

ORIGINAL RESEARCH ARTICLE

'I'd Give My Right Arm to Be Ambidextrous': Exploration Unit Managers Facing Competing Demands for Differentiation and Integration

Cylien Gibert^{1*} and Sihem BenMahmoud-Jouini²

¹TSM-Research, Toulouse School of Management, Université Toulouse Capitole, CNRS, Toulouse, France

²GREGHEC, HEC Paris, i3-CRG, École Polytechnique, CNRS, Institut Polytechnique de Paris, Jouy-en-Josas, France

Abstract

This paper examines how managers of internal exploration units – also labeled as innovation labs – address the competing demands of differentiation and integration over time, and the implications for their unit's ability to execute its intended exploration strategy. Based on a longitudinal study of four exploration units implemented by established firms, we find that their managers face two types of undocumented paradoxical tensions: one related to the evolution of the mandated charter and the other related to the implementation of the performance management system. In response, we show that exploration unit managers adopt four balancing patterns to face these paradoxical tensions: decoupling, conforming, promoting, and synchronizing. These patterns consist of specific combinations of differentiating and/or integrating practices. Drawing on paradox research, we show how each pattern facilitates or impedes the pursuit of the unit's intended exploration strategy. Our research contributes to the development of a more integrative and systemic understanding of the locus of structural ambidexterity and how it is pursued in practice, and to current debates about the different types of responses adopted when faced with paradoxes. Finally, we provide managerial insights into the management of exploration units and innovation labs within established firms.

Keywords: *Exploration; Paradoxical tensions; Differentiation; integration; Structural ambidexterity; Innovation labs*

Handling editor: Martin Friesl; Received: 24 April 2023; Accepted: 2 May 2024

Simultaneously exploiting existing knowledge and exploring new opportunities, known as organizational ambidexterity, is one of the key challenges for organizations to remain competitive while preparing for the future (Luger et al., 2018). However, the coexistence of exploration and exploitation processes within the same firm creates tensions at multiple levels (March, 1991; Sekhar Chanda et al., 2018), due to trade-offs regarding resource allocation, short-term versus long-term orientation, present versus future focus, and preference for stability versus adaptability (Lavie et al., 2010). Researchers and practitioners have shown that, as the oxymoron in the title suggests, these tensions can impede exploratory activities and therefore prevent the achievement of organizational ambidexterity. A favored way to address these tensions has been to create an internal unit dedicated exclusively to exploration, commonly

referred to as an innovation lab, while the rest of the organization focuses on exploitation (Blindenbach-Driessen & van den Ende, 2014).

With the benefit of hindsight (Donada et al., 2021), we can now see that these internal exploration units face recurring challenges (Buvat et al., 2018) that can jeopardize their contribution to the innovation performance of the parent company, and, thus, their expected value added (Schiuma & Santarsiero, 2023). A key explanation for these difficulties is that exploration units must be both differentiated and integrated (Friesl et al., 2019). In contrast to new independent ventures that operate relatively autonomously from their parent companies, internal exploration units – or innovation labs – that explore areas that are strategically coherent with their parent companies show significant interdependencies with their firm (Crockett et al., 2013). Differentiation is

*Corresponding author: Cylien Gibert, Email: cylien.gibert@tsm-education.fr

necessary for these units to be able to carry out their activities relatively autonomously, while the rest of the firm pursues exploitation-oriented efforts. Conversely, integration is required at two main levels: first, to ensure access to the parent company's resources when needed, and second to facilitate the transfer of their results to the rest of the firm for further development, scaling, and exploitation at a later stage (Burgelman & Valikangas, 2005; Jansen et al., 2012). This dual requirement raises specific issues and challenges for the managers of these units that have not yet been explored in existing research.

While the literature has explored how the competing demands of differentiation and integration should be balanced at the strategic level by top managers (Raisch & Tushman, 2016), we still do not know much about the specifics of internal exploration units and how they achieve the balance between differentiation and integration, if at all. In particular, the lack of empirical studies focused on understanding the dynamics and challenges faced by their managers has been noted by scholars (Schiuma & Santarsiero, 2023). This is problematic because these individuals are at the forefront of the competing demands of differentiation and integration, leading to difficult trade-offs and double bind situations. For example, the pursuit of the unit's exploratory mission as stated in its charter may, at some point, come into conflict with the expectations of top management (Taylor & Helfat, 2009). As a result, we know very little about the potential consequences of the balance between differentiation and integration for the ability of exploration units to fulfill their exploration mission in the longer term. In this study, we explore these challenges and pose the following research question: *What challenges do exploration units managers face in the competing demands of differentiation and integration over time? How do they address these challenges? What are the implications for the unit's ability to execute its mandated exploration strategy?*

To address this issue, we turn to the paradox literature (Berti & Cunha, 2023; Garcias et al., 2015) to develop a finer-grained understanding of these situations in which individuals face conflicting demands. To answer our research question, we set up a comprehensive longitudinal research design focusing on the managers of four exploration units implemented by established firms to explore new opportunities.

Through the use of paradox research, our research makes three main contributions that help to better understand the role of internal exploration units, or innovation labs, and their managers in the pursuit of organizational ambidexterity of the parent firm (e.g., Luger et al., 2018; Raisch & Tushman, 2016). First, we show how the competing demands of differentiation and integration progressively lead exploration unit managers to experience paradoxical tensions that

have not been specified in previous research. These paradoxical tensions are of significant importance, and we demonstrate how they affect the results of exploration units. Second, in response to these emerging paradoxical tensions, we show how exploration unit managers adopt different balancing practices, which we group into four distinct balancing patterns that form the core of our findings: decoupling, conforming, promoting, and synchronizing. These balancing patterns contribute both to requests for research into the locus of organizational ambidexterity, and to debates in the paradox literature about what types of responses individuals should adopt when faced with paradoxical tensions. Third, we demonstrate that exploration unit managers play a decisive role in the execution of their unit's exploration strategy. Recognizing and researching these individuals' role is crucial as they impact the corporate strategy at the parent company level. Finally, we provide insights into overcoming some of the challenges that many exploration units face in achieving the expected innovation performance at the firm level.

Theoretical background

To achieve long-term performance (Luger et al., 2018) and survive both technological change (Taylor & Helfat, 2009) and economic crisis (Schmitt et al., 2010), large firms need to explore new opportunities while they continue to exploit existing knowledge. However, exploration has repeatedly been shown to be in conflict with the rest of the firm's activities (March, 1991; Sekhar Chanda et al., 2018).

One solution adopted by firms seeking to explore new knowledge without being overly influenced by current activities is to create a separate internal unit dedicated solely to exploration activities, while the rest of the firm remains focused on exploiting existing knowledge (Blindenbach-Driessen & van den Ende, 2014; Lewis & Moultrie, 2005; Magadley & Birdi, 2009; Tushman et al., 2010). While such differentiated units may pursue ventures that are largely independent in content from the parent organization, as in the classical understanding of structural ambidexterity (O'Reilly & Tushman, 2008), they may also explore topics that are adjacent to the firm's knowledge (Crockett et al., 2013). This is often the case with internal exploration units, also called innovation labs (Schiuma & Santarsiero, 2023): in these units, the salutary separation from the rest of the firm that protects the exploration activities may prove problematic, as the unit may benefit from relationships with the rest of the parent firm because of the potential interdependencies between explored and exploited knowledge. This position creates specific challenges in terms of differentiation and integration at both the organizational and individual levels (Andriopoulos & Lewis, 2009).

Balancing differentiation and integration at the organizational level

At the organizational level, differentiation, which is the 'segmentation of the organizational system into subsystems' (Lawrence & Lorsch, 1967, p. 3), ensures that each unit is configured to meet the specific requirements of its mission. It creates boundaries that allow organizations to simultaneously pursue conflicting activities by shielding activities within the differentiated units from the inertial forces of the parent company (Carlile, 2004; Gilbert et al., 2006). In the case of dedicated internal units, differentiation can be ensured through various means, such as dedicated staff, budget, governance, methods, or premises. However, the differentiation of exploration units is not without risk (Raisch & Tushman, 2016, p. 3), as it may deprive these units of the benefits of the parent organization's resources and reciprocally prevent the transfer of knowledge generated within these units to the rest of the organization, thus hindering coordination (Gibson & Birkinshaw, 2004). A common problem with exploratory units is that they are often seen as too exploratory, engaging in activities that are perceived as too distant from the core business of the organization and too difficult to reintegrate into the rest of the organization (Burgelman & Valikangas, 2005).

