

High-Stakes Innovation: When Collaboration in Teams Enhances (or Undermines) Innovation in Professional Service Firms

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Abstract

Professionals need to develop increasingly innovative solutions to complex problems, which are often co-created through client-professional collaborations, but this demand creates a theoretical and practical tension. On one hand, professionals need to establish long-standing relationships with clients so they can deeply understand their client's business and develop more effective solutions. On the other, such strong relationships can breed similar perspectives that undermine their ability to develop more innovative ideas. To resolve this conflict, we introduce a new contextual condition to the literature that is fundamentally associated with innovation in organizations—the stakes of an innovation project—and develop theory explaining how it creates conditions under which familiarity either enhances or undermines innovation in teams. Using a mixed-method approach to study an innovation contest held in the legal industry, we found that under lower-stakes conditions, collaboration in new teams was positively associated with innovation and produced significantly more innovative outcomes than collaboration in long-standing teams. But under higher-stakes conditions, these effects reversed. When exploring the mechanisms underlying our results, we found that familiarity was valuable for innovation under higher-stakes conditions primarily because teams with shared perspectives took greater risks on innovative ideas during the selection stage of the innovation process.

INTRODUCTION

Professionals stake their careers on being able to deliver valuable services to clients. Given today's volatile, uncertain, and complex business environment (Gardner, 2016), they need to develop increasingly innovative solutions to problems to help their client keep up with the rapid pace of change (Amara, Landry, & Doloreux, 2009; Amara, Landry, & Traoré, 2008; Kvålshaugen, Hydle, & Brehmer, 2015; Malhotra, Smets, & Morris, 2016; Reihlen & Werr, 2012). Research shows that professional service innovations are often co-created through client-professional collaboration (Alam, 2006; Anand, Gardner, & Morris, 2007; Bettencourt, Ostrom, Brown, & Roundtree, 2002; Fosstenløyken, Løwendahl, & Revang, 2003; Skjølvsvik, Løwendahl, Kvålshaugen, & Fosstenløyken, 2007), but a key characteristic of these collaborations presents a theoretical tension that has yet to be resolved. On one hand, professionals need to establish long-standing relationships with clients (Glückler & Armbrüster, 2003; Hanlon, 2004; Kaiser & Ringlstetter, 2011), because it helps them gain a deeper understanding of their client's needs, strategies, and operations, enabling them to develop more effective solutions to problems (Fu, 2014; Maister, 1993, 1997; Mills, Chase, & Margulies, 1983). Thus, professionals spend years engaging in repeat collaborations with clients, trying to build a positive track record that earns them the coveted title of "trusted advisor" (Maister, Green, & Galford, 2002).

But on the other hand, research on innovation teams shows that highly familiar collaborators—or people who have worked together several times in the past—have "inert" shared perspectives that undermine their ability to innovate (Choi & Thompson, 2005; Guimera, Uzzi, Spiro, & Amaral, 2005; Katz, 1982; Perretti & Negro, 2007; Skilton & Dooley, 2010). The innovation process consists of generating, selecting, and implementing novel and useful ideas in organizations (Amabile, 1983; Amabile & Pratt, 2016; Anderson, Potocnik, & Zhou, 2014; Perry-Smith & Mannucci, 2017; Shalley & Zhou, 2008; West, 2002). Research shows that teams

capable of generating more divergent ideas during earlier stages of the process have a better chance of selecting and implementing more innovative solutions to a problem later in the process (Hulsheger, Anderson, & Salgado, 2009; Kavadias & Sommer, 2009; Paulus & Nijstad, 2003; Paulus & Yang, 2000; Singh & Fleming, 2010; Sutton & Hargadon, 1996). Consequently, longer-standing teams are less likely to be innovative than newer teams because they tend to view a problem with similar perspectives (Janis, 1971; Katz, 1982), and thus generate less divergent ideas (Choi & Thompson, 2005; Skilton & Dooley, 2010).

Taken together, it seems that prior research presents contradicting views on the relationship between familiarity and innovation in the professional service context. Scholars of professional service firms (PSFs) argue that familiarity is a resource that can enhance innovation, while scholars of innovation teams argue that familiarity is a liability that can undermine innovation. This leads to our primary research question: when and why does familiarity in teams have either positive or negative effects on innovation in the professional service context?

To address this question, we develop and test theory for an unexplored contextual condition that is fundamentally associated with innovation in PSFs: the stakes of an innovation project. Clients often seek help from professionals because they have complex problems that require novel, customized solutions (Løwendahl, 2005; Maister, 1993; Malhotra et al., 2016; Reihlen & Werr, 2012). Sometimes, the stakes of a project can be extremely high. For example, in the early 1980s, many floundering corporations became targets for hostile takeovers, in which corporate raiders would purchase enough shares to take a controlling stake of a company, and then disband the company while selling all its assets for a profit. In response, a law firm invented the “poison-pill” defense, which helped these corporations avoid financial downfall and maintain survival (Starbuck, 1993). Other times, the stakes of a project can be quite low, such as when a law firm invented a legal process in 2011 that combined a tender offer with a merger (Malhotra

et al., 2016); if the firm failed to develop this innovation, their client would not have suffered many significant financial losses.

Both examples reflect complex problems for professionals to solve, but the financial consequences associated with them differ substantially, and thus the stakes are different. We define the stakes of an innovation project as the perceived financial loss that an organization faces if the people working on a project fail to generate, select, and implement a novel and useful solution to a problem. The stakes are low when the organization perceives no meaningful financial loss, and the stakes become higher as the perceived financial loss increases. Under the most extreme conditions, organizations may face bankruptcy or go out of business if an innovative solution fails to be created. In this study, we investigate why some teams are more innovative than others as the stakes become higher, and our findings make several contributions to existing theory.

First, we found that when the stakes were lower, collaboration in new teams was positively associated with innovation and produced relatively more innovative outcomes than collaboration in long-standing teams. However, when the stakes were higher, these effects reversed, such that collaboration in long-standing teams was positively associated with innovation and produced relatively more innovative outcomes than collaboration in new teams. When exploring the mechanisms underlying these results, we found evidence suggesting that familiarity enhanced innovation under higher-stakes conditions primarily because teams had shared perspectives, which promoted greater risk-taking on novel ideas during idea selection. These findings contribute to theory on PSFs because they identify a set of conditions in which client-professional collaborations may be more effective at solving problems through new relationships rather than long-standing relationships (cf. Bettencourt et al., 2002; Fosstenløyken et al., 2003; Glückler & Armbrüster, 2003; Maister, 1993). They also contribute to theory on

innovation teams, because they show that shared perspectives can sometimes be a valuable asset for innovation in teams, which reverses prior assumptions on the relationship between familiarity and innovation (cf. Choi & Thompson, 2005; Guimera et al., 2005; Hulsheger et al., 2009; Katz, 1982; Perretti & Negro, 2007; Skilton & Dooley, 2010).

THEORY AND HYPOTHESES

Prior research on PSFs consistently argues that innovation arises from client-professional collaborations delivering novel, customized solutions to complex problems (Alam, 2006; Amara et al., 2009; Bettencourt et al., 2002; Fosstenløykken et al., 2003; Malhotra et al., 2016; Reihlen & Werr, 2012; Skjølsvik et al., 2007). However, the degree of collaboration can vary widely (Kvålshaugen et al., 2015). Sometimes, clients are not involved in creating the innovation at all; instead, they present a problem to professionals and determine the criteria for success for an acceptable solution. Other times, they can be highly involved, in which case they work closely with professionals throughout the entire process, contributing ideas and sharing knowledge in a fully joint effort to solve the problem. Although the phenomenon of client-professional collaboration is well established in prior literature, theory on the micro-dynamics of this collaboration is still relatively nascent (Barrett & Hinings, 2015; Smets, Morris, von Nordenflycht, & Brock, 2017). Therefore, we draw on literature from innovation teams to develop new theory on how collaboration in these teams can produce innovation. Furthermore, we develop a more general theory about how higher-stakes conditions can create several negative pressures that undermine collaboration in innovation teams, but familiarity is a resource that can help them withstand these negative pressures to continue innovating.

Client-Professional Collaboration and Innovation

Innovation occurs when people confront a problem that does not have a known solution, but can be solved through a dynamic process that includes multiple stages such as (1) generating

ideas, (2) evaluating and selecting ideas, and (3) implementing ideas (Amabile, 1983; Amabile & Pratt, 2016; Anderson et al., 2014; Perry-Smith & Mannucci, 2017; Shalley & Zhou, 2008; West, 2002). Collaboration may not always produce innovation because teams can suffer from a variety of process losses such as “groupthink” or “production blocking” that limit their ability to generate unique ideas (Diehl & Stroebe, 1987, 1991; Janis, 1971; Stroebe & Diehl, 1994).

