

# Building more entrepreneurial organizations through external innovation contests

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## Abstract

Firms are increasingly adopting innovation contests to obtain ideas for new products and services from external parties, but many firms may not be sufficiently entrepreneurial to benefit from those ideas. Using an inductive longitudinal case study of three financial service firms, we explore the value of external innovation contests for less entrepreneurial and stagnant firms. Our findings indicate that stagnant firms indeed struggle to benefit from ideas generated through external innovation contests. However, we also show that firms undergo a structural change process toward higher entrepreneurial orientation through such contests. In particular, they become aware of an organizational readiness gap and act on it by (i) developing entrepreneurial skills, (ii) collaborating with external partners, and (iii) adapting organizational design and governance. Based on our findings, we propose an original framework for a corporate entrepreneurial learning process triggered by the innovation contest experience.

## KEYWORDS

corporate entrepreneurship, entrepreneurial learning, entrepreneurial orientation, innovation contest, open innovation

## 1 | INTRODUCTION

Having a more entrepreneurial orientation is associated with firm growth and profitability (Anderson et al., 2022; Rauch et al., 2009; Van Doorn et al., 2013). In today's increasingly dynamic environment, the need for organizations to become more entrepreneurial is even more pressing, whether it is to seize opportunities or mitigate threats (D'Angelo et al., 2024; Kreiser et al., 2021) or to avoid business decline and stagnation (Corbett et al., 2013; Pearce II et al., 1997). Yet, it is not always clear how firms can become more entrepreneurial (Kollmann et al., 2020). Being entrepreneurial is

manifested in entrepreneurial attitudes, behaviors such as introducing new products and services, and entrepreneurial processes and practices facilitating those behaviors (Wales et al., 2020).

Innovation contests, such as hackathons, tournaments, and crowdsourcing initiatives, are an increasingly popular open innovation practice to enable the inflow of ideas and innovations (Körpeoğlu & Cho, 2018; Lampel et al., 2012; Stouras et al., 2021; Terwiesch & Xu, 2008). Some of these contests focus on the firm's internal workforce to develop new ideas and stimulate entrepreneurial behaviors (Gamber et al., 2022; Stremersch et al., 2022). However, many firms are increasingly turning to external

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ideas for innovation to overcome an internal lack of ideas, expertise, and structures (Mihm & Schlapp, 2019; Weiblen & Chesbrough, 2015). An external innovation contest (hereafter “innovation contest”) is a competition in which external innovators (or solvers) use their skills, experience, and creativity to provide solutions for an organization’s innovation-related problems (Hofstetter et al., 2018; Terwiesch & Xu, 2008). Research has focused on improving the quantity and quality of ideas through designing innovation contests (Boënné et al., 2023; Stouras et al., 2021) in terms of provided information (Hu et al., 2020; Huang et al., 2014) and reward structures (Boudreau et al., 2011; Terwiesch & Xu, 2008). A recent development is a shift toward more collaboration in innovation contests among participants and organizers to further enhance idea quality (Liao & Xu, 2020; Mihm & Schlapp, 2019; Piezunka & Dahlander, 2019).

Although these studies have provided important insights into the optimal design for an innovation contest to generate new ideas, there is little understanding of how organizations benefit from innovation contests in their efforts to become more entrepreneurial beyond new product ideas. Some insights into learning organizational practices have started to emerge, such as how participating teams (Lifshitz-Assaf et al., 2021) and innovation contests themselves (Liao & Xu, 2020) may adopt new structures resulting from an innovation contest. Nevertheless, such studies have not addressed how the sponsoring organization can learn to become more entrepreneurial.

Addressing this gap is important for at least three reasons. First, becoming more entrepreneurial can lead to higher profits (Anderson et al., 2022; Rauch et al., 2009) and prevent business decline and stagnation (Corbett et al., 2013). Second, the literature suggests that a high entrepreneurial orientation is necessary to capitalize on externally generated ideas (Bogers et al., 2017; Covin & Wales, 2019; Foss et al., 2011). Therefore, exploring the value of innovation contests for organizations that lack an entrepreneurial orientation is theoretically relevant. Third, although the open innovation literature suggests that learning such practices may be a motivation for and result from engaging with external partners and customers (Bianchi et al., 2016; Cavallo et al., 2022; Foss et al., 2011; Van de Vrande et al., 2009), these insights have not been integrated into the innovation contest literature. This creates an interesting theoretical puzzle, given that innovation contests aim to gain new ideas for products or services, but organizations may not be capable of utilizing those ideas. Therefore, we pose the following research question: How does engaging in an innovation contest trigger an organization to learn new entrepreneurial processes and

### Practitioners points

- Innovation contests can be powerful learning mechanisms beyond idea generations to make established firms more entrepreneurial.
- Through innovation contests, firms may become aware of an organizational readiness gap and act on it by (i) developing entrepreneurial skills, (ii) collaborating with external partners, and (iii) adapting organizational design and governance.
- How entrepreneurial behaviors and attitudes change following an innovation contest depends strongly on the engagement of senior managers throughout the process.

practices and change its entrepreneurial attitudes and behaviors?

To answer the research question, we observed learning during and following innovation contests through a 2-year inductive case study. Utilizing interviews, observational data, and survey data, we investigated three financial service firms that launched innovation contests. The selected firms were particularly suitable for our study because of their risk-averse nature and stagnation. The firms under investigation had similar starting points because they ran nearly identical innovation contests to generate new ideas from external sources. However, two of the firms became more entrepreneurial after their innovation contests, while the third did not. Complementing the extant research’s approach of studying innovation contests and resulting ideas, we adopted a novel perspective of investigating how companies experience innovation contests and how this triggers entrepreneurial learning processes.

Our study makes two main contributions by revealing the strategies and practices resulting from the innovation contests, which contributed to increased entrepreneurial practices and attitudes within these firms. First, we show how innovation contests help senior managers build more entrepreneurially oriented organizations. This extends prior studies focusing on the reverse relation of entrepreneurial orientation as a precursor for open innovation practices, such as innovation contests (Cheng & Huizingh, 2014). Second, we provide a novel theoretical framework of entrepreneurial learning processes in incumbent organizations following an innovation contest. Grounded in a detailed empirical examination, we show that the innovation contest experience triggers a transformation process that leads to new cognitions on the organizational readiness gap to capitalize on ideas, as

well as new actions to cope with such a gap by (i) *developing* entrepreneurial skills, (ii) *collaborating* with external partners, and (iii) adapting organizational design and governance (i.e., *organizing*). The efficacy of an organization's shift toward more entrepreneurial attitudes and behaviors was shown to be contingent on the firm's senior management's engagement in the contest. This offers important insights into how learning occurs through open innovation initiatives, such as innovation contests, beyond their original purpose of generating new product/service ideas.

## 2 | LITERATURE REVIEW

### 2.1 | Innovation contests

Open approaches to innovation using external ideas to create new products and services are increasingly prominent and come in various forms, from knowledge searches to partnerships to contests for innovations (Bogers et al., 2017; Chesbrough, 2003). In particular, the latter has a long history with an art competition in 1401 that led to Lorenzo Ghiberti's North Door, considered the door that opened to the Renaissance, being one of the earliest known innovation contests. Innovation contests are constantly evolving, and today, there are two major types: innovation races and contests (Taylor, 1995). In a race, there is a clear performance target for the solution, whereas in a contest, the participants try to solve open problems for which performance cannot be specified upfront (Mihm & Schlapp, 2019). Our work falls under contests, as the performance targets were not specified upfront; instead, we investigated the possibilities of becoming more entrepreneurial.

Within the contest literature, there is a further distinction between contests that focus on participants from inside the organization (Campos, 2020; Gamber et al., 2022; Stremersch et al., 2022) and those that focus on external participants, such as users or start-ups (Hoornaert et al., 2017). External innovation contests increasingly use specialized intermediaries like incubators and digital platforms such as [OpenIdeo.com](https://www.openideo.com), [InnoCentive.com](https://www.innocentive.com), and [Eyeka.com](https://www.eyeka.com) (Schlagwein & Bjorn-Andersen, 2014). One subset of external contests focuses on submitting ideas, such as the crowdsourcing initiative Lego Ideas (Dahlander et al., 2023). Another subset goes beyond idea generation and includes further idea development during the contest. The latter is also referred to as innovation tournaments, where feedback is provided to improve the ideas in subsequent rounds until the winner emerges (Piezunka & Dahlander, 2019; Terwiesch & Ulrich, 2009). In this study, we are interested in external

contests as idea generation and development mechanisms that may compensate for an organization's lack of entrepreneurial behaviors (Berchicci, 2013).

A growing body of literature focuses on optimal contest design by investigating the governance and rewards of innovation contests to maximize the quantity and quality of ideas (cf. Hu et al., 2020). The quality of ideas increases when innovation contests are replicated over the years, and the winners receive multiple rewards (Hofstetter et al., 2018; Körpeoğlu & Cho, 2018) when the contests address large pools of solvers/participants (Terwiesch & Xu, 2008), and when the competitors participate in addressing uncertain problems (Boudreau et al., 2011). An emerging behavioral perspective focuses on the participants' behavioral responses and their efforts and abilities to provide quality submissions (Bockstedt et al., 2016; Gamber et al., 2022). Participants learn from interactions with and feedback from the sponsoring organization to strengthen the quality of the solutions (Hofstetter et al., 2018; Lampel et al., 2012; Mihm & Schlapp, 2019; Piezunka & Dahlander, 2019). Yet, such learning through active involvement has only focused on the participants' learning, ignoring how the sponsoring organizations' managers learn through the interaction with participants. Research has neglected how managers can transform generated ideas into new product and service offerings (Gatzweiler et al., 2017) or how to change organizational practices to do so (Salter et al., 2014; Van de Vrande et al., 2009). Such learning may occur even if the product/service ideas are unsuccessful (Pihlajamaa & Merisalo, 2021). Filling this gap can advance our understanding of innovation contests' role in organizations, yielding important implications for managers, stakeholders, and firms.

### 2.2 | Entrepreneurial learning

Learning to work in entrepreneurial ways is relevant for all organizations, from start-ups and incumbents to governments (Mazzucato, 2016; Rae, 2000). Traditionally, the literature has focused on entrepreneurs, linking their experiences to variations in new venture performance (e.g., Bailey, 1986; Sapienza & Grimm, 1997). Since Politis (2005) and Cope (2005), the attention has shifted to the process of entrepreneurial learning (Pittaway & Thorpe, 2012). Markowska and Wiklund (2020) pointed out that entrepreneurial learning is contextual by occurring in a social context through a collective effort. However, most investigations have focused on one particular context, the entrepreneurial learning process in new ventures, ignoring how the learning process unfolds in other contexts. For example, learning how to become more

entrepreneurial may be particularly relevant for stagnant firms because they have an amplified need to act more entrepreneurially to avoid business stagnation, decline, and failure (Corbett et al., 2013; Pearce II et al., 1997).