As a result, previous research has shown that differentiation should be complemented by integration to ensure cross-fertilization (Friesl et al., 2019; Gibson & Birkinshaw, 2004). Indeed, integration is 'the process of achieving unity of effort among various subsystems in the accomplishment of the organization's tasks' (Lawrence & Lorsch, 1967, p. 4). At the organizational level, integration allows units to draw on the resources of the parent firm and to leverage investments by exploiting various linkages between differentiated units (Taylor & Helfat, 2009). However, integration is not without risk, as it must be achieved without compromising the differentiated focus of the units. For example, an exploration unit may become overly influenced by the processes of the parent company and thus fail to identify and explore new opportunities (Gilbert et al., 2006). What remains unclear is how the competing demands of differentiation and integration evolve in the case of internal units created to carry out exploration, and how the balance between differentiation and integration is ensured (Andriopoulos & Lewis, 2009; Smith, 2014). Some researchers have suggested that this balance should evolve according to the lifecycle and stages of development of exploration units and the exploration projects they host. They proposed to distinguish between the initial stages of the creation of the exploration unit, in which the unit should be highly differentiated, and the subsequent stages of the transfer of the identified opportunities to the rest of the company, in which the units may need to be more integrated (BenMahmoud-Jouini & Charue-Duboc, 2022; Raisch & Tushman, 2016).

Balancing differentiation and integration at the individual level

This delicate balance (O'Reilly & Tushman, 2008) between differentiation and integration is thought to occur at multiple levels (Lavie et al., 2010). Top managers have been considered as key players (e.g., Jansen et al., 2012; Knight & Paroutis, 2017; Lubatkin et al., 2006), acting as a linchpin, integrating between differentiated units, and experiencing various tensions in doing so (Smith, 2014). On the other hand, more recently, other researchers (Zimmermann et al., 2015) have explored another level, namely, the individuals within differentiated units, showing that they sometimes engage in negotiations with top managers (informal sensemaking and formal bargaining) to influence the unit's strategy. In the same vein, Zimmermann et al. (2018) have shed light on the contrasting and matching practices adopted by frontline managers to balance differentiation and integration.

However, unlike new venture managers, the specific case of exploration unit managers, who explore while remaining under the control of the parent company and ensure that the results of their exploration retain some strategic significance for the parent company, has not been addressed *per se*. This is problematic because these managers occupy an unexplored but potentially crucial role, as they are instrumental in navigating the complex interplay between differentiation and integration, which is even more acute in their position.

Differentiation without integration can lead to false dichotomies and conflicts (Lewis & Smith, 2022), failing to capitalize on existing capabilities of the parent company and/or reintegrate their results into the existing business. Conversely, integration without differentiation can foster false synergies, with parent company management interfering in the unit's decision-making (Burgelman & Valikangas, 2005) or aligning its activities too closely with the opportunities of existing operations. We summarize these elements in Figure 1.

As a result, exploration unit managers are tasked with exploring new opportunities and knowledge while ensuring that the results of their efforts are of strategic value to the entire organization. This delicate role requires an in-depth examination, which may shed light on the lackluster performance observed in many exploration units. In order to explore with nuance the challenges related to the complex balance between differentiation and integration faced by exploration unit managers, their responses to these challenges, and how they experience them, we will mobilize paradox research as a tool theory.

From competing demands to paradoxes

Paradox research (e.g., Berti & Cunha, 2023; Garcias et al., 2015) is useful in order to develop a fine-grained understanding of

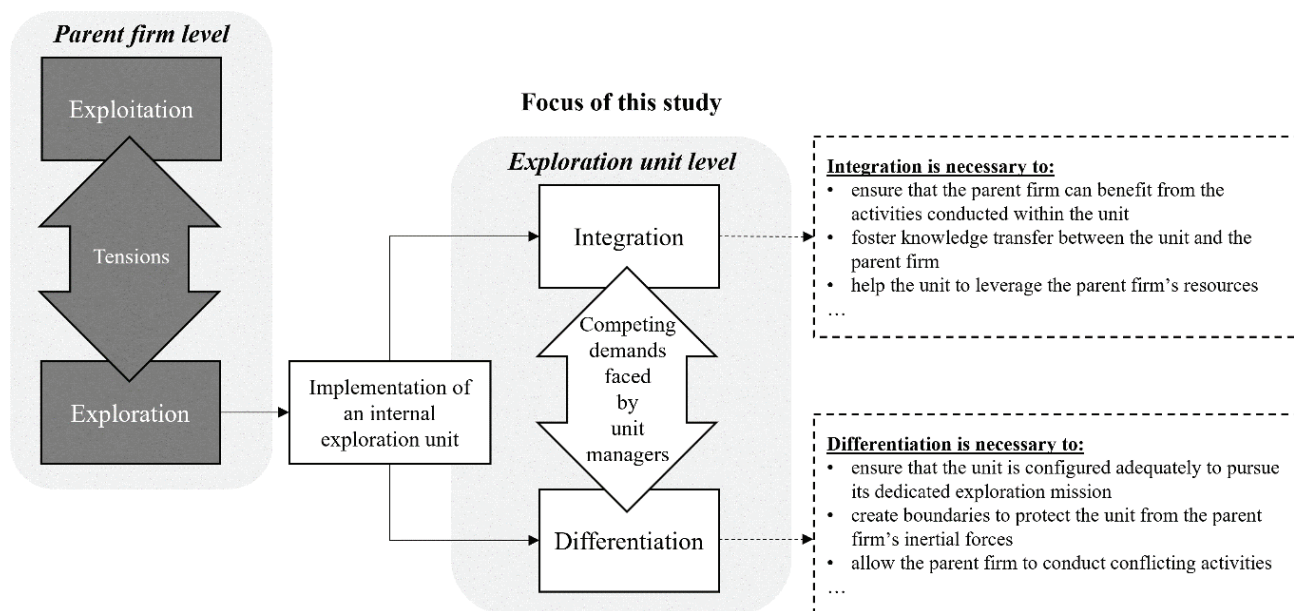


Figure 1. Theoretical overview.
Source: Own elaboration.

situations in which individuals face conflicting demands. When demands are conflicting, persistent, and self-referential (Smith, 2014), they become paradoxical. Paradox researchers (Lewis et al., 2014) have suggested that differentiation and integration at the organizational level should be reflected in mindsets and dynamic decision-making at the individual level. For individuals, 'differentiation involves recognizing and articulating distinctions, while integration involves identifying linkages' (Lewis & Smith, 2022, p. 536).

When faced with paradoxical choices, the existing literature has distinguished between two main types of individual approaches. First, a trade-off approach consists of an 'either-or' decision made by weighing the advantages and disadvantages of each available option (Lewis et al., 2014, p. 61). In the context of managing exploration-exploitation strategic paradoxes, Smith (2014) shows how an either-or approach consists of adopting *either* differentiating practices (e.g., assigning domain-specific roles) *or* integrating practices (e.g., assigning integrative roles). Second, a more sophisticated 'both-and' approach leverages the benefits of each separately while also exploiting their synergistic potential (Lewis et al., 2014, p. 62) by adopting *both* differentiating *and* integrating practices simultaneously (e.g., distinguishing domains from each other while emphasizing the importance of overarching goals). In the same line, Jarzabkowski et al. (2013) suggested that managers' behavior should change from defensive approaches to avoid the paradox to active approaches by accepting and working within the paradox.

However, recent literature has shown that it can be difficult for individuals to maintain the both-and active posture over time as they face 'the dark side of the paradox that posits a stretch

too far' (Gaim et al., 2021, p. 953). Paradox-facing individuals experience tension and face disempowerment, dysfunction, paradoxical promises, and frequent loss of personal reputation (Berti & Simpson, 2021). These perverse effects seem to have been overlooked by the paradox literature, which has tended to view leaders who are able to deal with paradox as bold and equipped with a 'paradoxical leadership' (Lewis et al., 2014). The negative effects of both-and approaches have only recently been highlighted (Cunha & Putnam, 2019), and the burgeoning literature on them has not yet examined the case of managers of exploration units facing competing demands.

In order to expand our understanding of the roles and challenges faced by managers of exploration units, we seek to explore in this paper: *What challenges do exploration units managers face in the competing demands of differentiation and integration over time? How do they address these challenges? What are the implications for the unit's ability to execute its mandated exploration strategy?*

Method

Given the lack of available research on the specific role of exploration units' managers in balancing differentiation and integration of their units, we adopted a multi-case study approach, which is useful for building theory about 'how' questions (Yin, 2018). Such a study requires trading off concerns about limited external validity against the opportunity to gain deeper insights about insufficiently documented phenomena. We undertook four longitudinal case studies with detailed investigations in order to collect abundant quantities of rich data.