Consequently, some scholars argue that team members should actively refrain from collaborating when generating and selecting ideas (e.g., Rietzschel, Nijstad, & Stroebe, 2006). However, many studies show that greater collaboration often yields more innovative outcomes (Hulsheger et al., 2009; Singh & Fleming, 2010; Taylor & Greve, 2006; Wuchty, Jones, & Uzzi, 2007), because it helps teams produce more divergent ideas during the idea-generation stage of the innovation process (Campbell, 1960; Nemeth & Kwan, 1987; Osborn, 1953; Simonton, 1999).

Collaboration can stimulate new ways of thinking that promote more unexpected combinations of ideas (Dugosh, Paulus, Roland, & Yang, 2000; Paulus & Yang, 2000), and it helps teams deal with more complex organizational problems when trying to innovate (Kavadias & Sommer, 2009; Sutton & Hargadon, 1996).

The effect of collaboration on idea selection, however, is more tenuous (Harvey, 2013; Rietzschel et al., 2006; Rietzschel, Nijstad, & Stroebe, 2010). People often desire novel solutions because it can lead to breakthrough outcomes that are unattainable through more conservative approaches (Singh & Fleming, 2010), but they also have a bias against novel ideas because there is greater uncertainty that these ideas will succeed (Mueller, Melwani, & Goncalo, 2012). This bias can be particularly acute in PSFs, because clients may be more sensitive to uncertain outcomes and professionals are more risk-averse due to their training (Richard, 2011). However, people tend to be better at evaluating the potential success of others’ ideas rather than their own (Berg, 2016), and multiple perspectives can help teams converge on higher quality solutions

(Cropley, 2006; Harvey & Kou, 2013). Therefore, greater collaboration can increase the chances of converging on more innovative ideas during the selection stage of the innovation process.

Finally, collaboration can improve idea implementation, because at this stage of the process, teams have developed a shared understanding of the project that allows them to have better communication, lower conflict, and enhanced coordination (Cronin & Weingart, 2007; Dougherty, 1992; Okhuysen & Bechky, 2009). Furthermore, greater client involvement at this stage can help professionals better understand the structure and operations of their organization (Fu, 2014; Maister, 1993, 1997; Mills et al., 1983), which can lead to a more streamlined implementation of ideas in their company. Taking all these dynamics together, we expect that greater collaboration throughout the innovation process will have a positive effect on innovation because it can improve each stage of the process.

Hypothesis 1: Greater collaboration in teams throughout the innovation process will be positively associated with innovative outcomes.

The Negative Pressures of Higher-Stakes Conditions

Client organizations often face challenges that require novel solutions to complex problems, and the consequences for failing to innovate can vary widely (e.g., Malhotra et al., 2016; Starbuck, 1993). As the stakes become higher, teams can face several negative pressures that undermine their ability to innovate. First, greater financial losses can trigger feelings of threat (Jackson & Dutton, 1988), which prevent teams from using the full range of information available within the team (Staw, Sandelands, & Dutton, 1981). For example, people can feel greater pressure to conform, whereby they ignore new and unique information in favor of quickly converging on a solution to a problem (Janis, 1971). Greater threat can also make people feel like they have less control over a situation (Staw et al., 1981), which can reduce their intrinsic motivation and decrease their ability to generate divergent ideas (Amabile, 1983).

Therefore, more threatening situations can prevent teams from using multiple perspectives on a project, thus inhibiting their ability to generate and select more innovative ideas during the innovation process.

Second, people in organizational settings are held accountable for their decisions and actions (Tetlock, 1985), meaning that they must not only generate ideas that are novel and useful, but also are defensible to other stakeholders of the project (see Frink & Klimoski, 1998; Lerner & Tetlock, 1999 for reviews). As the consequences for failure become higher, people are likely to feel more accountable for their performance (Gardner, 2012), and thus are more likely to focus on developing ideas that are cautious and conventional rather novel and risky (Gordon, Rozelle, & Baxter, 1988; Siegel-Jacobs & Yates, 1996). In other words, larger audiences place stronger emphasis on project outcomes, and teams will be less likely to select innovative ideas, because these ideas have no precedent for success and are harder to defend.

Finally, higher-stakes projects tend to be higher profile and can attract more attention from external stakeholders such as colleagues, managers, clients, and regulators. Under such conditions, teams can suffer from several process losses that undermine their ability to use diverse information (Baumeister, 1984; Gardner, 2012)—such as driving toward consensus, using common knowledge rather than unique knowledge, and focusing on completing a project rather than learning about new information (Stasser & Titus, 1985). Furthermore, external evaluation can inhibit intrinsic motivation, making people less willing to engage in divergent thinking and experiment with novel ideas (Amabile, 1979; Lee, Edmondson, Thomke, & Worline, 2004). Therefore, greater attention from external stakeholders can undermine collaboration dynamics in all three stages of the innovation process.

Overall, higher-stakes conditions can increase feelings of threat, accountability, and evaluation—all of which prevent teams from collaborating effectively during the innovation

process. During idea generation, teams are less capable of engaging in divergent thinking; during idea selection, they are less willing to take risks on more novel and uncertain ideas; and during idea implementation, they feel more pressure to complete projects quickly and efficiently.

Therefore, we expect higher-stakes conditions will negatively moderate the relationship between collaboration and innovation:

Hypothesis 2: Higher-stakes conditions will negatively moderate the relationship between collaboration and innovation, such that greater collaboration in teams will be associated with less innovative outcomes when the stakes are higher compared to when the stakes are lower.

Familiarity as an Antidote to the Negative Pressures of Higher-Stakes Conditions

The market for professional services is driven by relationships that emerge between clients and professionals over time. Oftentimes, clients seek help from long-standing advisors whom they have worked with several times in the past (Hanlon, 2004; Kaiser & Ringlsetter, 2011; Maister, 1993, 1997; Maister et al., 2002); but other times, they choose to work with new professionals based on reputation or recommendations from trusted peers (Glückler & Armbrüster, 2003; Kvalshaugen et al., 2015; Reihlen & Werr, 2012). Therefore, client-professional collaborations have varying levels of familiarity, which is based on how many times they have worked together in the past (Skilton & Dooley, 2010). Long-standing teams exist when collaborators have worked together on multiple projects, and new teams exist when they have never worked together on a project.

Research on innovation teams consistently shows that newer teams are more likely to develop innovation than longer-standing teams, because they have more unique perspectives that can promote divergent thinking during idea generation (Choi & Thompson, 2005; Guimera et al., 2005; Nemeth & Kwan, 1987; Perretti & Negro, 2007; Skilton & Dooley, 2010). Furthermore, newer teams have access to broader and more unique networks, improving their ability to search

the knowledge landscape and find innovative solutions to problems (Katz, 1982; Perretti & Negro, 2007; Perry-Smith & Shalley, 2003). By contrast, longer-standing teams tend to have shared perspectives that make them interpret problems similarly (Cannon-Bowers, Salas, & Converse, 1993; Klimoski & Mohammed, 1994; Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000). Although this can help teams coordinate complex tasks and take collective action toward shared goals during idea implementation (Cronin & Weingart, 2007; Dougherty, 1992; Okhuysen & Bechky, 2009), it can also undermine innovation because it prevents people from generating and selecting more novel ideas during earlier stages of the innovation process (Skilton & Dooley, 2010).

However, as the stakes become higher, teams experience several negative pressures that undermine their ability to innovate, and newer teams are particularly susceptible to these effects. First, they have weaker transactive memory systems (Liang, Moreland, & Argote, 1995; Moreland & Myaskovsky, 2000), which are collective cognitive structures that allow teams to encode, store, and retrieve knowledge while working on a task (Wegner, 1987). As a result, they are more likely to focus on common knowledge rather than unique knowledge (Gardner, 2012), which disables their ability to generate divergent ideas. Second, newer teams have lower levels of trust because they do not have sufficient history with each other to assess each other's motives and capabilities (McAllister, 1995). Consequently, they take fewer risks with each other (Anderson & West, 1998; Edmondson, 1999; Hulsheger et al., 2009), making them less likely to converge on novel and uncertain ideas during idea selection.

By contrast, longer-standing teams have stronger transactive memory systems and higher levels of trust (Johnson-George & Swap, 1982; Liang et al., 1995; McAllister, 1995; Moreland & Myaskovsky, 2000), which can help them withstand these negative pressures and continue innovating. First, they are more capable of identifying and sharing unique information with each

other (Stasser, Stewart, & Wittenbaum, 1995; Stewart & Stasser, 1995), and they may feel more motivated to solve problems due to heightened pressure (Gardner, 2012). Consequently, they may be more capable of generating novel and useful solutions to problems compared to when the stakes are lower. Furthermore, they are more willing to take risks with each other, which can help them select more novel ideas during idea selection, and they are more effective at communicating and coordinating with each other (Dougherty, 1992; Okhuysen & Bechky, 2009; Reagans, Argote, & Brooks, 2005), which can improve their ability to implement novel ideas efficiently and effectively.

