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EVALUATING NOVELTY: THE ROLE OF PANELS IN THE SELECTION OF R&D PROJECTS

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ABSTRACT

Building on a unique, multi-source, and multi-method study of R&D projects in a leading professional service firm, we develop the argument that organizations are more likely to fund projects with intermediate levels of novelty. That is, some project novelty increases the share of requested funds received, but too much novelty is difficult to appreciate and is selected against. While prior research has considered the characteristics of the individuals *generating* project ideas, we shift the focus to panel *selectors* and explore how they shape the evaluation of novelty. We theorize that a high panel workload reduces panel preference for novelty in selection, whereas a diversity of panel expertise and a shared location between panel and applicant increase preference for novelty. We explore the implications of these findings for theories of innovation search, organizational selection, and managerial practice.

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Theodora, the chair of the R&D selection panel, tried to move the committee to consider the next project for assessment, since the meeting was already running longer than expected and there were still many decisions to make. The project focused on an area with which the firm had not previously worked, outside of a few small projects in a European regional office. An up-and-coming engineer from the office in Bristol had initiated the project, and the project director was one of the company's business leaders. The project focused on how to design rooms in intensive care units to minimize sleep disruption and facilitate healing. The panel members quickly scanned the project proposal and supporting comments. Gerhard from the infrastructure group in Glasgow started the discussion: "This project is just too out there. It is not really what we do." Frank, an expert in water engineering from the consulting unit in Edinburgh, said, "Funding should be sought under client work. It is not going to generate much benefit for the organization." But Julie from the London office, who focused on designing public buildings, countered, saying, "Sure, it is a bit off topic, but the area was mentioned in our R&D strategy last year. My office is getting increasingly involved in design work for hospitals, but I am really not sure what that office is doing in that area." Gerhard then observed that the R&D budget was almost spent for the year, suggesting that the project under discussion was a "nice to have, rather than a need to have." Trying to move on, Theodora compromised: "All right, then, let's fund the project at 30%. Is that OK?" The panel members nodded their heads and went on to consider the next project.[1]

The above vignette illustrates a common challenge for managing the innovation process within organizations: selecting new projects with the potential to increase performance from among a set of alternatives. While scholars interested in innovation and search have long recognized that internal selection processes shape organizations' trajectories (e.g., Levinthal, 1997; Levinthal & Myatt, 1994), it is not at all clear how organizations choose among an array of potential alternatives. Selection decisions, along with the factors that drive them, typically take place behind closed doors, where they are only visible to direct participants. For this reason, most research on selection decisions has focused on the visible results of selection processes, such as patents (Katila & Ahuja, 2002), alliances (Kale & Singh, 2007), or acquisitions (Arikan & McGahan, 2010; Zollo & Singh, 2004). Other scholars have used simulation-based studies to understand selection decisions within companies (Ethiraj & Levinthal, 2004; Knudsen &

[1] This vignette, developed by the authors, reflects a compilation of company records, interview materials, and observations.

Levinthal, 2007; Levinthal, 1997; Rivkin & Siggelkow, 2003). Although both types of research have generated rich insights into organizational decision-making, these studies fail to adequately capture the process of deliberate managerial choice, providing little insight into the projects that organizations could have pursued, but instead rejected or ignored altogether. Paying attention only to selected initiatives may result in a biased view of organizational behavior (Kovács & Denrell, 2008).

A key challenge in assessing projects within R&D units is evaluating novelty (Danneels & Kleinschmidt, 2001; Vuori & Huy, 2015). To explore the process of selecting among different opportunities, we seek to reconcile two different views about when organizations prefer novel projects. It is clear that *some* novelty is important in the search for new products and services (Knudsen & Levinthal, 2007), yet *too much* novelty can be difficult to interpret and/or categorize (Rindova & Petkova, 2007). By combining these two views and accounting for alternative explanations, we argue that projects with intermediate levels of novelty are more likely to receive a higher share of their requested funds within organizations.

Research on project selection has explored how different organizational arrangements affect selection decisions (Csaszar & Eggers, 2013; Knudsen & Levinthal, 2007; Sah & Stiglitz, 1986). While this research has paved new ground in our understanding of how different organizational structures help organizations reduce the launching of market failures and the killing of projects with potential, the literature has been relatively silent regarding the characteristics of project *selectors*. In particular, since it is often assumed that selection processes are neutral—mechanistic outcomes of deliberate efforts to weigh expected returns against costs—little attention has been given to the social context of selection, including the knowledge, temporal and organizational pressures faced by selectors within the selection process itself. Unlike academic peer reviews, which typically operate behind a veil of confidentiality (Boudreau, Guinan, Lakhani, & Riedl, 2016; Olbrecht & Bornmann, 2010), organizational selection processes require participating selectors to state their preferences to their immediate colleagues. As a result, such selection imposes both cognitive burdens (from being overwhelmed with the choice of alternatives) and social burdens (since selectors may face criticism from local colleagues for their panel decisions). In addition, selection decisions, especially in the context of R&D, are tangible signals of an organization's future direction—and, thus, may award resources to some groups within an organization, while withholding resources from others. Thus, through their decisions, panel selectors help to codify their organizations' strategic directions—directions that may previously have been only partly formalized.

Panels typically comprise managers and experts who make selection decisions in dedicated meetings. Data on selectors is very difficult to collect; as a result, panels of selectors are often black-boxed and treated as similar (e.g., Knudsen & Levinthal, 2007). We argue that panel characteristics are important to understand because panels are subject to managerial discretion — and, hence, represent a factor that managers could potentially change. Panels, we argue, provide an important, yet overlooked, theoretical lens for understanding how selection decisions are made and under what conditions organizations tolerate novel projects. Informed by both prior theory and a multi-method study of R&D projects, we focus on three such panel-specific contingencies. First, we posit that when selection panels face high workloads, selectors will reduce their preference for novelty because assessing novel initiatives involves a higher cognitive burden. Second, we argue that a diversity of panel expertise increases panels' preference for novelty because diversity increases the likelihood that selectors will see a project's merits from multiple angles. Third, we suggest that panel members have a higher willingness to accept novelty if a project applicant and a panel member share the same location. A shared location creates an in-group bias that increases panel members' preference for novelty by encouraging them to overestimate a proposal's merits and underestimate its problems.

Examining our hypotheses requires access to detailed information about both selected projects and rejected or only partially funded projects. To collect this information, we adopt a multi-method approach that combines interview information with unique data from a large, international professional services firm, encompassing all projects considered over the course of several years. We match these data with information from the firm's human resources records and its in-house directory for locating expertise. By combing these data, we can observe key characteristics of the selection process, including which proposals were selected, which were rejected, and which were partially funded. The result is a unique opportunity to understand how selections are made within organizations and how these selections are affected by the panels that evaluate the options.

RESEARCH CONTEXT: R&D PROJECTS IN PROFESSIONAL SERVICE FIRMS

We base our study on a unique dataset of R&D project applications submitted by employees of a large, multinational engineering consulting company. This firm, like other professional services firms, relies on the skills and knowledge of its employees to deliver a range of specialized projects to its clients (Hitt, Bierman, Shimizu, & Kochhar, 2001; Teece, 2003). Professional services firms are characterized by high proportions of professionally qualified staff, low capital intensity, and high knowledge intensity (Von Nordenflycht, 2010). Their workforces have strong bargaining power and a preference for work autonomy, meaning that ideas for new initiatives tend to emerge from the bottom up (Burgelman, 1983). As a result, the literature has suggested that management within these organizations tends to play a "guiding, nudging, and persuading" role, rather than a "command and control" role (Malhotra, Morris, & Hinings, 2006). Moreover, professional services workforces operate under regulated and certified professional associations that uphold certain norms of practice (Suddaby & Greenwood, 2001).

The company we study employs several thousand engineers and operates in over 40 countries. Since its inception, it has retained money from its current operations for R&D. Its R&D system is organized around individual projects. To gain a better understanding of the selection process and the funding decisions that shape these R&D projects, one person from our research team attended an R&D project selection meeting, during which the selection panel evaluated 22 applications. We also conducted 29 interviews: 21 with project team members who had been involved in submitting either partially/fully funded proposals or unsuccessful proposals and 8 with members of five different panels, including the director of the R&D department. The interviews were semi-structured, and each lasted between 30 minutes and one hour. We asked the interviewees to describe, in the context of decisions to fund projects, the selection process, the criteria used to allocate funding, and the sources of disagreement among the members of the selection panel. We also held several meetings with the individuals responsible for managing the R&D budget, gaining their insights and sharing the results of the different stages of our research.

As explained by one of the project applicants we interviewed, R&D funding within the studied organization is designed to enable individuals and teams to address specific problems that professionals encounter in their day-to-day work:

> *The research projects will allow you to go a bit deeper into individual problems that hopefully are problems that the individual wants to know more about, and in most cases, I think that's the case (...) A lot of applications come in from people who are working on something day-to-day, and a particular problem has been difficult for them, and they think, well, if we could just spend a bit more time on this, we could push it forward for everybody's benefit. And, you know, those sort[s] of projects are very good ones.*

Projects often investigate areas of specific technological interest to the submitting individual, and they can induce changes and novel approaches in the organization's way of working. Any employee or team can submit an R&D project for evaluation, resulting in a system that the firm labels its 'bottom-up' approach to R&D. After an applicant has submitted an application, he/she receives a message informing him/her which panel will evaluate the proposal. Once the panel's funding decision has been made, the applicant will receive the panel's decision and feedback. Although there is no direct financial incentive for individuals to propose R&D projects, developing a project is considered an important mechanism to build skills, expertise, and reputation within the organization. In our interviews with applicants, it was clear that R&D funds were valued as means to forward individuals' professional practice, as well as develop materials that could be helpful for the submitters' workgroups or more distant colleagues. The R&D projects submitted over the studied period were quite diverse and included the development of new engineering protocols, processes, computer simulations, and numerical models. Rarely was the aim of a project to develop a new product or prototype, as one might expect in a manufacturing firm. The average R&D project funded in 2008 was allocated less than $25,000.

The firm's R&D selection process involves eight panels, each with its own annual budget established by the central R&D department. These panels have a broader mandate. In addition to selecting R&D projects, they also assess knowledge management initiatives, proposals to attend conferences and organize training activities, and projects aimed at increasing the external visibility of the company's technical achievements. Four of the panels have regional mandates; these are responsible for funding applications seeking to build collaborations with external partners, improve the delivery of projects, or create new business opportunities or offices in a particular region. A fifth panel oversees the allocation of funding to R&D projects that impact multiple regions, while another is responsible for selecting proposals that have a similar scope, but involve external partners. An additional selection committee screens proposals on PhD sponsorships, and another is responsible for evaluating internal projects without a specific regional focus.

Each panel consists of a chair and at least three other members[2]—one for each of the company's three main services of buildings, infrastructure, and consulting. The company's service offering covers a wide range of engineering specializations. Thus, selectors cannot always be experts in the subject matter of a given R&D application. For this reason, expert comments in a particular area on a specific project are essential, as is the track record of the applicant, as pointed out by one of the members of the selection panel:

> *Comments are very important, particularly for those topics that I know less about. So, my background is electrical engineering, so when I see a proposal around electrical engineering—and I know pretty much all the electrical engineers in the firm—I will already be getting a view about whether this will be valuable to our business or not. Some of the structural engineering, I'm less familiar with, so I will be somewhat influenced by who's made the application, but then very influenced by who's commented on it.*

The members of the selection panels are senior managers (either directors or associate directors) or fellow engineers. Engineers receive the honorary title of fellow—which is awarded to only a small number of individuals—for their extraordinary ability to innovate and for demonstrating technical excellence in their contributions. The chairperson of all eight panels meets with the head of R&D and the R&D team every quarter to review the progress of each panel and to ensure that there is no duplication of efforts across regions or funds.

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[2] During our sample period, all panels turned over all or some of their members.

Within the selection process, no business unit should receive favorable treatment. On the contrary, one of the aims of the selection panel is to ensure that all of the different engineering practices inside the organization have the opportunity to receive R&D funding. Projects are selected on the basis of a broad set of informal guidelines used for assessing a project's value to the firm, as explained by one of the members of the selection panel:

> *Various rules of thumb apply, and they're just practical, common sense ones. If it's a large proposal asking for lots of money, you expect to see a lot more information. So scale of proposal made a difference. I then related to what I thought would have impact for the business and what sorts of things we were developing. I knew very well what consulting was trying to develop, so I would look for proposals which, as a priority, matched what we were trying to do: a clear indication that this is making some sort of contribution. It's filling a gap, but it's filling a gap for a purpose, not just because we don't know something. Good impact, so some notion about how it's going to benefit clients and how it's going to benefit the firm.*

Although each panel has a high degree of autonomy in terms of how it wants to organize the selection process (e.g., monthly or quarterly meetings), through our interviews and observations, we learned that the preparation for meetings is consistent across panels. That is, prior to each meeting, each panel member receives an information pack containing the text of all the R&D project applications under evaluation, as well as an overview of the R&D funding already allocated and spent up to that moment. Therefore, when deciding how much funding to award to a given R&D application, each selector is aware of the budget constraints at play, as well as the funding already allocated across the three main consulting practices. The selectors are also aware of the comments each proposal has received, since this information is reported in the information pack and displayed on the R&D intranet web portal. Moreover, the process is an open one, since all information concerning the selection process, including the application itself, related comments, panel members and their decisions, are displayed on the organization's intranet. With these observations in mind, we turn to developing hypotheses around novelty and how panel characteristics affect the evaluation of novelty.