Table 1. Research settings

Parent company	CONST	ESTAT	INDUS	AERO
Exploration unit	EXPLORCONST	EXPLORESTAT	EXPLORINDUS	EXPLORAERO
Parent company's sector	Services	Services	Industry	Industry
Parent company's size	50,000	3,000	50,000	10,000
Parent company's revenue (€)	12 B	5 B	21 B	16 B
Exploration unit's size	3 + external consultants	11	22	26
Exploration unit's budget (€)	Approx. 1 M	Approx. 3.5 M	Approx. 3 M	Approx. 4 M
Origin of exploration unit's members	Mainly recruited from inside the company + external consultants	Mainly recruited from inside the company	Mainly recruited from outside the company	Mainly recruited from outside the company
Examples of opportunities explored	Digital services related to smart cities	Robots for shopping malls; collaborative solution for employees	Industry 4.0; inclusive business; opportunities related to environment and foods	New digital services (remote monitoring, predictive maintenance)

Source: Own elaboration.

Research setting

To deploy our approach, we identified firms that launched dedicated internal exploration units. All units were firm-controlled, dedicated to enhancing and supporting firms' innovation through the deployment of exploration-oriented activities. In all cases, the mission of the exploration units was to explore new opportunities for innovative products, services, and/or business models and new methods and approaches, while the rest of the parent company remained focused on exploitation-oriented activities.

We took several measures to ensure the coherence and quality of our data. We built our case selection process around two main criteria. First, we considered large (more than five billion euros revenue) and established (at least 25 years old) companies that were dominant in their sector. Second, in order to ensure the richness of the data to be collected, we considered companies for which at least one of the authors had an opportunity to spend enough time on the field to make observations *in situ*. Thus, we considered settings where we could secure privileged access to the managers in charge of exploration units.

We finally selected four companies (CONST, ESTAT, INDUS, and AERO) that had recently launched exploration units. Below, we provide a brief overview of each firm, and the main characteristics of the exploration units (Table 1). CONST is a group that has regularly had to innovate around products and materials, but whose innovation history has tended to follow a techno-push model, with long R&D cycles. The group is not accustomed to exploratory activities, although there is a consensus within top management on the need to explore the smart city theme, which is widely perceived as a major strategic opportunity. ESTAT is a group that has historically done little in the way of innovation and has been reluctant to take the digital plunge. Overall, there has been little exploration

activity in the past, and EXPLORESTAT was created to acquire new exploration capabilities, not least because one of the group's direct competitors has created a similar unit. INDUS is a centennial group, historically innovative, but for some 40 years limited to an incremental techno-push innovation model with long R&D cycles. EXPLORINDUS was created with the aim of revitalizing the group and adding exploration capabilities. AERO is a group that has had to innovate regularly in order to keep up with the times and remain at the forefront of a sector characterized by intense technological change. It is therefore the group, where the culture of technological exploration is historically the strongest of the four; but the group has not yet explored digital-related opportunities.

Data collection

We collected our data during an overall period of 3 years, with the specific period depending on the company. We developed a threefold triangulation of data sources and gathered our primary qualitative data from interviews, meetings, and observations (Table 2). We focused on the managers in charge of the exploration units as our main informants because we assumed that they were the most directly involved in differentiation-integration issues. All of these unit managers had managerial functions, and all were separated from the CEOs of the parent companies by at least one level of hierarchy. All of the unit managers reported to members of the executive committees of the parent companies, although these committees had different names in each case. We have included information about each manager's direct reports in the presentation of each unit in the first subsection of the findings.

First, across the study, we conducted 86 interviews, lasting 70 min on average, with the exploration unit managers and relevant alternative informants such as project managers and senior executives (e.g., the strategy vice president and R&D

Table 2. Data collected

Parent company	CONST	ESTAT	INDUS	AERO
Exploration unit	EXPLOR-CONST	EXPLOR-ESTAT	EXPLOR-INDUS	EXPLOR-AERO
Period of study (months)	18	8	15	20
Primary data	Meetings (6), interviews (13), observations (49 days)	Meetings (25), interviews (22), observations (35 days)	Meetings (9), interviews (35), observations (56 days)	Meetings (12), interviews (16), observations (48 days)
Secondary data	Internal documents, project reports	Mails, internal documents, project reports	Twitter feeds, media articles, internal docu- ments, project reports	Media articles, internal documents, project reports
Interviews with top managers of the parent company	2	3	4	1
Interviews with exploration unit managers	8	7	10	9
Interviews with project managers	2	5	9	4
Interviews with other members of the exploration unit	1	7	12	2

Source: Own elaboration.

vice president). During the semi-structured interviews, following an interview guide, we asked interviewees to provide information about the exploration unit, its relationship to the parent firm, the main activities undertaken within the exploration unit, and their main challenges. We did not ask explicitly about tensions, but they spontaneously emerged during our discussions with the informants, especially with the exploration unit managers. We used open-ended questions, which allowed respondents to raise avenues for discussion. All interviews were recorded and transcribed. Apart from several follow-up telephone interviews, we collected our interview data on-site. For each firm, we began our period of study soon after the launch of the exploration unit. We conducted regular and frequent interviews with the managers of each exploration unit during the research duration (every quarter on average).

Second, we observed and recorded 52 meetings, lasting 85 min on average, both inside (e.g., when the exploration unit manager presented the roadmap to the team) and outside (e.g., when the exploration unit manager reported on the unit's activities to senior executives). During these meetings, we adopted the posture of nonparticipant observers, and we could directly witness exchanges between actors. The observations allowed us not only to enrich our understanding of the interviews (Bouty et al., 2019) but also to examine how our informants experienced the tensions, *in situ* (Bardon et al., 2020).

Third, we collected detailed notes on the day-to-day organizational life inside the exploration units. Since our goal was to explore how these individuals balance differentiation and integration over time, these observations proved critical in allowing us to witness such attempts *in situ*. During the days when we had interviews and attended meetings, we had access to

the exploration units' facility and spend all day on observations. By being on-site within the workplace, we could also have informal conversations with the exploration unit managers and their teams (e.g., during coffee breaks or lunches) throughout the entire period. Thanks to the time spent and the relations built, we progressively gained access to relevant secondary data (internal documents, memos, reports, presentations, email, Twitter feeds, etc.).

Data analysis process

In conducting this research, we did not have precise theorized hypotheses that we wanted to test, and we decided to remain open to the data as we collected it (Glaser & Strauss, 1967). We considered the informants as 'knowledgeable agents', and our goal was to give them a voice in order to get them to formalize their definition of the situation and its problems at a given moment, or to provide additional elements for understanding the deeper organizational context (Gioia et al., 2012). As we conducted this inductive research, our initial interest in internal units dedicated to exploration became progressively focused on the tensions that emerged. As we collected data, our conceptual understanding of what was going on gradually refined and led us to delve into the literatures on ambidexterity and paradox, in coherence with grounded theory research practices (Locke, 2003).

Although we used a sequential coding procedure that could be likened to a 'Gioia method' (Gioia et al., 2012), we did not try to apply this method exactly as those authors advocate. The reason is that we had several sources of data to combine and analyze, not just the interviews that are the main focus of these authors. As a result, we did not try to

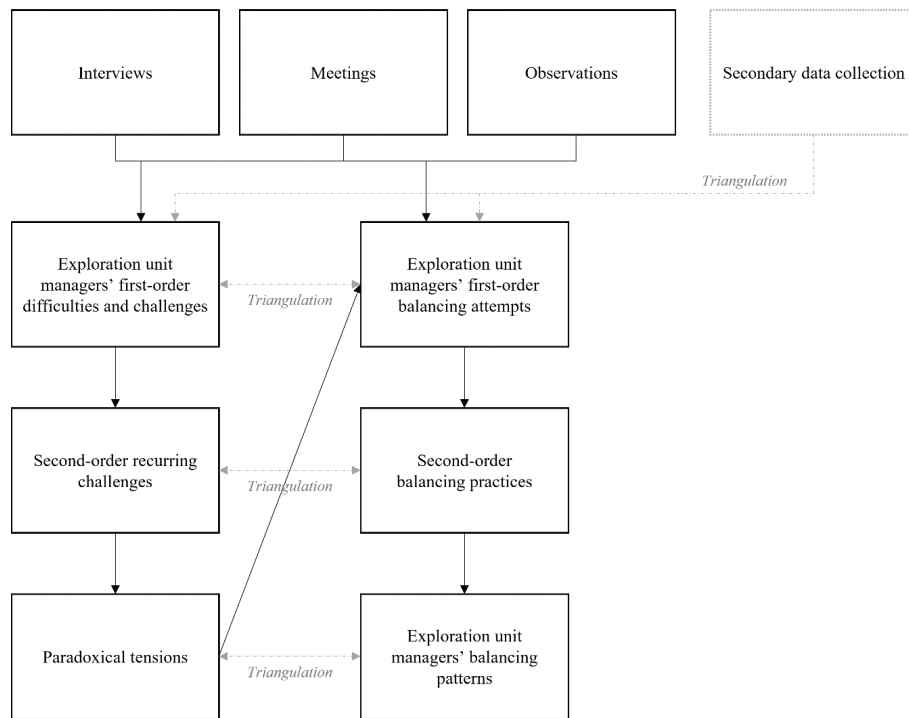


Figure 2. Data analysis process.
Source: Own elaboration.

adhere scrupulously to their vocabulary and guidelines, even if we respected their basic principles. In order to analyze the data, we followed an iterative process of sequential coding for theory development and analysis in six stages (Figure 2).