Yet, previous research has mostly taken a static, trait-based approach focused on whether the organization is entrepreneurially oriented, linking its level of entrepreneurial orientation and behaviors to variations in performance (Anderson et al., 2022). What is needed is a more dynamic view of the entrepreneurial learning process in incumbent organizations (Covin et al., 2020; Pittaway & Thorpe, 2012; Wang & Chugh, 2014).

### 2.3 | Entrepreneurial orientation and the upper-echelon theory

Entrepreneurial orientation is an attribute of an organization that reflects the degree to which organizations are innovative, proactive, and risk-taking (Covin & Slevin, 1989; Covin & Wales, 2019; Van Doorn et al., 2013). These represent a combination of attitudes and a consistent pattern of behaviors throughout the organization aimed at capturing value from opportunities to enter new product/service markets (Anderson et al., 2015; Covin & Slevin, 1989). Entrepreneurial orientation, as an organizational attribute, directs attention and guides decisions toward new products and services by becoming more receptive to external ideas (Cheng & Huizingh, 2014). This focus on how entrepreneurial orientation facilitates learning has come at the expense of how entrepreneurial learning can increase entrepreneurial orientation (Kollmann et al., 2020; Wales et al., 2013).

Lumpkin and Dess (1996) offer an alternative view of entrepreneurial orientation by emphasizing the role of organizational configurations in terms of firm-level processes, practices, routines, and structures that can support sustained patterns of entrepreneurial behaviors (Wales et al., 2020). Elements such as organic structures (Anderson et al., 2015), autonomy (Lumpkin & Dess, 1996), innovation processes that facilitate experimentation (DiVito & Bohnsack, 2017), and top management vocabulary (Miller, 2011) have all been associated with entrepreneurially oriented organizations. What exactly those mechanisms are and how they make firms more entrepreneurial are topics that are relatively under-researched in the entrepreneurial orientation literature (Wales et al., 2020). However, the adjacent innovation and corporate entrepreneurship literature have generated many insights into structures, rewards, incentives (Burgers & Covin, 2016), and governance mechanisms (Cavallo et al., 2022) that facilitate entrepreneurial outcomes generated by organizations.

In addition to organizational configurations, the top management team and other key figures (hereafter senior

managers) may shape a firm's entrepreneurial orientation (Simsek et al., 2010; Van Doorn et al., 2013; Wales et al., 2020). Drawing on upper-echelon theory suggesting that senior managers are important in shaping organizational outcomes and strategies (Hambrick & Mason, 1984; Neely Jr et al., 2020), studies have shown aspects of senior management such as heterogeneity and shared vision (Van Doorn et al., 2013), narcissism (Wales et al., 2013), and transformational leadership (Kraft & Bausch, 2016) have been linked to the entrepreneurial orientation of firms. Originally seen as a linear model of senior management's cognitions driving actions and outcomes, recent developments in the upper echelons theory have argued for a more dynamic model in which the experiences gained by engaging in strategic actions can alter senior management's cognition (Carpenter et al., 2004; Neely Jr et al., 2020). This is potentially important for our study, as experiencing an innovation contest may alter senior management's view of the organization and initiate organizational changes by becoming more entrepreneurial. Such changes in entrepreneurial orientation may be triggered by senior management espousing new views and preferences adopted throughout the organization (Covin & Wales, 2019; Van Doorn et al., 2013). These changes may also occur because senior management alters the organizational process and practices supporting organization-wide changes in behaviors and attitudes (Wales et al., 2020).

In summary, the literature review points out three essential elements to address our research question of how engaging in an innovation contest triggers an organization to learn new entrepreneurial processes and practices and change entrepreneurial attitudes and behaviors. First, learning tends to occur more when contests include idea generation and development through feedback and interaction, but the learning of senior managers in contests is ill-understood. Second, entrepreneurial learning should be viewed as a dynamic process in which changes in senior management cognition influence organizational change and, in turn, shape a firm's entrepreneurial orientation. Third, entrepreneurial orientation is reflected in attitudes, behaviors, and organizational processes and practices. However, how these elements relate to each other and toward learning to become more entrepreneurial is unclear.

## 3 | METHODS

### 3.1 | Research setting

We explored our theoretical intuition that innovation contests play a role in creating more entrepreneurial organizations through an inductive, longitudinal case



study of three financial service firms planning to hold innovation contests. To ensure anonymity while encouraging candor (Ozcan & Eisenhardt, 2009), we refer to the firms using the pseudonyms Change Bank, ServiceUp Bank, and Brokers Bank. The financial service sector lends itself well to studying innovation and change processes because the industry is facing increasing uncertainty and the need for innovation due to the emergence of new technologies and the rise of fintech start-ups (Lee & Shin, 2018). In such situations, incumbents may seek ideas from external sources to circumvent their lack of internal ideas and compete more effectively with innovative firms (Bogers et al., 2017). The three multinational companies in our sample could be described as incumbent, stagnant firms (Nason et al., 2015; Pearce II et al., 1997). They had been operating in the financial service industry for more than 15 years, with a growth of less than 1% and a constant reduction of capital expenditure in the six years preceding the contest. These firms had seldom been involved in launching new products, services, and/or ventures, and they did not have open innovation strategies before engaging in the innovation contests.

We theoretically sampled our firms to have the same starting point and followed them over time, and it was a priori unknown whether the firms achieved different outcomes (Eisenhardt et al., 2016; Ozcan & Eisenhardt, 2009). All three firms ran an external innovation contest using the same organizer and innovation contest format. They operated in the financial service sector and originated from the same country in the European Union. The firms provided similar services, such as retail and investment banking, asset and risk management, payment services, and personal and commercial insurance services. The firms' annual revenues were US\$3.5–5 billion with 1200–1800 branches and 20,000–30,000 employees. Our homogenous sample and starting point allowed for a clear cross-case comparison and inferences regarding the differences in firm behaviors resulting from the innovation contests (Eisenhardt et al., 2016; Ozcan & Eisenhardt, 2009).

### 3.2 | Data collection

Data collection took place over two years, with interviews, surveys, observations, and internal and external documents as our data sources. Semi-structured interviews were our primary source of data for investigating the role of innovation contests, with observations and archival data used to corroborate and contrast the interview findings and build a rich understanding of the cases. We surveyed multiple senior managers per firm to assess

entrepreneurial orientation (Covin & Slevin, 1989; Covin & Wales, 2019) in the organizations before and after the innovation contests.

#### 3.2.1 | Semi-structured interviews

We conducted 32 interviews, including 22 face-to-face, semi-structured interviews with the senior managers in each organization and 10 follow-up telephone interviews. We interviewed nine informants two to six times (see Table 1 for details) to gain deeper insights. This serial interviewing technique is helpful for studying changes over time, complex and ill-defined issues, and cases with critical informants (Read, 2018). In our study, the critical informants were managers actively involved in the innovation contests. Several changes emerged during and after the contests, requiring multiple interviews with the same informants. We conducted follow-up interviews to expand on emerging aspects.

The interviews lasted 60–90 min and resulted in 221 pages of transcripts. The interviews were conducted around one year after the innovation contests and covered retrospective and current accounts of initiatives and strategies emerging from and after the contests. To maintain consistency, we conducted all the face-to-face interviews at the companies or the incubator's headquarters.

The semi-structured interviews began with the key issues but remained open to the emergence of other innovation-related issues. The first questions regarding the innovation contest design and the screening and selection processes were based on previous literature (Adamczyk et al., 2012; Bullinger & Möslein, 2010). The second set of questions looked more closely at the interviewees' interactions with the participants during and after the innovation contests and the pilot tests. The third set of questions centered on the behavioral outcomes and changes in the sponsor organizations, focusing on the why, how, and what of these changes. The protocol was updated regularly to probe for further details and explore emerging themes from our analysis. We reduced informant bias by focusing on chronological events (Golden, 1992).

#### 3.2.2 | Surveys

Following the study's aim to explore the role of innovation contests as a learning mechanism to become more entrepreneurial, we surveyed 51 managers after we were informed about each of the three companies' decision to sponsor an innovation contest (about 12 months before the contest took place) and again one year after the

TABLE 1 Data sources.

Data type	Quantity	Original data source
Interviews	32	<i>Change Bank (10 interviews)</i> <ul style="list-style-type: none"> <li>Chief executive officer 2×</li> <li>Chief marketing officer 3×</li> <li>Head of R&amp;D, 5×</li> </ul> <i>ServiceUp Bank (11 interviews)</i> <ul style="list-style-type: none"> <li>Chief executive officer 3×</li> <li>Chief operating officer 2×</li> <li>Chief innovation and digital officer, 6×</li> </ul> <i>Brokers Bank (11 interviews)</i> <ul style="list-style-type: none"> <li>Chief marketing officer 5×</li> <li>Project manager 3×</li> <li>Product specialist, 3×</li> </ul>
Surveys	84	<ul style="list-style-type: none"> <li>1 year before contest: 42 senior managers</li> <li>1 year after contest: 42 senior managers</li> </ul>
Focus groups	3 (one for each firm)	Nine participants (three for each company: CEO, CMO, Head of R&D from Change Bank; CEO, COO, CI&DO from ServiceUp Bank; CMO, PM, PS from Brokers Bank)
Participant observation	11 key meetings, 202 pages of transcript	Two strategic meetings of ServiceUp Bank CEO and his team; three screening meetings, three winner selection meetings, and three awarding events
Internal documents	68 pages	Meeting minutes, notes, memos, and the annual corporate strategy report (seven documents and one reports)
External documents	47 pages	Contest Regulations, companies' website, incubator's website Bloomberg, Thomson Reuters, and LinkedIn

Abbreviations: CEO, chief executive officers; CI&DO, chief innovation and digital officer; COO, chief operating officers; CMO, chief marketing officers; PM, project manager; PS, product specialist; R&D, research and development.

contest. We used Covin and Slevin's (1989) widely adopted entrepreneurial orientation scale.<sup>1</sup> The nine-

<sup>1</sup>Although Covin and Slevin's (1989) is the most adopted scale in entrepreneurial orientation literature (George & Marino, 2011), other scales have also been proposed by scholars (see, for instance, Lumpkin & Dess, 1996).

item, seven-point Likert scale gaged the organizations' innovativeness, proactiveness, and risk-taking. Following recent recommendations, we included business model innovation in the innovativeness dimension (cf. Anderson et al., 2015; Covin & Wales, 2019). We piloted the survey using a focus group with three senior managers and other key figures interviewed in each firm to help refine the wording of some items (see Appendix A, Table A1 for the full list of items). The respondents had to be in their current positions for at least 18 months to ensure they understood their firms' level of entrepreneurial orientation. Complete responses for the first and second waves were received from 42 informants, an 82% response rate. Fifteen (36%) comprised chief executive officers (CEOs), chief financial officers, chief marketing officers (CMOs), chief operating officers (COOs), and other senior managers who directly reported to the chief executives. The second wave used the same informants as the first, and all informants were involved in the contests. More than 10 informants from each firm pre- and post-contest surpassed the recommended cutoff point to aggregate the individual raters' responses into firm-level entrepreneurial orientation scores (LeBreton & Senter, 2008). We computed inter-rater agreement using the multi-item index  $r_{wg}(j)$ , following James et al. (1993), and the intraclass correlation coefficient (ICC) using the ICC(A, K) mixed-effect two-way analysis of variance (LeBreton & Senter, 2008). The results showed that the agreement levels of the firms pre- and post-contest ranged from 0.7 to 0.78 for the ICC, whereas  $r_{wg}(j)$  ranged from 0.76 to 0.81. These values are considered acceptable levels of agreement (cf. James et al., 1993; LeBreton & Senter, 2008). Therefore, the data collected from the individuals were aggregated to form an average score for each firm.