Familiarity is therefore an important characteristic of teams that affects their ability to innovate under different conditions. Under low-stakes conditions, teams face minimal inhibitive pressures, and innovation hinges on their ability to generate divergent ideas during earlier stages of the innovation process. Consequently, new teams can thrive because they have more unique perspectives compared to long-standing teams. Therefore, we expect that greater collaboration in new teams will have a positive effect on innovation, and furthermore, that it will produce relatively more innovative outcomes than collaboration in long-standing teams. But under high-stakes conditions, several negative pressures can undermine collaboration in all three stages of the innovation process. Teams must not only engage in divergent thinking during idea generation, but also take risks on more novel ideas during idea selection and coordinate their effort more effectively during idea implementation. Long-standing teams have the resources needed to accomplish these goals, and therefore, we expect that greater collaboration in these teams will have a positive effect on innovation, and it will produce relatively more innovative outcomes than collaboration in new teams. We summarize these arguments with the following hypotheses:

Hypothesis 3: Familiarity and higher-stakes conditions will jointly moderate the effect between collaboration in teams and innovation, such that:

- a. When the stakes are low, greater collaboration in new teams will be positively associated with innovation.*
- b. When the stakes are low, collaboration in new teams will be associated with relatively more innovative outcomes than collaboration in long-standing teams.*
- c. When the stakes are high, greater collaboration in long-standing teams will be positively associated with innovation.*
- d. When the stakes are high, collaboration in long-standing teams will be associated with relatively more innovative outcomes than collaboration in new teams.*

METHODS

Empirical Setting

The data for this study come from an archival dataset produced by an annual innovation contest held in the legal industry. This contest was sponsored and published by a highly reputable news organization in the United Kingdom, and it recognized the most innovative lawyers and law firms across numerous domains of expertise in various regions around the world. The contest originated in the United Kingdom and later expanded to other regions such as Europe, the United States, and Asia. For this study, we focused our attention on three domains of law: *corporate*, *finance*, and *dispute resolution*. Corporate law included cases related to mergers & acquisitions; finance law included cases related to financial issues such as restructuring debt; and dispute resolution law included cases that needed to be resolved in court, such as when one organization sues another over patent infringement. In each case, a client organization hired an external lawyer from a law firm to develop a legal solution to an organizational problem. The lawyer was primarily responsible for developing the solution, and they collaborated with their client to varying degrees throughout the project (Kvålshaugen et al., 2015).

This contest presented an ideal setting to test the hypotheses of this study for several reasons. First, it judged the outcomes of actual client work and not projects done for the sake of a competition, creating high external validity for our results. Second, the consequences for failure

in these projects were clearly discernible: in the lowest-stakes conditions, organizations did not face any meaningful financial loss, as they were pursuing minor projects such as a small acquisition; but in the highest-stakes conditions, organizations were avoiding a significant financial loss such as bankruptcy. Third, ideas could only be submitted to this contest if they had already been created and implemented in an organization, making them consistent with theoretical definitions for innovation (Anderson et al., 2014; West, 2002). Finally, an independent panel of industry experts rated each solution for novelty and usefulness, reflecting one of the highest standards for measuring innovation outcomes in organizational research (Amabile, 1982).

Data

The data for this study came from one of the contests held in Europe. After applications were submitted to the contest, researchers from an independent firm conducted two 30-minute interviews for each case—one with the lead lawyer for the project and another with the client. All notes were recorded in a central database. After the interviews were completed, an eight-person panel of experts—which included law professors, members of the Queen’s Counsel, and specialists from different domains of the legal industry—convened to discuss each case and rate them for novelty and usefulness. All interviews and ratings were completed within five months of the submission deadline, which was several months before we had access to the data. Therefore, all participants, interviewers, and raters were blind to the hypotheses of this study. For our analysis, we treated each case as a single observation, and each observation included a written submission from a lawyer or law firm, two sets of interview notes recorded by an independent research firm, and an innovation score provided by a panel of experts. To control for other factors at the individual and firm levels of analysis, we also collected time-varying data from public sources. Our total sample consisted of 255 observations.

Submissions. Each submission contained a written response to four sections. The first section asked applicants to describe their solution: “Provide a description of the innovation including: key dates, parties involved, and other relevant background.” The second section focused on novelty: “Why is the work or initiative innovative? Which elements are most original?” The third focused on usefulness: “What was the impact of the innovation for the client, firm or key stakeholders? How can its success be measured? Where did the lawyers deliver the most value?” The final set asked about the rationale for developing the solution: “Why was this specific approach taken? What was the thinking process behind the solution? What market changes does it respond to?”

Lawyer Interviews. Once submissions were received, a researcher from the independent research firm conducted interviews with the lead lawyer listed on the submission. Interviews were semi-structured, meaning that most questions were asked across all cases while others were customized to explore unique aspects of a particular case. Questions were designed around two broad themes. First, interviewers sought more information about the problem and solution, asking questions such as: “What was challenging about this deal? Where did the idea come from? How did you have to do things differently?” Second, interviewers tried to understand how the lawyer interacted with their client, asking questions such as: “How was the client involved? What demands did your client have for you?”

Client Interviews. These interviews were also semi-structured and were conducted after the lawyer interview so that the researcher could follow up on specific points that the lawyer discussed. Interviewers tried to learn more about the solution, asking questions such as: “What are some of the details behind this solution?” and “How important was this deal for you?” They also tried to learn more about the interaction between the client and lawyer during the process:

“Why did you choose to instruct this law firm? Who came up with the idea? Did you collaborate with the lawyers? What was the law firm’s contribution?”

Innovation scores. Once interviews were completed, a panel of industry experts rated each solution from 1-10 along the dimensions of “originality” and “impact,” using a scoring rubric developed by the independent research firm. Originality was based on the novelty of solutions within the legal industry. Cases were rated below a five if ideas already existed and did not demonstrate novel thinking; between 5-8 if ideas were adapted from different areas of legal practice or different professional services; and 9-10 if ideas had no legal precedent and were completely new in legal services. Impact was based on the extent to which solutions provided benefits to the client organization and could be applied to other industries or legal domains. Cases were rated below a five if they provided moderate benefit to the client and had no impact on the legal industry; between 5-8 if they provided large benefit for the client and had a moderate impact on the legal industry; and 9-10 if they transformed the way legal work was done in a particular domain or industry.

Public Source Data: Data on lawyers were collected from various public sources including firm websites, LinkedIn profiles, and databases such as the Legal 500. Data on law firms were collected from American Lawyer Global 100 and previous years’ results of the innovation contest. We also collected data on both lawyers and law firms from *Chambers and Partners Europe Guides*, an independent trade publication that rates the quality of lawyers and law firms across numerous domains of expertise—including areas closely related to the categories of this contest. For data coming from annual publications, we recorded data corresponding to the year in which the lawyer was hired to work on the project, because they reflected information from the year before the project started.

Dependent Variables

To measure our dependent variables, we constructed an innovation score that multiplied the values for originality and impact that came from the panel of experts (Montag, Maertz, & Baer, 2012). Thus, our primary dependent variable was the overall *innovation* score, but we also used the sub-components of *originality* and *impact* to provide additional depth to our analysis.

Independent Variables

To take advantage of the large volume of mixed data in our dataset, we used content analysis to construct quantitative variables from the qualitative data (Krippendorff, 1980; Neuendorf, 2002; Weber, 1990), which were then used in regression analyses. Content analysis enables rigorous quantitative analysis on archival data to make valid inferences from text, and it is particularly valuable for conducting research on “adolescent theories” (Sonpar & Golden-Biddle, 2007), in which theoretical relationships between constructs have not yet been well-established and empirical relationships between variables have not been tested adequately (Bacharach, 1989). Therefore, to test our theory on high-stakes innovation, we conducted content analysis on the qualitative data from each case, developing ordinal scales for the following latent variables: *collaboration*, *higher stakes*, *familiarity*, *problem complexity*, and *time pressure*.

To develop these measures, the first author randomly selected five cases and worked with a researcher from the independent firm to develop a pilot coding scheme. This process ensured that the author’s interpretation of the qualitative data was consistent with the participants’ views. When inconsistencies arose between the two coders, the coding scheme was revised, and five additional cases were coded and tested for reliability. This process was repeated until the coders achieved high reliability, at which point the coding scheme was finalized, and the primary author coded all cases in the dataset for the variables listed below. To further validate the coding scheme, a third rater who was blind to the hypotheses of this study coded 36 randomly chosen

cases across the three competition categories (24.3 percent of final sample). Inter-rater reliability was calculated using Krippendorff's alpha coefficient (Krippendorff, 1980), which ranged from 0.72 to 0.85 across all variables, indicating acceptable agreement (Cicchetti, 1994).