THEORY AND HYPOTHESES

R&D projects within organizations can vary from very incremental proposals that advance well-known and established trajectories to radically new pathways that create breakthroughs (Calantone, Chan, & Cui, 2006; Danneels & Kleinschmidt, 2001; Uzzi, Mukherjee, Stringer, & Jones, 2013). Novelty is, thus, a continuum ranging from incremental to radical, with many stages in between. Scholars have built on Schumpeter's (1934) view of innovation, which suggests that innovation arises from novel combinations of existing bodies of knowledge (Fleming, Mingo, & Chen, 2007). This idea is illustrated in the ethnographic work of Hargadon and Sutton (1997) on the product design firm IDEO, which shows how the company recombines solutions and insights from a given industry to introduce novelty in a new and different setting.

There have been different predictions, however, concerning where on the novelty continuum managers tend to allocate the most R&D funds. We argue that selectors will favor projects with an intermediate level of novelty—and, therefore, will give such projects a higher percentage of their requested funds. This hypothesis builds on two main arguments: one explaining that some novelty may fare well at the lower end of project novelty, and the other suggesting that too much novelty is selected against at the very high end.

First, innovation scholars have argued that organizations seek to gain new knowledge by finding new combinations of existing ideas or by incorporating new ideas with more established ones (Katila & Ahuja, 2002; Laursen & Salter, 2006; Rosenkopf & Nerkar, 2001). In this sense, as Nelson and Winter (1982: 190) describe, novelty has a strong combinatorial character, as "…the creation of any sort of novelty in art, science, or practical life - consists to a substantial extent of a recombination of conceptual and physical materials that were previously in existence." A prediction that stems from this literature is that organizations allocate more funds to combinatorial novel projects. Thus, one of the purposes of R&D units is to fund the creation of new knowledge, and it can be assumed that mere increments to already known knowledge or existing combinations of knowledge will not fare well in project selection. Certain benefits lead directly to new products and services; however, some novelty is needed simply to stay abreast of the competition. As one interviewee stressed:

> *Some research contributes more to our thought leadership position in the industry… so even if some of our research doesn't bring a short-term return in terms of a new service we can sell, it may contribute to our brand, if you like, or our market position, just through demonstrating that we're thinking ahead of our competitors about what's coming.*

The second stream of research suggests that organizations often fail to recognize the potential value of novel projects (Rindova & Petkova, 2007). For instance, scientific evaluation committees are less generous in their evaluations of novel grant proposals if they are close to the disciplines of the proposed grants (Boudreau et al., 2016). Similarly, lab experiments have suggested that even people who claim to be highly motivated to achieve novel outcomes are often suspicious of ideas that depart from existing ways of doing things (Mueller, Melwani, & Goncalo, 2011). It has also proven more difficult to commercialize research that integrates knowledge from different disciplines (Kotha, George, & Srikanth, 2013).

Thus, we argue that selectors often struggle to appreciate the most combinatorial novel projects, resulting in negative returns to project novelty at the high end of the range. In fact, much literature suggests that organizations are rigid and often path-dependent in the decisions they make (Sydow, Schreyögg, & Koch, 2009). Decisions about what to do in the future are often viewed through the prism of the past, as how "a firm or an individual learns is typically by building on what it has learned before" (Cohen & Levinthal, 1994: 229). As Levinthal and Myatt (1994) argue, companies evolve along particular trajectories, which may be augmented by new rounds of investment. Past investments in a particular area can be harnessed to generate future rents; thus, managers are liable to see investments as sustaining and extending existing organizational routines (Zollo & Winter, 2002). Moreover, investments in projects in one area allow firms to successfully absorb knowledge from closely adjacent areas, allowing them to engage in local search (Katila & Ahuja, 2002). As one applicant explained:

> *If you show that the research that you are doing is building on existing knowledge and research in the firm, then that is a useful thing; it means that we are not just doing things in isolation and they aren't taken forward*.

A legacy of investment in a particular knowledge domain represents an important commitment of organizational resources—a commitment that an organization may be reluctant to dismiss. However, investing in an overly novel project may require a firm to re-organize the relationships among different business units, upsetting well-established linkages and ways of working. For this reason, managers may be loath to break away from previous R&D investments, since doing so could upset organizational 'truces:' the sets of mutually-agreed-upon boundaries for actions and behaviors among different organizational interests (Cyert & March, 1963; Nelson & Winter, 1982). Similarly, some researchers have focused on the political aspects of R&D processes, suggesting that managers often have an incentive to choose more known courses of action to avoid disrupting the turfs under their control (Dougherty & Heller, 1994). As a result, managers that make selection decisions often select against overly novel projects, which could disrupt their areas of responsibility (Sethi, Iqbal, & Sethi, 2012). Extremely novel projects impose higher cognitive burdens on managers than incremental efforts, since high levels of novelty require organizations to develop new systems, processes, and practices. Managers may be skillful in evaluating activities that build on past efforts, but unsure of how to choose among the alternative pathways of which they have little prior knowledge (Knudsen & Levinthal, 2007). Indeed, Knudsen and Levinthal (2007: 52) argue that "actors may become quite skillful and accurate in evaluating one class of alternatives, but rather inaccurate in evaluating a different and - for them - novel set of alternatives."

One interviewee who had been involved in the allocation of funds explained why too much novelty results in negative returns:

> *I think some of our most difficult conversations are around the things that [the firm] doesn't do at the moment, and it's not clear whether it's an area that [the firm] will ever make a significant business out of... Why research something that we'll never actually be able to implement? So, sometimes, it isn't just about things being too out there in terms of too futuristic; sometimes, I feel more negative about things that are too far from what we do.*

In sum, there are many reasons for managers to shy away from both very incremental and very novel projects. We suggest that, while some novelty increases the share of funds received, too much novelty can have the opposite effect; thus, projects with an intermediate level of novelty attract the highest percentage of their requested funds.

> ***Hypothesis 1 (H1).*** *Selection panels approve a higher share of the funding requested by R&D proposals with intermediate levels of novelty (inverted U-shaped relationship).*

Evaluating Novelty: The Moderating Role of Panels

While earlier research has considered the role of the generators of alternatives and how this role affects the evaluation of novelty (Knudsen & Levinthal, 2007; Trapido, 2015; Uzzi et al., 2013), there is very little research on how the characteristics of panels of selectors affect evaluation decisions. We argue that panels provide an important yet overlooked theoretical lens for understanding how selection decisions are made and under what conditions organizations prefer or shy away from novel projects—and, hence, fail to evaluate projects solely on their merits. In what follows, we develop three hypotheses unified by a focus on the characteristics of panels and how these characteristics affect panels' evaluations of novelty. These hypotheses are derived from existing theory and grounded in our qualitative data. Figure 1 summarizes our conceptual model.

Insert Figure 1 about here

Panel Workload. Decisions concerning the allocation of funds to R&D do not occur on a daily basis. Instead, such selections tend to be made on an intermittent, rolling basis. Because selection panels are typically staffed with prominent and busy people from across the organization, they often meet only a few times a year. Panels' workloads vary; however, in many cases, panels face overwhelming numbers of project applications that they lack the attention and time to evaluate in detail. We thus define panel workload as the total length of the project descriptions for all competing projects a panel is simultaneously considering at the time of a given project's evaluation.

When selectors face a vast array of alternative projects, they simply have less time and attention to devote to each submission. This scarcity increases the competition within the selection process and raises the cognitive burden faced by the selectors. Both the attention literature and the literature on information overload suggest that increasing the number of options reduces the chances that all options can be adequately addressed (O'Reilly, 1980; Sullivan, 2010). That is, though the number of processed issues may increase, the share of total issues processed declines as a result of an increased workload (Sullivan, 2010). Thus, as a selection panel's workload increases, the likelihood of any given project receiving funding declines.

In addition to decreasing the baseline probability of any single project receiving more of its requested funds, we argue that panel workload moderates the effect of project novelty. Managers tend to be selective in choosing where to focus their attention (Cyert & March, 1963). Focusing attention on a few selected issues routinizes and simplifies decision-making processes (Rerup, 2009). However, though this approach increases efficiency, it also prevents managers from recognizing emerging issues in cases lacking an established repertoire of categories (Levinthal & Rerup, 2006). For instance, Piezunka and Dahlander (2015) find that, in the context of crowdsourcing ideas external to organizations, increasing the number of options can cause selectors to shy away from novel ideas. As Csikszentmihalyi (1996:345) notes: "the most fundamental difference between people consist in how much attention they have left over to deal with novelty. In too many cases, attention is restricted by external necessity." Since novel projects, by definition, involve activities in which a firm has not previously been active, they require a considerable level of attention from selection panel members. Being faced with such novelty often poses a challenge for selectors (Knudsen & Levinthal, 2007). Disputes may arise about the merits of the most original projects, and these conflicts require detailed discussions and/or the collection of additional evidence before decisions can be reached. In contrast, when projects build on what a firm already knows, they can be judged easily. Thus, when a novel project is introduced in the context of a high panel workload, the tendency of selectors will be to turn away from the novelty and retreat to more incremental options. One interviewee explained the challenge of panel overload and the appreciation of project novelty as follows:

> *You have a whole mass of applications to review at particular times, and you don't get the opportunity to actually interact with the person who's put the application in. A number of people adjudicate on these applications without them really knowing what was driving the application in the first place.*

In contrast, a panel with a low workload can allocate more attention to any given proposal, thus increasing the chances that the merits of a novel project will be recognized. Combining these arguments, we hypothesize:

> ***Hypothesis 2 (H2)****. Panel workload moderates the effect of project novelty on the share of requested funding received by an R&D proposal by decreasing the likelihood that selectors*

will fund novel projects (i.e., the maximum of the inverted U-shape relationship shifts to the left) when the panel workload is high.

Panel Expertise Diversity. Research suggests that team diversity facilitates the recombination of insights from multiple areas of interest, which may increase the novelty of team outcomes (Fleming et al., 2007; Long Lingo & O'Mahony, 2010). This literature also describes a potential challenge of novelty, which is that audiences sometimes fail to recognize the merits of novel projects (Hannan, Goldberg, & Kovács, 2015; Uzzi et al., 2013). However, while research has documented the effects of diversity within the team originating a project, far fewer studies have explored how diversity among project *selectors* affects project funding. We propose that panel diversity, defined as the existence of different kinds of expertise within a panel of selectors, will increase the panel's preference for novelty.

Hierarchies, in which projects must be approved by multiple successive ranks, reduce errors of accepting inferior alternatives, whereas polyarchies, characterized by flat organizational structures in which any decision maker has the authority to make decisions, minimize errors of rejecting superior alternatives (Csaszar & Eggers, 2013; Sah & Stiglitz, 1986). Although this research acknowledges how different structures of authority among decision-makers influence project selection, it often treats decision-makers as being similar (Knudsen & Levinthal, 2007). This is unfortunate, since the existence of varying types of expertise among selectors may change how novelty is considered—and, ultimately, how decisions are made.

Panels that are diverse in their composition are liable to have greater abilities to see projects from multiple angles, due to the selectors' different types of expertise. March's (1991) seminal paper argues that socialization among individuals tends to reduce exploration. In his reasoning, the turnover of less socialized people increases organizations' willingness to explore and improves the aggregate knowledge. As March (1991: 79) notes, this trend occurs despite the fact that new recruits, on average, have less knowledge than the people they replace; instead, "gains come from their [the new recruits'] diversity."[3] Extending this argument, the existence of diverse selectors in panels could lead to a greater organizational tendency to explore new domains through the allocation of resources to novel projects. Greater panel diversity reduces conformity concerning what is appropriate, resulting in an attitude that disproportionally favors projects with greater novelty. Indeed, minority viewpoints may find voice and influence in diverse panels that lack commonly agreed categories. Nemeth (1986) argues that diversity encourages divergent thinking and precludes convergent thinking. Similarly, research on academic panels suggests that informational or knowledge diversity is more important than social category diversity (Olbrecht & Bornmann, 2010). Nemeth (1986: 26) further states that when "[p]eople think divergently; they consider more viewpoints than simply the one proposed. The consequence of this is that the quality of the decision (whichever is selected) tends to be better because more alternatives are considered. Furthermore, novel correct solutions are capable of being detected." Moreover, the existence of a diverse set of knowledge within a panel increases the likelihood that at least one panel member will understand at least part of a project application. Panel diversity, thus, increases the likelihood that a panel will devote attention to novel projects.

Conversely, when panel diversity is low and a panel consists of a homogeneous group of selectors, the panel will be less willing to fund novel projects. Instead, the decisions of such a panel are more likely to be characterized by a tendency to stick to established decision rules and a focus on projects' appropriateness and fit with existing project categories. Combining these two considerations, we propose the following:

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[3] We thank Jim March for reminding us of this observation and how it translates into the importance of considering panel diversity.

> ***Hypothesis 3 (H3)**. Panel diversity moderates the effect of project novelty on the share of requested funding received by an R&D proposal by increasing selectors' likelihood of funding novel projects (i.e., the maximum of the inverted U-shape relationship shifts to the right) when panel expertise diversity is high.*

Panel-Applicant Shared Location. A well-established concept in social psychology is that individuals identify with certain groups in their social environment, favoring those who belong to the same group (Brewer, 1979; Tajfel & Turner, 1986). This bias in favor of the in-group can manifest as hostility towards the out-group and increased generosity and helpfulness towards the in-group (Levine, Prosser, Evans, & Reicher, 2005; Macaulay, 1975). Though early research proposed that in-group biases were caused by situations of explicit competition and direct interactions among group members (Sherif, Harvey, White, Hood, & Sherif, 1961), more recent studies show that these two conditions are not mandatory (Brewer, 1979). First, laboratory experiments have found evidence for in-group favoritism, even in cases in which the outcomes of the two groups are independent and competition is only implicit (e.g., in the form of competition for a positive social identity) (Ferguson & Kelley, 1964; Rabbie & Wilkens, 1971). Second, individuals do not need to interact with one another to suffer from an in-group bias. Mere exposure to others leads people to associate certain individuals with positive feelings and higher quality ideas (Zajonc, 1968). Indeed, Reitzig and Sorenson (2013) find that selectors are biased in favor of ideas submitted by individuals working in their same division and facility. We thus define panel-applicant shared location as the existence of at least one panel member who shares a location with the person originating the project under evaluation. When a panel member shares a location with an applicant, the panel member is more likely to both defend the application and have first-hand information about the applicant. Indeed, studies of judges' decision making have found that in-group favoritism may be magnified in contexts involving open review and selection procedures, as is the case for our studied organization (Vidal & Leaver, 2011).