### 3.2.3 | Observations

The lead author engaged in participant observation of all three contests as an independent researcher and did not influence the design of the contests, the selection of the organizations, and how the organizations engaged with the contest and the incubator. The benefit of this approach was that it allowed for real-time observation of the full process. Specifically, the lead author observed the screening process by a commission composed of the incubator's mentors and the sponsor firm's executives, the face-to-face interactions between 20 finalists and the mentors and executives to develop their ideas further, the meetings where the sponsor companies decided the winners of each contest, and the awarding events. The author observed two strategic meetings at ServiceUp

Bank, which lasted 130 min and involved the chief innovation and digital officer (CI&DO) and their team to further their understanding of the changes. These 11 meetings before, during, and after the innovation contests resulted in 202 pages of transcripts.

### 3.2.4 | Archival data

We used internal and external documents about the companies and their innovation contests to enrich and triangulate our insights with other data sources (Eisenhardt, 1989) and helped shape the interviews. Internal documents included the three companies' corporate strategy reports and additional memorandums and minutes from meetings. We gained a preliminary understanding of the companies' missions, targets, and values by analyzing the corporate strategy reports. Financial data obtained from Bloomberg and Thomson Reuters helped identify whether the organizations were stagnant firms in line with our research objective. We also collected information about the interviewees' backgrounds and experiences through the Internet and professional social networks, such as LinkedIn.

### 3.3 | Innovation contests: design elements and structure

To describe the design of the innovation contests, we draw on the framework proposed by Bullinger and Möslein (2010), who identified the core elements of innovation contests (see Appendix B, Table B1 for each contest's design elements). Change Bank, ServiceUp Bank, and Brokers Bank acted as the sponsor organizations for their contests: *NextChangeBank*, *Digital4ServiceUp*, and *InnovateBrokers*. The innovation contests were held separately in the same year and lasted 3 months each, making them long-term innovation contests (Adamczyk et al., 2012; Bullinger & Möslein, 2010). The same university incubator, UniHub, organized and designed the innovation contests and the underlying objectives together with the sponsors and acted as an intermediary between the participants and the sponsors. However, the sponsor companies' senior executives were actively involved throughout the process, including screening the submissions and conducting face-to-face feedback meetings with the participants. The structure and design elements were similar among the three innovation contests under investigation, with two differences: Change Bank offered a €25,000 cash prize in addition to mentoring and an incubation fee, whereas ServiceUp Bank allowed companies and individuals, teams, and start-ups to participate.

The innovation contests' tasks were clearly defined. For instance, ServiceUp Bank's contest regulation document stated, "The call is open to projects based on digital technologies (Web, Mobile, Social, Internet of Things, Big Data, Cloud, etc.) that foster [financial services] innovation for professionals and small medium enterprises (SMEs) ..." All contests specifically aim for new ideas for financial products and services but are simultaneously open to broader ideas, making them somewhat related contests. Such a medium level of relatedness best facilitates the learning and adoption of ideas emanating from open innovation initiatives such as contests (Keil et al., 2008). The innovation contests were open to evaluating contributions ranging from rough ideas to fully working solutions. The participants were asked to submit a document of up to five pages describing their team, the innovative product/service proposed, the underlying technology, the target market, and the hypothesized revenue and cost structure.

Each innovation contest included on- and offline components across five phases. In phase 1, project proposals were collected through the incubator's online platform. Phase 2 was a prescreening process to exclude out-of-scope proposals. In the third phase, a commission composed of the incubator's mentors and the sponsor firms' executives screened the proposals to select between 10 and 20 finalists. The screening criteria were innovativeness, feasibility, and synergies with the sponsor company. Reducing the number of participants for later stages positively impacts the effort participants will put in and the success of their idea (Boudreau et al., 2011; Gamber et al., 2022). In phase 4, the finalists had face-to-face meetings with the mentors and executives, who provided feedback on their ideas to improve the submissions. Feedback has been shown to improve idea quality (Hofstetter et al., 2018), particularly when the feedback is from executives (Boëne et al., 2023). Although they belonged to competing entities during the innovation contests, the participants were allowed to communicate and interact with one another during several informal networking occasions. Phase 5 involved selecting the winners and awarding them during a final event. A jury composed of academics, the sponsor company's executives, and venture capitalists selected the winners of each contest. Overall, this suggests that design elements of the contests are conducive to the firms learning from the innovation contest.

### 3.4 | Data analysis

Our data analysis followed the process outlined by Eisenhardt et al. (2016) of first building a narrative for each

case study and then using replication logic across the cases before cross-comparing them to achieve a deeper understanding of the differences and to reveal the explanatory mechanisms. We used senior managers as informants and multiple sources of evidence. The first author led the data collection, and his views and interpretations were checked for validity through different steps. We triangulated the observation data with the interview, survey, and archival data. The second author played the devil's advocate, challenging the findings and analyses to ensure the resulting conclusions were valid representations. A researcher not involved as an author also checked the data and conclusions. These steps underwent several iterations until mutual agreement was reached to ensure the results' rigor and validity.

We created individual reports that triangulated all the data. We then conducted a within-case analysis to develop initial concepts and preliminary theoretical explanations that fit each firm. In line with our research aim, our focus for each sponsoring firm was a "black box" of a specific learning process enabled by ideas from its innovation contest. For instance, a lack of organizational readiness was an emerging construct in this data analysis phase.

After the within-case analysis, we conducted a cross-case analysis using a replication logic (Eisenhardt et al., 2016). Constant comparisons between the emergent theories (constructs and relationships) and data (Glaser & Strauss, 1967) were replicated by examining each case as a standalone observation. Senior management engagement, for example, emerged in this phase. Next, we conducted a cross-case analysis to test for alternative theoretical relationships and constructs that could better fit our data than the initial emergent theories (e.g., Eisenhardt, 1989). In this phase, tables and graphs helped refine the constructs and theoretical relationships (Miles & Huberman, 1994). Our cross-case analysis involved several iterations among the emergent theories, data, and literature to refine the construct definitions, relative measures, and theoretical ties (Eisenhardt, 1989). Prior research on organizational learning mechanisms was especially helpful for refining the theoretical logic of emerging relationships and creating propositions. We repeated the process until we achieved a strong match between the cases and the emergent theories, culminating in a theoretical framework.

## 4 | FINDINGS

Despite similarities in the firms and their innovation contests, the findings reveal a striking variation in how Brokers Bank and Change Bank successfully learned how to

become more entrepreneurial through the innovation contest as opposed to ServiceUp Bank. In this section, we show how the organizations learned through the innovation contests and what caused the differences in their entrepreneurial learning processes and the related outcomes.

### 4.1 | Running an innovation contest

The firms in our sample initially engaged in an innovation contest to obtain new product and service ideas (see Appendix C, Table C1). As Brokers Bank's CEO stated, "I support the idea of launching a contest to be exposed to new things, meet and talk to smart guys out there, and get to know something that we could embed in our existing offer—or even launch as new products or services." Such a motive is common for organizations launching an innovation contest (Weiblen & Chesbrough, 2015). Our entrepreneurial orientation pre-contest survey results corroborated that not all banks were very entrepreneurial. ServiceUp Bank's CMO expressed a secondary motive of improving the company's reputation: "More and more big companies from varied industries are engaging with start-ups and entrepreneurs. Pretty much everybody's doing it. I don't want people to think we are not innovating just because we don't publicly promote these projects." Innovation contests have been shown to offer reputational benefits to the organizing firms (Hofstetter et al., 2018).

Before the contests, the informants expressed that their organizations were ready to adopt new ideas quickly. Change Bank's COO said, "We have the assets, the knowledge, and the tools to take that technology to the next level, so we need to get access to it fast. [...] An innovation contest is a good and efficient way to do so." This perceived readiness to implement new ideas is noteworthy, as it demonstrates a discrepancy with the low self-reported levels of entrepreneurial orientation in these organizations: Change Bank (3.27), ServiceUp Bank (3.16), and Brokers Bank (2.85) based on a 1–7 Likert scale (see Table 2).<sup>2</sup> Later in this paper, we dive deeper into the cognitive perceptions of these organizations as they were about to change following the innovation contests.

Change Bank and Brokers Bank proactively contacted the incubator Unihub to organize innovation contests, whereas ServiceUp Bank was approached by UniHub.

<sup>2</sup>To put these scores in perspective, they were much lower than the average scores reported in recent larger-sample studies on the financial sector on a comparable 7-point scale: 4.13 (Richard et al., 2004) and 3.85 (Niemand et al., 2021). These confirmed that our firms could be considered less entrepreneurial than their competitors in the European banking sector.



TABLE 2 Entrepreneurial orientation (EO) levels before and after the innovation contest.<sup>a</sup>

Dimension	Change Bank		ServiceUp Bank		Brokers Bank	
	Score	Delta (p-value)	Score	Delta (p-value)	Score	Delta (p-value)
Aggregate level of EO ex ante	3.27	0.38 (0.005)	3.16	-0.22 (0.550)	2.85	0.42 (0.006)
Aggregate level of EO ex post	3.65		2.94		3.27	
Innovativeness ex ante	3.244	0.534 (0.036)	3.42	-0.09 (0.699)	3.58	0.33 (0.180)
Innovativeness ex post	3.778		3.33		3.91	
Risk-taking ex ante	2.8	0.91 (0.045)	3.08	-0.21 (0.659)	2.35	0.45 (0.081)
Risk-taking ex post	3.71		2.87		2.8	
Proactiveness ex ante	3.09	0.91 (0.011)	2.98	-0.36 (0.460)	2.62	0.46 (0.079)
Proactiveness ex post	4		2.62		3.08	

<sup>a</sup>Number of observations = 42 (12 from Change Bank; 15 for ServiceUp Bank; and 15 for Brokers Bank); two-tailed *p*-values reported using Wilcoxon rank test of differences.

More than 200 ideas were submitted in each contest, and three to four winners were selected by each sponsor organization for further development and pilot testing after the feedback and improvement rounds (see Appendix D, Table D1). Only one of the 11 winners co-launched their idea with the sponsor organization.

Following Fisher et al. (2016), we investigated whether the winning ideas were abandoned, persisted, or progressed to venture capital or initial public offering (IPO) funding post-innovation contest. Post-contest, six ideas were abandoned, one persisted, and four were successful. Almost half of the ideas succeeded outside the three banks, including one IPO and two receiving series A funding, suggesting that the contests did not fail to produce actual product/service innovations with market traction due to poor quality ideas or poor contest design. What was surprising was the learning process that unfolded from the innovation contest. The managers of these companies started questioning their existing cognitive schemes and transformed their organization's organizational practices and entrepreneurial orientation.