Collaboration (1-4; IRR = 0.85). This variable was measured based on the degree to which the lawyer collaborated with their client throughout the innovation process. Cases were rated a one if they indicated there was no collaboration; a two if there was low collaboration; a three if there was moderate collaboration; and a four if there was high collaboration. The following quote from a client represents a case that was coded a four: "It was pretty much a team effort throughout—a seamless service. They came up with ideas, but we came up with ideas as well. They would reject part and accept part, but they always considered our approach."

Higher Stakes (1-4; IRR = 0.79). This variable was based on the perceived level of financial loss that the client organization would have faced if the people working on the project failed to develop a legal solution to the problem. Cases were rated a one if there was no meaningful financial loss for the client; a two if there was a small financial loss; a three if there was a moderate financial loss; and a four if there was a large financial loss or the client faced bankruptcy. The following quote from a lawyer represents a case that was coded a one: "The entire proceedings were ultimately resolved to protect consumers, but the result afforded [our client] more flexibility about how to meet those requirements." And the following lawyer quote represents a case that was rated a four: "Massive sums were at stake in this cross-border insolvency: [The client's] customers faced an estimated shortfall of US\$1.6 billion... The fact that [the client] faced bankruptcy, despite many protections, caused widespread public concern and comment."

Familiarity (1-3; IRR = 0.84). This variable was based on the extent to which the client and lawyer had worked together on previous projects (Skilton & Dooley, 2010), regardless of the

firm that the lawyer worked at in the past. Cases were rated a one if they indicated they had never completed a project together; a two if they had completed at least one project together; and a three if they had completed several projects. The following client quote represents a case that was coded a three: “Over the past eight years, [the lawyer] has advised us on several strategic investments and consistently demonstrated his ability to execute complex cross-border deals.”

Control Variables

Problem Complexity (1-4; IRR = 0.72). We measured this variable to distinguish higher-stakes conditions from other conditions that have been associated with innovation such as problem complexity (Malhotra et al., 2016). To do so, we assessed the number of goals and conflict between goals that clients and professionals perceived on the project (Campbell, 1988). Cases were rated a one if there was only one primary goal to achieve; a two if there were multiple goals and low conflict between goals; a three if there were multiple goals and moderate conflict; and a four if there were multiple goals and high conflict. The following lawyer quote illustrates a case that was coded a four: “Commercial insolvency can become complex because there are so many overlapping claims. If you argue everything then it becomes hard to reach a solution... there were lots of people making claims against the respective estates. It was very easy to get lost in the complexity and litigate everything.”

Time Pressure (1-3; IRR = 0.80). We also wanted to distinguish higher-stakes conditions from other contextual factors that can affect innovation in organizations such as time pressure (Amabile, Conti, Coon, Lazenby, & Herron, 1996). To do so, we assessed the extent to which lawyers felt like it was difficult to create and implement their solution by a given deadline. Cases were rated a one if it was not difficult to meet the deadline; a two if it was somewhat difficult; and a three if it was very difficult to meet the deadline. The following lawyer quote illustrates a

case that was coded a three: “The time-frame was extremely challenging, with only four weeks between signing the final-form terms and signing the definitive transaction documents.”

Lawyer Controls. In this setting, clients hired lawyers for their domain-relevant expertise to solve a problem (Amabile, 1983). Therefore, we rated *lawyer expertise* based on data coming from Chambers and Partners. These ratings ranged from a one for lawyers who were ranked in the lowest band of quality in the relevant domain of expertise, to a six for lawyers in the highest band. Lawyers who were not listed at all were rated a zero. We also measured *lawyer experience* as the number of years it had been since the lawyer graduated from law school before working on the project (divided by 10 to increase interpretability of results).

Law-Firm Controls. Other factors that can affect innovation include firm size, adequate financial resources, and a strong organizational climate for innovation (Amabile et al., 1996; Damanpour, 1991; Hulsheger et al., 2009). Therefore, we measured *firm size* as the total number of lawyers working at the law firm (divided by 1,000 to increase interpretability of results), and *firm resources* was measured as the total revenue that the law firm earned (divided by \$1B to increase interpretability of results). Finally, *firm innovation climate* was based on innovation scores that the law firm received from the previous three years of the innovation contest, which captured the period of time in which the lawyers were developing solutions to problems for this contest.

Data Analysis

Legal solutions in this dataset were created and implemented over the course of several months, occurred across multiple jurisdictions, and were executed in parallel. As a result, we could reasonably assume that observations were independent of each other, so we used least-squares regression analysis to test our hypotheses. However, some heteroskedasticity could have existed due to the country’s legal system or the legal domain of the problem, among other

factors. Therefore, we used Huber-White robust standard errors for all regressions (White, 1980). The initial sample for our dataset included 255 cases, and we eliminated cases that were missing either a lawyer or client interview, which left us with 153 cases for analysis (60 percent). Five further cases were dropped because the qualitative data were insufficient to reliably code all five variables, leaving us with 148 cases for analysis (58 percent). To check whether there was systematic bias between selected and unselected cases, we compared the distributions of the innovation score for the two samples. We found that selected cases received significantly higher innovation scores ($\mu = 36.97$) than unselected cases ($\mu = 24.89$; $t = 9.2$; $p < .001$), indicating there was indeed a bias.

We considered two possible explanations for this upward bias. First, the panel of experts may have given higher scores to cases that had more information from interviews. To control for this possibility, we included a variable for *total interview length* in our regressions. Second, there may have been systematic bias that affected participation in interviews, which could have subsequently affected innovation scores. To control for this possibility, we constructed a *Heckman correction coefficient* using a two-stage process (Heckman, 1979). First, we predicted whether each observation was more likely to be selected based on three variables that were significantly correlated with interview participation, but not correlated with innovation. These included a dummy for lawyers who were located in the United Kingdom, a dummy for clients who were on their organization's general counsel, and the length of written submissions. Then, using the resulting probit distribution, we constructed an inverse Mills ratio and included this as a control variable in all regressions.

RESULTS AND FINDINGS

Summary statistics and pairwise correlations for variables used in our regression analyses are shown in Table 1. Results show that *collaboration*, *problem complexity*, and *innovation* are

all positively correlated with each other, which supports existing theory arguing that innovation in PSFs often comes from client-professional collaborations solving complex problems.

----- Insert Table 1 here -----

In Hypothesis 1, we predicted that greater collaboration throughout the innovation process would be positively associated with innovation. Results, which are summarized in Table 2, show that *collaboration* is positively associated with *innovation* while including all control variables (model 2: $\beta = 2.12$, $p < 0.05$). The value of this coefficient indicates that the difference between the highest and lowest levels of collaboration contributes to a 6.36 difference in innovation scores. Given that innovation scores ranged from 4 to 64 in our dataset, these results show that ideas developed through the highest levels of collaboration were rated as greater than 10 percent more innovative than ideas that were not developed through any collaboration at all. Furthermore, when examining how the effect of collaboration was distributed across the two sub-dimensions of innovation, we find that its effect is higher on *originality* (model 5: $\beta = 0.22$, $p < 0.05$) than on *impact* (model 6: $\beta = 0.08$, n.s.), suggesting that collaboration helped teams develop more novel ideas, but not necessarily more useful ideas. Altogether, we find fairly strong support for Hypothesis 1.

----- Insert Table 2 here -----

In Hypothesis 2, we predicted that higher-stakes conditions would negatively moderate the relationship between collaboration and innovation. To test this hypothesis, we created an interaction term between *collaboration* and *higher stakes*, and then regressed *innovation* on this variable while controlling for other variables. Results show that *higher stakes* does not have a significant moderating effect on *collaboration* (model 3: $\beta = -0.50$, n.s.), and thus Hypothesis 2 is not supported. To test Hypothesis 3, we created a three-way interaction term between

collaboration, *higher stakes*, and *familiarity* and regressed *innovation* on this variable while controlling for all other variables, including all two-way interactions among the independent variables (Aiken & West, 1991). Results show that *familiarity* and *higher stakes* jointly moderate the relationship between *collaboration* and *innovation* (model 4: $\beta = 3.74$, $p < 0.01$), and that this effect is particularly strong on the *impact* of ideas (model 6: $\beta = 0.43$, $p < 0.01$) compared to *originality* (model 5: $\beta = 0.16$, n.s.). These results show strong support for Hypothesis 3, and to better understand them, we also visualized several three-way interactions in Figure 1.