First, we transcribed the data and developed an overall schematic representation of what was happening in each exploration unit over time (Yin, 2018). We wrote separate chronological case reports of each unit, and then, we progressively focused our scope on material related to difficulties and challenges that exploration unit managers encountered, and how they were addressing them. In doing so, we extracted relevant verbatim from interviews and relevant passages from meetings and identified materials related to tensions in our observations. Second, we coded this raw material into first-order codes, staying as close as possible to the data as it was collected. Third, we refined our coding and constructed second-order categories of competing demands and balancing practices. Fourth, we identified the aggregate dimensions that were emerging through contradictory demands, and we identified two paradoxical tensions. Fifth, we identified four overarching balancing patterns that stemmed from distinct combinations of balancing practices. Finally, in a sixth step, we compared the cases, looking for similarities and differences. In a creative process (Eisenhardt, 2021), using figures, tables, and other devices designed to

support our analysis, we iterated among the four cases, comparing projects, teams, executive demands as well as exploration unit managers' activities until we reached a coherent framework. In the process, we identified a recurring temporal sequence across the cases, consisting of four phases of unit development in which unit managers faced similar challenges. We returned to the literature (e.g., Jansen et al., 2012; Raisch & Tushman, 2016) to see if these four phases had been previously identified in studies of exploration activities. As we have seen that this was the case, this gave us confidence in using a temporal sequence to analyze the data: initiation, ideation, experimentation, and transfer. We provide an overview of the structure of these findings in Figure 3.

Findings

We organize our findings in four sections. First, we present an overview of the four cases studied that we bracket into four phases. Second, we present the two paradoxical tensions that exploration unit managers encountered. Third, we present the practices they adopted to face these tensions. Finally, we present the four overarching balancing patterns adopted by the exploration unit managers, and we discuss their consequences at the level of the firm. An overview of how these subsections are related one to another is presented in Figure 3.

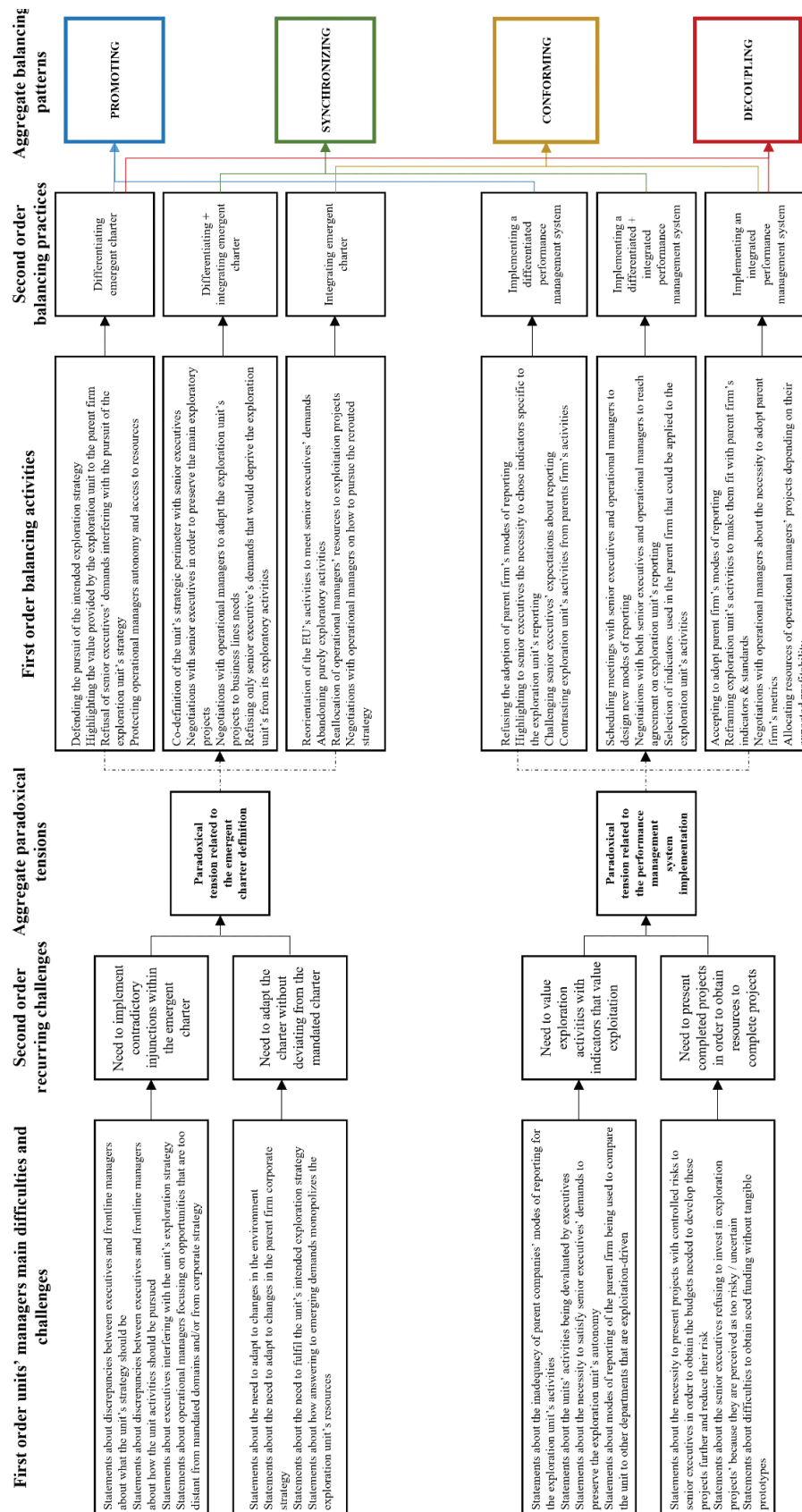


Figure 3. Structure of the findings.
Source: Own elaboration.

Exploration activities within the four units over time

We use the temporal sequence of four phases of initiation, ideation, experimentation, and transfer presented in the data analysis section to organize the narrative of activities within the units. Specific information on each case, as well as details of the exploration activities undertaken, can be found in Appendices 1 to 4.

The first phase of 'initiation' marked the establishment of the exploration units and covered the first few months devoted to team formation, infrastructure development, and the identification of the first set of opportunities. During this period, while the reporting hierarchy for unit managers was clearly defined, the specific reporting methodologies and evaluation metrics were not. This phase lasted between 3 and 6 months, depending on the case, and transitioned into the next phase when the unit managers presented these first identified domains of opportunities to senior management for selection and further exploration.

In the subsequent 'ideation' phase, the exploration units delved deeper into the opportunities identified earlier, focusing on the exploration of new technologies, products, and business models. This phase lasted 6–12 months and was concluded when certain opportunities that were considered promising required a greater allocation of resources and commitment to reduce uncertainties around technology, use cases, and markets through the development of prototypes for more rigorous testing.

This was followed by the third phase of 'experimentation', where unit managers had to raise additional resources, explore new ecosystems, and build partnerships to further develop, test, and realize the identified opportunities through proofs of concept or prototypes. This phase was crucial in confirming or refuting initial assumptions and ultimately validating some of the opportunities, and led to challenges in obtaining sufficient resources: two units did not go beyond the experimentation phase. The first was closed (EXPLORCONST), while the second was redirected by removing its exploratory ambition (EXPLORESTAT): overall, they can be considered as failures with respect to their initial mission of identifying and incubating exploration opportunities for the parent company.

Finally, the successful validation of opportunities from the experimentation phase ushers in a fourth, 'transfer' phase. Here, an executive decision had to be made as to whether to invest significant resources from the parent company in developing the opportunity. Opportunities validated at this stage could be developed within an existing business unit, spun off into a new entity, or put on hold, depending on strategic considerations. During this phase, one exploration unit (EXPLORAERO) was able to test projects with the help of existing business units and transfer some of them to the parent company's operations: it can be considered a success with respect to its initial mission of

supporting the ambidexterity of the parent company by identifying new opportunities. For the last unit (EXPLORINDUS), the conclusion is more nuanced: this unit managed to overcome the experimentation phase and validated some exploration projects, but they were perceived as very distant from the core business and too differentiated. As a result, they could not be transferred to the parent company: only one of them was developed in a business unit created specifically for this purpose, while the others were put on hold or spun off.