## 4.2 | Changing cognitions due to contest experiences

Through experiencing the innovation contests and the subsequent experimentation processes with the winners, the sponsor organizations' senior managers became aware of a gap between their initial belief that their organizations were ready to implement new ideas and the emerging realization that their organizations lacked the skills and practices to do so. We noticed that the managers realized the need for further development during the first screening meetings. ServiceUp Bank's COO stated, "At first, when reading these start-ups' briefs, I felt a

*bit rusty. But as the contest went on, I have to say I caught up. I also picked up some of their buzzwords, like 'pivoting,' developing 'Minimum Viable Product (MVPs),' gaining 'traction.'"* Organizational issues were often reinforced during the meetings with the participants. For instance, Brokers Bank's CMO said, "The initial talks with entrepreneurs were a bit difficult. They think differently, they act differently."

While the managers quickly realized a lack of skills and "entrepreneurial language" in their organizations, they became increasingly aware of the need for practices that allow for faster development during the meetings with the participants and the subsequent pilot testing. Change Bank's head of research and development (R&D) expressed, "From the first meeting to the second meeting we had with one of the participants, we saw huge progress. Even if they were not among the winners in the end, we could appreciate how fast they were in processing ideas to improve their proposal." A project manager mentioned their personal experience of involvement in the innovation contest: "I managed the collaboration with [StockPeer]. We integrated their peer-to-peer service into our offer for a specific portion of our clients to test the market for a short period. Even though the test provided negative results, my team was enthusiastic about this new experimental approach and being part of what I called the extended innovation team, which included externals, such as the founder of StockPeer."

During pilot testing, the managers started to fundamentally question their original assumptions that their organizations were ready to implement the ideas. As ServiceUp Bank's CEO explained, "The pilot tests with some of the winners went wrong for several reasons. Ideas were not the best, but I say 50% was our fault. We were not ready to be involved and properly manage ideas coming from such unstructured entities as start-ups." Brokers Bank's

COO echoed these comments: “Probably, we don’t have the right mindset and skills and structures yet to make quick tests leveraging on partnership with other actors.” Even for the pilot tests that went well, the sponsor organizations’ struggles and the complexities of developing new ideas internally emerged. Change Bank’s CMO declared that “we succeeded in the end in delivering a common product, but the process was way too slow for our organization. We have been lucky to find a patient partner to work with [in DoublePet].”

A vague awareness of organizational capability to leverage external ideas may have existed before the innovation contests. A product specialist at Brokers Bank stated, “We heard about that approach [lean start-up], of course, but with them [participants], we could see better how it was useful in the innovation process and talk about it to our colleagues.” It seemed that the awareness of a gap needed to be built up over time to a level sufficient to warrant action to change (Barr et al., 1992; Huff et al., 1992).

As a result of the senior managers becoming aware of the organizational gaps, they began to take action to develop skills, collaborations, and organizational practices. These actions were taken at different times, as some small changes, such as learning skills, were made immediately, whereas significant organizational changes took more time. Moreover, the product specialist’s quote also indicated the need for engaged, experiential learning, which turned out to be a critical factor in determining whether the organizations could change their entrepreneurial orientations.

### 4.3 | Actions to make organizations more entrepreneurial

Our data showed that the innovation contest experience led to changes in cognition about organizational problems and the need to develop organizational solutions to cope with them (see Appendix E, Table E1). In particular, the organizations took action to (i) develop entrepreneurial skills, (ii) collaborate with external partners, and (iii) adapt their organizational design and governance.

#### 4.3.1 | Developing entrepreneurial skills

The informants indicated that their organizations developed important language, heuristic, and entrepreneurial skills related to agile approaches (Krieger et al., 2022) through innovation contests and the following experimentation processes. As ServiceUp Bank’s head of R&D explained, “The interactions with them [innovation contest

participants] during the contest and also in the testing phase with the winners were important for my team to get used to emerging terminology, approaches, and principles that entrepreneurs use nowadays.”

The managers had to learn entrepreneurial terminology, such as pivoting and MVPs, to effectively interact with the participants. Case evidence also pointed to the importance of learning entrepreneurial decision-making heuristics to evaluate ideas more quickly. As Brokers Bank’s CMO affirmed, “By interacting side by side with start-up experts at the incubator, I learned a few rules of thumb to evaluate a business plan that will come in handy when assessing innovative projects within our company.”

The banks also infused entrepreneurial skills into their organizations by hiring entrepreneurs who participated in the contests. Change Bank hired two participants for its innovation team. Similarly, Brokers Bank recruited a participant with technical competence in blockchain to its innovation team. By contrast, although ServiceUp Bank also hired two participants, it had no concrete idea of where to locate them in the organization.

To further develop entrepreneurial skills beyond the innovation contests, Change Bank and Brokers Bank created more grassroots innovation programs involving employees as participants, whereas ServiceUp Bank did not. Change Bank’s head of R&D stated, “We use these internal programs not really to gather crazy innovative solutions but to make our people engaged, bringing them out of their comfort zone, and to put to test what they know and train them on how to work from ideas to building a real business case.” In a similar vein, Brokers Bank’s CMO asserted that “internal programs help us to train our employees on the entrepreneurial language and approach which can serve in all functions they work. Compared to traditional training, this is more applied, and it feels more concrete.” Such grassroots innovation processes are effective skill-developing exercises (Stremersch et al., 2022) and indicate that the managers in each of those organizations understood the importance of building entrepreneurial skills to become more entrepreneurial as an organization.

#### 4.3.2 | Collaborating with external partners

The innovation contests and the following experimentation phase also modified how the companies engaged with external parties. Managers engaging with entrepreneurs during the contests recognized the potential to build a wider network of prospective innovation partners. “I started looking at the participants in the contest not just as contestants to evaluate and, at best, reward, but as

*potential partners to work with*" (Change Bank CMO). Brokers Bank's CMO argued, *"We are now collaborating much more with young and innovative firms. We started to love them, since we leverage them to do in one month what would take us one year."*

The managers of the three companies suggested that transforming the contest into a recurring initiative could be beneficial. For instance, Change Bank's head of R&D stated, *"Even though our first edition was exciting [...] spot initiatives rarely provide good results. We need more regular access to external sources of competence. Thus, with UniHub, we are framing the initiative as stable to replicate each year with different tasks or targets."* Brokers Bank's CMO also described how a replicated innovation contest could be improved, thanks to the lessons learned in the first edition: *"This year, we will try to bring to the table a more specific problem involving only developers to fix some issues we have with our mobile app. This type of initiative can help to systematically screen new partners."* Both Change Bank and Brokers Bank repeated their innovation contests, with the former engaging in an innovation contest every year since the first edition and changing the organizers *"to reach other local ecosystems"* (Change Bank's head of R&D, in a press release for the 2016 edition of their innovation contest). By contrast, ServiceUp Bank did not repeat the innovation contest despite declaring an interest. We noted that they were noncommittal, with no clear plan for a new innovation contest, as indicated by ServiceUp Bank's CEO stating, *"We liked the initiative. I think we will replicate it maybe already next year."*

Collaborations springing from the innovation contests were also directed to start-ups and other companies involved in the fintech ecosystem. However, only Change Bank and Brokers Bank embraced a systematic approach to external collaborations.

#### 4.3.3 | Adapting organizational design and governance

Through engagement with the innovation contests and during the subsequent experimentation phase, the executives became aware that their organizations' innovation processes and structures were not well suited to supporting entrepreneurial behaviors. The senior managers highlighted the benefits of establishing a faster, more dynamic product development process because *"We can't afford to increase risk in our position"* (Change Bank CEO). They called for a redesign toward openness, integration, leanness, and fast experimentation. Hence, the senior managers redesigned the companies' innovation processes to include information and feedback from third

parties and incentives to partner with external actors when developing new ideas. For instance, they reduced the size of their internal innovation teams because external parties already provided that expertise. Brokers Bank's CMO explained, *"We realized that having two people with the same skills for each innovation project was of course adding more perspectives for the same problem, but it was also making overall development slower, so we decided to avoid this."*

The firms also simplified their hierarchical decision-making processes by reducing the number of people involved. Change Bank changed its R&D and innovation position to report to the CMO only, whereas before, they also had to report to the Chief Information Officer (CIO). Furthermore, the firms initiated and ensured a process of continuous experimentation and pilot tests for new products/services. Specifically, Change Bank and Brokers Bank introduced incentives to encourage continuous experimentation, whereas ServiceUp Bank did not. Change Bank's head of R&D claimed, *"I need to encourage our innovation to make more pilot tests. The number and quality of testing will be part of the evaluation for the annual bonus of the innovation team."* The incentives were complemented by the delegation of decision authority for small experiments. According to Brokers Bank's CMO, *"We learned to let the innovation team decide autonomously on small experiments, and many experiments, especially in the early phases, can be done with very limited investments."* Similar evidence emerged concerning Change Bank. Overall, our empirical evidence resonates with previous arguments about the benefits of experimentation in promoting entrepreneurship in existing organizations (Hampel et al., 2020).

Organizational changes in innovation processes were complemented by redesigns of the companies' structures and systems. As ServiceUp Bank's CI&DO stated, *"Independently from the value and the potential of such external ideas, receiving them, screening them, and processing them internally has been a relevant test for our extended organization."*

After screening and processing external ideas during the pilot testing phase, the firms realized that their decision-making processes were hierarchical and complex, with too many people involved. As mentioned earlier, Change Bank modified the function of its R&D and innovation position: *"The entire R&D and innovation function is now directly under the CMO's control. Before, we also had to report to the CIO. This change facilitates our day-to-day job"* (Change Bank head of R&D). Instead of having some part-time staff involved in innovation activities, Brokers Bank created a full-time innovation function led by two senior managers whose roles were to not only oversee the innovation function



but also act as a liaison with the external environment and with other parts of the organization. “We established an innovation function, which not only is responsible for innovation but has to act as a link between the innovation function and the rest of the company” (Brokers Bank COO). Brokers Bank’s CMO proclaimed, “The contest helped me realize that innovation wasn’t an activity to treat in isolation, but embracing it needed a redesign of the company’s value chain.”

Overall, new cognitions and actions led to new outcomes for the companies. Yet, striking differences also emerged regarding outcomes, as presented in the following section.

#### 4.4 | Changing entrepreneurial behaviors and attitudes

Through the above-mentioned practices and changes to organizational systems and structures, the organizations increased their entrepreneurial skills and external engagement levels. This, in turn, resulted in increased entrepreneurial behaviors and attitudes at Change Bank and Brokers Bank, but not at ServiceUp Bank. According to Change Bank’s head of R&D, the innovation contest stimulated more proactive behavior among the managers involved. Innovation proposals could be revised more quickly, encouraging the managers to experiment with new ideas.