----- Insert Figure 1 here -----

The first set of graphs (Figures 1a and 1b) shows the effects of *collaboration* on *innovation* under the lowest-stakes (*higher stakes* = 1) and highest-stakes conditions (*higher stakes* = 4). By visual inspection, it seems that each sub-component of Hypothesis 3 is supported. The slope for collaboration in new teams is positive under low-stakes conditions and negative under high-stakes conditions, whereas the slope for collaboration in long-standing teams shows the opposite effects. Furthermore, the relative difference between the slopes for new and long-standing teams in each graph are quite strong. When exploring how this joint-moderating effect is distributed across the two sub-components of innovation, results show a somewhat muted effect on *originality* (Figures 1c and 1d), as the slopes for collaboration in new teams are closer to zero, and they are relatively more similar to the slopes for collaboration in long-standing teams. By contrast, the joint-moderating effect on *impact* seems to be heightened (Figures 1e and 1f), as the direction of all slopes are the same as the graphs for innovation, but the slopes for new teams appear to be more divergent from the slopes for long-standing teams.

We also formally tested these hypotheses by conducting simple slope analysis on each graph (Aiken & West, 1991). Results, which are summarized in Table 3, provide support for

each hypothesis and show that the joint-moderating effect is indeed stronger on the impact of ideas compared to originality. Under low-stakes conditions, *collaboration in new teams* is positively associated with *innovation* (H3a: $\beta = 6.48$, $p < 0.01$), and it has a relatively larger slope than *collaboration in long-standing teams* (H3b: $\beta = 9.38$, $p < 0.01$). This means that the difference between the highest and lowest levels of collaboration in new teams contributes to a 19.4 difference in the innovation scores, or more than a 30 percent difference in innovation. By contrast, under high-stakes conditions, *collaboration in long-standing teams* is positively associated with *innovation* (H3c: $\beta = 7.86$, $p < 0.01$), and it has a significantly larger slope than *collaboration in new teams* (H3d: $\beta = 13.07$, $p < 0.01$). These results show that the difference between the highest and lowest levels of collaboration in long-standing teams contributes to a 23.6 difference in innovation scores, or a nearly 40 percent difference in overall innovation.

----- Insert Table 3 here -----

Exploring the Mechanisms of Collaboration When the Stakes are Higher

Altogether, our quantitative analysis supports our theory of high-stakes innovation, but questions remain about the mechanisms underlying our results. Earlier in this study, we theorized that familiarity provides teams with several resources that can enhance their ability to innovate under higher-stakes conditions. However, we have not provided evidence showing these mechanisms in action, and theory on high-stakes innovation is still relatively nascent. Therefore, we conducted supplementary qualitative analysis on our data to gain a deeper understanding of the mechanisms underlying our quantitative results (Edmondson & McManus, 2007). This allowed us to further elaborate our theory and develop additional insights that quantitative analysis alone could not provide (Fisher & Aguinis, 2017; Gibson, 2016).

To explore these mechanisms, we conducted a comparative case study analysis (Eisenhardt, 1989), treating each observation as an independent case and theoretically sampling our data based on values that were assigned during quantitative analysis. We identified three sets of cases to compare: (a) *high stakes* (top third) and *high innovation* (top third), (b) *low stakes* (bottom third) and *high innovation*, and (c) *high stakes* and *low innovation* (bottom third). Because our theory is focused on understanding collaboration dynamics for high-stakes innovation, all cases were rated as having some evidence of collaboration (two, three, or four). This yielded 16 cases for the first set, 23 cases for the second set, and 15 cases for the third set, providing a total sample of 54 cases and 108 interviews to analyze. This approach allowed us to tease apart the mechanisms that could explain why collaboration in some teams yielded more innovative outcomes than others under high- versus low-stakes conditions (Miles & Huberman, 1994).

We analyzed these data in two phases. First, we compared *high versus low stakes* cases when *innovation was high* (a versus b), which allowed us to identify factors unique to high-stakes conditions that may have contributed to innovative outcomes. Second, we compared high versus low *innovation* cases when the *stakes* were high (a versus c), which allowed us to identify factors of high-stakes conditions that could uniquely explain more innovative outcomes. In each phase, we conducted focused coding of the data (Charmaz, 2006), analyzing text that referenced concepts related to collaboration, higher-stakes conditions, familiarity, and the innovation process. As we iterated between data and theory, themes began emerging around theoretically important constructs, and we used chains of logic to build a causal model that could explain our results (Miles & Huberman, 1994). The theoretical model that emerged from this analysis is shown in Figure 2. We found evidence suggesting that creative problem solving during idea generation was relevant under all conditions, but risk-taking during idea selection played a

particularly important role in facilitating innovation when the stakes were higher. Furthermore, we found that two factors related to familiarity—cognitive trust and shared mental models—seemed to promote greater risk-taking during idea selection, which in turn promoted more innovative outcomes.

----- Insert Figure 2 here -----

Prior research shows that teams are most innovative when they work on well-defined problems and generate many divergent ideas before selecting and implementing an idea (Anderson & West, 1998; Osborn, 1953; Sutton & Hargadon, 1996). In our setting, we found evidence suggesting that such creative problem-solving techniques indeed helped collaborators develop more innovative outcomes. As one lawyer explained: “We provided an innovative solution to the client’s problem by looking at where they were and where they needed to be, understanding that goal, and then changing the normal M&A mechanism to deal with some of the problems that were unique to their situation.” When the stakes were lower, generating ideas seemed to be more important than taking risks on novel ideas. For example, when one lawyer was asked, “What was the more important contribution in those brainstorming sessions—coming up with ideas, or convincing [the client] that it was the right way to go?” the lawyer responded, “On this transaction, it was coming up with the ideas.”

However, when the stakes were higher, people often experienced heightened levels of performance pressure (Gardner, 2012), as one client described: “It was a highly difficult situation and we were not sure if the deal was going to go through... lesser lawyers may have caved in a difficult and complex deal like this.” Such pressure can undermine both idea generation and idea selection, but in our data, it seemed to place far greater pressures on the latter. For example, one lawyer described the importance of taking risks under such conditions: “When you are under the same pressure that we were in, people do not usually take a chance on a difficult point. [Our

client] was brave. You need to have a receptive client – either a natural risk taker or they need to take a risk.” Table 4 summarizes the coding scheme that emerged from this phase of analysis, and it shows that although creative problem-solving techniques were present in more than 75 percent of all cases, risk-taking was present in more than twice as many cases under high-stakes conditions compared to low-stakes conditions. These data suggest that when the stakes were higher, it was essential for collaborators to take risks on more novel ideas during idea selection.

----- Insert Table 4 here -----

Scholars have noted that interpersonal trust is a fundamental precursor to risk-taking (Johnson-George & Swap, 1982), but there are two different types of trust (Gardner, 2016; McAllister, 1995). The first is cognitive trust, which refers to an individual’s beliefs about another person’s reliability and dependability to perform a task; and the second is affective trust, which refers to mutual care and concern that is based on emotional bonds between individuals. We found strong evidence suggesting that cognitive trust was an important factor to help collaborators withstand the intense pressures of higher-stakes conditions, as one client described: “[The lawyer] has a talent for compliance related work. He is the type of guy you want on your team because in crisis mode when everyone starts panicking, he is very calm and really has the ability to distill the important things for us.” Table 5, which summarizes our coding scheme from the second stage of analysis, shows that cognitive trust was present in 75 percent of high-innovation cases and more than 90 percent of low-innovation cases. These findings suggest that although cognitive trust was an important factor for collaboration when the stakes were higher, it did not necessarily facilitate more innovative outcomes.

----- Insert Table 5 here -----

Surprisingly, we found that the biggest difference between high- and low-innovation cases seemed to be the presence of shared mental models between collaborators. As shown in

Table 5, shared mental models were present in more than 60 percent of high-innovation cases, which was nearly double the rate found in low-innovation cases. Shared mental models refer to collective knowledge structures between people that enable teams to take collective action toward a goal (Klimoski & Mohammed, 1994). They can grow along two dimensions: a relational dimension, which includes an understanding about each other's needs, tendencies, and preferences; and a task-related dimension, which includes an understanding of the task's goals and strategies (Cannon-Bowers et al., 1993; Mathieu et al., 2000).

In our data, each dimension of shared mental models seemed to have an important effect on the level of trust between collaborators. For example, one client described how their relationship with the lawyer helped them trust the lawyer's advice under more challenging conditions: "We have been working with [him] for as long as the firm has existed, so the relationship is really at an institutional level. He knows our business well, he is very commercial and we trust him, especially when a situation is more complicated." Furthermore, when lawyers and clients shared the same goals and strategies, it also seemed to facilitate higher levels of trust. As one client described: "We had a lawyer who could turn to [our] issues with a good sense of what could and couldn't be done. We let him take the lead on negotiations even without us there, because we were confident that he would get the best business results for us." Therefore, although prior theory argues that shared mental models typically undermine innovation by inhibiting divergent thinking during idea generation (e.g., Skilton & Dooley, 2010), we found that they were also deeply associated with trust, which seemed to promote greater risk-taking on novel ideas during idea selection.