In addition to directly increasing the amount of funding granted, we argue that panel-applicant shared location moderates the relationship between novelty and the funding received in such a way that the preference for novelty increases when at least one panel member and the applicant share a location.

We argued earlier that novelty in the selection process involves both benefits and costs. When evaluating proposals from in-group members, selectors may overvalue project benefits and discount its costs. In part, this reflects the selectors' favorable disposition towards projects originating from shared locations, versus projects originating from more distant locations. Proximate projects are likely to be considered salient to the needs of the firm; thus, even when such projects are novel, the novelty is expected to eventually conform to organizational categories and not lead the firm astray. At the same time, the costs of novelty may be discounted due to the 'halo' of organizational proximity, since selectors are likely to assume that their home sites are better able to manage nonconformity than more distant locations.

In addition, selectors may devote more time and attention to examining proposals from in-group members—and, thus, may be better able to understand these proposals and appreciate their novelty. This increased attention stems from the increased helpfulness vis-à-vis in-group members (Brewer, 1979). In addition to allocating more time to personally evaluating a project from a panel-applicant shared location, a panel member who shares an applicant's location will also ensure that the other panel members think through the project thoroughly. Since selectors are subject to negative feedback on their decisions from others working at their home sites, they are likely to ensure that their panels fully appraise a local project before dismissing it. Thus, in sum, panel-applicant shared location increases the likelihood of a panel supporting a novel project.

> ***Hypothesis 4 (H4)****. Panel-applicant shared location moderates the effect of project novelty on the share of requested funding received by an R&D proposal by increasing selectors' likelihood of funding novel projects (i.e., the maximum of the inverted U-shape relationship shifts to the right) when at least one panel selector and the applicant(s) share a location.*

METHODS

Data

To test our hypotheses, we combine five different data sources. The first is the firm's R&D project management system. The data include all 556 R&D project applications submitted to the system between 2006 and 2008. To submit a project, an applicant fills out an electronic form on the R&D department website. The application form contains the R&D project title, aims, and outcomes, as well as its expected duration and cost. It also lists the project director, the applicant, and, occasionally, other project members or external organizations involved. Important for our theorizing is that this source includes successful, unsuccessful, and partially funded projects—data that have previously proven difficult to obtain. The firm's R&D project management system also contains an intranet page for each project, which is open to all members of the firm and presents all comments made on the project.

Our second data source is the R&D department's internal records. In particular, this source provides information on the amount of money the company invests each year in R&D, the distribution of this budget across different funds and regions, and the list of engineering domains with pre-allocated funding. This source also provides information on the exact order in which the panel responsible for R&D projects with an internal focus assessed each project during its quarterly meetings; we use these data in a robustness check.

The third data source is the R&D roadmap that the firm formulated at the end of 2006 in a meeting including the central R&D team, the chairs of the different selection panels, and many of the technical leaders.[4] In this R&D roadmap, the firm assessed the key drivers for each engineering practice in the short, medium and long term; identified business opportunities arising from these drivers; and articulated the necessary research priorities. For example, climate change was identified as a short- and medium-term driver that could lead to such business opportunities as designing new buildings in climates with rising temperatures, rising sea levels, and extreme storms, which may call for research on the development of effective systems for natural ventilation and low-energy cooling.

The fourth data source is the company's expertise location system. We use this information to build our measure of project novelty and other variables related to the knowledge of a project applicant and the selection panel. All employees in the organization are encouraged to provide descriptions of their expertise using the expertise location system. Although such information sharing is voluntary, approximately two-thirds of the firm's employees had completed their profiles at the time of our data collection, giving us information on the skills of 3,131 people. This information is reviewed every year during the appraisal process; thus, staff members have a strong incentive to provide both accurate and regularly updated descriptions of their expertise. The information is structured and searchable by internal staff. Employees use the expertise profiles in peer-to-peer exchanges to address problems arising in projects and to develop bids. On average, skill descriptions are 30 words long; however, they can be up to 250 words.

[4] There were, in total, 262 business and technical leaders in the organization. We define business leaders to include senior managers inside the organization. The task of business leaders is to identify key business opportunities and growing markets in which the company could expand its activity. Technical leaders are also senior managers and are responsible for driving up the development of technical skills and their commercial applications.

The fifth data source is the company's human resource records, which we accessed in 2006 and from which we extracted information on individuals' tenure and location. The combination of these different data sources circumvents many of the problems related to the common-method bias, allowing us to rely on objective data rather than information inferred from surveys.

Measures—Dependent Variable

We used the *share of requested funding awarded* as our dependent variable. This variable is measured as the total amount of money awarded over the total amount requested and ranges between zero and one. The variable is equal to zero when an R&D project application is not selected for funding and is equal to one when an R&D application is fully funded. An R&D project application may be partially funded if the selectors decide to support only part of the research proposed by the project manager. We confirm this by analyzing the comments provided to the applicant by selectors when they record their funding decision in the R&D project management system.[5] Over the course of our sample period, 244 (43%) applications were fully funded, 126 (22%) applications received no funding, and the remainder received percentages of their requested funds. A notable strength of our setting is, thus, its ability to empirically capture all projects: successful, unsuccessful, and partially funded.

Measures—Explanatory Variables

Project novelty. Our baseline idea is that organizations are more likely to select projects that are characterized by intermediate levels of novelty. The literature identifies many different ways to conceptualize novelty. Our measure stems from the Schumpeterian (1934) view of innovation

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[5] For example, selectors provided the following as reasons to award only part of a project's funding: "This funding is for a scoping study only," "Funding is awarded for a case study to flesh out the line of reasoning," "This funding is to complete the research part of this project."

as a recombinatorial process (Nelson & Winter, 1982), an approach developed by Fleming (2001) and Fleming and Sorenson (2001), among others. To measure the novelty of an R&D project application, we exploit the information stored in the company's expertise location system. From the text of the expertise descriptions, we derive the most frequently occurring words, pairs of words, and triplets of words using a cut-off value of at least 10 occurrences. To prevent any oversight of important areas of knowledge, senior managers were asked to review and validate the final list of 574 keywords. We examine which of these keywords appeared in the texts of the 556 project applications. Following Boudreau et al. (2016), we then construct all possible pairs of keywords that could occur in an R&D proposal and derive the proportion of these pairwise combinations that had never appeared in the company's expertise location system as of the time of the research. Our measure of novelty captures the extent to which each proposal represents a novel combination of expertise with respect to the company's knowledge base. The variable is consistent with the idea that new recombinations of patent classes or keywords are more novel (Boudreau et al., 2016; Fleming et al., 2007). We thus measure novelty that is new to the firm, rather than new to the world (see also Dahlander, O'Mahony, and Gann (2016)). For example, an R&D project application seeking to develop a sustainable acoustic design toolbox building on the firm's expertise in environmental sustainability and acoustics has a high novelty value. Another project with a high level of novelty may seek to investigate the possible links between color temperature lamps and organizational productivity, absenteeism, and wellbeing. Because we theorize that an intermediate degree of project novelty is associated with greater allocations of funds, we also include a squared variable to test for curvilinearity.

Panel workload. To evaluate Hypothesis 2, we derive the workload of the focal selection panel by counting the total number of characters in all project proposals evaluated in a given meeting, excluding the character length of the focal R&D project proposal. Over the three financial years in our sample period, the selection panel held 104 review meetings and evaluated a total of 913 project proposals, of which 556 were R&D proposals. On average, the selection panels simultaneously evaluated 44 project proposals, with each proposal comprising an average of 1,333 characters; however, the workload could be as great as 118 project proposals, each averaging 3,065 characters long.

Panel expertise diversity. To test our Hypothesis 3, we derive a variable to measure the diversity in expertise among the people evaluating a given proposal. To this end, we perform a cluster analysis using the Ward (1963) method with Euclidean distances on the co-occurrence matrix of the 574 keywords described above, derived using the entire set of 3,131 skill descriptions stored in the company's expertise location system. By applying Duda and Hart (1973) stopping rule, we identify 19 clusters of keywords describing different domains of engineering knowledge within the company. The expertise profile of each selector is then represented by a vector of 19 elements (x). To measure the degree of expertise diversity among panel members, we first calculate the Euclidean distance between each member *i*'s expertise profile and the expertise profiles of all the other panel members *j* using the following formula:

$$Expertise\ diversity_i = \frac{\sqrt{(\sum_j^n \sum_1^{19} (x_i - x_j)^2}}{n}$$

We then use the following formula to derive the panel expertise diversity:

$$Panel\ expertise\ diversity = \frac{\sum_{i=1}^{n} Expertise\ diversity_i}{19 * (19-1)/2}$$

The denominator in this formula normalizes the panel expertise variable by the number of possible dyadic combinations of the 19 expertise domains. Among the panels with the highest values for expertise diversity, there is one panel whose members' expertise profiles span engineering domains as diverse as acoustics, structural engineering, sustainable building design, and fire engineering.

Panel-applicant shared location. To assess Hypothesis 4, we include a dummy variable that is equal to one if an R&D project applicant and at least one of the members of the selection panel work in the same location.

Measures—Control Variables

To control for alternative explanations for the allocation of funding to R&D project proposals, we include several sets of variables at the following levels: (1) the panel of selectors, (2) the R&D portfolio, (3) the project proposal, and (4) the individual proposing the project.

Panel-level controls. In keeping with prior literature (Boudreau et al., 2016), we include an additional variable (*panel-project expertise similarity)* at the level of the selection panel to control for a potential bias resulting from the intellectual distance between the selectors and a given R&D application. The idea is that experts are more critical than novices when assessing proposals related to their areas of expertise. We therefore build a variable to capture the degree of similarity between the skill sets of all members of the selection panel and the knowledge embedded in a focal project by computing the similarity between the selectors' skill descriptions and the given project proposal. Following Haas et al. (2015) and using the Salton cosine formula (Salton, Wong, & Yang, 1975), we exploit the expertise descriptions of all of the organization's employees to derive a measure of similarity for the 574 keywords described above. Since the cosine between two keywords common to both a selector and a focal project is one, the expertise similarity between each panel member and a given R&D project application is equal to the number of overlapping keywords between the selector's skill description and the R&D project proposal, plus the sum of the cosine measure for all combinations of keywords cited in these two documents. The panel-project expertise similarity is then equal to the maximum value of this measure among the members of the panel.

R&D portfolio-level controls. Since the selection of R&D applications occurs not in isolation, but in the context of a portfolio of projects, we include five control variables at the R&D portfolio level. First, the selection of R&D projects should be influenced by the company's R&D strategy. Thus, we derive a list of 239 keywords from the firm's R&D roadmap. We then search the entire text of 556 project applications to determine whether each application mentions any of these keywords. We next construct a dummy variable (*alignment to R&D strategy*) that is equal to one if an R&D proposal contains at least one keyword extracted from the R&D roadmap document, and zero otherwise. To control for the possibility that budget constraints could affect the allocation of funding to a particular R&D application, for each panel, we calculate the amount of funding still available at the time a decision on a focal proposal was made (*funding left*). We also account for the similarity between the project being evaluated and previously funded R&D projects, since R&D applications that are too similar to what is already in an organization's R&D portfolio might be less likely to receive funding. For each project, we derive a variable (*R&D portfolio similarity*) equal to the maximum number of words in common between the text of the focal application and the text of all R&D projects funded in the previous three quarters, divided by the number of unique words in the text of the focal application. Because part of the R&D budget is pre-allocated to certain engineering domains according to their strategic importance and size, we introduce a dummy variable (*domain with pre-allocated funding*) that is equal to one if a focal project falls into one of the 33 pre-funded areas. We expect this variable to have a positive and significant effect on the amount of funding received by a focal application; however, if the objective of the selection panel is to diversify its R&D

portfolio as much as possible across the different engineering specialisms, this variable could have a negative effect on the selection process. Finally, the decision to fund a novel project might be affected by existing commitments to fund other highly novel projects. We therefore take into account the share of highly novel projects funded during a given financial year (*share of highly novel projects funded*). To construct this variable, we calculate the 75th percentile of our novelty measure and derive the share of funds allocated to projects with values equal to or above this threshold value.

Project level controls. We include several control variables to address potential heterogeneity in the underlying characteristics of R&D project applications.

Since expensive and long projects are usually less favored because they consume a greater share of the R&D budget, we control for the size of a project (*project size*) by measuring the amount of money requested in the application, expressed in the local currency of the corporate headquarters, and project duration (*project duration*), expressed in months. Because project size is skewed, we use a log-transformed version of this variable. We also control for the length of a proposal (*length of proposal*), measured as the number of characters in the body of the application. The degree of codification of a project may affect its perceived value, since projects that provide only minimal information are both difficult to evaluate and suggest a lack of effort on the part of applicants (Haas & Hansen, 2005). It is important to note that some project applications were evaluated multiple times by different selection panels. This might indicate a lack of fit between these projects and the remit of the evaluation committees, increasing the likelihood of these projects receiving less funding or being rejected. To account for this, we include a dummy variable (*resubmitted proposal*) that is equal to one if a project is considered by more than one selection panel. Furthermore, R&D projects are sometimes conducted in collaboration with external parties, such as universities, clients, and competitors, which may, in certain instances, co-fund the projects. Engagement with external collaborators is an individual-level initiative, and the organization does not manage these collaborations centrally. We thus control for whether a project has external partners and/or is partially funded by another organization by including a dummy variable that is equal to one if an external organization is listed among the applicants (*external collaboration*).