The organizational changes and practices played a major role in increasing entrepreneurial behaviors and attitudes. As Change Bank’s CEO emphasized, “Making their [managers’] life easier while experimenting with new things increased their attitude toward innovation. It’s a fact. I have a numbers of proposals coming from them now and before the innovation contest and the organizational changes introduced in terms of simplifying our structure for innovation. Even the quality of new proposals is better because they feel more supported in what they do.” Change Bank’s head of R&D added, “Those managers [...] directly involved in the contest [started] suggesting new initiatives to promote and sponsor, such as a hackathon, by sharing our API [application program interface] with a large community of developers.” Increased responsibility, autonomy, and a dedicated innovation team made the managers more committed to experimenting with new initiatives. Change Bank’s CEO stated, “It’s normal for a large organization like us to have some inertia to change and innovation, but with the right structure and proper organizational practices, we made it easier for our managers to welcome change.” Similar behaviors were observed in Brokers Bank, as reported by its CMO: “I have every day some of my

managers coming with proposals for developing new services for our clients.”

The innovation contests and the following pilot testing phase triggered behavioral change, including less risk aversion. “Our culture is changing when it comes to accepting risks related to new product launch and new market entry” (Brokers Bank CMO). The managers of both Brokers Bank and Change Bank noticed a growing proactive approach among the managers who participated in the innovation contests. “One month after the competition was over, three managers involved in the innovation contest came to my office presenting a shortlist and a mini report about the most interesting start-up companies to keep an eye on [...] and I’m sure, by the detailed report I saw and the workload I know they have, that they also worked during their free time on it” (Brokers Bank CMO). This extra-role behavior is an important element of an individual’s entrepreneurial orientation (Covin et al., 2020).

According to Brokers Bank’s COO, the managers truly embraced the organizational practice of systematically searching for external ideas and spontaneously showed innovative and proactive attitudes. “As top managers, we showed them [managers] that systematic external search was there to stay and we believed in it. As the result of these organizational decisions from the top, today, spontaneously, managers show us how they believe in developing new proposals and engaging with external partners for jointly developing innovative products” (Brokers Bank COO). This external knowledge-seeking is strongly associated with entrepreneurial learning outcomes as a proactive and innovative behavior (Jong et al., 2015), generating relevant knowledge leading to new products and services (Gatzweiler et al., 2017).

##### 4.4.1 | Entrepreneurial orientation

Our ex post survey of entrepreneurial orientation corroborated the qualitative insights that engaging in the innovation contests increased Change Bank’s and Brokers Bank’s entrepreneurial orientations from 3.27 to 3.65 ( $p = 0.005$ ) and from 2.85 to 3.27 ( $p = 0.006$ ), respectively (see Table 2). Additionally, secondary data indicated that Change Bank and Brokers Bank increased their investments year by year, up to 15%, in technology and innovation (i.e., R&D investments) after the contest. The alignment of the senior managers suggested that this was not an individual change but rather a change of the collective logic toward a more entrepreneurial attitude. In particular, new organizational structures and processes led to increased entrepreneurial attitudes and behaviors throughout the organization, in line with Covin and Wales (2019). These entrepreneurial behaviors



and attitudes represented the outcome of a realized entrepreneurial learning process (Wang & Chugh, 2014) for Change Bank and Brokers Bank.

By contrast, ServiceUp Bank did not experience an increase in its aggregated level of entrepreneurial orientation. The scores of 3.16 and 2.94 pre- and post-contest were not significantly different ( $p = 0.55$ ; see Table 2). This difference relative to Change Bank and Brokers Bank was striking, given that the three firms had many similarities in terms of their starting point and the innovation contest experience. In the next section, we present an explanation for this contrasting outcome.

#### 4.5 | Senior management engagement throughout the innovation contest experience

At first, we hypothesized that the failure to change attitudes and behaviors was due to ServiceUp Bank's senior managers not becoming aware of the gaps or not acting on them. Our data did not support this, as they also became aware of the gaps and actioned changes, which aligned with Barr et al.'s (1992) finding that no difference in awareness exists between firms that successfully and unsuccessfully change. The outcome difference was primarily due to different senior managers' engagement levels throughout the innovation contest experience. Engagement has increased creativity, proactiveness, knowledge sharing, and active learning at work (Bakker et al., 2012; Eldor & Harpaz, 2016), which may explain why two banks learned to become more entrepreneurial while the third did not.

##### 4.5.1 | Senior managers' engagement in the innovation contest

The senior managers of Brokers Bank and Change Bank were highly engaged throughout their entire innovation contests, but ServiceUp Bank's managers displayed what can best be described as more passive engagement. This was already evident before the contests. Change Bank and Brokers Bank proactively contacted UniHub, whereas UniHub approached ServiceUp Bank to run an innovation contest. Brokers Bank and Change Bank exhibited a predisposition to learning through the innovation contests and committed early to relationships with the entrepreneurs and start-ups involved in the contests through frequent interactions. Specifically, 10 Brokers Bank managers and 11 Change Bank managers were engaged throughout the contest phases, including several interactions with the participants.

ServiceUp Bank had fewer interactions with the organizer, and only three top executives were involved in the contest (see Appendix C, Table C1). ServiceUp Bank's managers believed that UniHub could largely run the contest alone and that they would receive ready-to-launch ideas with the company's reputation benefiting from associating with the contest. This resonated with notions that reduced physical engagement results in fewer connections with others and less openness to new ideas, as a firm may view itself as a custodian rather than an innovator (Bakker et al., 2012; Kahn, 1990).

##### 4.5.2 | Senior managers' engagement in the experimentation process

This passive, less engaged approach continued during pilot testing. ServiceUp Bank's attitude was to see the winners through buyer-supplier logic, as illustrated by a meeting note: *"They are starting the testing. They asked for support. We made a few calls to explain better what we are looking for. Now it's their turn to provide results. If we have to spend more time and effort with them, we can develop what we need on our own."* By contrast, Brokers Bank and Change Bank saw the winners as peers and codeveloped solutions. Change Bank's head of R&D stated, *"Our people, through interacting with entrepreneurs and testing with them, engaged more and more, until they appreciated being part of the process as co-owners and not just as a passive client."* Similarly, Brokers Bank's product specialist highlighted, *"We supported them [entrepreneurs]. They don't know as much as we do about the market. They needed us as much as we needed their fresh ideas and approaches, and by doing so, we overcame our traditional logic of looking for suppliers. Here, we were more like equal partners."*

In the case of ServiceUp Bank, it seemed that they did not engage with the winners during the pilot tests. Rather, it was a passive actor in the process, waiting for ready-to-go solutions. We suspected that this lack of senior managers' engagement negatively impacted their understanding of why the pilot tests failed. This meant they did not experience the cognitive change senior managers of Brokers and Change Bank experienced and lacked insights about the organizational changes needed to benefit from externally generated ideas. This aligned with the idea that, in addition to a physical component, engagement also has cognitive and emotional components of actively building connections and understanding events (Kahn, 1990). Engaged senior management internalizes the need for change. In contrast, disengaged managers see their involvement as a script to be followed

without critically thinking about what is happening and why it is happening (Kahn, 1990).

#### 4.5.3 | Senior managers' engagement in new actions

Our cross-case comparison also highlighted that ServiceUp Bank initiated changes but did not follow-up with further actions to make the changes effective. For instance, ServiceUp Bank did not initiate a corporate entrepreneurship program to foster the internal development of entrepreneurial skills. At the same time, Change Bank and Brokers Bank embraced a systematic approach to external collaboration by replicating the innovation contest initiative. For ServiceUp Bank, the innovation contest became an isolated initiative that was not repeated. Although ServiceUp Bank also engaged in restructuring to speed up the innovation process, unlike the other banks, it did not revise its incentive structure to match the new emphasis.

Interviews and meetings with ServiceUp Bank's executives revealed that, unlike the other banks, its CI&DO had no real team backing them or formal authority; thus, the change was more symbolic than substantial. For example, they hired some participants but did not know how and where to use them effectively as new employees. Such cognitive disengagement may prevent the learning needed to change an orientation to become more entrepreneurial (Kahn, 1990). Disengaged workers may be more likely to be stuck in their habitual modes of thought (Eldor & Harpaz, 2016). They may also be more emotionally disconnected from recruits and lack the drive to help them find purpose in the organization (Kahn, 1990). Therefore, our results suggested that a lack of senior managers' engagement may be conducive to organizational change not positively affecting entrepreneurial orientation because the structures and processes are ill-understood.

#### 4.6 | Emerging theoretical framework

In conclusion, our findings showed how companies approach, interpret, and experience innovation contests differently, reflected in the entrepreneurial learning process and outcomes. This section summarizes our findings in a theoretical framework on the transformation process. This explains how the innovation contest experience can lead to learning to become more entrepreneurial in stagnant organizations.

Figure 1 visualizes the two main components of the entrepreneurial learning process: experience and

transformation. The experience included the innovation contest and the following experimentation process the sponsor organizations undertook with the winning ideas. The contest experience stimulated a transformation of new cognitions and actions (Cope, 2005; Pittaway & Thorpe, 2012; Politis, 2005). Entrepreneurial learning is action-based and focuses on transformation toward becoming more entrepreneurial (Politis, 2005; Rae, 2000). Entrepreneurial cognitions are “knowledge structures people use to make assessments, judgments, and decisions” (Mitchell et al., 2002, p. 97), leading to actions. Aligned with upper echelons theory, such cognitions can help management make sense of a situation and devise appropriate actions (Crossan & Berdrow, 2003; Hambrick & Mason, 1984; Markowska & Wiklund, 2020).

The senior managers' motivation to engage in an innovation contest was driven by the belief that they lacked internal ideas but were ready to adopt externally generated ideas. The innovation contest experience led to a change in cognition for the sponsor organizations' senior management (i.e., cognitive phase), from the initial belief of a lack of internal ideas to the emerging realization that their organizations lacked the processes and practices to effectively implement such ideas. This elucidated to the senior managers that their beliefs about their organizations being ready to develop and implement innovations were inaccurate. The awareness of such gaps in their understanding triggered actions to change their organizations (Barr et al., 1992; Huff et al., 1992).

The action phase of the transformation process to become more entrepreneurial encompasses three main organizational changes: (i) *developing*, (ii) *collaborating*, and (iii) *organizing*. Collectively, these changes drive a pattern of sustained entrepreneurial behaviors reflected in increased entrepreneurial orientation throughout an organization. The transformation resonates with the institutionalization of learning (Crossan & Berdrow, 2003) and the formation of a collective shift toward more entrepreneurial attitudes and behaviors. Our model is novel because it is a more dynamic learning model in which beliefs influence actions. The (experiences with those) actions, in turn, shape beliefs, which trigger further actions and changes in orientation. This resonates with recent ideas in the upper echelons literature that move away from linear models of cognition, driving actions, to more dynamic patterns of cognition, which shape actions and, subsequently, cognition (Neely Jr et al., 2020).