DISCUSSION AND CONCLUSION

Prior literature presents contradicting views on the relationship between familiarity and innovation in the professional service context. Scholars of professional service firms argue that

familiarity enhances innovation because it allows professionals to gain a deeper understanding of their client's organization, which in turn helps them develop more effective solutions to problems. By contrast, scholars of innovation teams argue that familiarity is a liability because shared perspectives can undermine their ability to generate divergent ideas during the innovation process. To resolve this conflict, we introduce a new contextual condition that is fundamentally associated with innovation in organizational settings—the stakes of an innovation project—and develop new theory that explains how familiarity can either enhance or undermine innovation under different conditions. These findings make several contributions to theory on both PSFs and innovation teams, suggesting several new avenues for future research.

Contributions to Theory on Professional Service Firms

Research on PSFs has long been interested in understanding how client-professional collaborations develop innovation in various professional settings (Alam, 2006; Amara et al., 2009; Bettencourt et al., 2002; Fosstenløkken et al., 2003; Kvålshaugen et al., 2015; Mills et al., 1983; Skjølsvik et al., 2007). However, there are many aspects about the micro-dynamics of these collaborations that are still poorly understood (Barrett & Hinings, 2015; Reihlen & Werr, 2012; Smets et al., 2017). Therefore, our first contribution is that we draw on literature from innovation teams to develop new theory on client-professional collaborations and their effect on innovation. By doing so, we provide a new theoretical framework and set of constructs that have been well-established in other domains to help scholars of PSFs conduct more research on the micro-dynamics of collaboration in this setting.

Second, prior theory argues that it is vital for professionals to develop long-standing relationships with their clients to gain a deeper understanding of their business and improve their ability to develop high-quality solutions to problems (Fu, 2014; Maister, 1993, 1997; Maister et al., 2002). Our qualitative findings support this argument by showing that cognitive trust and

shared mental models are both valuable for innovation under higher-stakes conditions. But they also expand prior theory by showing a new mechanism through which long-standing relationships can promote more valuable services—that is, by promoting greater risk-taking on novel and uncertain ideas during the selection stage of the innovation process. Taking a risk on a more novel idea does not necessarily guarantee a more valuable outcome, because more novel ideas have greater variance in their potential success (Singh & Fleming, 2010). Therefore, some clients may prefer to select a less novel idea because it has a greater chance of securing an acceptable, albeit less valuable, outcome. However, clients who wish to obtain highly valuable outcomes must often take a risk on a more novel idea, which also comes with the possibility of obtaining a less valuable outcome—or even failure.

Our quantitative results demonstrate that such risk-taking was indeed rewarded, as long-standing teams developed both more novel—and higher impact—ideas when the stakes were higher. However, such strong relationships may not always be an asset for client-professional collaboration, because when the stakes were lower, familiarity actually reduced value when solutions were produced through collaboration. Therefore, we identify a set of conditions in which newer relationships may be more effective at solving problems than longer-standing relationships. This insight suggests several new avenues for future research, such as understanding when, why, and how newer relationships can be an asset for work in PSFs and may even be preferred to longer-standing relationships. In practical terms, professionals could apply this finding by bringing in new colleagues to work on client problems (Gardner, 2016), which could bring in fresh perspectives that improve innovation on lower-stakes projects.

Finally, prior research argues that innovation in PSFs comes primarily from professionals delivering novel, customized solutions to complex problems (Amara et al., 2009; Kvalshaugen et al., 2015), highlighting how characteristics of the task can have a strong influence on innovation.

This study introduces a new task characteristic that is theoretically distinct and independent from complexity—the stakes of a project—and shows that it can have dramatic effects on the ability of client-professional collaborations to innovate. Future research can build on this work by further developing theory on the collaboration dynamics that occur under higher-stakes conditions. For instance, we defined stakes in terms of financial *loss*, but there may also be situations in which financial *gains* can create higher-stakes conditions, because these projects also increase performance pressure and garner more attention from other stakeholders (Gardner, 2012). Given that people behave fundamentally differently when facing losses versus gains (Kahneman & Tversky, 1979), we expect there to be substantial differences in the way that teams collaborate with each other under different types of high-stakes conditions. Scholars can make valuable contributions to theory by better accounting for these differences, which could significantly alter the relationships between the variables examined in this study.

Contributions to Theory on Innovation Teams

Our findings also make several theoretical contributions to literature on innovation teams. Our quantitative results show that the pressures associated with higher-stakes conditions can significantly affect the ability of teams to produce innovation, but the degree and direction of these effects depend on the level of familiarity between team members on a project. When the stakes are lower, collaboration in new teams has a positive effect on innovation and can produce more innovative outcomes than collaboration in long-standing teams, which is consistent with several decades of prior research (Choi & Thompson, 2005; Guimera et al., 2005; Katz, 1982; Paulus & Nijstad, 2003; Skilton & Dooley, 2010). However, when the stakes are higher, these effects reverse. Therefore, we introduce a new environmental condition that is fundamentally associated with innovation in organizational contexts, and we show that it reverses prior

assumptions on the relationship between familiarity and innovation, raising new questions about the value of familiarity for innovation in teams.

In particular, our qualitative findings suggest that shared perspectives can play an important role in facilitating innovation when the stakes are higher because they promote greater risk-taking during idea selection. In organizational settings, collaborators need to engage in both the divergent and convergent processes during the innovation process, but prior research has focused much more on the former (Anderson, De Dreu, & Nijstad, 2004; Anderson et al., 2014; Shalley & Zhou, 2008). Therefore, a consistent argument has emerged claiming that teams must have unique perspectives to develop more innovative outcomes because it helps them generate more divergent ideas. Our findings suggest that this is indeed the case when the stakes are lower, because people are free from the negative pressures that can undermine their ability to use multiple perspectives during idea generation, and they are less susceptible to the bias against novelty during idea selection.

However, as the stakes become higher, the balance of power for predicting innovation in teams may shift from idea generation to idea selection. Under these conditions, people can suffer from several negative pressures that inhibit the use of multiple perspectives and increase the bias against novelty. Therefore, any novel ideas that are generated through divergent thinking are subjected to greater scrutiny, and thus are more likely to be filtered out during idea selection. As a result, generating divergent ideas may be inconsequential if teams are not also willing to take risks on more novel and uncertain ideas. Our findings suggest that familiarity is an important resource that can help teams withstand these negative pressures and continue innovating under higher-stakes conditions, and furthermore, that shared perspectives (i.e., shared mental models) may be a key factor facilitating greater risk-taking during idea selection. These findings provide a stark contrast to prior research, which specifically argues that shared perspectives prevent

teams from developing more innovative outcomes because they undermine idea generation (e.g., Skilton & Dooley, 2010). Future research can build on this work by further exploring the tension between idea generation and idea selection, examining how different team characteristics and contextual conditions interact with each other to alter performance in each stage of the innovation process to affect overall innovation.

However, before generalizing too much from these findings, one significant caveat must be noted, which is that we developed theory for collaboration in teams, but tested our theory on dyads. Some scholars argue that teams are fundamentally different than dyads and require appropriate empirical tests, but others argue that many of the theoretical constructs that occur in teams operate similarly within dyads (see Moreland, 2010; Williams, 2010 for reviews of this debate). For example, scholars argue that trust is a dyadic construct, but also that it's instrumental to supporting a psychologically safe environment within larger groups. (Edmondson, 1999). Our qualitative analysis shows that trust plays a particularly important role for innovation under higher-stakes conditions because it facilitated greater risk-taking during idea selection. Therefore, we expect that trust—or some derivation of it—will also influence the ability of larger teams to converge upon more innovative ideas under higher-stakes conditions. Similar arguments can be made for other constructs in our theory including creative problem solving, risk-taking, transactive memory systems, and shared mental models. Therefore, we expect that many of the empirical results found in this study will be replicated with larger teams.

Limitations of Study

There are several aspects of our study that could limit the generalizability of our findings. First, although our data came from numerous sources such lawyers, clients, an independent research firm, and a panel of experts—who were all blind to the research hypotheses—it would have been ideal to collect longitudinal data to measure attitudes and behaviors under higher-

stakes conditions as they occurred. However, this approach was infeasible given the structure of the contest, so we supplemented the original dataset with time-varying data from public sources (Miles & Huberman, 1994). Second, we could not establish causality between the independent variables and innovation. However, to improve the internal validity of our results, we collected time-varying data on individuals and organizations to control for other factors, and we used statistical methods such as robust standard errors and a Heckman correction coefficient to rule out various forms of statistical bias.