Paradoxical tensions encountered by the exploration unit managers

Inductive analysis of our data revealed that exploration unit managers face two specific paradoxical tensions: the first regarding the definition of the emergent charter and the other regarding the implementation of a performance management system. These tensions were paradoxical because they were rooted in contradictory, persistent, and self-referential demands (Smith, 2014). Specifically, at the level of exploration unit managers, these tensions implied the (1) necessity to implement contradictory injunctions in the emergent charter, (2) necessity to adapt the charter to new demands while ensuring not to deviate from the mandated charter, (3) necessity to value the exploration activities with exploitation-oriented indicators, (4) necessity to present completed projects in order to obtain the budgets needed to develop exploration projects.

Paradoxical tension related to the emergent charter definition

A charter is defined by Galunic and Eisenhardt (1996, p. 256) as the elements of the business in which an organizational unit participates and for which it is responsible within the enterprise. As Birkinshaw and Lingblad (2005, p. 676) note, the charter can be understood in purely technical terms as a definition of the technologies, products, or services that the unit is focused on, but it also has an important institutional component. This is because the charter is socially constructed as a shared understanding of the organizational domain that the unit has staked out for itself. As a result, these authors note that in a stable environment, charters generate little discussion, but that in more changing environments, charter definitions are highly contested because they shape the types of opportunities that an organizational unit is entitled to pursue. Thus, the way individual organizational units define and communicate their charters to others becomes a critical factor in the overall structuring of the organization.

In our context, an exploration charter is the unit's 'statement of purpose' (Galunic & Eisenhardt, 2001, p. 1230), specifying that the unit will be dedicated solely to exploration. Zimmermann

Table 3. Paradoxical tension related to the emergent charter definition

Recurring challenge	Representative verbatim
Need to implement contradictory injunctions within the emergent charter	<p>On the one hand, top managers think exploration is cute, but what they really want to know is 'Do your projects make sense within INDUS' broader corporate strategy?' and 'Are you sure that there is no risk of your projects cannibalizing value from our existing products?' ... And on the other hand, project managers are focused on the last geeky trend they found for their project, and don't really care if it's an area we're mandated to explore or not, and if it makes sense at the corporate level or not. [...] Actually, sure, I would give my right arm to be ambidextrous [laughs], but am I the one responsible for orchestrating this whole mess?! (EXPLORINDUS manager)</p> <p>With CxOs, on the one hand I have to make sure they are happy with what we are doing in order to secure funding in the future, but at the same time I sometimes have to say 'no' to them if they have unrealistic expectations or if they try to micromanage us... I have to make sure that all stakeholders share a kind of common vision of who we are, while it is impossible to prevent someone on the front line and a top manager from developing competing views of what our unit can bring to their respective tables [...]. It's supposed to be an ambidextrous position, but to me it becomes pure schizophrenia. (EXPLORAERO manager)</p>
Need to adapt the charter without deviating from the mandated charter	<p>In the beginning, the very reason our unit was created was to be different [from other departments that were focused on exploitation] [...] But it's not so easy to be the company's lone wolf ... top managers tend to forget why we created the unit in the first place. [...] The problem is that their random demands, well, they often run counter to what we were mandated to do in the first place, so I have to satisfy them while also making sure we deliver as planned. I have to change while making sure I stay the same [laughs]. (EXPLORCONST manager)</p> <p>There is often a mismatch between what the unit was originally mandated to do and the various demands from the board that they give us. [...] And actually it's more than a mismatch, sometimes it's really a contradiction ... [...] Our mission actually involves a lot of work ... methodical and meticulous work ... we are confident that this is the right way to go. But demands from the board ... well, they often come more from 'gut feelings' or intuition, and to be honest, it's a pain in the ass for me to deal with ... [...] And it's not like I can say no to these guys, they're my bosses ... even if they ask us to explore something that's purely antagonistic to what we were originally supposed to be doing. (EXPLORESTAT manager)</p>

Source: Own elaboration.

et al. (2015) shed light on two distinct dimensions of the charter definition process. A *mandated charter* is defined at launch and corresponds to the agreement on the activities and responsibilities of the organizational unit. However, over time, in order to adapt to change and stakeholders' demands, the mandated charter is complemented with an alternative *emergent charter*. While all units began with similar mandated charters focused on exploration, unit managers faced paradoxical tensions related to the emergent charters' definition at two levels. Representative verbatim are presented in Table 3.

First, unit managers had to implement contradictory injunctions in the emergent charter: The demands of top managers were often antagonistic to the concerns of frontline teams, which created situations of double bind for unit managers, who had to find ways to satisfy both simultaneously (Taylor & Helfat, 2009).

Second, unit managers had to adapt the emergent charter to changes and demands while ensuring not to divert from the mandated charter so that the activities pursued in the unit remained coherent with the strategy formulated at launch (Zimmermann et al., 2015).

Paradoxical tension related to the performance management system implementation

A performance management system allows an organization to assess how it is progressing toward its goals, identify its

strengths and weaknesses, and adjust its future initiatives with the overall goal of improvement (Amaratunga & Baldry, 2002; Otley, 1999). The performance management system includes both the modes of reporting and the expectations of the reviewers (Gibson & Birkinshaw, 2004). Although the exploration units are differentiated and separated from the rest of the company, they are organizational units that still have to report to the top management (Zimmermann et al., 2018). Since the performance management system of the exploration units was not anticipated and not detailed enough at the beginning, the top management gradually imported indicators and modes of governance found in the rest of the firm, which did not correspond to the specificities of the exploration activities carried out in the exploration units. All units started with similar, underspecified performance management systems. As senior management expectations increased, and the need for more structured reporting processes grew, unit leaders faced paradoxical tensions related to the implementation of the performance management system at two levels. Representative verbatims are presented in Table 4.

First, in terms of reporting metrics and indicators, unit managers had to value the exploration activities carried out within the units with indicators imported from exploitative units. Since the performance management system of the units had not been explicitly specified during the initiation phase, not

Table 4. Paradoxical tension related to the performance management system implementation

Recurring challenge	Representative verbatim
Need to value exploration activities with indicators that value exploitation	<p>Yes, it makes sense that they [R&D department] can report what they do on classic indicators, and yes, the good thing is that everyone inside INDUS knows what an NPV [net product value] is, and we all know what it means... But [...] if I start asking my teams to report the number of projects that they will develop next year and to quantify their expected profitability ... they just don't know! Nobody knows ... or the person who knows should have my job, I guess [...]. We have to report what we are doing in terms of KPIs that are detrimental to us, and do not account for what we are doing, or the value we are bringing. (EXPLORINDUS manager)</p> <p>When we launched EXPLORAERO, we spent a lot of time with CxOs thinking about how we should design the unit, what its key features would be, and what its mission should be and how it should be articulated to corporate strategy ... but what we overlooked then, which I regret now, was anticipating the reporting of the unit. Nobody really thought this through. [...] Since we do not pursue the same activities as the rest of the firm, we are not able to adopt the same metrics and indicators... And ... is it a life-or-death situation? I don't know yet, but it's challenging, for sure: if we continue to randomly import indicators from the rest of AERO, you can be sure that we are creating the conditions for our own failure. (EXPLORAERO manager)</p>
Need to present completed projects in order to obtain resources to complete projects	<p>I can't see a satisfying way out of this situation. It's crazy ... or at least tautological. [...] We identified promising opportunities that wanted to pursue, that were right within the scope of our unit. They [senior executives] validated the opportunities. Then, with our own microscopic budgets, we worked on weekends and turned those opportunities into prototypes. They validated the prototypes... And now we are at the sage where, if we were a startup, we would be looking for money from VCs [venture capitalists], crowdfunding, or even love money, based on the prototypes and business plans. But because these opportunities are related to smart cities, they are considered strategic for CONST ... so we have to keep everything internal. So that means we need internal funding to take our projects to the next level. But they [senior executives] want to see the return on investment, the net product value of each project, to make sure it is worth investing in! (EXPLORCONST manager)</p> <p>I feel like I am constantly failing to explain what a seed investment is, that in order to turn opportunities into tangible proofs of concept, we need financial investment, while everyone in our top management thinks that it should be the other way around, and that ESTAT should only invest in projects that are sufficiently developed and precise that there is minimal risk and uncertainty. (EXPLORESTAT manager)</p>

Source: Own elaboration.

knowing which metrics to use to evaluate exploration activities (which, by definition, are unknown within the company), the default choice of senior executives was often to use the metrics used elsewhere in the company, which were exploitation metrics. As a result, senior managers had unrealistic expectations in terms of the labs' contribution, the benefit/risk ratio, the timeframe for project development, the methods to be used, and the indicators to be employed. This, in turn, devalued exploration activities by making them appear inefficient, too long, too uncertain, and unprofitable, rather than valuing them (Maniak et al., 2014).

