that one partner has satisfied its objective of learning from the other or realized that it is unable to learn from its partner or that competitors have imitated the focal firm's alliance strategy, thereby reducing the uniqueness of the partnership resources (Cui, Calantone, & Griffith, 2011)

From a problem solving process perspective, it is important to note that even though the cognitive collective goal frames within a firm are general, when they become part of the process, they invite problem solving around a larger abstraction. This abstraction further directs the value proposition of the emerging solution as problem solving groups consider, for example, the scalability of the solution set, the size of the market that demands or benefits from the creative solution, and whether novel solution be applied in other domains. When a group considers the larger, strategic impact of the solution set, they can rework it in a manner that generates greater organizational value.

This leads to the proposition:

Proposition 4: The effect of a strong work group identity and member identification and creative problem solving on the production of a novel and effective solution set is stronger when group members belong to a common firm, as opposed to hybrid market organizational forms, due to the congruent cognitive goal frames that arise from organizational identification in the firm context.

Insert Table 1 about here

DISCUSSION

Three pillars of strategic management are central and meaningful to our conceptual query and focus on complex problem solving: why firms exist, why firms differ from other forms of organization, and what are strategic decisions. We contend that a contemporary theory of the firm must span levels of analysis from the individual to the group to the. The reason for this broadened scope is that when strategic decisions involve problem spaces in which goals exist yet the paths that yield an effective solution are presently indeterminate and not clearly understood, established, or defined, a group of individuals is necessary to not only bring forth the relevant knowledge, but also to debate, redirect, inquire, and reflect on potential next steps as well as solution sets. We further posit that effective solutions push novel frontiers and thus demand a group orientation primed for creativity. The relevance of our perspective is situated in 21st century, marked by turbulence and adaptation as well as complexity, layers of interdependencies that define and surround the problem space.

While our prediction, that firms have an advantage over hybrid market organizational forms when it comes to solving complex problems, is not different from the net advantage of firms recognized by organizational economics and the knowledge-based view, we contribute to these literatures by postulating a different set of advantages. First, the socio-cognitive mechanisms of identity and identification are unique because they reliably align one's definition of one's self and one's cognitive interests with a collective orientation. Thus at the group and organizational level, identities that are congruent draw attention to goals that not only direct problem solving at the group level but also lead to more effective solutions. We further specify that leaders must prime the group identity to include creativity: complexity means that the paths that yield an effective solution are presently indeterminate, not clearly understood,

established, or defined. Creativity, a necessary correlate to problems with indeterminate solutions, is positively impacted through this strengthening of identity and member identification.

Our third claim is that this base model distinguishes firms from each other (e.g., a source of firm differences) as well as firms from hybrid market forms of organization due to: 1) a relational advantage stemming from the strength of members' identification with the organization as a superordinate identity, organizational tenure and the ability of the firm to satisfy member need for belonging, and leader endorsement, and 2) a cognitive advantage stemming from congruency in organizational and group goal frames. Relational advantages strengthen members' interest in the work group and project at hand, enabling greater levels of knowledge work at individual and group levels. Cognitive advantages to problem solving occur when organizational and group goal frames are congruent and linked, for when group members' attention is directed by organizational goals, they are primed to generate more effective creative solutions.

While our model is conceptual, it resonates with the limitations of alliances regarding joint production. Because vertical and horizontal alliances by definition lack congruent collective cognitive goal frames, they are commonly motivated by learning – typically one partner learning from another – which necessarily limits any collective level influences on problem solving (Alcacer & Oxley, 2014; Chi & Seth, 2009; Deeds & Hill, 1996; Hoetker, 2006; Kale & Singh, 2007). In addition, since a shared superordinate identity does not exist in alliances, it is not surprising that this literature emphasizes the need for social lubricants, like trust, to assess partner motivations as well as prompt effective coordination and adaptation (Cao & Lumineau, 2015; Krishnan et al., 2016; Poppo et al., In Press).