Finally, our biggest limitation is that we tested our theory on retrospective interview data collected from an innovation contest. As a result, our sample only included ideas that were successfully implemented, which could have biased our results. However, this issue is mitigated by our theoretical and methodological approach. In this study, we focused on explaining the *quality* of creative outcomes rather than the quantity (e.g., Sutton & Hargadon, 1996). Thus, we did not seek to explain how likely innovative outcomes are to occur under higher-stakes conditions, but rather, to explain the mechanisms by which they are obtained. Our final sample had a high variation in innovation outcomes, allowing us to test the mechanisms of collaboration that resulted in *relatively* more or less innovation. Furthermore, a dense sample of successful high-stakes cases provided us with a richer theoretical sample for qualitative analysis, allowing us to elaborate on the mechanisms that we theorized in this study. Therefore, our study helps uncover several mechanisms of collaboration that are important for higher-stakes conditions.

However, given these limitations, further research is needed to develop and validate the theory. First, our study can only suggest that familiarity is a valuable resource for innovation teams as the stakes become higher, and future research should include a broader sample of collaboration efforts that include both successes and failures. If the results of this study hold, then we can be more confident that risk-taking during idea selection is necessary and valuable

for teams working under higher-stakes conditions. Second, given the limitations of qualitative research, our study can also only suggest that characteristics such as shared mental models can improve innovation under higher-stakes conditions by promoting greater risk-taking during idea selection. Future research can test this argument by formally measuring these constructs and measuring how much they influence innovation through quantitative methods. Finally, future research can improve the validity of our theory by testing it with more advanced quantitative methods that can determine causal relationships. This may be difficult to do in a laboratory experiment, because higher-stakes conditions require people to feel accountability for the consequences of their behavior (Tetlock, 1985). However, testing our theory through longitudinal survey data or a field experiment may be more feasible.

Conclusion

This study investigates the effects of collaboration in teams on innovation in the professional service context, and it introduces a new contextual condition that helps resolve a theoretical contradiction between different sets of literature. Under higher-stakes conditions, it is important for teams to have longer-standing relationships because it helps them withstand several negative pressures that can undermine their ability to innovate. But under lower-stakes conditions, such strong relationships can actually undermine innovation, and newer relationships may be more effective because they are better at developing more innovative ideas. These findings have important implications for innovation in professional service firms and for innovation teams more broadly. In particular, we highlight an underlying tension between different stages of the innovation process, and we explain how familiarity can be a valuable asset that enhances innovation under certain conditions. These arguments provide theoretical guidance for scholars who wish to conduct future research on this topic, and they provide practical guidance for clients and professionals trying to innovate under higher-stakes conditions.

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TABLE 1

Summary Statistics and Pairwise Correlations for Regression Variables

Variables	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12
1. <i>Innovation</i>	36.97	10.95												
2. <i>Originality</i>	5.84	1.10	0.85**											
3. <i>Impact</i>	6.24	1.03	0.82**	0.43**										
4. <i>Collaboration</i>	2.49	0.91	0.24**	0.25**	0.18*									
5. <i>Higher stakes</i>	2.18	1.11	-0.04	-0.14 [†]	0.09	0.07								
6. <i>Familiarity</i>	1.95	0.81	-0.03	0.01	-0.07	0.05	0.00							
7. <i>Problem complexity</i>	2.39	1.00	0.22**	0.18*	0.19*	0.23**	0.11	-0.08						
8. <i>Time pressure</i>	1.36	0.69	-0.05	-0.11	0.02	-0.01	0.27**	-0.04	0.05					
9. <i>Lawyer experience</i>	1.90	0.63	0.13	0.09	0.12	0.08	0.03	-0.04	0.15 [†]	0.01				
10. <i>Lawyer expertise</i>	1.76	2.37	0.09	0.07	0.06	-0.10	-0.06	0.03	0.02	-0.07	0.19*			
11. <i>Firm size</i>	1.21	0.88	0.04	0.02	0.05	0.02	0.01	0.11	-0.05	0.10	0.04	-0.03		
12. <i>Firm resources</i>	0.85	0.68	0.07	0.02	0.10	0.08	0.04	0.08	0.02	0.06	0.10	0.06	0.87**	
13. <i>Firm innovation climate</i>	0.34	0.18	-0.03	-0.13	0.10	-0.03	0.13	0.05	-0.07	0.10	0.04	-0.05	0.41**	0.47**

Notes: n = 148.

[†] $p < 0.1$

* $p < 0.05$

** $p < 0.01$

TABLE 2

Results of Linear Regression Analysis for Predicting Innovation

Variables	DV=	(1)	(2)	(3)	(4)	(5)	(6)
		Innov.	Innov.	Innov.	Innov.	Orig.	Impact
Controls							
<i>Lawyer experience</i>		1.03 (1.40)	0.82 (1.38)	0.75 (1.37)	0.52 (1.38)	0.06 (0.14)	0.01 (0.13)
<i>Lawyer expertise</i>		0.25 (0.43)	0.39 (0.43)	0.37 (0.43)	0.47 (0.42)	0.03 (0.04)	0.04 (0.04)
<i>Firm size</i>		0.71 (1.87)	0.99 (1.79)	0.92 (1.80)	0.51 (1.68)	0.28 (0.19)	0.14 (0.19)
<i>Firm resources</i>		-0.15 (2.70)	-0.61 (2.57)	-0.54 (2.59)	-0.79 (2.37)	-0.31 (0.26)	0.07 (0.22)
<i>Firm innovation climate</i>		-2.18 (5.07)	-1.47 (5.20)	-1.15 (5.14)	-0.60 (5.11)	-0.75 (0.52)	0.77 (0.50)
<i>Problem complexity</i>		1.73 [†] (0.93)	1.42 (0.92)	1.47 (0.91)	1.74 [†] (0.91)	0.12 (0.10)	0.16* (0.08)
<i>Time pressure</i>		-4.20 [†] (2.21)	-4.58 [†] (2.35)	-4.62* (2.33)	-3.42 (2.28)	-0.36 (0.24)	-0.12 (0.25)
Independent Variables							
<i>Collaboration</i>			2.12* (1.03)	2.05* (1.03)	1.62 (1.04)	0.22* (0.10)	0.08 (0.09)
<i>Higher stakes</i>			-0.26 (0.79)	-0.27 (0.79)	-0.39 (0.76)	-0.10 (0.08)	0.04 (0.07)
<i>Familiarity</i>			-0.82 (1.04)	-0.82 (1.03)	-1.10 (1.03)	-0.04 (0.10)	-0.15 (0.09)
Two-way Interaction Effects							
<i>Collaboration x Higher stakes</i>				-0.50 (0.95)	-0.36 (0.90)	0.00 (0.09)	-0.09 (0.08)
<i>Collaboration x Familiarity</i>					-0.27 (1.10)	0.05 (0.12)	-0.12 (0.09)
<i>Higher stakes x Familiarity</i>					0.39 (0.87)	0.01 (0.08)	0.05 (0.09)
Three-way Interaction Effect							
<i>Collaboration x Higher stakes x Familiarity</i>					3.74** (0.95)	0.16 (0.11)	0.43** (0.09)
Adj. R ²		0.05	0.07	0.06	0.10	0.08	0.12
F		1.78 [†]	1.83*	1.65 [†]	2.06*	1.84*	2.28**

Notes: n = 148. All regressions control for interview length and a Heckman correction coefficient. All standard errors are based on Huber-White robust standard errors (White, 1980).

[†] p < 0.1

* p < 0.05

** p < 0.01

TABLE 3

Results of Simple Slope Analysis for Predicting Innovation Under Joint-Moderating Conditions

Three-Way Interaction Conditions	DV = Innovation	Originality	Impact
Low-Stakes Condition			
<i>Collaboration in new teams (H3a)</i>	6.48** (1.75)	0.35 [†] (0.20)	0.78** (0.18)
<i>Collaboration in long-standing teams</i>	-2.90 (2.75)	0.07 (0.26)	-0.48* (0.24)
<i>Collaboration in: new teams – long-standing teams (H3b)</i>	9.38** (3.40)	0.28 (0.37)	1.26** (0.30)
High-Stakes Condition			
<i>Collaboration in long-standing teams (H3c)</i>	7.86** (2.90)	0.59 (0.37)	0.63* (0.25)
<i>Collaboration in new teams</i>	-5.21 [†] (3.14)	-0.10 (0.32)	-0.71** (0.26)
<i>Collaboration in: long-standing teams – new teams (H3d)</i>	13.07** (4.30)	0.69 (0.50)	1.33** (0.39)

Notes: All simple-slope tests control for interview length, a Heckman correction coefficient, and all variables shown in Table 1. All standard errors are based on Huber-White robust standard errors (White, 1980).