Second unit managers regularly encountered difficulties related to funding of exploration projects. They had to present completed projects with controlled risks to senior executives in order to obtain the budgets needed to develop these projects further and reduce their risk. It created tautological situations in which, in order to move from the ideation phase to the experimentation phase, and from the experimentation phase to the transfer phase, it was necessary to obtain investment decisions from senior management. However, senior managers themselves made this funding conditional on seeing detailed and reassuring outcomes of these exploratory projects.

Exploration units managers' balancing practices

Based on the analysis of the data (cf. Figure 3), we have identified, for each paradoxical tension described in the previous section, the balancing practices adopted by the exploration unit managers to address them. Representative examples of the balancing practices are presented in Table 5.

Facing the paradoxical tension related to the emergent charter definition

In order to manage the paradoxical tensions related to the emergent charter definition, exploration unit managers have adopted three different approaches:

Differentiating the emergent charter: Exploration unit managers who have adopted this approach have refused to comply with demands from senior management that risk distracting the exploration unit from pursuing the mandated exploration strategy. To do this, the unit manager ensures that the exploration unit's resources remain allocated to the pursuit of the mandated exploration charter, while emphasizing the potential value that the exploration unit can bring to the parent company.

Table 5. Exploration units' managers' balancing practices

Paradoxical tension faced	Balancing practice	Representative example
Facing the paradoxical tension related to the emergent charter definition	Differentiating the emergent charter	INDUS executives called for an evolution of the unit's scope: 'to explore only digital-related areas that will most benefit existing business units and to avoid overlap with the strategy department.' During the subsequent review committee, the exploration unit manager rejected this request, arguing that 'all the non-financial benefits generated by the unit, such as the knowledge gained about new societal trends or the insertion of INDUS into the start-up ecosystem, would be lost if the scope was limited to digital.' (EXPLORINDUS manager)
	Integrating the emergent charter	During the presentation of the new corporate strategy to journalists, ESTAT's CEO stated that robotics were no longer considered strategic for the company. Later that week, EXPLORESTAT's manager asked a project manager who was exploring an opportunity involving robots to either abandon the project or leave the exploration unit and develop the project externally.
	Differentiating and integrating the emergent charter	EXPLORAERO's exploration unit manager asked two of the unit's employees to develop an internal 'customer-oriented posture' of EXPLORAERO towards the rest of the company, in order to anticipate what the unit could do to help the business units explore opportunities. They became the points of contact for the business units within the unit, dedicated to ensuring that the unit's projects fit within the broader corporate strategy.
Facing the paradoxical tension related to the performance management system implementation	Implementing a differentiated performance management system	During a visit to EXPLORINDUS, senior executives mentioned their intention to formalize the exploration unit's reporting based on the current indicators used of the R&D department. The exploration unit manager scheduled a meeting with senior executives and presented examples of reporting modes used by start-up boards and venture capital funds to evaluate start-ups, explaining that 'it would be a mistake to use indicators dedicated to incremental innovation management for radical innovation management.' (EXPLORINDUS manager)
	Implementing an integrated performance management system	At ESTAT, the exploration unit manager abandoned an innovative app project that would have automatically adjusted the heating in shopping malls based on real-time analysis of weather data, because 'such a project would take several years to be financially viable, and here at ESTAT, you have to be profitable within three years.' (EXPLORESTAT manager)
	Implementing a differentiated and integrated performance management system	EXPLORAERO managers invited senior executives to a workshop to formalize the exploration unit's 'reporting guidelines' by jointly developing answers to questions such as how to measure the exploration unit's knowledge acquisition, how to present the knowledge acquired to the AERO business units, and how to assess the maturity of exploration projects and their fit with the corporate strategy.

Source: Own elaboration.

Integrating the emergent charter. Exploration unit managers using this approach have modified the unit's charter to meet emerging executive demands and imposed these decisions on frontline teams. To do this, the unit manager reduces the unit's autonomy and reallocates its resources to ensure that its activities are consistent with the priorities and demands of senior management.

Differentiating and integrating the emergent charter. Exploration unit managers using this approach have maintained the differentiation of the exploration unit's charter while ensuring that it remains aligned with the company's strategy. To do this, they made minor reallocations of exploration unit resources and activities to carry out activities related to the company's strategy. They accepted some of the most pressing demands of senior management and used these concessions to negotiate the rejection of other demands that threatened to interfere more deeply with the exploration unit's pursuit of its intended exploration strategy.

Facing the paradoxical tension related to the performance management system implementation

In order to manage the paradoxical tensions related to the implementation of a performance management system, exploration unit managers have adopted three different approaches:

Implementing a differentiated performance management system. Exploration unit managers who have adopted this approach have intensively lobbied senior executives to avoid reporting their exploration activities using the current company's reporting methods. To do this, the unit managers repeatedly pointed out to senior managers the gaps between the principles underlying the parent company's reporting modes and those required to evaluate the exploration strategy intended by the unit, emphasizing the need to design indicators suitable for evaluating exploration activities; or refusing to adopt indicators used in the parent company.

Implementing an integrated performance management system. Exploration unit managers using this approach have adopted the parent company's performance management system to

Table 6. Overview of the four cases

PHASES		EXPLORCONST	EXPLORESTAT	EXPLORINDUS	EXPLORAERO
INITIATION	Mandated charter	Differentiated mandated charter	Differentiated mandated charter	Differentiated mandated charter	Differentiated mandated charter
	Performance management system	Not implemented yet	Not implemented yet	Not implemented yet	Not implemented yet
IDEATION	Emergent charter definition	Differentiated	Integrated	Differentiated	Differentiated
	Performance management system implementation	Integrated	Integrated	Differentiated	Differentiated
	Unit manager balancing pattern	Decoupling	Conforming	Promoting	Promoting
EXPERIMENTATION	Emergent charter definition	/	Integrated	Differentiated	Differentiated + integrated
	Performance management system implementation	/	Integrated	Differentiated	Differentiated + integrated
	Unit manager balancing pattern	/	Conforming	Promoting	Synchronizing
TRANSFER	Emergent charter definition	/	/	Differentiated	Differentiated + integrated
	Performance management system implementation	/	/	Differentiated	Differentiated + integrated
	Unit manager balancing pattern	/	/	Promoting	Synchronizing
MAIN RESULTS FOR THE PARENT FIRM		Closed during the experimentation phase, no exploration projects were transferred	Charter rerouted during the experimentation phase, no exploration projects were transferred	New independent business unit (i.e., digital and inclusive), other projects were spun off and abandoned	Several projects transferred to existing business units

Source: Own elaboration.

evaluate their activities, even if these metrics are not appropriate for exploration activities. To do this, exploration unit managers prioritize compliance with the parent company's mode of governance over the exploratory dimension of the unit's activities.

Implementing a differentiated and integrated performance management system. Exploration unit managers using this approach have co-designed a performance management system that is specific to the exploration unit but remains relevant to the parent company's global reporting system. To do this, they involved top managers and operational managers in a process of co-constructing ad hoc modes of reporting indicators appropriate for exploration activities.

Balancing patterns adopted by exploration unit managers over time

Based on the approaches adopted by the exploration unit managers, we were able to delineate four distinct patterns

corresponding to specific combinations of approaches to each paradoxical tension that were adopted over time: decoupling, conforming, promoting, and synchronizing. Table 6 summarizes which patterns were adopted in each phase for each case. We present and discuss these findings in the following section.

Decoupling

The *decoupling* pattern corresponds to exploration unit managers differentiating the emerging charter while implementing an integrated performance management system.

At EXPLORCONST, for example, the unit manager maintained the differentiation of the emergent charter by conducting pure exploration activities, without challenging the reporting requirements of senior executives, which therefore remained unchanged. Decoupling resulted in recurring poor evaluations of the unit's performance, leading to progressively

growing tensions. This continuous stance of 'breath-holding' adopted by EXPLORCONST manager led to increasing gaps between the differentiated emergent charter and the implementation of an integrated performance management system, which impeded the pursuit of the exploration mission and eventually ended in the closure of EXPLORCONST without any projects incubated nor transferred.

The decoupling pattern does not directly address emerging paradoxical tensions and corresponds to an attempt to gain time, by accepting the demands of management without question, until exploration projects have reached a sufficiently advanced stage to make it possible to obtain the resources to develop them further.