Anybody inside the organization can express his or her support for an R&D application. Thus, we construct the variable *endorsement*, which comprises the endorsements of technical and business leaders. To measure this variable, two of the authors independently manually coded the comments posted on the website of each R&D project application prior to the selection decision, reaching a level of agreement of 86%. Inter-coder reliability using Cohen's kappa was .71, indicating adequate agreement. A third person reviewed discrepancies between the two coders. Among all 3,026 comments on the studied projects, we identified a total of 535 supporting comments, including 144 posted by technical and business leaders. We calculate the degree of endorsement via the length of the supportive comment, measured as the comment’s number of words. Given that technical and business leaders are extremely busy, their statement lengths provide a reasonable measure of their level of support in relation to a given project.

Although most projects received supporting comments, we also identified 19 unfavorable comments. Since these disapproving comments could have a strong impact on the decision process, we take them into consideration by introducing a variable (*opposition*) equal to the lengths of these comments, expressed as the number of words.

Individual-level controls. We control for a number of applicant characteristics that could influence the selection panel’s decision. We focus on the applicant because our interviews made clear that applicants were often the project initiators, whereas project directors had relatively limited involvement in projects' initial phases. First, we account for applicants' experience in carrying out research activities (*research experience*). To construct this variable, we exploit the entire sample of R&D applications (964) since 2004, the year in which the company began to fund R&D projects using the present funding scheme. Applicant experience is, then, equal to the log transformation of the sum of all funding received by an individual for R&D projects prior to the focal application, discounted at a rate of 15%. This 15% discount rate is consistent with research on the depreciation of other knowledge assets, such as patent stocks (Henderson & Cockburn, 1994). Second, we control for an applicant's tenure in the organization (*tenure in the organization*). Tenure is likely to be a factor in predicting the amount of funding a project will receive, since people with long tenure in an organization are often able to learn about a wide range of activities undertaken inside the firm. Moreover, individuals with shorter experience within an organization might lack or be considered to lack relevant skills (Rollag, 2004). Accordingly, our measure of tenure is determined by the number of years an applicant has spent working in the organization. Third, we include a dummy variable that is equal to one if an applicant has failed to complete one or more R&D projects within the time frame allocated for funding (*projects delivered late*). During our interviews with the members of the selection panels, it became apparent that this particular performance criterion played a particularly important role in panels' decisions to allocate funding to certain projects, since applicants are often unable to set aside time to work on R&D projects. Fourth, we control more directly for whether an applicant has expertise related to his/her R&D project proposal (*expertise similarity project*). In deriving this variable, we employ the same procedure used to measure the selectors' project expertise similarity variable. Fifth, we account for another form of endorsement by senior managers by including a dummy variable that is equal to one if an R&D application lists a business or technical leader among its team members, including the project director (*leader in project team*). Sixth, we include a dummy variable for whether an applicant works at the company's headquarters (*located at HQ*), since this might increase their awareness of the firm's strategies and investment plans.

Finally, we include *year*, *selection panel*, and *consulting practice* dummies to control for the particular panel that evaluates the focal R&D application, the fiscal year in which the decision is made, and the consulting practice to which the proposal is related (i.e., consulting, infrastructure, or building). This approach allows us to control for both time trends and inherent differences across panels and consulting practices. Table 1 provides a summary of all of the variables used in our empirical analysis.

Insert Table 1 about here

Estimation Strategy

We test our hypotheses using a Tobit model designed to model a continuous, bounded dependent variable.[6] Our dependent variable ranges between zero and one, with 21% of our

[6] As a robustness test, we estimate our model specifications using a fractional logit model, which could also be appropriate in our context because our dependent variable is a percentage variable with many limit observations. The results using this alternative econometric model are similar to those reported here.

observations equal to zero and 43% equal to one.[7] We estimate two-way robust standard errors clustered by applicant and selection panel, using the *clus_nway* command in Stata (Kleinbaum, Stuart, & Tushman, 2013) to control for the lack of independence among the observations. First, the same applicant may apply more than once, and second, the same selection panel typically evaluates multiple projects simultaneously. To assess the possibility of multicollinearity, which could result from the inclusion of a quadratic term and interaction terms, we derive the variance-inflated factors and find that the average value is eight, which is less than the threshold value of ten. Finally, to facilitate the interpretation and graphical illustration of our moderator hypotheses, we standardize the continuous moderator variables by subtracting the mean and dividing by the standard deviation.

Our theorizing involves several moderating effects. We thus follow established best practice to interpret the significance of the interaction terms in non-linear models and to conduct post-hoc analyses of the significance of the moderation effects, since the effect of the interaction between two variables cannot be assessed simply by looking at the sign and/or statistical significance of the interaction term coefficient (Ai & Norton, 2003; Haans, Pieters, & He, 2015; Hoetker, 2007; Wiersema & Bowen, 2009; Zelner, 2009). To this end, we use the simulation-based procedure proposed by King, Tomz, and Wittenberg (2000) in the field of political science, which Zelner (2009) has advocated for use in management research. The approach consists of repeatedly drawing estimates from the multivariate normal distribution of the estimated coefficients and the

[7] An alternative estimation strategy to model our dependent variable is a two-step model à la Heckman (1979). This approach consists of first estimating an equation that models the decision to fund an R&D project and then deriving an equation that models the share of requested funding awarded using only the subset of selected projects. However, from our observations of the selection process and our interviews with members of the selection panels, it was clear that the selection panel does not follow a two-step decision-making process, in which it first decides whether to approve a project and then decides how much money to award. Therefore, a two-stage estimation procedure would not be appropriate in our context.

variance matrix through repeated statistical simulation. Using these simulated coefficients, we can derive the change in the predicted share of requested funds awarded, as well as the confidence interval of this change, at two levels of the moderator variable over the entire observed range of project novelty, while holding all other continuous explanatory variables at their mean.

RESULTS

Table 2 provides descriptive statistics for the variables. We group the control variables into panel-, portfolio-, project-, and applicant-level controls. In Table 3, we report the coefficient estimates of the Tobit model. Model 1 is the baseline model, including only control variables. In Model 2, we add the linear and squared terms of project novelty before separately including the interaction effects between the hypothesized panel measures and the project novelty and project novelty squared in Models 3 through 6. Model 7 is the full model.

Insert Tables 2 and 3 about here

Hypothesis 1: Project Novelty

We theorize that a project with an intermediate level of novelty receives more of its requested funds. To test Hypothesis 1, we introduce the linear and squared terms of the project novelty variable in Model 2. Estimates from this model support the hypothesis. The coefficient of the project novelty variable is positive and significant ($\beta=2.21$, $p<0.05$), while the coefficient of its squared term is negative and significant ($\beta=-4.31$, $p<0.01$). The curve reaches its maximum at a project novelty value of 0.256. The number of observations beyond this inflection point amounts to 39%. Following the suggestion of Haans et al. (2015), we further confirm the presence of an inverted U-shaped relationship between project novelty and financial support granted by calculating the slope of the curve to the right and left of its turning point. When project novelty is equal to its 25th percentile (0.14), the slope of the curve is positive (1.00) and significant ($\chi 2(1)=3.37$, $p<0.10$). When project novelty is equal to its 90th percentile (0.38), the slope is negative (-1.07) and also significant ($\chi 2(1)=12.45$, $p<0.01$). As an additional test, we derive Fieller's (1954) confidence interval around the maximum of the curve to determine whether the maximum lies within the range of the project novelty variable. The extremes of the confidence interval are 0.133 and 0.372, well within the range of our main independent variable. Thus, we find that the significant squared term signals negative returns to the allocation of R&D funding. These results strongly support Hypothesis 1, which predicts that selectors allocate more funds to projects with intermediate levels of novelty.

Hypotheses 2: Panel Workload

Model 3 tests the moderation effect between panel workload and project novelty, while Model 7 reports the full model with all of the interaction terms. Using the estimates from Model 7, we conduct post-hoc analyses of the significance of the moderation effects. In Models 3 and 7, we find support for H2, which states that selectors are less likely to allocate funds to novel projects when panel workloads are higher. The coefficient of the interaction term between project novelty and panel workload in Model 7 is positive and significant ($\beta=2.33$, $p<0.01$), while that of the interaction term between panel workload and project novelty squared is negative and significant ($\beta=-4.41$, $p<0.01$). Figure 2a illustrates the effect of an increase in panel workload from its mean value to one standard deviation above the mean on the share of requested funding awarded. In line with our second hypothesis, an increase in panel workload reduces the panel's preference for novelty. Specifically, the threshold at which negative returns for project novelty occur decreases, meaning that the maximum of the curve shifts to the left, and the curve becomes steeper to the right of this maximum. Using the coefficient estimates from Model 7, we find that the shift to the right in the maximum is statistically significant at the 95% significance level when selectors' workloads are equal to one standard deviation above the mean (z=-.160, $p<0.01$). We also test whether the slope of the curve becomes steeper to the right of the maximum: the slope of the curve derived using a panel workload value equal to one standard deviation above the mean grows more negative as we move further to the right of the maximum. When the panel workload is high, the selectors grant a lower share of requested funding to projects that are more novel. In Figure 2b, we report the difference in the predicted share of requested funding awarded and the 90% confidence interval associated with such an increase in selectors' workloads and find that this effect is statistically significant across the entire range of the project novelty variable. That is, the confidence intervals surrounding the difference in predicted shares do not contain zero at any point across the range of the project novelty variable.

Insert Figure 2 about here

Hypotheses 3: Panel Expertise Diversity

In Hypothesis 3, we predict that higher levels of panel expertise diversity increase selectors' likelihood of funding novel projects. The coefficient estimates reported in Model 7 support this third hypothesis. The interaction term between panel expertise diversity and project novelty is negative and significant (β=-2.76, $p<0.05$), while the interaction term with the squared term of project novelty is positive and significant (β=6.21, $p<0.05$). In Figure 3a, the dashed line depicts the project novelty curve when the panel expertise diversity is one standard deviation below the mean, and the continuous line represents the project novelty curve when the variable is equal to the mean value. Both this figure and the derivation of the slopes to the right hand side of the turning point confirm that, as the level of expertise diversity increases, the project novelty curve becomes flatter: that is, the slopes to the right of the turning point become less negative. We also find that when the level of expertise diversity is one standard deviation below the mean, the curve's maximum shifts to the left (z=3.89, p-value<0.01). Figure 3b highlights that the difference in the predicted awarded share of requested funding between projects with low and mean values of panel expertise diversity is statistically significant across the entire range of the project novelty variable. Thus, overall, we find strong support for our third hypothesis.

Insert Figure 3 about here

Hypothesis 4: Panel-Applicant Shared Location

In Model 5, we include the interaction terms between the panel-applicant shared location dummy and project novelty and project novelty squared. None of these interactions terms is significant. However, since the squared terms can mask potential contingent effects, Model 6 presents a reduced model including only the linear-by-linear interaction between the two variables, which is negative and significant (β=- 1.43, p<0.10). To illustrate this effect, Figure 4a plots the project novelty curve when at least one member of a panel shares a location with an R&D proposal applicant and when none of the panel members shares a location with the applicant. When the panel-applicant shared location dummy variable is equal to one, the maximum of the project novelty curve shifts to the left (z=-1.63, p-value<0.1), and the curve becomes flatter to the left of the turning point and steeper to the right of the turning point. While being in the same office as at least one panel member helps at the lowest levels of novelty, the effect decreases with an increase in project novelty. This suggests that more novel projects are not more likely to get funded when the applicant and at least one panel member come from the same office. Figure 4b plots the difference between the predicted share of requested funding awarded and its 90% confidence interval. The graph shows that the moderation effect is significant only for projects with novelty values below 0.35—which amount to 84% of the R&D proposals in our sample. Taken together, we find no evidence for the fourth hypothesis.

Insert Figure 4 about here

Robustness Tests

We perform a number of robustness tests to explore some of our findings and assess the validity of our results using alternative specifications of our explanatory variables. Our main argument for Hypothesis 1 is that selectors are willing to support novel projects only up to a certain point, after which support for project novelty again becomes negative. For the panel that evaluated more than half of the R&D proposals in our sample (267 out of 556), we know the order in which the selectors judged the applications they reviewed in each of the four meetings they held each financial year. For each meeting of this panel, we also know the page number at which a given proposal, along with its description and comments, appeared in the information packet each selector received prior to each meeting. We therefore test whether the curvilinear effect of project novelty holds true at the beginning of each meeting—when selectors are still 'fresh' and attention problems should not be significant—by including an interaction term between the project novelty variable and a variable capturing the order in which a given project was assessed during a meeting. If Hypothesis 1 holds, we would expect this interaction term to be negative: novel projects evaluated towards the end of a meeting would be less likely to receive their requested funds. In keeping with this expectation, we do find that this interaction term is negative and significant (β=-.038, p-value<0.05), while the main effects of both the order of evaluation and the project novelty variables are positive (β=0.013, p-value<0.10 and β=1.922, p-value<0.05, respectively. This finding supports the proposed mechanism underpinning Hypothesis 1.

Our project novelty variable is derived using keywords that occur more than 10 times in the skill descriptions of the company members. To test for the sensitivity of our main independent variable to this cut-off value, we identify a list of 828 single, pair, and triplet keywords that occur five or more times in the expert yellow pages. We calculate the project novelty variable using this longer list of keywords and find a curvilinear relationship between the new project novelty variable and the share of funds awarded out of the funds requested: the coefficient for the project novelty variable is positive and significant (β=2.31, p-value<0.01), and the coefficient for its squared term is negative and significant (β=-2.29, p-value<0.05).