Our focus on identity and identification also resonates with a movement toward understanding the cognitive dimensions that influence managerial sensemaking and subsequent decision-making. While we have known for some time that organizational fit is a critical determinant of a successful strategy, we have little theorizing for how managers reconcile fit given changes in the external environment. This domain is complex, with presently indeterminate paths, but must be shaped and directed toward organizational goals. Yet, if firms can simplify managerial sensemaking by emphasizing the cognitive dimensions that

define how the firm realizes its strategy, the goals that drive value creation, and then the “pieces” that need to be adapted, they can better direct adaptation. Our focus of the cognitive message of identity offers a mechanism for this simplification and resonates well with an emerging literature that emphasizes how identity can direct strategic decision making (Irwin et al., 2018) and foster adaptation (Schilke, 2018; Jalonen et al., 2018).

Related to this, our focus on a strategic decision – arising from strategic ‘fit’ and complexity – draws attention to the fact that as a field, we do not have a clear understanding of the classification or types of strategic decisions. Recent articles advocate solutions and paths forward to reconcile this theoretical gap (Durand et al., 2017). For example, Nickerson and Argyres (2018) separate decision-making from that of problem formulation, Leiblein and colleagues (2018) distinguish strategic from non-strategic decisions, and others further identify how socio-cognitive models likely influence strategic decision making (e.g., Irwin et al., 2018; Csaszar, 2018). We hope that others find opportunity in empirical testing as well as simplifying what is meant by a strategic decision.

Practical and Managerial Implications

At the core of our theory is that management is needed to offer direction by selecting or legitimating through resource allocation problems that appear worthy of investigation in ways they cannot fully understand. Management may be the source of the initial problem space as they draw attention to their observations or search for dynamics within the firm and marketplace. Alternatively, employees may generate issues that are worthy of solving, an effort that is often reinforced by having managers that routinely ask employees for suggestions, are known to be open to new ideas, and/or are generally respectful and considerate. Our position is that the dynamics of the 21st century will continue to require firms to adapt to multiple sources of exogenous change, including nation-state politics arising from globalization, new technologies that transform value chains in incremental, but significant ways, and demographics shifts. Thus, at the core of a successful strategic planning process is consideration of problem sources as well as the creation of a creative process that enables exploration and exploitation.

We also suggest that management needs to ensure that employees engage in cognitive

sensemaking around the collective organizational identity of the firm – its business-level strategy and how it competes, developing a keen understanding of its stakeholders and how its products and services create value. When teaching working professionals, we are amazed by how, for some companies, positions occupying different levels in the hierarchy often do not know or understand the overarching purpose of the company that employs them or how the firms creates value; whereas, for other companies, the messaging is quite consistent and convergent. We believe firms are likely to vary in the consistency and the salience of such messaging. Thus, it is essential that management both “manage” the strategic sensemaking process of identity formation and prime conditions to strengthen employee identification, as employees’ understanding is essential for both how units define their purpose as well as how the group defines its goals and “success” in relation to the firm.

Future Research Directions

We recognize that as an initial foray toward positing identification as a unique advantage of firms, we have not addressed many interesting questions, potential caveats, and enrichments. Most notable is whether the concept of nested, congruent identities with a firm is sensitive to firm size and scope. We believe that it becomes increasingly difficult to maintain a cohesive, coherent, and shared firm-level identity among members as firms grow increasingly large, diverse, and global. As a result, when firms become sufficiently large, social judgements, such as trust, may become a more critical driver of knowledge transfer as demonstrated in Szulanski’s (1996) classic study of the transfer of best practices across units within multi-national corporations. We also highlight in this section future research opportunities that relate to: (1) radical change (2) over-embeddedness of identities and identifications, and (3) how to manage identity and identification dynamics when using hybrid governance mechanisms.

Dynamics of Radical Change, Cultural Differences, and Nested Identities. Our use of nested identities assumes that organizational identity is stable and constant and that the complex problem does not threaten or destroy members’ shared meaning of the core elements that define and support their company’s strategy and how these elements create value. Some argue that the identity of the organization, the central, distinctive and enduring elements (Albert & Whetten, 1985; Dutton & Dukerich, 1991), may

make radical change difficult, such as adopting new approaches and routines guiding how work is performed (e.g., TQM; Nag, Corley, & Gioia, 2007). Others question whether identity is enduring (Gioia, Schultz & Corley, 2000) and argue instead that identity is likely to be somewhat fluid because management can alter its aspects (Ravasi & Schultz, 2006). Identity can also change dramatically, such as during a corporate spinoff (Corley & Gioia, 2004). Relatedly, some level of conflicting identifications among sub-units may be beneficial for firms as they may widen the cognitive horizon of firm members in dynamic environments (see Gottschalg & Zollo, 2007). Thus, future research is needed to further specify contextual factors that limit our focal lens of identity/identification.