[†] $p < 0.1$

* $p < 0.05$

** $p < 0.01$

TABLE 4

Emergent Coding Scheme Based on Comparison of High vs. Low Stakes Cases when Innovation was High

Representative Quotes^a	First-Order Code	Second-Order Code	Low-Stakes Cases (23)^b	High-Stakes Cases (16)^b
[Lawyer] <i>"We had a brilliant client who had a laser like vision as to where they wanted to get to."</i> (Corporate 05) [Lawyer] <i>"We had a clear understanding of their long term objectives, which was married with fundamental aspects of the case."</i> (Dispute Resolution 05) [Client] <i>"We knew what we wanted to achieve commercially... Then we asked them to look into ways to solve this for us legally."</i> (Finance 18)	Well-defined problems	Creative problem solving	78%	75%
[Lawyer] <i>"They would throw up options to us and at end of the process there were ten structures on the board and we had to narrow it down to two or three."</i> (Corporate 03) [Lawyer] <i>"We had a lot of brainstorming sessions where we would set out our ideas and would have meetings, etc."</i> (Dispute Resolution 11) [Lawyer] <i>"One of the ideas was to do a kind of securitisation [i.e., a well-known solution] that is structured in a Sharia compliant way [i.e., a novel context]."</i> (Finance 19)	Generating divergent ideas			
[Client] <i>"So suddenly it all became quite important. We had to deal with the risk of the takeover, negotiate with [the other side], and have [our strategic partner] in the background."</i> (Corporate 20) [Lawyer] <i>"Very stressful!!... there were so many things that had to be done and a lot of political pressure. The deal had to be closed for the client—and there was all the pressure."</i> (Finance 02) [Lawyer] <i>"Neither of us wanted it to fail... One thing that we try not to reflect properly is the emotional stress that we were under for the entirety of this deal."</i> (Finance 07)	Performance pressure	Risk-taking	39%	81%
[Client] <i>"[The lawyer] took us through the prospectuses and agreements. They took risks with us... I'm not sure how easy it would be for any other firm to do this."</i> (Corporate 15) [Client] <i>"There is always a risk that something comes out of the woodwork... it was a tactical decision by [the lawyer] and myself not to have our CEO on the stand."</i> (Dispute Resolution 06) [Lawyer] <i>"Not even when launching was I fully confident. We did have to take a calculated risk... there was also the obvious risk that we had missed something too."</i> (Finance 01)	Selecting risky ideas			

^a Representative quotes are classified by their source (Client or Lawyer), domain of law (Corporate, Finance, or Dispute Resolution) and observation number.

^b Percentages reflect the number of cases in each category that had at least one example of the theoretical construct described by the second-order codes.

TABLE 5

Emergent Coding Scheme Based on Comparison of High vs. Low Innovation Cases when the Stakes were High

Representative Quotes ^a	First-Order Code	Second-Order Code	Low-Innovation Cases (15) ^b	High-Innovation Cases (16) ^b
<p>[Client] <i>"The broad scope of the project... meant we needed a legal support team that had breadth and depth of expertise."</i> (Corporate 63)</p> <p>[Lawyer] <i>"We knew the laws in Europe and had a set of difficulties, and we came up with a set of solutions that were solid in terms of law."</i> (Finance 10)</p> <p>[Client] <i>"The main contribution was that they brought a lot of experience with securitisation and what needed to be done."</i> (Finance 75)</p>	Domain-relevant expertise	Cognitive trust	93%	75%
<p>[Lawyer] <i>"I have a proven track record... they've seen my work, seen my contracting abilities and seen that it covered them from a lot of potential liabilities."</i> (Corporate 54)</p> <p>[Client] <i>"[The lawyer] has always been our guide and really proven himself to be worthy of our trust."</i> (Dispute Resolution 24)</p> <p>[Client] <i>"We're very careful about who we work with, and we know [this lawyer] is very solid."</i> (Finance 06)</p>	Reliable & dependable			
<p>[Client] <i>"What did the lawyers do on this matter that differentiates them from other lawyers? I think it was the fact that they treated it like their own."</i> (Corporate 04)</p> <p>[Client] <i>"It was clear that they had the same objective as us: to achieve the best result for the company within a tight timeframe."</i> (Corporate 44)</p> <p>[Lawyer] <i>"They consulted us first and we helped shape the commercial approach... you can't just sit back and offer legal advice."</i> (Finance 20)</p>	Shared task objectives	Shared mental models	33%	63%
<p>[Client] <i>"Given the history and need to understand our organization, it would be extremely difficult for another firm to do this."</i> (Corporate 08)</p> <p>[Lawyer] <i>"We really understood the client's business. When all working so close, you get to know each other and the organisation."</i> (Dispute Resolution 06)</p> <p>[Client] <i>"They had an understanding and a knowledge of our business. They intuitively knew who they needed to speak to."</i> (Dispute Resolution 11)</p>	Deep knowledge of client			

^a Representative quotes are classified by their source (Client or Lawyer), domain of law (Corporate, Finance, or Dispute Resolution) and observation number.

^b Percentages reflect the number of cases in each category that had at least one example of the theoretical construct described by the second-order codes.

FIGURE 1

Visualizing the Three-Way Interaction Between Collaboration, Higher Stakes, and Familiarity

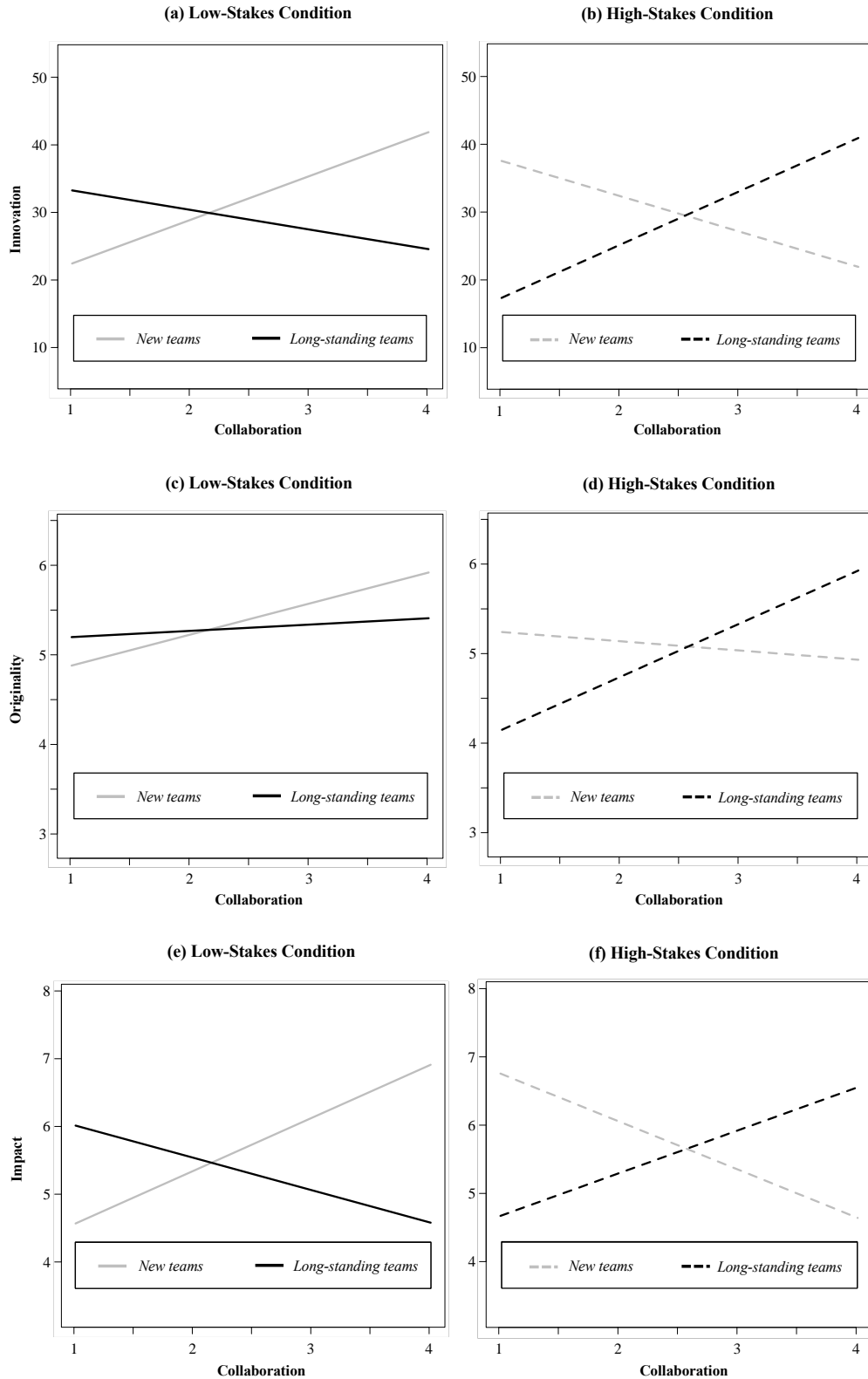


FIGURE 2

Theoretical Model for High-Stakes Innovation in Teams Suggested by Qualitative Analysis