As a further robustness test, we estimate our models measuring panel workload by counting the number of other projects a panel assesses in a given meeting (rather than the length of these projects). Using this alternative operationalization of this variable produces results consistent with those reported in Table 3 for the interaction effects of panel workload. We also derive the panel expertise diversity variable using a higher number of clusters (31 instead of 19) and find results equivalent to those reported in Models 4 and 7 of Table 3 for the interaction effect of this variable. Finally, we derive the cluster of engineering domains using the list of 828 keywords that occur more than five times and compute the panel expertise diversity variable using this new cluster solution, which contains 29 clusters. The results obtained using this alternative operationalization of the variable produce coefficient estimates for the interaction terms with project novelty and project novelty squared that are consistent with those reported in Table 3.

Finally, we assessed the robustness of our results using a different operationalization of our panel-applicant shared location variable. Specifically, we derived the share of panel selectors working in the same office as the project manager of a focal R&D application and found consistent results for both the main and moderation effects of this variable.

DISCUSSION

Theoretical Implications

Scholars of innovation have long used a variety of visible indicators, such as patents or new product introductions, to measure the innovation *outcomes* of what organizations choose to do (e.g., Fleming et al., 2007). These indicators leave a visible trail for scholars to study, and they have sparked a plentiful stream of research. However, this approach overlooks the 'trails not taken:' companies' decisions to *not* or *only partially* select certain projects. For this reason, analyses based on data covering the outcomes of selections, but not rejections, may deliver a partial and potentially biased view of organizations (Kovács & Denrell, 2008). Other scholars have used simulation-based studies to understand companies' selection decisions (Ethiraj & Levinthal, 2004; Knudsen & Levinthal, 2007; Levinthal, 1997; Rivkin & Siggelkow, 2003). While this research has expanded our knowledge of how organizations select, it provides little insight into the options organizations *could have* selected, but instead rejected or ignored altogether. Our approach addresses this problem by capitalizing on the variations in organizations' decisions by examining all project types: funded, partially funded, and unsuccessful.

Project novelty is our lens for studying why some projects receive more of their requested funds. Prior research in this vein suggests two different, yet related, arguments: one stream argues that some novelty is necessary to break away from the past and develop new products and services (Rosenkopf & Nerkar, 2001), while the other proposes that too much novelty is selected against because of the need for a certain level of 'convention' (e.g., Fleming et al., 2007; Uzzi et al., 2013). Building on these arguments, we theorize and find that projects with intermediate levels of novelty receive a higher share of their requested funds. In other words, while some novelty is important in developing new products and services, too much novelty tends to be rejected by selection panels. Our post-hoc analysis shows that this effect is significant over the *whole* range of novelty and offers observations throughout this range to support this claim. This finding is related to recent work on the evaluation of grants and scholarly work in science, which has suggested that novel ideas often face higher selection hurdles than more traditional ones (Boudreau et al., 2016; Uzzi et al., 2013). Our research suggests that this selection hurdle effect also occurs within organizations seeking to evaluate R&D projects—a situation in which novelty is important for the delivery of new products and services.

The research offers several contributions. Earlier studies on innovation have suggested that one reason manufacturing companies favor less novelty is the threat of cannibalizing existing products (Chandy & Tellis, 1998; Danneels, 2008). However, our findings suggest that this effect persists even in contexts involving little investment in fixed capital (and, thus, lower threats of cannibalization). This persistence suggests that novelty-related preference can be explained by the micro-foundations of selection, which we highlight in this paper through the lens of the panels evaluating projects.

While earlier research has suggested that characteristics of the *applicant* matter in the evaluation of projects, we offer a new perspective that has often been overlooked: the perspective of the *selection panels*. The search literature discusses various organizational arrangements for evaluating options (Knudsen & Levinthal, 2007) and alludes that the characteristics and compositions of the panels making decisions are important (March, 1991); however, this perspective has been largely ignored. One major reason for this research gap is the difficulty in assembling and accessing rich information about those who evaluate projects. Using our unique and detailed dataset, we theorize that organizations' preference for novelty is shaped by three panel characteristics: (1) panel workload, (2) panel expertise diversity, and (3) panel-applicant shared location. *If* panels evaluate each project on its merits alone (with an emphasis on *if*), then the moderating effects suggested here should have *no* impact on the outcome. In many ways, this is the result that organizations seek to achieve: a fair evaluation of all projects based solely on merit. However, our research shows that reality often falls short of this goal. Panel effects do matter, and panel characteristics can either increase or decrease an organization's preference for novelty.

Our results suggest that when members of a selection panel face higher workloads—and, thus, diluted managerial attention—they tend to prefer less novel projects (see also Piezunka and Dahlander (2015) for how this occurs outside organizations). This indicates that the availability of managerial attention in the selection process plays a critical role in shaping how an organization responds to new employee initiatives. Indeed, our study shows that selectors only favor novelty when they have adequate time and attention to evaluate novel proposals. When, instead, selectors face pressure to make decisions quickly, they fall back on known and more incremental courses of action.

We further show that panels with higher diversity of expertise have greater preferences for novelty. This represents an important insight for the literature discussing the benefits and drawbacks of cognitive diversity for innovation and creativity (Perry-Smith & Shalley, 2003; Shin, Kim, Lee, & Bian, 2012; Van Knippenberg, De Dreu, & Homan, 2004). While prior literature has focused on the knowledge diversity of those who *generate* alternatives, we theorize and empirically test how the knowledge diversity of those who *select* influences organizations' preference for novelty. In particular, we find that diverse panels are more able to appreciate project novelty. In technical language, as panel diversity increases, the maximum of the project novelty curve shifts to the right, suggesting that diverse panels prefer more novelty than other panels before the level of novelty begins to negatively affect selection preferences. Thus, studies interested in the relationship between knowledge diversity and novelty must consider the diversity of both those who generate ideas and those who select them, since the diversity of the former only matters if the latter group is able to appreciate it. Thus, to spark novelty, organizations must ensure that not only those creating ideas, but also those who select which projects to pursue come from different knowledge backgrounds.

Finally, while we theorize that panel members tend to support novel projects originating from co-located individuals, the findings support the opposite direction conclusion. In the evaluation of grant proposals, Boudreau et al. (2016) find that selectors give systematically lower scores to grants closer to their own intellectual home, and Reitzig and Sorenson (2013) study of a particular company finds that people appreciate ideas from the same department. Our main effects replicate this point within organizations; however, more importantly, we shifted the attention to how panel-applicant shared location moderates the effect of novelty on the share of a requested funding received by a project. There are several potential explanations for why panels are more tolerant of projects proposed by applicants from different locations. First, while shared location increases the attention a panel is willing to devote to the evaluation of a proposal, it also opens up the potential for competition, or "turf wars," between colleagues fighting for finite resources (Burt 1987). Another potential explanation is that panel members may wish to avoid being accused of favoritism.[8] In situations such as ours, in which selection decisions are made in the open, rather than behind the veil of double blind reviewing, considerations for what other people within the organization think about decision outcomes are important. Finally, panel members may shy away from overly novel projects originating from their home turf because more novel projects have a higher risk of not being delivered, which could lead to a negative reputation effect for the panel member.

Managerial Implications

Although these results are based on our observations of a single organization, they have potentially important implications for all organizations that use selection panels to promote innovation. Selection panels are often unaware of their cognitive biases and heuristics. Indeed, our findings challenge many of the current practices in our case study organization, raising critical questions about how and when selection is undertaken. The danger is that the routine of selection leads to local search and that, by accident rather than design, an organization may fail to engage in deliberate learning.

Our study suggests that, when promoting innovation is the goal, the mechanics of selection are relevant. For instance, given that selection panels may tend to favor less novel projects, organizations could use competitions or innovation tournaments to engage different internal and external communities in selection processes, thus encouraging the emergence of frame-breaking ideas (Girotra, Terwiesch, & Ulrich, 2010; Terwiesch & Ulrich, 2009). This approach may also help to mitigate selectors' lack of experience and knowledge about novel domains—an issue that often leads organizations to select local solutions (Knudsen & Levinthal, 2007).

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[8] We thank an anonymous reviewer for bringing this to our attention.

Based on our finding that a high workload predisposes a selection panel to favor less novel projects over novel ones, organizations should also be careful in managing their selectors' workflow. In fact, though it may seem counterintuitive, organizations seeking novelty may achieve better results by limiting the flow of projects into the selection process, since this approach could ensure the availability of sufficient managerial attention to assess novelty. Such a strategy may involve 'binning' projects by selection windows and convening a selection panel when a bin is full, rather than at a set date or time of year. Organizations could also seek to proactively increase panel expertise diversity as a means to spur novelty in selection.

Limitations and Avenues for Future Research

Although this study exploits a rich dataset and offers valuable insights into the nature of organizational selection, it also has notable limitations. The first drawback stems from our use of data from a single organization, which limits the generalizability of our findings. In the future, it will be useful to undertake similar studies in other organizations to assess the extent to which our findings reflect general patterns or are specific to our context. In some respect, selection remains the 'undiscovered country' of organizational studies, offering numerous opportunities to better understand how organizations become what they are. Thus, we encourage studies seeking to further probe the social dynamics of selection panels in order to build a richer understanding of how decision-making plays out in this context. In addition, experimental research designs might allow researchers to better identify the precise conditions under which panels will favor novelty. It is worth noting that gaining access to rich, firm-level information on selection decisions remains a major challenge, since organizations' selection processes often remain hidden from public view. Yet, there are also many contexts in which organizational selection processes can be observed and analyzed, such as in financial decision-making, hiring and promotions, and outsourcing. In our defense, our case study organization is a large and diverse organization, with a wide range of operating units and locations. In addition, its selection process is not completely centralized, since eight different panels review projects independently. We also observe the organization's selection process over several years, suggesting that the observed patterns are not the direct outcomes of a single set of decision-makers at one point in time.

A second limitation of this study is that, although we examine the selection of projects, we are unable to observe the impact of the selected projects on the organization. Therefore, we are unable to comment on whether the patterns we observe in the selection process have negative or positive implications for the firm's allocation of R&D efforts (e.g., through errors of accepting inferior projects or rejecting superior ones). There are relatively few established metrics for R&D projects in the professional services environment, and many firms in this industry have not fully embraced the conventional tools of R&D management, such as stage gates, to allocate funding due to lack of awareness or a perception of a poor fit with their context. Within our case study organization, there is a strong tendency to rely on informal metrics and anecdotes about the value of particular R&D projects. Further research is required to better understand inter-industry and inter-organizational differences in R&D selection. In addition, in our context, financial risk and uncertainty are not directly related to novelty, since the selection process focuses on relatively small projects. Thus, although the decisions made are considered important by both the organization and the applicants, they may not carry the same degree of financial risk for the wider organization as R&D decisions in other contexts, such as pharmaceuticals. Moreover, in our context (as in many others), it is difficult to assess the impact of non-selected projects, since little or no information is kept on such applications. Other settings with information on selection and performance, including information on ‘near-miss’ cases, could facilitate a fuller appreciation of how selection drives organizational (non-)learning.

Although our research focused on a professional service firm, we believe that our context has strong similarities to others. Every organization makes selection decisions in some form, and thus far, relatively little attention has been paid to how the nature of these decisions is influenced by panel effects. It is clear from other contexts that minor changes in selection processes can have significant consequences for a variety of organizational outcomes. For example, the use of blind auditions or screens in the selection of musicians in US orchestras has been shown to lead to a significant increase in female membership (Goldin & Rouse, 2000). Similarly, studies have shown that meal times affect judges’ sentencing decisions, such that the percentage of favorable rulings gradually drops before and then increases after session breaks (Danziger, Levav, & Avnaim-Pesso, 2011). We suggest that these effects exist within organizations, even in situations in which selectors are supposed to make decisions based solely on merit.

Despite these limitations, we offer this study as a new, clearer look into the often-hidden world of organizational selection. By highlighting the important role of panels in relation to how selectors respond to novel projects, our study offers new insights into the nature of selection within organizations.

REFERENCES

Ai, C. & Norton, E. C. 2003. Interaction terms in logit and probit models. ***Economics Letters***, 80(1): 123-129.

Arikan, A. M. & McGahan, A. M. 2010. The development of capabilities in new firms. ***Strategic Management Journal***, 31(1): 1-18.

Boudreau, K. J., Guinan, E., Lakhani, K., & Riedl, C. 2016. Looking across and looking beyond the knowledge frontier: Intellectual distance and resource allocation in science. ***Management Science***, forthcoming.

Brewer, M. B. 1979. In-group bias in the minimal intergroup situation: A cognitive-motivational analysis. ***Psychological Bulletin***, 86(2): 307.

Burgelman, R. A. 1983. A process model of internal corporate venturing in the diversified major firm. ***Administrative Science Quarterly***: 223-244.

Calantone, R. J., Chan, K., & Cui, A. S. 2006. Decomposing product innovativeness and its effects on new product success. ***Journal of Product Innovation Management***, 23(5): 408-421.

Chandy, R. K. & Tellis, G. J. 1998. Organizing for radical product innovation: The overlooked role of willingness to cannibalize. ***Journal of Marketing Research***, 35(4): 474-487.

Cohen, W. M. & Levinthal, D. A. 1994. Fortune favors the prepared firm. ***Management Science***, 40(2): 227-251.

Csaszar, F. A. & Eggers, J. 2013. Organizational decision making: An information aggregation view. ***Management Science***, 59(10): 2257-2277.

Csikszentmihalyi, M. 1996. ***Creativity: Flow and the Psychology of Discovery and Invention***. New York: HarperPerennial.

Cyert, R. & March, J., G. 1963. ***A Behavioral Theory of the Firm***. Englewood Cliffs, NJ: Prentice-Hall.

Dahlander, L., O'Mahony, S., & Gann, D. M. 2016. One foot in, one foot out: how does individuals' external search breadth affect innovation outcomes? ***Strategic Management Journal***, 37(2): 280-302.