Dynamics also exist at the individual level of analysis, which is absent in our conceptual model. This area of research is nascent but an important focus for the future as individuals carry multiple identities in the work place beyond our focus on group and organizational identities (Ashforth et al., 2012; Ashforth & Johnson, 2001). Thus, understanding how role identities and professional identities support or conflict with our process model is a second avenue of future research.

A third area of future research extends to the multinational corporation, whose efficacy is predicated on the virtues of common ownership and the efficiency gains created by exploiting or transferring knowledge and capabilities to other geographic markets. The cultural and national identities associated with these geographic markets represent additional nested identities, and while there are many organizations that exist wholly within a single nation, multinational corporations represent one of several organizational forms that may be composed of nationally and geographically distinct organizational subunits. In such a case, national or geography-based identities may form attractive targets for identification and disrupt the potential for an organizational identity to attract member identification. In a case where the work group is composed wholly of members from that nation or within that geographic location, this may be irrelevant, but when the work group crosses these boundaries, challenges similar to those in hybrid market organizational forms may arise. Future research should investigate the dynamics of identity and identification in work groups within multinational firms and multinational alliances (e.g., joint ventures) to explore how they differentially influence creative team problem solving in culturally

heterogeneous settings and the extent to which they inform differences between firms and between firms and other organizational forms.

Downsides to Over-Identification. Despite the generally positive outcomes of identification noted in the literature, work in organizational behavior also suggest the downside of identification. Potential disadvantages of identification exist, including the possibility of compliant behavior or automatic trust that hinders creativity. Over-identification, for example, may lead to an automatic form of trust in other members that suppresses individual creativity and dissent (Dukerich, Kramer & McLean Parks, 1998), including shared values that prescribe devotion to an individual leader (Johnson, Chang, & Yang, 2010). Alternatively, members may develop a dysfunctional identity and adhere to goals and values that undermine task performance, such as when a group identity opposes productive behaviors like innovation and citizenship (Ashforth et al., 2008). Our conceptual model assumes that the strength of a work group identity and member identification positively impacts creative problem solving. Yet, further work may specify more fully factors that negatively impact problem solving.

How to manage identity and identification dynamics when using hybrid governance mechanisms. Although we focus our theoretical development on the potential for the overarching organizational identity provided by the firm to strengthen a work group identity and member identification, it is possible for a work group identity to exist in a hybrid governance context and become an attractive target for member identification (Popo et al., In press). However, the existence of competing identities and conflicting motivations to cooperate and compete may induce feelings of ambivalence, “the simultaneous experience of opposing orientations toward an object or target” (Rothman, Pratt, Rees, & Vugus, 2017: 35), and likely make such an identity more dynamic and require more intentional identity management strategies to avoid members reverting their identification targets to their parent firms (see Ashforth, Rogers, Pratt, & Pradies, 2014 for a review). Future research is needed to elucidate how these dynamics evolve and affect problem solving and how managers might avoid, resolve, or direct the resulting ambivalence and conflicting identities to facilitate problem solving and group performance.

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Table 1: Cognitive Dimensions of Member Identification with Organizational Identity

Governance Choice	Cognitive Goal Frame
Firm (simple hierarchy/division)	<p>Organizational identity directs attention to and thus integration of organizational goals as members of the work group create a solution set. This results in a more effective solution to the problem.</p> <p>Examples of organizational goals represented in the firm's value chain that increase the usefulness of the creative solution: scale, scope, stakeholder groups and needs, effectiveness, and efficiency.</p>
Hybrid Market Form (alliance, long-term trading relationship)	<p>Incongruent cognitive goal frames exist, making it difficult to resolve and thus direct the work group's problem solving. More often, members focus on the collective goal of their parent organization and/or their primary group within the firm context.</p>

Figure 1: A Model of an Effective Problem Solving Capability