The engagement levels of sponsoring organizations' senior managers influenced the transformation processes and entrepreneurial learning outcomes. Physical, cognitive, and emotional engagement can assist in the internal interpretation of what an organization may have done

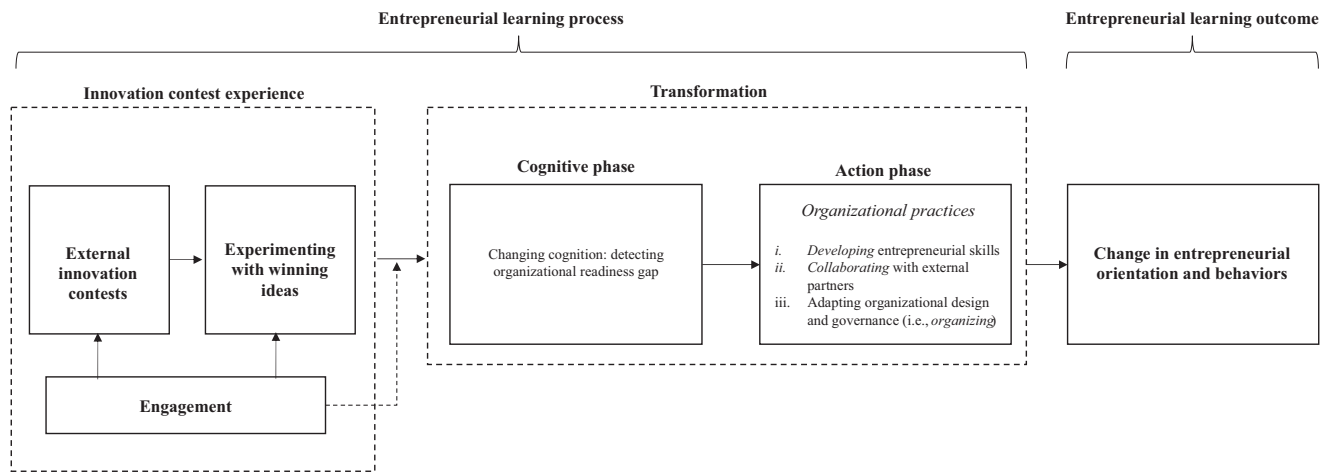


FIGURE 1 A model of corporate entrepreneurial learning through innovation contest.

wrong and how it can change (Eldor & Harpaz, 2016) to become more entrepreneurial. Conversely, a lack of engagement may result in externalizing failure and blaming circumstances (Kahn, 1990), thereby not leading to a more entrepreneurial orientation.

To sum up, our framework shows that learning to become more entrepreneurial through innovation contests is highly dynamic, with multiple cycles of cognition driving actions and the resulting experiences to change cognition. How the outcomes of increased entrepreneurial behaviors and attitudes materialize depends strongly on the engagement of senior managers throughout the process.

## 5 | DISCUSSION

We began by noting that although researchers have investigated innovation contests as learning mechanisms, there was little understanding of learning benefits beyond new products and services, which can help organizations become more entrepreneurial. By selecting cases with similar demographic characteristics and design structures for their innovation contests, our study focused on the entrepreneurial learning process resulting from an innovation contest. Fascinatingly, across all three firms, the lack of success with winning ideas was not necessarily due to poor ideas. Some of the winning ideas from each contest were successfully developed into independent ventures, one of which even had an IPO. Our emergent framework, visualized in Figure 1, attempts to explain this striking transformation from unsuccessfully learning new product ideas through innovation contests to successfully learning to become more entrepreneurial. Our findings suggest that the innovation contest experience can alter senior management cognition and trigger broad

organizational change in the form of new entrepreneurial skills, collaborations with external partners, and changes in organizational structures and processes related to innovation. These changes can then lead to a change in the firm's entrepreneurial orientation, depending on the senior managers' level of engagement throughout the process.

### 5.1 | Implications for theory

Our study's findings on innovation contests as learning mechanisms have several implications for theory. First, we showed how the innovation contests triggered change in cognition, processes, structures, and skills. In addition, the companies with higher levels of senior management support and engagement increased their entrepreneurial behaviors and orientation. This extends prior research on innovation contests, which has traditionally focused on improving the quality and quantity of product and service ideas through the participants' learning during the contests (Huang et al., 2014; Mihm & Schlapp, 2019; Piezunka & Dahlander, 2019). Therefore, an implication arising from our research is broadening the definition of an innovation contest. Rather than participants developing solutions to specific innovation problems (cf. Hofstetter et al., 2018; Terwiesch & Xu, 2008), we propose that participants, together with sponsor organization's managers, address a range of innovation problems, from new products to learning to become more entrepreneurial. Regarding innovation contest design, there is a need to rethink success measures to encompass not only the implementation of product/service ideas originating from contests but also the long-term benefits associated with learning to become more entrepreneurial. While the focus on improving entrepreneurial behaviors and skills

in organizations are more commonplace for internal contests (Campos, 2020), our study illustrates that this may also play a role in external contests.

Second, we contribute to the entrepreneurial learning literature by showing how the entrepreneurial learning process unfolded following an innovation contest, driving transformation through cognition and subsequent actions. Specifically, we revealed cognitive transformation as the foundation for the action-based transformation of three organizational practices: (i) *developing* entrepreneurial skills, (ii) *collaborating* with external partners, and (iii) *organizing* for innovation by adapting organizational design and governance. These practices then lead to changes in the firm's entrepreneurial orientation. Cognition in entrepreneurial learning has predominantly been viewed as the antecedent to entrepreneurial action (Anderson et al., 2015; Covin et al., 2006; Mitchell et al., 2002). Our study suggests that entrepreneurial learning is an iterative process where cognition shapes action, and the experiences from those actions shape cognition. The senior managers believed their organizations were ready to implement external ideas and took action to organize innovation contests. The experiences throughout the innovation contests created an awareness of gaps in their individual and organizational abilities to effectively innovate, leading to changing their practices.

Third, although much of the entrepreneurial learning literature has focused on learning in an entrepreneurial context, such as new ventures (Markowska & Wiklund, 2020; Politis, 2005; Wang & Chugh, 2014) and entrepreneurial organizations (Anderson et al., 2015), our findings reinforce the notion that much can be learned from the often ignored perspective of nonentrepreneurial, stagnant firms, which have a great need to work in more entrepreneurial ways (Corbett et al., 2013; D'Angelo et al., 2024; Wang & Chugh, 2014). Specifically, our process model of entrepreneurial learning offers insights into how stagnant organizations can increase entrepreneurial attitudes and behaviors by developing entrepreneurial skills, collaborating with external partners, and adapting organizational design and governance structures facilitative of innovation. Our findings from the failed pilot tests resonate with Covin et al. (2006), who showed that stagnant organizations are more likely to learn from failure than entrepreneurial organizations. We offer an alternative theoretical explanation: the stagnant firms we observed did not engage in learning to improve the failed ideas but to improve the underlying organizational practices, attitudes, and behaviors that may have contributed to the failure.

Fourth, our findings of senior managers' engagement in innovation contests changing their cognitions, which

subsequently drives their entire organization to become more entrepreneurial, resonate with prior studies indicating the importance of senior management in innovation contests (Hofstetter et al., 2018; Lampel et al., 2012) and as a driver of entrepreneurial orientation (Simsek et al., 2010), but deviate from them in important ways. Innovation contest literature has focused on senior managers providing feedback to participants (Mihm & Schlapp, 2019). Our study points to the importance of the sponsor organizations' senior managers as recipients of learning beyond new product ideas. Senior managers' engagement throughout the innovation contests and pilot testing provided the basis for gaining a deep understanding of what it takes to become more entrepreneurial and resulted in a change in senior management cognition from believing the organization is short on ideas to being deficient in skills to bring those ideas to success. This aligns with prior notions that physical, cognitive, and emotional engagement may help interpret situations, and the increased understanding drives creativity and learning (Eldor & Harpaz, 2016; Kahn, 1990). The subsequent change in entrepreneurial orientation offers senior management engagement in innovation contests as a novel driver of entrepreneurial orientation beyond characteristics of the senior team such as transformational leadership, heterogeneity, shared vision, and narcissism (Kraft & Bausch, 2016; Van Doorn et al., 2013). Showing how senior management cognitions can change through experiences with strategic initiatives and how that drives actions to change the organization is an important implication for the broader upper-echelon literature. It suggests a dynamic upper-echelon model instead of the predominant static view of senior management cognitions (Carpenter et al., 2004; Neely Jr et al., 2020). Specifically, we offer external innovation contests as a strategic interface (Simsek et al., 2018), in which senior management can learn from stakeholders how to become more entrepreneurial.

Finally, our findings resonate with the notion that entrepreneurial orientation may be an important precondition to benefit from open innovation practices such as contests (Cheng & Huizingh, 2014), but we add that the relationship may be reciprocal in that learning through open innovation practices can increase entrepreneurial orientation. In particular, our entrepreneurial learning framework shows that external innovation contests' effect on entrepreneurial orientation goes via senior management, who subsequently initiates changes in organizational processes and practices. This contributes novel insights into how senior management shapes entrepreneurial orientation by showing that the three organizational practices may be the missing explanation of how senior management shapes an organization's



entrepreneurial orientation (Wales et al., 2020). Lumpkin and Dess (1996) first pointed to the importance of such organizational practices in entrepreneurial orientation, but it has remained unclear what those practices are and how they shape entrepreneurial orientation (Wales et al., 2020). An implication stemming from our research is thus that senior management cognitions, entrepreneurial orientation, and practices change over time and that much can be learned from longitudinal studies on entrepreneurial orientation to capture the dynamics between those manifestations and open innovation initiatives.

## 5.2 | Managerial implications

Our study can help managers of stagnant firms make their organizations more entrepreneurial through engaging in an external innovation contest. First, senior managers wanting to make their organizations more entrepreneurial should actively engage in external innovation contests. Being physically present and building emphatic connections with the participants helps to challenge senior management's existing understanding and helps them learn viable pathways to increase their organizations' entrepreneurial abilities. It is important that those managers are part of senior management, as their cognitive changes are essential for triggering a transformation across the organization. Second, external innovation contests allow senior managers to learn entrepreneurial skills such as agile methods and the value of quickly experimenting with customers. Hiring entrepreneurial innovation contest participants may accelerate the adoption of entrepreneurial skills across the organization. Third, following an external innovation contest, managers should encourage engagement with the start-up community and instill innovation practices and processes learned from innovation contest participants to facilitate the transition from a stagnant to a more entrepreneurial organization. The combination of changes in senior management cognitions, new entrepreneurial skills and processes, and inputs from the entrepreneurial community provides employees with the ability, motivation, and opportunity to develop more entrepreneurial attitudes and behaviors.

## 5.3 | Limitations and future research

First, our study was limited by our focus on stagnant firms and contests related to a sponsor organization's core business. Less entrepreneurial firms are more likely to engage in external innovation activities if performance is below aspirations (Titus Jr et al., 2020). Relatedness of

business activities also enhances learning effectiveness. Expanding the scope of this research by including different levels of entrepreneurial orientation and relatedness can yield important insights into the boundary conditions of when innovation contests help organizations become more entrepreneurial.