Danneels, E. & Kleinschmidt, E. J. 2001. Product innovativeness from the firm's perspective: Its dimensions and their relation with project selection and performance. ***Journal of Product Innovation Management***, 18(6): 357-373.

Danneels, E. 2008. Organizational antecedents of second-order competences. ***Strategic Management Journal***, 29(5): 519-543.

Danziger, S., Levav, J., & Avnaim-Pesso, L. 2011. Extraneous factors in judicial decisions. ***Proceedings of the National Academy of Sciences***, 108(17): 6889-6892.

Dougherty, D. & Heller, T. 1994. The illegitimacy of successful product innovation in established firms. ***Organization Science***, 5(2): 200-218.

Duda, R. O. & Hart, P. E. 1973. ***Pattern Classification and Scene Analysis***. New York: John Wiley & Sons.

Ethiraj, S. K. & Levinthal, D. 2004. Modularity and innovation in complex systems. ***Management Science***, 50(2): 159-173.

Ferguson, C. K. & Kelley, H. H. 1964. Significant factors in overevaluation of own-group's product. ***The Journal of Abnormal and Social Psychology***, 69(2): 223-228.

Fieller, E. C. 1954. Some problems in interval estimation. ***Journal of the Royal Statistical Society. Series B (Methodological)***, 16(2): 175-185.

Fleming, L. 2001. Recombinant uncertainty in technological search. ***Management Science***, 47(1): 117-132.

Fleming, L. & Sorenson, O. 2001. Technology as a complex adaptive system: evidence from patent data. ***Research Policy***, 30(7): 1019-1039.

Fleming, L., Mingo, S., & Chen, D. 2007. Collaborative brokerage, generative creativity, and creative success. ***Administrative Science Quarterly***, 52(3): 443-475.

Girotra, K., Terwiesch, C., & Ulrich, K. T. 2010. Idea generation and the quality of the best idea. ***Management Science***, 56(4): 591-605.

Goldin, C. & Rouse, C. 2000. Orchestrating impartiality: The impact of "blind" auditions on female musicians. ***American Economic Review***, 90(4): 715-741.

Haans, R. F., Pieters, C., & He, Z. L. 2015. Thinking about U: Theorizing and testing U-and inverted U-shaped relationships in strategy research. ***Strategic Management Journal***, Advance online publication [DOI: 10.1002/smj.2399].

Haas, M. R. & Hansen, M. T. 2005. When using knowledge can hurt performance: The value of organizational capabilities in a management consultancy company. ***Strategic Management Joumal***, 26(1): 1-24.

Hannan, M., Goldberg, A., & Kovács, B. 2015. What does it mean to span cultural boundaries? Variety and atypicality in cultural consumption. ***American Sociological Review***, forthcoming.

Hargadon, A. & Sutton, R. I. 1997. Technology brokering and innovation in a product development firm. ***Administrative Science Quarterly***, 42(4): 716-749.

Heckman, J. J. 1979. Sample selection bias as a specification error. ***Econometrica***, 47(1): 153-161.

Henderson, R. & Cockburn, I. 1994. Measuring competence? Exploring firm effects in pharmaceutical research. ***Strategic Management Journal***, 15(S1): 63-84.

Hitt, M., Bierman, L., Shimizu, K., & Kochhar, R. 2001. Direct and moderating effects of human capital on strategy and performance in professional service firms: A resource-based perspective. ***Academy of Management Journal***, 44(1): 13-28.

Hoetker, G. 2007. The use of logit and probit models in strategic management research: Critical issues. ***Strategic Management Journal***, 28(4): 331-343.

Kale, P. & Singh, H. 2007. Building firm capabilities through learning: The role of the alliance learning process in alliance capability and firm-level alliance success. ***Strategic Management Journal***, 28(10): 981-1000.

Katila, R. & Ahuja, G. 2002. Something old, something new: A longitudinal study of search behavior and new product introduction. ***Academy of Management Journal***, 45(6): 1183-1194.

King, G., Tomz, M., & Wittenberg, J. 2000. Making the most of statistical analyses: Improving interpretation and presentation. ***American Journal of Political Science***, 44(2): 347-361.

Kleinbaum, A. M., Stuart, T. E., & Tushman, M. L. 2013. Discretion within constraint: Homophily and structure in a formal organization. ***Organization Science***, 24(5): 1316-1336.

Knudsen, T. & Levinthal, D. A. 2007. Two faces of search: Alternative generation and alternative evaluation. ***Organization Science***, 18(1): 39-54.

Kotha, R., George, G., & Srikanth, K. 2013. Bridging the mutual knowledge gap: Coordination and the commercialization of university science. ***Academy of Management Journal***, 56(2): 498-524.

Kovács, B. & Denrell, J. 2008. Selective sampling of empirical settings in organizational studies. ***Administrative Science Quarterly***, 53(1): 109-144.

Laursen, K. & Salter, A. 2006. Open for innovation: The role of openness in explaining innovation performance among UK manufacturing firms. ***Strategic Management Journal***, 27(2): 131-150.

Levine, M., Prosser, A., Evans, D., & Reicher, S. 2005. Identity and emergency intervention: How social group membership and inclusiveness of group boundaries shape helping behavior. ***Personality and Social Psychology Bulletin***, 31(4): 443-453.

Levinthal, D. & Rerup, C. 2006. Crossing an apparent chasm: Bridging mindful and less-mindful perspectives on organizational learning. ***Organization Science***, 17(4): 502-513.

Levinthal, D. A. & Myatt, J. 1994. Co-evolution of capabilities and industry: The evolution of mutual fund processing. ***Strategic Management Journal***, 15(S1): 45-62.

Levinthal, D. A. 1997. Adaptation on rugged landscapes. ***Management Science***, 43(7): 934-950.

Long Lingo, E. & O'Mahony, S. 2010. Nexus work: Brokerage on creative projects. ***Administrative Science Quarterly***, 55(1): 47-81.

Macaulay, J. 1975. Familiarity, attraction, and charity. ***The Journal of Social Psychology***, 95(1): 27-37.

Malhotra, N., Morris, T., & Hinings, C. 2006. Variation in organizational form among professional service organizations. ***Research in the Sociology of Organizations***, 24(6): 171-202.

March, J. G. 1991. Exploration and exploitation in organizational learning. ***Organization Science***, 2(1): 71-87.

Mueller, J. S., Melwani, S., & Goncalo, J. A. 2011. The bias against creativity: Why people desire but reject creative ideas. ***Psychological Science***, 21(1): 13-17.

Nelson, R. R. & Winter, S. 1982. ***An Evolutionary Theory of Economic Change***. Cambridge, MA: Harvard University Press.

Nemeth, C. J. 1986. Differential contributions of majority and minority influence. ***Psychological Review***, 93(1): 23-32.

O'Reilly, C. A. 1980. Individuals and information overload in organizations: Is more necessarily better? ***Academy of Management Journal***, 23(4): 684-696.

Olbrecht, M. & Bornmann, L. 2010. Panel peer review of grant applications: What do we know from research in social psychology on judgment and decision-making in groups? ***Research Evaluation***, 19(4): 293-304.

Perry-Smith, J. E. & Shalley, C. E. 2003. The social side of creativity: A static and dynamic social network perspective. ***Academy of Management Review***, 28(1): 89-106.

Piezunka, H. & Dahlander, L. 2015. Distant search, narrow attention: How crowding alters organizations' filtering of suggestions in crowdsourcing. ***Academy of Management Journal***, 58(3): 856-880.

Rabbie, J. M. & Wilkens, G. 1971. Intergroup competition and its effect on intragroup and intergroup relations. ***European Journal of Social Psychology***, 1(2): 215-234.

Reitzig, M. & Sorenson, O. 2013. Biases in the selection stage of bottom-up strategy formulation. ***Strategic Management Journal***, 34(7): 782-799.

Rerup, C. 2009. Attentional triangulation: Learning from unexpected rare crises. ***Organization Science***, 20(5): 876-893.

Rindova, V. P. & Petkova, A. P. 2007. When is a new thing a good thing? Technological change, product form design, and perceptions of value for product innovations. ***Organization Science***, 18(2): 217-232.

Rivkin, J. W. & Siggelkow, N. 2003. Balancing search and stability: Interdependencies among elements of organizational design. ***Management Science***, 49(3): 290-311.

Rollag, K. 2004. The impact of relative tenure on newcomer socialization dynamics. ***Journal of Organizational Behavior***, 25(7): 853-872.

Rosenkopf, L. & Nerkar, A. 2001. Beyond local search: Boundary-spanning, exploration, and impact in the optical disk industry. ***Strategic Management Journal***, 22(4): 287-306.

Sah, R. K. & Stiglitz, J. E. 1986. The architecture of economic systems: Hierarchies and polyarchies. ***American Economic Review***, 76(4): 716-727.

Salton, G., Wong, A., & Yang, C.-S. 1975. A vector space model for automatic indexing. ***Communications of the ACM***, 18(11): 613-620.

Schumpeter, J. A. 1934. ***The Theory of Economic Development: An Inquiry Into Profits, Capital, Credit, Interest, and the Business Cycle***. Cambridge: MA: Harvard University Press.

Sethi, R., Iqbal, Z., & Sethi, A. 2012. Developing new-to-the-firm products: The role of micropolitical strategies. ***Journal of Marketing***, 76(2): 99-115.

Sherif, M., Harvey, O. J., White, B. J., Hood, W. R., & Sherif, C. W. 1961. ***Intergroup conflict and cooperation: The Robbers Cave experiment***: University Book Exchange Norman, OK.

Shin, S. J., Kim, T.-Y., Lee, J.-Y., & Bian, L. 2012. Cognitive team diversity and individual team member creativity: A cross-level interaction. ***Academy of Management Journal***, 55(1): 197-212.

Suddaby, R. & Greenwood, R. 2001. Colonizing knowledge: Commodification as a dynamic of jurisdictional expansion in professional service firms. ***Human Relations***, 54(7): 933-953.

Sullivan, B. N. 2010. Competition and beyond: Problems and attention allocation in the organizational rulemaking process. ***Organization Science***, 21(2): 432-450.

Sydow, J., Schreyögg, G., & Koch, J. 2009. Organizational path dependence: Opening the black box. ***Academy of Management Review***, 34(4): 689-709.

Tajfel, H. & Turner, J. C. 1986. ***The Social Identity Theory of Intergroup Behavior***. Chicago, IL: Nelson-Hall.

Teece, D. J. 2003. Expert talent and the design of (professional services) firms. ***Industrial and Corporate Change***, 12(4): 895-916.

Terwiesch, C. & Ulrich, K. T. 2009. ***Innovation Tournaments: Creating and Selecting Exceptional Opportunities***. Boston, MA: Harvard Business Press.

Trapido, D. 2015. How novelty in knowledge earns recognition: The role of consistent identities. ***Research Policy***, 44(8): 1488-1500.

Uzzi, B., Mukherjee, S., Stringer, M., & Jones, B. 2013. Atypical combinations and scientific impact. ***Science***, 342(6157): 468-472.

Van Knippenberg, D., De Dreu, C. K., & Homan, A. C. 2004. Work group diversity and group performance: An integrative model and research agenda. ***Journal of Applied Psychology***, 89(6): 1008.

Vidal, J. B. i. & Leaver, C. 2011. Are tenured judges insulated from political pressure? ***Journal of Public Economics***, 95(7): 570-586.

Von Nordenflycht, A. 2010. What is a professional service firm? Toward a theory and taxonomy of knowledge-intensive firms. ***Academy of Management Review***, 35(1): 155-174.

Vuori, T. O. & Huy, Q. N. 2015. Distributed attention and shared emotions in the innovation process how Nokia lost the smartphone battle. ***Administrative Science Quarterly***, Advance online publication [DOI: 10.1177/0001839215606951].

Ward Jr, J. H. 1963. Hierarchical grouping to optimize an objective function. ***Journal of the American Statistical Association***, 58(301): 236-244.

Wiersema, M. F. & Bowen, H. P. 2009. The use of limited dependent variable techniques in strategy research: Issues and methods. ***Strategic Management Journal***, 30(6): 679-692.

Zajonc, R. B. 1968. Attitudinal effects of mere exposure. ***Journal of Personality and Social Psychology***, 9(2p2): 1-27.

Zelner, B. A. 2009. Using simulation to interpret results from logit, probit, and other nonlinear models. ***Strategic Management Journal***, 30(12): 1335-1348.

Zollo, M. & Winter, S. 2002. Deliberate learning and the evolution of dynamic capabilities. ***Organization Science***, 13(3): 339-351.

Zollo, M. & Singh, H. 2004. Deliberate learning in corporate acquisitions: post acquisition strategies and integration capability in US bank mergers. ***Strategic Management Journal***, 25(13): 1233-1256.