Conforming

The *conforming* pattern corresponds to the exploration unit manager's gradual integration of the emergent charter and their implementation of an integrated performance management system.

At EXPLORESTAT, for example, when the pressure on the unit increased after a quarter of relative autonomy, its manager progressively integrated the charter, focusing on a reduced scope of collaborative tools (whereas the mandated charter was to explore broader opportunities). Over time, the scope of the opportunities was further reduced by senior executives who intervened in the specifications of the collaborative tool developed in the unit, and pushed for more and more integration of both the unit's emergent charter and its performance management system. Through conforming, EXPLORESTAT manager sought to gain the approval of the senior executives by complying with their demands, even when they conflicted with the mandated exploration charter, which was then in jeopardy. While conforming has been efficient to reduce tensions during the ideation phase, over time, it led during subsequent phases to a gradual deprivation of the unit's exploratory ambitions. Eventually, the original mission of exploring digital opportunities was abandoned to focus on spreading an internal culture of innovation.

The conforming pattern addresses paradoxical tensions through favoring integration, which seem to be effective on the short-term. However, it has the undesirable long-term effect of progressively reducing the differentiated charter of the exploration unit, leading to the primacy of integration and thus to the progressive suppression of exploratory activities during later stages of exploration.

Promoting

The *promoting* pattern corresponds to the exploration unit manager's maintaining a differentiated emergent charter and implementing a differentiated performance management system.

At EXPLORINDUS, for example, the unit manager made considerable efforts to secure differentiated charters for the unit, even when senior executives called for greater integration, to ensure that the unit would receive the necessary support and resources to carry out exploration activities. Promoting proved effective in managing tensions during the ideation phase in securing the units' exploration ambitions, but more challenging during the experimentation and transfer phases. Indeed, while the potential of the opportunities identified in the ideation phase was validated, only two opportunities were internally developed further in dedicated business units, as validated opportunities were considered too distant from the parent company's core business to be reintegrated. These projects were then spun off and developed outside the company by intrapreneurs, or put on hold.

The promoting pattern addresses paradoxical tensions through favoring differentiation, which seem to be effective on the short-term. However, it implied important efforts from the unit manager to 'evangelize' senior executives about specific value creation modes, as well as sometimes open conflict (e.g., challenging senior executives' demands that conflict with the pursuit of the unit's mandated exploration charter). Promoting has the undesirable long-term effect of progressively reducing the integration of the exploration unit within the parent firm, leading to explorations that can be difficult to transfer to existing businesses during the last stages of exploration.

Synchronizing

The *synchronizing* pattern corresponds to the exploration unit manager's both differentiating and integrating the emergent charter, and implementing a performance management system that is both differentiated and integrated.

At EXPLORAERO, for example, during the experimentation and transfer phases, the unit manager tried to create a collective agreement about the exploration unit's emergent charter (for example by asking two of the unit's employees to become the points of contact for the business units within EXPLORAERO, dedicated to ensuring that the unit's projects fit within the broader corporate strategy) and its performance management system (for example by inviting AERO's senior executives to a workshop to codesign the exploration unit's 'reporting guidelines') in order to strike a delicate balance between differentiation and integration. Synchronizing implied collaborations and negotiations with both senior executives and operational employees in order to ensure that the exploration unit's charter kept its intended exploratory dimension, without disconnecting it from corporate priorities and reporting processes. While synchronizing seems to be impossible to adopt during early phases, it appeared that *synchronizing* during the transfer phase

facilitated the contribution of the exploration units to their parent firms' corporate-level ambidexterity, as the projects developed within EXPLORAERO where the ones which were the easiest to integrate within existing businesses of AERO, without losing their exploratory ambition.

The synchronizing pattern addresses paradoxical tensions through both differentiation and integration, which appear to be effective in the long-run in transferring exploration to existing businesses. However, this pattern implies that exploration unit managers can adopt opposing practices of differentiation and integration simultaneously, which implies that competing demands of differentiation and integration are maintained over time.

Discussion

To pursue organizational ambidexterity, many established firms have dedicated internal units specifically to exploration (Tushman et al., 2010). However, the results of these units have been questioned: they either fail to identify opportunities or get stuck in exploration cycles (e.g., Es-Sajjade et al., 2021; Schiuma & Santarsiero, 2023) or they struggle to transfer the identified opportunities to scale (Buvat et al., 2018). According to previous research, a key explanation for these disappointing results has been the competing demands for integration and differentiation that these units face (Raisch & Tushman, 2016). However, our understanding of how these demands are managed and experienced by exploration unit managers remained scarce. To address some of this gap, we drew on the paradox literature to answer the following research question: *What challenges do exploration units managers face in the competing demands of differentiation and integration over time? How do they address these challenges? What are the implications for the unit's ability to execute its mandated exploration strategy?* Our contributions are detailed in the subsequent section, structured as follows:

In the first part of the discussion, we draw on the literature on paradoxes to examine the balancing patterns that exploration unit managers adopt in response to paradoxical tensions, and we discuss the influence of each balancing pattern on the units' ability to explore new knowledge. Second, our results suggest that despite its effectiveness in managing paradoxical tensions, the continued use of the synchronizing balancing pattern may impose psychological costs on exploration unit managers during the pursuit of organizational ambidexterity: we discuss these elements in the second part of our discussion. In the third part of our discussion, we will examine the agency of exploration unit managers on the outcomes of exploration activities and, consequently, on the realization of structural ambidexterity of the parent firm. Finally, the fourth section will shed light on managerial implications, limitations, and avenues for future research.

Balancing patterns and paradoxes

First, we intend here to discuss the four balancing patterns (decoupling, conforming, promoting, and synchronizing) in relation to paradox literature (Figure 4).

We argue that the tensions faced by exploration unit managers are paradoxical because they are persistent and result from contradictory self-referential demands (Smith, 2014), as they imply (1) implementing contradictory injunctions within the emergent charter, (2) adapting the charter to new demands while ensuring that it does not deviate from the mandated charter, (3) evaluating exploration activities with exploitation-oriented indicators, and (4) presenting completed projects to obtain the budgets needed to develop exploration projects. They are also nested in the sense that they were invisible in the early stages of the life of the exploration units, but then gradually manifested themselves in each of the cases we studied. The tensions that we identified do not arise directly from the simultaneity of exploration and exploitation, but rather from the competing demands of differentiation and integration, very early in the exploration unit lifecycle.

The balancing patterns presented in the findings contribute to the vivid debates in this literature about what types of responses should be adopted by individuals when facing paradoxical tensions: (1) both-and versus either-or responses (Smith, 2014), (2) active approaches (accepting and working within the paradox) versus defensive approaches (avoiding the paradox) (Jarzabkowski et al., 2013), and (3) mindsets for navigating strategic paradoxes such as avoiding (either-or mindset with low tensions), resolving (either-or mindset with high tensions), anticipating (both-and mindset with low tensions), and engaging (both-and mindset with high tensions) (Lewis & Smith, 2022). We bring new elements to the discussion by considering the stage of the exploration unit lifecycle (initiation, ideation, experimentation, and transfer) in which paradoxical tensions are faced and in which balancing patterns are adopted.

The *decoupling* pattern corresponds to the adoption of an 'avoiding' mindset. This pattern may be temporarily viable in the very early stages of the exploration unit lifecycle when experienced tensions are low (e.g., when the charter has just been mandated, senior management pressure for results is low, and performance measurement issues have not yet been raised), but quickly becomes counterproductive as tensions gradually increase during the experimentation phase (e.g., when unit managers try to maintain a differentiated charter while facing demands for more integration).