Second, our findings were limited by the three innovation contests driven by senior management's engagement with external participants. An alternative is an internal innovation contest, which often aims to upskill the staff's entrepreneurial skills (cf. Stremersch et al., 2022). It would be interesting to investigate the role of engagement of senior managers and the learning emanating from internal versus external innovation contests. On the one hand, internal participants may benefit directly from senior management feedback and can directly apply learned skills and knowledge (Boëne et al., 2023). On the other hand, external innovation contests may bring in diverse ideas and insights. A comparative study may shed light on the benefits of learning to become more entrepreneurial through internal versus external contests. Moreover, such considerations may extend to other open innovation initiatives that can equally serve the scope of transforming organizations rather than just looking at them through the innovation outcomes they eventually produce. For example, future research may investigate which types of innovation contests or other open innovation initiatives are most effective in enhancing senior management's entrepreneurial acumen and agility.

Third, while our findings align with prior studies showing that innovation contests are indeed launched to gain access to new ideas (Boudreau et al., 2011; Franzò et al., 2023; Lampel et al., 2012; Terwiesch & Ulrich, 2009), we challenged this dominant view by illustrating how the role of an innovation contest can change due to the realization that an organization is not ready to take advantage of new ideas. Learning new organizational practices has previously been mentioned by managers as a motive to engage in open innovation practices (Van de Vrande et al., 2009), but our findings revealed that this motive may not be present initially but rather may emerge over time. This raises an interesting question for future research: Can learning to work in entrepreneurial ways (Rae, 2000) be deliberate, or can it only emerge from negative experiences of implementing new product ideas that result from external innovation contests?

Fourth, our study design focused on a homogenous set of firms and an identical innovation contest design structure to investigate how stagnant organizations evolve into more entrepreneurial organizations. Contest design can influence the quality of ideas and the types

and involvement of participants (Huang et al., 2014), which may subsequently shape learning opportunities. For example, the contests we observed were open to various participants, but most learning and winning ideas originated from start-ups. Future studies may want to include more variance to investigate other drivers of entrepreneurial learning, such as innovation contest design or different participant types.

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The authors declare no conflicts of interest.

## ETHICS STATEMENT

The authors have read and agreed to the Committee on Publication Ethics (COPE) international standards for authors.

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## APPENDIX A

**TABLE A1** Entrepreneurial orientation scale items (*Source:* adapted from Covin & Slevin, 1989).

### Entrepreneurial orientation dimensions and related items

#### Innovativeness

In general, the senior managers of my firm favor:

*Item 1:* 1 = A strong emphasis on the marketing of tried-and-true products or services; 7 = A strong emphasis on R&D, technological leadership, and innovations.

How many new products/services or business model has your firm marketed/implemented in the past 5 years?

*Item 2:* 1 = no new products/services or business model; 7 = very many new products/services or business model.

*Item 3:* 1 = changes in product/service or business model have been mostly of a minor nature; 7 = changes in product/service or business model have usually been quite dramatic.

#### Proactiveness

In dealing with its competitors, my firm:

*Item 4:* 1 = typically responds to actions which competitors initiate; 7 = typically initiates actions which competitors then respond to.

*Item 5:* 1 = is very seldom the first business to introduce new products/services, administrative techniques, operating technologies, etc.; 7 = is very often the first business to introduce new products/services, administrative techniques, operating technologies, etc.

*Item 6:* 1 = typically seeks to avoid competitive clashes, preferring a “live and let live” posture; 7 = typically adopts a very competitive, “undo-the competitors” posture.

#### Risk-taking

In general, the senior managers of my firm have:

*Item 7:* 1 = a strong proclivity for low-risk projects (with normal and certain rates of return); 7 = a strong proclivity for high-risk projects (with chances of very high returns).

In general, the senior managers of my firm believe that:

*Item 8:* 1 = owing to the nature of the environment, it is best to explore it gradually via timid, incremental behavior; 7 = going to the nature of the environment, bold, wide-ranging acts are necessary to achieve the firm's objectives.

When confronted with decision-making situations involving uncertainty, my firm:

*Item 9:* 1 = typically adopts a cautious, “wait and see” posture in order to minimize the probability of making costly decisions; 7 = typically adopts a bold, aggressive posture in order to maximize the probability of exploiting potential opportunities.

Abbreviation: R&D, research and development.

## APPENDIX B

TABLE B1 Design elements of investigated innovation contests.

Design elements	Attributes of Innovation contests		
	Digital4ServiceUp	NextChangeBank	InnovateBrokers
Medium	Mixed online and offline		
Sponsor	ServiceUp Bank	Change Bank	Brokers Banks
Organizer	(same) university incubator		
Task specificity	Defined Searching projects based on digital technologies (mobile, social, internet of things, big data, cloud, etc.) that foster innovation for professionals and SMEs.	Searching projects and solutions based on digital technologies to innovate the financial and insurance services	Searching projects related to products and or services in the financial services area of retail
Degree of elaboration for submissions	Open (from ideas to fully working solutions)		
Participants	Individuals, teams, start-ups, and incumbent firms	Individuals, teams, and start-ups	
Contest period	Long term: 3 months		
Rewards for participants	Nonmonetary: (i) 1-year incubation fee; (ii) 1-year mentoring	Mixed (nonmonetary and monetary): (i) 1-year incubation fee; (ii) 1-year mentoring; and (iii) cash prize of 25,000 €	Nonmonetary: (i) incubation fee 1-year incubation fee; (ii) 1-year mentoring
Community interaction with participants	Informal		
Evaluation of submissions	Jury		

Note: Design elements based on Bullinger and Möslein (2010).

## APPENDIX C

**TABLE C1** Cross-case analysis: Key differences and similarities in objectives and approaches to the innovation contests, engagement during the innovation contests, and emerging realizations.

		<b>Representative evidence (occurrences)</b>
Objectives and approach to innovation contest	<i>Change Bank</i> Scout for new ideas Active approach	“We want to get inspired, get some fresh ideas from people that are external to our organization.” (head of R&D) (6) “We asked the incubator to work on an innovation contest for and with us.” (internal documents)
	<i>Brokers Bank</i> Scout for new ideas Active approach	“I support the idea of launching a contest to be exposed to new things, meet and talk to smart guys out there, and get to know something that we could embed in our existing offer—or even launch as new products or services.” (CEO) (5) “We contacted the incubators to sponsor an innovation contest. We need this.” (internal documents) (2)
	<i>ServiceUp Bank</i> Scout for new ideas, increase company's reputation regarding innovation activities Passive/reactive approach	“Access to new ideas through the contest can be beneficial to our organization.” (CI&DO) (2) “More and more big companies from varied industries are engaging with start-ups and entrepreneurs. Pretty much everybody's doing it. I don't want people to think we are not innovating just because we don't publicly promote these projects.” (CMO) (4) “An incubator is proposing us to sponsor an innovation contest. We should probably explore this opportunity.” (internal documents) (2)
Engagement	<i>Change Bank</i> 10 managers involved, interaction during innovation contest Codevelopment with winning participants in experimentation/piloting after the innovation contest	Ten managers from the sponsor company were involved. Three top managers (head of R&D, CEO, and CMO) were involved in the commissions that decided on the 20 finalists (phase 3) and winners (phase 5) and had face-to-face meetings with the finalists during the speed date event (phase 3). Seven managers and the direct reports of the three top managers were involved in (i) the screening process to inform the three top managers, (ii) face-to-face meetings with the finalists during the speed date event, and (iii) e-mail exchanges with the finalists after the speed date event (once or twice with each finalist). (6) “Our jointly developed solution did not encounter positive results as expected.” (head) (4) “We made an effort to work together as peers, as they don't know what we know about our customers.” (CEO) (5)
	<i>Brokers Bank</i> 11 managers involved, interaction during innovation contest Codevelopment with winning participants in experimentation/piloting after the innovation contest	Eleven managers from the sponsor company were involved. Three top managers (CMO, CEO, and COO) were involved in the commissions that decided on the 20 finalists (phase 3) and winners (phase 5) and had face-to-face meetings with the finalists during the speed date event (phase 3). Eight managers and the direct reports of the three top managers were involved in (i) the screening process to inform the three top managers, (ii) face-to-face meetings with the finalists during the speed date event, and (iii) e-



TABLE C1 (Continued)

		Representative evidence (occurrences)
	<p><i>ServiceUp Bank</i></p> <p>Limited number of managers (3) involved, limited interaction during innovation contest</p> <p>Buyer–supplier relationship with winning participants in experimentation/piloting after the innovation contest</p>	<p>mail exchanges with the finalists after the speed date event (once or twice with each finalist). (5)</p> <p>“Now, after one year, I also see how some of the jointly conducted pilot tests helped us to search in other directions.” (project manager) (4)</p> <p>“Our closed partnership to codevelop and adapt their solution to our market ...” (CEO) (4)</p> <p>Five managers from the sponsor company were involved. Three top managers (CEO, COO, and CI&amp;DO) were involved in the commissions that decided on the 20 finalists (phase 3) and winners (phase 5) and had face-to-face meetings with the finalists during the speed date event (phase 3).</p> <p>Two managers and the direct reports of the three top managers were involved in (i) the screening process to inform the three top managers and (ii) face-to-face meetings with the finalists during the speed date event. (5)</p> <p>“They are starting the testing. They asked for support. We made a few calls to explain better what we are looking for. Now it’s their turn to provide results. If we have to spend more time and effort with them, we can develop on our own what we need.” (meeting note) (3)</p>
Emerging realizations	<p><i>Change Bank</i></p> <p>Limited results in innovation outcome: pilot tests with contest winners, two pilots reached market test phase, one product effectively introduced to market, and one test led to improvement of existing product</p> <p>Low organizational readiness for innovation</p>	<p>“We are currently partnering with one of the winners of the innovation contest (DoublePet). Together, we have introduced a new product to the market. With NewCo4, we are launching a market test on an insurance product for families.” (CEO) (6)</p> <p>“While I was curious to see some completely new ideas, I found that the proposals received were a way to improve our current products. That is the case with NewCo4. Their proposal and technology device helped us redefine the information collection process, which informs some of our financial services dedicated to families.” (head of R&amp;D) (4)</p> <p>“We underestimated the challenges of being organized to process external ideas in our organization. There are different mechanisms compared to processing internal ones, and the more you do it, the more you need to be prepared and organized to do so.” (CEO) (3)</p>
	<p><i>Brokers Bank</i></p> <p>No results in innovation outcome: all pilot tests with winners ended with negative results but led to positive evaluation of process</p> <p>Low organizational readiness for innovation</p>	<p>“During the contest and soon after, I have to say I was not satisfied with the proposals we received, although I met some very competent entrepreneurs. Now, after one year, I also see how some of the jointly conducted pilot tests helped us to search in other directions, which saved time and cost for the next pilot test.” (project manager) (5)</p> <p>“Probably, we don’t have the right mindset and skills and structures yet to make quick tests leveraging on partnership with other actors.” (CEO) (3)</p>

(Continues)

TABLE C1 (Continued)

	Representative evidence (occurrences)
<p><i>ServiceUp Bank</i></p> <p>No results in innovation outcome: all pilot tests with winners ended with negative results but led to positive evaluation of process</p> <p>Low organizational readiness for innovation</p>	<p>“The pilot tests with some of the winners went wrong for several reasons. Ideas were not the best, but I say 50% was our fault. We were not ready to be involved and properly manage ideas coming from such unstructured entities as start-ups. However, the attitude to search and be curious about what is happening outside and the experience we got from the contest is helping us, even though we have some issues at the moment due to external events.” (CEO) (4)</p>

Abbreviations: CEO, chief executive officers; CI&DO, chief innovation and digital officer; COO, chief operating officers; CMO, chief marketing officers; R&D, research and development.