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TABLE 1
Description of Variables and their Data Sources

Variable	Explanation	Data sources
1. Share of requested funding awarded	Total amount of money awarded divided by total amount of money requested	R&D project management system
2. Project novelty	Pairs of keywords in a proposal that never appeared in the expertise location system divided by all possible pairs of keywords in a proposal	R&D project management system Expertise location system
3. Panel workload	Number of characters of all proposals except the focal one evaluated in a given meeting	R&D project management system
4. Panel expertise diversity	Euclidean distance between the vector of engineering domains of each selector and those of each of the other selectors.	R&D project management system Expertise location system
5. Panel-applicant shared location	Dummy = 1 if the applicant and at least one of the members of the selection panel shared the same office	Human resource records
Panel level controls		
6. Panel-project expertise similarity	Maximum number of overlapping keywords in all the selectors' skills description and in the proposal, plus the sum of the cosine measure for all combinations of keywords cited in these two documents	R&D project management system Expertise location system
Portfolio level controls		
7. Alignment to R&D strategy	Dummy = 1 if a project mentions at least one of the keywords in the R&D roadmap	R&D project management system R&D roadmap
8. Funding left	Amount of funding still available when the decision on a focal proposal is made	R&D project management system R&D department internal records
9. R&D portfolio similarity	Maximum number of words in common between the text of the focal proposal and the text of all proposals funded in the previous three quarters divided by the number of unique words in focal proposal	R&D project management system
10. Domain with pre-allocated funding	Dummy = 1 if a proposal is classified in an engineering domain with pre-allocated funds	R&D department internal records
11. Share of highly novel projects funded	Number of funded projects with values equal to or above the 75^{th} percentile of the novelty measure	R&D project management system
Project level controls		
12. Project size	Logarithm of the amount of money requested	R&D project management system
13. Project duration	Duration of the project in months	R&D project management system
14. Length of proposal	Number of characters in a proposal	R&D project management system
15. Resubmitted proposal	Dummy = 1 if a proposal is considered by more than one selection panel	R&D project management system
16. External collaboration	Dummy = 1 if an external organization is listed among the applicants	R&D project management system
17. Endorsement	Number of words in positive comments received from business and technical leaders	R&D project management system
18. Opposition	Number of words in negative comments	R&D project management system
Applicant level controls		
19. Research experience	Logarithm of the sum of all funding received by the applicant through successful R&D applications prior to the focal application, discounted at a rate of 15%	R&D project management system
20. Tenure in the organization	Number of years an applicant has worked in the organization	Human resource records
21. Expertise similarity project	Number of overlapping keywords in an applicant's skills description and proposal, plus the sum of the cosine measure for all combinations of keywords cited in these two documents	R&D project management system Expertise location system
22. Projects delivered late	Dummy = 1 if an applicant has not completed at least one research project within the allocated time frame	R&D project management system
23. Leader in project team	Dummy = 1 if a proposal lists a business or technical leader among its team members	R&D project management system
24. Located at HQ	Dummy = 1 if an applicant works at the company's headquarters	Human resource records

TABLE 2
Descriptive Statistics and Correlation Matrix

		Mean	S.D.	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	Share of requested funding awarded	0.61	0.41	0	1																							
2	Project novelty	0.23	0.12	0	0.7	0.02																						
3	Panel workload	1332.44	1083.26	-61.18	3609.7	-0.19	0.07																					
4	Panel expertise diversity	3.94	1.81	0	13.87	-0.13	0.00	0.07																				
5	Panel-applicant shared location	0.54	0.50	0	1	0.03	-0.06	-0.04	0.08																			
Panel level controls																												
6	Panel-project expertise similarity	5.09	6.30	0.15	65.23	-0.11	0.00	0.17	0.34	0.08																		
Portfolio level controls																												
7	Alignment to R&D strategy	0.50	0.50	0	1	0.08	0.08	-0.04	0.00	-0.04	0.07																	
8	Funding left	3.48	3.34	-1.45	11.5	-0.07	-0.02	0.64	0.08	0.00	0.18	-0.06																
9	R&D portfolio similarity	0.37	0.07	0.20	0.99	-0.02	-0.09	0.14	-0.07	-0.03	-0.17	-0.16	0.09															
10	Domain with pre-allocated funding	0.31	0.46	0	1	0.03	-0.01	0.03	0.01	0.03	-0.06	0.13	-0.04	0.02														
11	Share of highly novel projects funded	0.26	0.15	0	0.44	0.03	0.02	0.10	0.04	-0.05	-0.06	0.04	-0.35	0.02	0.06													
Project level controls																												
12	Project size[a]	9.30	0.81	6.91	11.32	-0.46	-0.02	-0.03	0.03	0.06	0.1	0.05	0.02	-0.12	-0.04	-0.02												
13	Project duration	7.43	7.61	0	52	-0.07	-0.03	-0.17	0.09	0.14	0.00	0.01	-0.02	-0.07	0.01	-0.13	0.14											
14	Length of proposal	32.94	19.33	3.65	176.84	-0.05	0.11	-0.06	0.03	0.01	0.24	0.29	-0.03	-0.41	0.14	0.00	0.27	0.06										
15	Resubmitted proposal	1.67	0.76	1	5	-0.21	-0.01	0.71	0.12	-0.01	0.24	-0.06	0.56	0.07	-0.03	-0.13	-0.05	-0.16	-0.12									
16	External collaboration	0.40	0.49	0	1	0.06	0.02	-0.63	0.13	0.10	-0.07	0.07	-0.37	-0.08	0.00	0.06	0.21	0.27	0.17	-0.69								
17	Endorsement[a]	0.99	1.73	0	6.35	0.14	0.03	0.08	-0.02	0.00	0.01	0.12	0.00	-0.12	0.09	0.02	-0.04	-0.11	0.18	0.05	-0.12							
18	Opposition[a]	0.12	0.73	0	6	-0.11	-0.01	0.03	0.08	-0.01	0.08	-0.03	0.04	-0.04	0.00	-0.06	0.07	-0.03	0.01	0.09	-0.04	0.06						
Applicant level controls																												
19	Research experience	13.08	9.56	0	43.31	0.18	0.00	-0.02	0.06	0.10	-0.02	0.06	0.03	0.09	0.11	-0.04	-0.03	0.04	-0.09	-0.03	0.03	0.01	-0.01					
20	Tenure in the organization	9.06	8.13	0	33	0.08	-0.04	-0.10	-0.02	0.05	-0.08	-0.13	-0.05	0.06	-0.15	0.03	0.01	0.11	-0.25	-0.07	0.12	-0.10	-0.03	0.22				
21	Expertise similarity project	8.62	7.16	0	40.49	0.00	-0.06	-0.06	0.04	0.16	0.37	0.17	0.01	-0.14	0.01	-0.07	0.06	0.03	0.28	-0.04	0.11	0.07	0.03	0.09	-0.05			
22	Projects delivered late	0.15	0.36	0	1	-0.01	-0.08	0.01	0.02	0.17	0.03	0.01	0.05	0.04	0.05	-0.03	0.08	-0.01	-0.02	-0.04	0.00	0.00	0.04	0.44	0.16	0.13		
23	Leader in project team	0.38	0.49	0	1	0.00	0.04	-0.02	0.01	0.00	-0.07	0.04	-0.06	-0.01	0.02	0.05	-0.04	-0.07	-0.04	-0.03	-0.01	0.11	-0.07	0.04	-0.02	0.00	-0.08	
24	Located at HQ	0.35	0.48	0	1	0.06	-0.08	-0.04	-0.01	0.65	-0.03	-0.06	0.02	0.00	-0.01	-0.10	0.04	0.09	-0.12	-0.02	0.01	-0.02	-0.04	0.26	0.26	0.11	0.26	-0.09

Note: Correlations greater than |0.08| are significant at 5%. [a] Variable transformed in logarithm. N=556

TABLE 3
Tobit Model on Share of Requested Funding Awarded (N=556)

	1	2	3	4	5	6	7
H1: Project novelty		2.2102**	2.0694***	1.8461*	2.9783	3.1270***	2.5232**
		(0.860)	(0.616)	(1.092)	(2.115)	(1.122)	(1.047)
H1: Project novelty^2		-4.3162***	-4.0165***	-3.5333*	-4.2991	-4.5823***	-2.8765**
		(1.231)	(0.726)	(1.887)	(3.486)	(1.544)	(1.249)
H2: Panel workload x Project novelty			1.5186***				2.3386***
			(0.494)				(0.638)
H2: Panel workload x Project novelty^2			-2.4459**				-4.4171***
			(1.088)				(1.164)
H3: Panel expertise diversity x Project novelty				-2.2874*			-2.7647**
				(1.291)			(1.395)
H3: Panel expertise diversity x Project novelty^2				4.9239*			6.2084**
				(2.804)			(3.132)
H4: Panel-applicant shared location x Project novelty					-1.1468	-1.4309*	-1.6694*
					(2.593)	(0.805)	(0.874)
H4: Panel-applicant shared location x Project novelty^2					-0.554		
					(4.317)		
Panel workload [a]	-0.2168**	-0.2222***	-0.4146***	-0.2290***	-0.2179***	-0.2185***	-0.4860***
	(0.086)	(0.078)	(0.105)	(0.083)	(0.076)	(0.076)	(0.119)
Panel expertise diversity [a]	-0.0863	-0.0803	-0.0848	0.1274	-0.075	-0.0749	0.1602
	(0.077)	(0.077)	(0.080)	(0.130)	(0.077)	(0.076)	(0.134)
Panel-applicant shared location	0.1284	0.1335	0.1339	0.1454	0.4458	0.4748**	0.5438**
	(0.132)	(0.137)	(0.140)	(0.138)	(0.385)	(0.207)	(0.228)
Panel level control variables							
Panel-project expertise similarity	0.0067	0.0053	0.0061	0.0048	0.0048	0.0048	0.0047
	(0.011)	(0.012)	(0.012)	(0.012)	(0.011)	(0.011)	(0.011)
Portfolio level controls							
Alignment to R&D strategy	0.1922***	0.1890***	0.1750**	0.2131***	0.1897***	0.1888***	0.1975***
	(0.059)	(0.069)	(0.074)	(0.072)	(0.070)	(0.065)	(0.072)
Funding left	0.0588***	0.0604***	0.0610***	0.0585***	0.0593***	0.0592***	0.0590***
	(0.022)	(0.019)	(0.019)	(0.020)	(0.020)	(0.019)	(0.021)
R&D portfolio similarity	-0.7134	-0.6687	-0.7031	-0.6575	-0.7543	-0.7459	-0.7901
	(0.653)	(0.648)	(0.654)	(0.640)	(0.597)	(0.617)	(0.596)
Domain with pre-allocated funding	-0.0244	-0.0297	-0.0348	-0.0231	-0.0239	-0.0241	-0.0283
	(0.103)	(0.104)	(0.110)	(0.104)	(0.110)	(0.101)	(0.112)
Share of highly novel projects funded	0.4499*	0.4235*	0.4193*	0.3877	0.3958	0.3992	0.3912
	(0.273)	(0.251)	(0.246)	(0.262)	(0.270)	(0.270)	(0.267)

	1	2	3	4	5	6	7
Project level controls							
Project size	-0.6609***	-0.6679***	-0.6681***	-0.6630***	-0.6758***	-0.6758***	-0.6700***
	(0.112)	(0.109)	(0.108)	(0.106)	(0.108)	(0.108)	(0.106)
Project duration	-0.007	-0.0077	-0.0075	-0.0069	-0.0073	-0.0073	-0.006
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Length of proposal	0.0002	-0.0004	0	-0.0007	-0.0002	-0.0002	0
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Resubmitted proposal	-0.2341*	-0.2326*	-0.232	-0.2369*	-0.2329*	-0.2323*	-0.2319
	(0.134)	(0.138)	(0.146)	(0.136)	(0.136)	(0.136)	(0.153)
External collaboration	-0.4583	-0.4611	-0.4552	-0.5669*	-0.4611*	-0.4615	-0.5720*
	(0.296)	(0.296)	(0.308)	(0.335)	(0.280)	(0.281)	(0.325)
Endorsement	0.0811***	0.0816***	0.0789***	0.0802***	0.0822***	0.0820***	0.0760***
	(0.030)	(0.030)	(0.030)	(0.029)	(0.031)	(0.030)	(0.029)
Opposition	-0.1349**	-0.1425**	-0.1406*	-0.1423**	-0.1418**	-0.1419**	-0.1412*
	(0.068)	(0.069)	(0.085)	(0.070)	(0.068)	(0.068)	(0.074)
Applicant level controls							
Research experience	0.0209***	0.0217***	0.0223***	0.0217***	0.0211**	0.0212***	0.0225**
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)
Projects delivered late	-0.1872**	-0.2021**	-0.2077**	-0.2034**	-0.2228***	-0.2248***	-0.2433***
	(0.082)	(0.081)	(0.089)	(0.088)	(0.084)	(0.081)	(0.088)
Tenure in the organization	0.0085	0.0091	0.0085	0.0095*	0.0102*	0.0102*	0.0098
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Expertise similarity project	-0.0042	-0.0055	-0.006	-0.0049	-0.0056	-0.0056	-0.0054
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Leader in project team	-0.1128	-0.115	-0.1131	-0.1161	-0.104	-0.1037	-0.1005
	(0.102)	(0.107)	(0.157)	(0.104)	(0.108)	(0.108)	(0.120)
Located at HQ	-0.0232	-0.0144	-0.0053	-0.025	-0.0289	-0.0308	-0.0386
	(0.124)	(0.130)	(0.151)	(0.130)	(0.126)	(0.119)	(0.130)
Constant	7.3710***	7.2242***	7.2396***	7.2733***	7.1581***	7.1362***	7.1579***
	(1.017)	(1.062)	(1.037)	(1.070)	(1.179)	(1.045)	(1.033)
Sigma	0.7550***	0.7494***	0.7470***	0.7456***	0.7441***	0.7443***	0.7357***
	(0.101)	(0.104)	(0.105)	(0.102)	(0.101)	(0.101)	(0.100)
Log-likelihood	-453.367	-450.148	-448.953	-448.058	-447.35	-447.408	-442.74
Consulting practice dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Selection panel dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Robust standard errors for two-tailed tests clustered by applicant and panel of selectors.
* Significant at 10%; ** significant at 5%; *** significant at 1%.
[a] Variable is standardized by subtracting the mean from the value and dividing by the standard deviation.

FIGURE 1
Conceptual Model

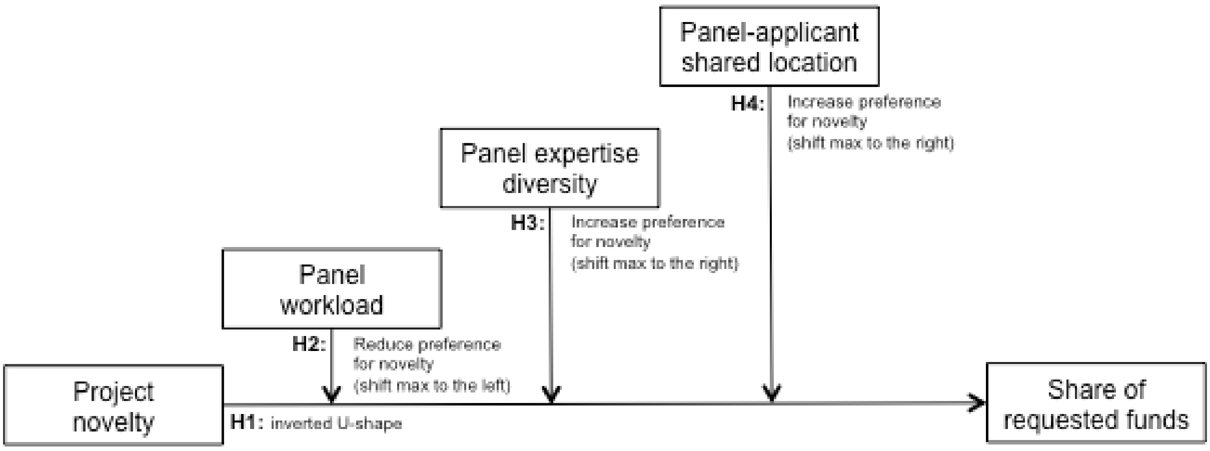
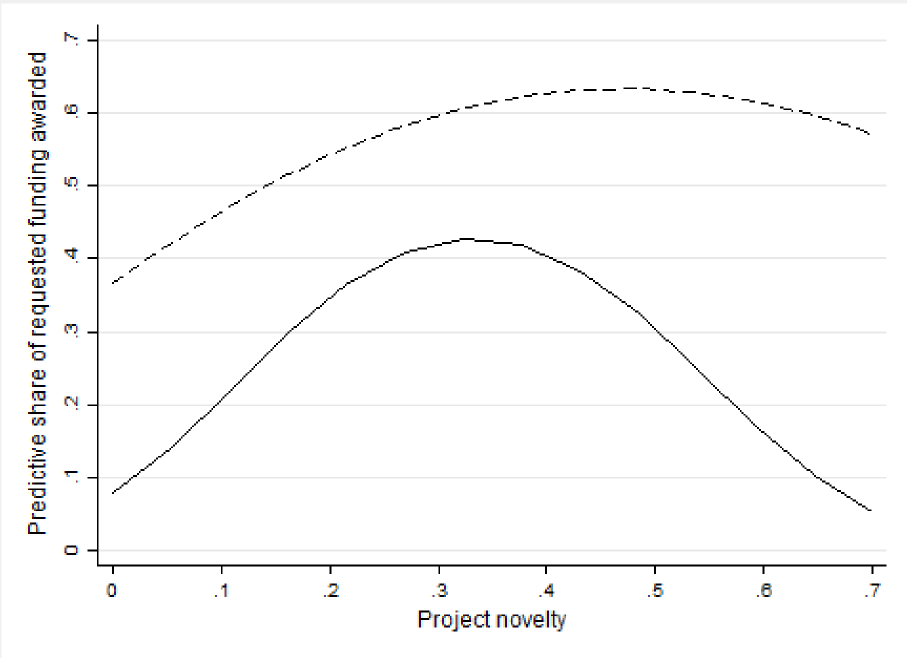
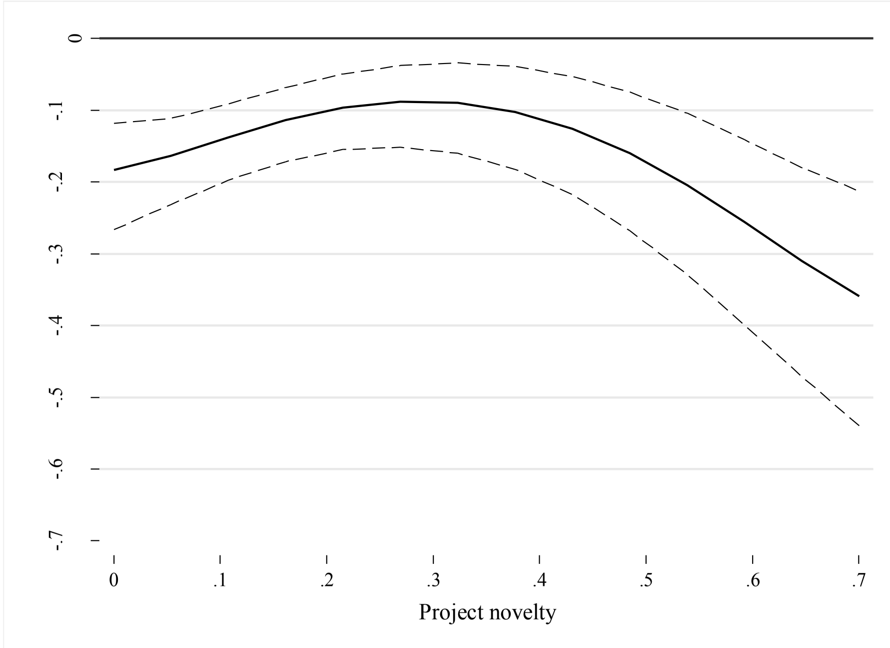


FIGURE 2 a and b

Moderation Effect of Panel Workload on Project Novelty

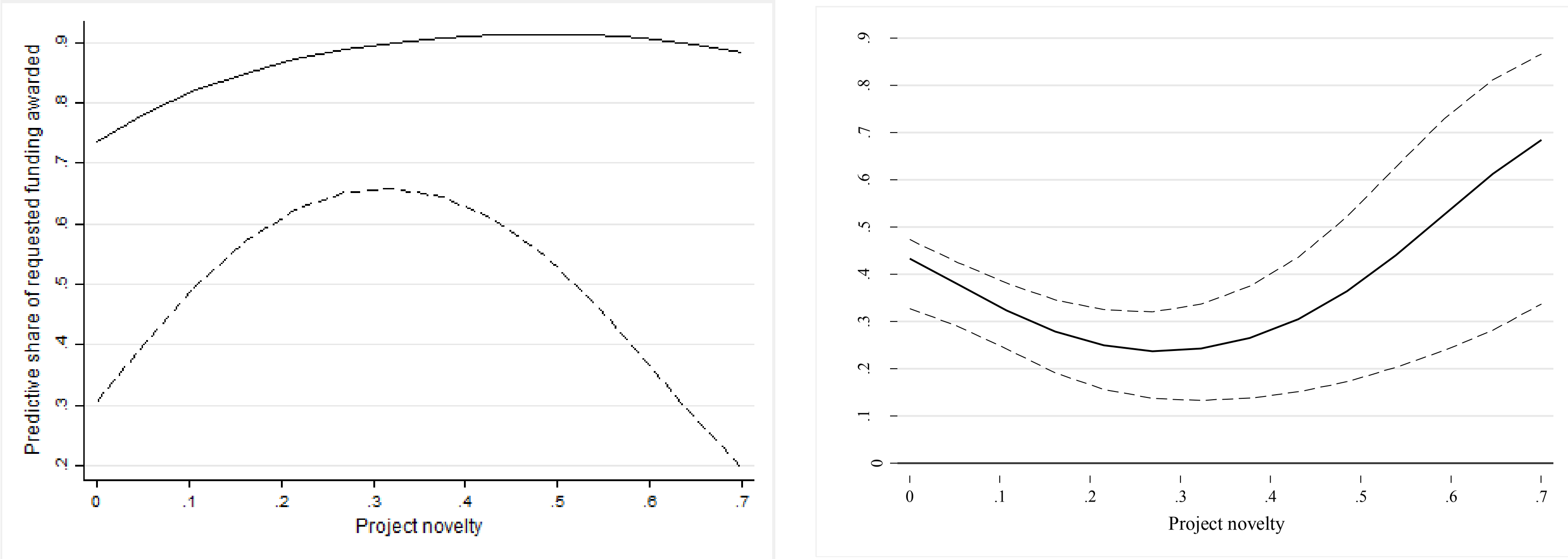




Note. These graphs show the moderating effect of panel workload associated with an increased level of panel workload from its mean value (dashed line) to one standard deviations above the mean (continuous line). We obtained the graphs using coefficient estimates from Model 7 of Table 3, considering an R&D project proposal resubmitted only once, judged in 2008, with zero values for all the other dummy variables and mean values for all other continuous variables. The 90% confidence interval on the difference in the predicted share of the fund awarded is also shown.

FIGURE 3 a and b

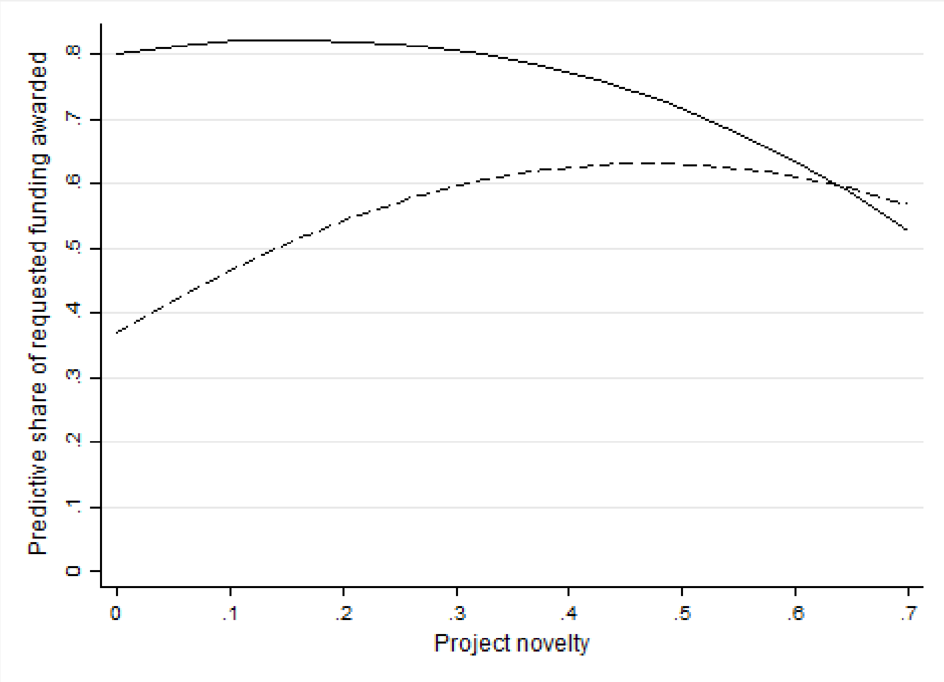
Moderation Effect of Panel Expertise Diversity on Project Novelty

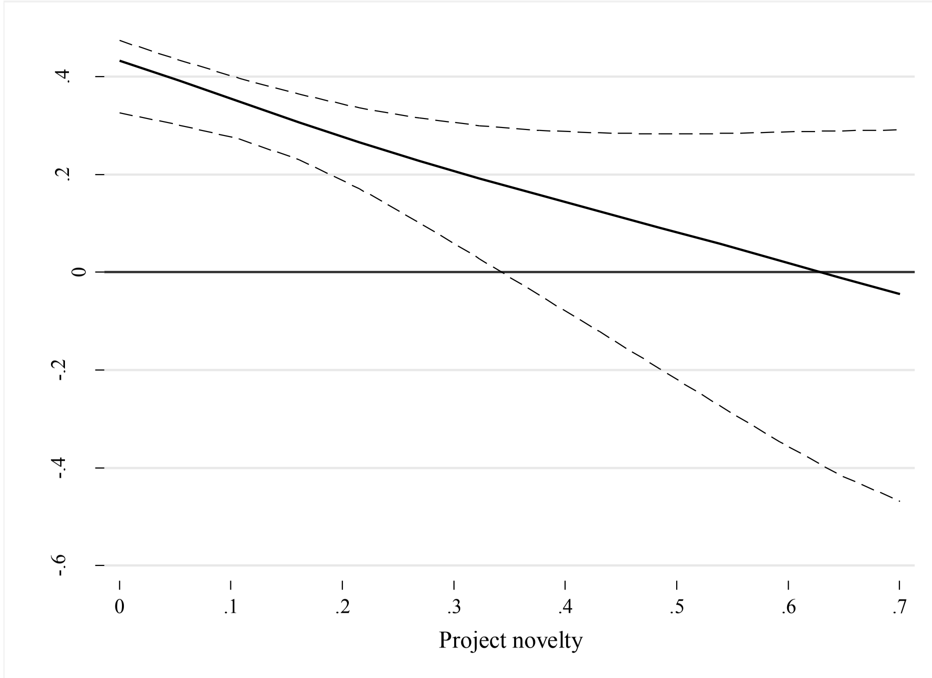


Note. These graphs show the moderating effect of panel expertise diversity associated with an increased level of panel expertise diversity from one standard deviation below its mean value (dashed line) and its mean value (continuous line). We obtained the graphs using coefficient estimates from Model 7 of Table 3, considering an R&D project proposal resubmitted only once, judged in 2008, with zero values for all the other dummy variables and mean values for all other continuous variables. The 90% confidence interval for the difference in the predicted share of fund awarded is also shown.

FIGURE 4 a and b

Moderation Effect of Panel-Applicant Shared Location on Project Novelty





Note. These graphs show the moderating effect of at least one panel member and an applicant working in the same location. The solid line depicts a case in which at least one of the selectors and the applicant work in the same location, and the dashed line shows a case in which the selectors and the applicant work in different locations. We obtained the graphs using coefficient estimates from Model 7 of Table 3, considering an R&D project proposal resubmitted only once, judged in 2008, with zero values for all the other dummy variables and with mean values for all other continuous variables. The 90% confidence interval for the difference in the predicted share of fund awarded is also shown.