## APPENDIX D

TABLE D1 The winners and their proposals.

Reference contest	Winner	Proposal	What happened 1 year after the win?	Why did that happen?	One year later (2019)
Digital4ServiceUp	CryptoMania	Cryptocurrency solution	A few meetings with the sponsor company but nothing concrete, the sponsor company shelved proposal	There was a mismatch between the existing business and concerns about sustainability: "I struggle to see the benefit for our customers, but we want to keep our eyes open on the topic by continuing to collaborate with them [the start-up founders]." (CMO) "I don't think it is sustainable." (CEO)	The company does not exist anymore
	Advanced-Experience	AI solutions for digital customer experience	Pilot test on codeveloped solution, sponsor decided to shelve proposal after pilot, and winner continued to work on proposal independently	Top management's focus was on running the existing business rather than pushing new solutions to test: "We can't afford to increase risk in our position." (COO)	The company made an IPO in 2019
	MegaBox	Technology solutions for black box insurance services	Pilot test on codeveloped solution, sponsor company shelved proposal	The organization was not ready internally: "We were not ready to involve and properly manage ideas coming from such unstructured entities like start-ups." (CEO)	The company does not exist anymore
NextChangeBank	DoublePet	Insurance coverage system for the protection of animals, tangible assets, and people	Launched product in codevelopment	There was a good relationship and vibe between the founder and Change Bank's head of R&D: "It worked, since we were on the same page with him from day one." (head of R&D) It was feasible and had synergies with the current business: "It was the only solution that clearly emerged as applicable and ready to work in our system." (head of R&D) However, there was an organizational issue: "we succeeded in the end in delivering a common product, but the process was way too slow for our organization. We have been lucky to find a	The company does not exist anymore

(Continues)

TABLE D1 (Continued)

Reference contest	Winner	Proposal	What happened 1 year after the win?	Why did that happen?	One year later (2019)
	BoostDrive	Technology solution enabling customers to find a driver for their car	A few meetings with the sponsor company, the sponsor company shelved proposal	patient partner to work with [in DoublePet].” (CMO) The sponsor company and the start-up realized they had different objectives: “They were more interested in finding venture capital funding than working with/for companies.” (head of R&D)	After several pivots and rebranding, the company is still searching for a scalable business model
	NewCo4	Instant insurance system for protecting personal goods	Pilot test on codeveloped solution, (partial) positive results led to improved process for existing offering	NewCo4 was appealing and useful: “Their proposal and technology device helped us to redefine the information collection process, which informs some of our financial services dedicated to families.” (head of R&D) However, there were organizational complexities: “It was not that easy, as our team and their team had different ways of working and also speeds.” (CMO)	After several pivots, NewCo4 is now a software consulting company for large companies
	De Lux-Reality	Augmented reality solution to estimate the value of luxury goods	A few meetings with the sponsor company, the sponsor company shelved proposal	There was disagreement among the founders: “They were fighting in front of us.” (head of R&D)	The company does not exist anymore
<i>InnovateBrokers</i>	StockPeer	Peer-to-peer landing platform	Pilot test on a codeveloped solution with negative results, sponsor company shelved proposal	The sponsor company and the start-up realized they had different objectives: “To work together with them, there was a need for full integration, or we could have acted as a corporate investor. Instead, we were still separate entities and willing to keep it that way.” (head of R&D)	The company received Series A funding and is consistently growing
	N360 Data	Big data and AI analytics applied to banking services	Pilot test on a codeveloped solution with negative results, sponsor company shelved proposal	The sponsor company was not used to working with start-ups: “They were too fast, and we were too slow. We knew we had to learn, but it’s not something you	The company received Series A funding and is consistently growing
	IoT-X		Pilot test on a codeveloped solution with negative		



TABLE D1 (Continued)

Reference contest	Winner	Proposal	What happened 1 year after the win?	Why did that happen?	One year later (2019)
		Internet of Things-based data analytics	results, sponsor company shelved proposal	can quickly change.” (CMO)	The company does not exist anymore
	TradingIT	AI-based trading platform	Pilot test on a codeveloped solution with negative results, sponsor company shelved proposal		The company does not exist anymore

Abbreviations: CEO, chief executive officers; CI&DO, chief innovation and digital officer; COO, chief operating officers; CMO, chief marketing officers; R&D, research and development.

## APPENDIX E

TABLE E1 Cross-case analysis: Key differences and similarities in organizational practices after the innovation contests.

Organizational practice		Representative evidence (occurrences)
Developing entrepreneurial skills	<p><i>Change Bank</i> Entrepreneurial language and decision-making heuristics, hired two innovation contest participants to work on innovation projects, created (internal) development programs</p> <p><i>Brokers Bank</i> Entrepreneurial language and decision-making heuristics, hired an innovation contest participant to work on an innovation project and leveraging their competency in emerging technologies, created (internal) development programs</p> <p><i>ServiceUp Bank</i> Entrepreneurial language and decision-making heuristics, hired two innovation contest participants but had no clear idea of what to do with them</p>	<p>“We must face a world in constant change by pursuing constant innovation, and we need a shorter decision-making process, just like these guys [the participants] have.” (head of R&amp;D)</p> <p>“Our managers started to get used to entrepreneurial concepts like MVP, pivoting.” (CMO) (4)</p> <p>“Two young participants were hired after the contest to work in our innovation team.” (head of R&amp;D) (5)</p> <p>“Innovation Lab” for spotting intrapreneurs. (internal documents) (3)</p> <p>“By interacting side by side with start-up experts at the incubator, I learned a few rules of thumb to evaluate a business plan that will come in handy when assessing innovative projects within our company.” (CMO) (4)</p> <p>“We need to make more business experiments and fail fast.” (project manager) (4)</p> <p>“We like him, as we don't have that [blockchain] technical competence that we need for a current project.” (CMO) (4)</p> <p>“Corporate Entrepreneurship Lab” for spotting intrapreneurs. (internal documents) (4)</p> <p>“At first, when reading these start-ups' briefs, I felt a bit rusty. But as the contest went on, I have to say I caught up. I also picked up some of their buzzwords, like ‘pivoting’, developing ‘MVPs’, gaining ‘traction.’” (COO) (4)</p> <p>“A faster decision-making and lean experiment is what they [contest participants] do, and we need to do it as well.” (COO) (5)</p> <p>“I told them to continue their project but also to work for me part time ... I don't know yet what they will do with us.” (CEO) (2)</p>
Collaborating with external partners	<p><i>Change Bank</i> Learned to systematically search for partners (replicated the following years)</p>	<p>“Even though our first edition was exciting [...] spot initiatives rarely provide good results. We need more regular access to external sources of competence. Thus, with UniHub, we are framing the initiative as stable to replicate each year with different tasks or targets. For instance, this year, we have not yet decided, but I think it will be focused on insurance services for personnel.” (head of R&amp;D) (3)</p> <p>“We are in contact also with other fintech start-ups that were recently funded by VCs [venture capitalists].” (CMO) (5)</p>

TABLE E1 (Continued)

Organizational practice	Representative evidence (occurrences)
<p><i>Brokers Bank</i> Learned to systematically search for partners (replicated the following year)</p>	<p>“This year, we will try to bring to the table a more specific problem involving only developers to fix some issues we have with our mobile app. This type of initiative can help to systematically screen new partners.” (CMO) (7)</p> <p>“We are now collaborating much more with young and innovative firms. We started to love them, since we leverage them to do in one month what would take us one year.” (CMO) (5)</p> <p>“Our collaboration with young talents [external to the company] and experts in fintech is now much more. It is more normal now for us.” (project manager) (5)</p>
<p><i>ServiceUp Bank</i> No evidence of a systematic search for external partners (was not replicated the following year)</p>	<p>In the following year, there were no contests sponsored by ServiceUp Bank. (external documents) (1)</p> <p>“We have started some talks with other fintech start-ups to see whether there is some space for collaboration, based on some personal contacts that our managers have.” (COO) (6)</p>
<p>Adapting organizational design and governance</p>	<p><i>Change Bank</i> Reduced the number of people involved in new product development, incentives for continuous experimentation, decentralized authority for small experiments, simplified organizational structure with a team dedicated to innovation</p> <p>“We removed redundancy in competence and built smaller teams dedicated to new products.” (head of R&amp;D) (4)</p> <p>“I need to encourage our innovation to make more pilot tests. The number and quality of testing will be part of the evaluation for the annual bonus of the innovation team.” (head of R&amp;D) (6)</p> <p>“For small [cheap/free] experiments, our innovation managers do not need to ask permission from me. They just have to cope with the overall budget we have for these activities to be selective in experimenting.” (head of R&amp;D) (6)</p> <p>“The entire R&amp;D and innovation function is now directly under the CMO’s control. Before, we also had to report to the CIO. This change facilitates our day-to-day job.” (head of R&amp;D) (7)</p> <p><i>Brokers Bank</i> Reduced the number of people involved in new product development, incentives for continuous experimentation, decentralized authority for small experiments, simplified organizational structure with a team dedicated to innovation</p> <p>“We realized that having two people with the same skills for each innovation project was of course adding more perspectives for the same problem, but it was also making overall development slower, so we decided to avoid this.” (CMO) (5)</p>
	<p>“The more they do experiments, with limited resources and without compromising our brand, the more they will take a step forward in their career.” (CMO) (4)</p> <p>“We learned to let the innovation team decide autonomously on small experiments, and many experiments, especially in the early phases, can</p>

(Continues)

TABLE E1 (Continued)

Organizational practice	Representative evidence (occurrences)
<p><i>ServiceUp Bank</i> Reduced the number of people involved in new product development, incentives for continuous experimentation, decentralized authority for small experiments, simplified organizational structure, but no formal team dedicated to innovation activities</p>	<p>be done with very limited investments.” (CMO) (2)            “The creation of an innovation function serves to simplify the way we approach innovation. In a more structured way, it creates more order.” (CMO) (7)            “I had two people in charge of the economic viability of the new product, and they were often in conflict. We [CEO and CI&amp;DO] opted to keep just one of them.” (CEO) (3)            “After the contest, I wanted to relate directly with our chief innovation and digital officer. I realized that our marketing people are too focused on serving the existing market with existing solutions ... and they may not see value in innovative products.” “I don’t blame them. It’s the way our industry worked and still works.” (CEO) (4)            No team was dedicated to innovation, and the CI&amp;DO had no formal authority. They were simply an advisor to the CEO (participant observation and internal documents) (2)</p>

Abbreviations: CEO, chief executive officers; CI&DO, chief innovation and digital officer; COO, chief operating officers; CMO, chief marketing officers; R&D, research and development.