Conforming is a defensive response, which involves a 'resolving' mindset. It is effective to reduce paradoxical tensions during early phases when the tensions experienced are significant, as it aligns the emergent charter with the performance

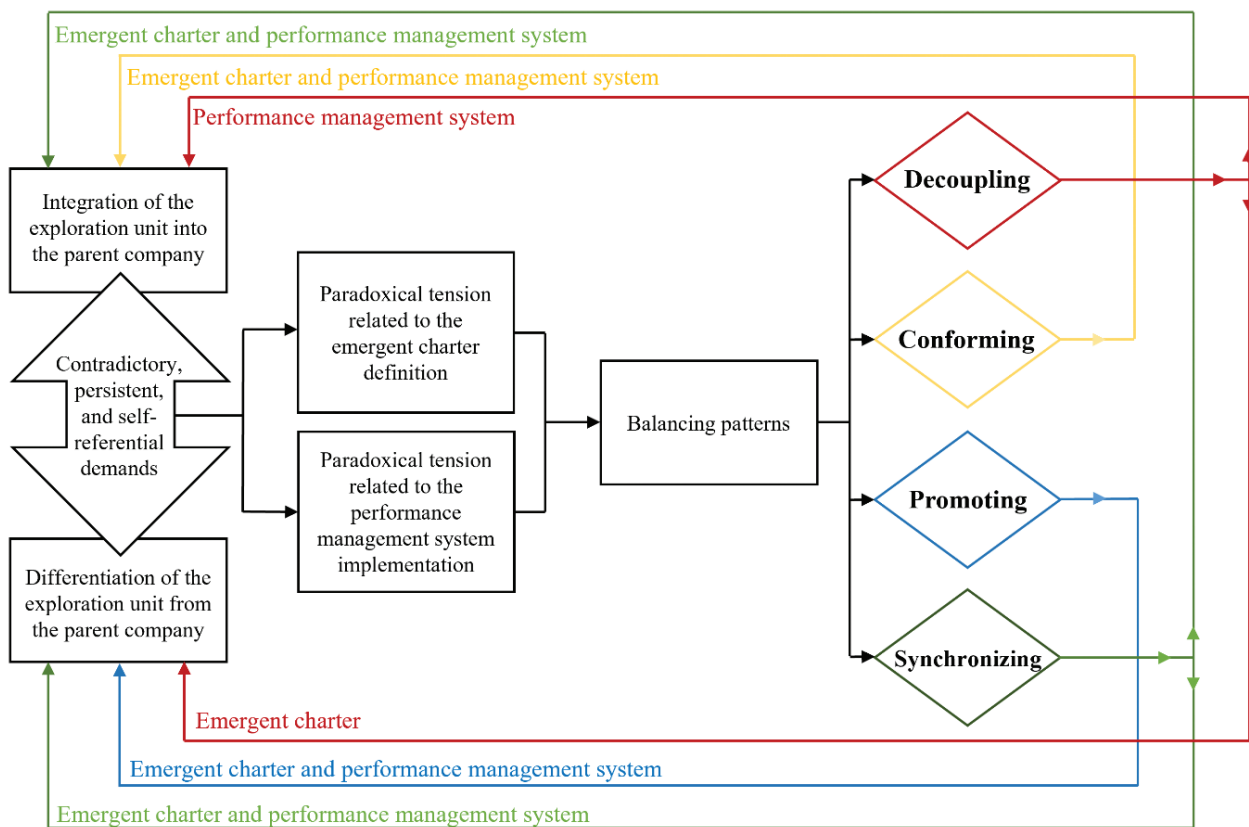


Figure 4. Overview of the balancing patterns.
Source: Own elaboration.

management system, in an integrated way. However, the long-term viability of this approach is less certain.

Promoting is also a defensive response, which involves a ‘resolving’. The promoting pattern, which emphasizes differentiation, is more effective than conforming in maintaining enough differentiation to keep the exploratory activities pursued by the mandated charter. This pattern is the one that favors the highest level of exploration ambition within exploration units, which directly corresponds to their mandated charter. However, promoting is difficult to sustain over time because it requires the resolution of recurring conflicts with senior managers and impedes leveraging existing resources. In addition, the subsequent transfer of validated opportunities to existing businesses is difficult due to a lack of integration. This resulted in our observations in only one possible internal scaling mode for validated opportunities: new independent units.

Finally, a *synchronizing* pattern involves a both-and response and an ‘engaging’ mindset. This active approach is characterized by the simultaneous maintenance of high levels of differentiation and integration. It seems to be the most effective in terms of achieving exploration activities that could lead to effective

renewal of the parent company and ambidexterity at the corporate level, since synchronization favors the reintegration of exploration projects within existing business units, at the cost of recurring negotiations of the exploration ambitions between unit managers and senior executives.

Surprisingly, we did not observe a balancing pattern involving an ‘anticipating’ mindset (Lewis & Smith, 2022), which is characterized by a both-and mindset and is appropriate for situations with low experienced tensions. This mindset might be the best way to avoid the manager having to buffer competing demands. This mindset would likely be appropriate during the design phases of definition of the differentiated unit’s mandated charter and of its performance management system, to avoid the tensions we observed. To the extent that we were able to observe a shift from a promoting pattern (characterized by a resolving mindset) to a synchronizing pattern (characterized by an engaging mindset), it is plausible that it is then possible to move to an anticipating mindset in situations where tensions are lower. These evolutions between paradoxical mindsets have not yet been documented and represent interesting avenues for future research.

Giving one's right arm to be ambidextrous

In this subsection, we suggest that both-and approaches described as optimal in the paradox literature are also likely to pose problems for individuals who adopt them on a sustained basis in the pursuit of organizational ambidexterity. More specifically, regarding the pattern of synchronizing, which seems to be the most effective in terms of conducting explorations that can be eventually transferred to the parent firm, it implies that exploration unit managers themselves become the buffer that enables the unit to be simultaneously differentiated and integrated.

Moreover, facing paradoxical injunctions during extended periods of time has been extensively described in existing research as a major source of stress, psychosocial risks, and disempowerment (Berti & Simpson, 2021), which resonates with some comments of the exploration unit managers that we followed over the study, such as 'It's supposed to be an ambidextrous position, but to me it becomes pure schizophrenia'; 'it's not so easy to be the company's lone wolf'; 'is it a life-or-death situation? I don't know yet, but it's challenging, for sure'; 'I can't see a satisfying way out of this situation'; 'I feel like I am constantly failing'. These potentially negative consequences of paradox facing at the individual level have begun to be explored within paradox research (Cunha & Putnam, 2019; Gaim et al., 2021) and represent important avenues for future research.

Finally, as noted in previous research (Es-Sajjade et al., 2021; Garcias et al., 2015; Knight & Paroutis, 2017), the paradoxical tensions associated with the pursuit of ambidexterity always seem to resurface somewhere in the organization: the organizational solution of dedicating internal units to research is no exception. In our cases, the paradoxical tensions resurface at the level of the unit managers. In fact, from a critical perspective on paradoxes (Gaim et al., 2021), one might even wonder if dedicating a unit to exploration does not primarily allow top managers to delegate the uncomfortable stance associated with adopting a paradoxical mindset to lower-level managers. After all, it is the unit managers who have to make the big leap forward to maintain the coupling between integration and differentiation that guarantees the company's ability to combine exploration and exploitation.

Agency of exploration unit managers

Our research demonstrates the agency of exploration unit managers on the success of their units (i.e., identifying and validating new opportunities that could be transferred and scaled) and therefore on the effective contribution of their units to ambidexterity at the corporate level. Indeed, while the literature has well documented how ambidexterity at the firm level depends on differentiation between units and integration by top managers, we have noted the important, but

overlooked, contribution of exploration unit managers in this process who manage paradoxical tensions. Our findings contribute to the development of a more integrative and systemic understanding of the locus of organizational ambidexterity, and how it is pursued in practice (Zimmermann et al., 2018).

We provide an alternative perspective regarding the achievement of ambidexterity compared to the perspectives outlined by Raisch and Tushman (2016). These authors showed that the initial peer differentiation and parent integration required for exploration are necessary conditions for the subsequent peer integration and parent differentiation required for exploitation. While they conclude that exploration units are better suited for scaling certain types of opportunities than others that are too far removed from the existing business (or because they require entirely different resources), we provide an alternative explanation that focuses on the competing demands faced by managers. We complement these studies, as we unpack specific paradoxical tensions and social processes that underlie the pursuit of exploration activities prior to the transfer and exploitation of identified and validated opportunities. We demonstrate that unit managers play an important role from the initiation of the exploration unit and long before graduation, during the ideation and experimentation phases. Our work highlights the evolution of the competing demands of differentiation and integration and, in doing so, complements the work of Taylor and Helfat (2009) on unit managers by examining the tensions experienced by these actors.

Managerial insights, limits, and avenues for future research

This research has implications for practitioners, as we provide insights about an innovative organizational design that has recently gained popularity but has produced mixed results: dedicating internal units to exploration, also referred to as corporate innovation labs, firm-driven labs, exploration units, corporate venture units, or labs (e.g., Blindenbach-Driessen & van den Ende, 2014). This organizational design faces challenges in achieving the expected innovation performance, as many firms fail to generate opportunities or to develop new business from opportunities identified (Buvat et al., 2018), that the lack of empirical studies focused on understanding their management had not allowed to overcome. In this research, we suggest that in order to fulfill the intended exploration strategy of a dedicated internal unit, exploration-oriented activities need to be constantly realigned, integrated, and legitimized at multiple levels, especially regarding senior executives. Our findings provide guidance on how to anticipate the paradoxical tensions that are likely to emerge.

In terms of the emerging charter, our results show that it is crucial for innovation labs to defend an exploratory ambition, but one that still retains coherence with the existing business

of the parent company. Regarding the implementation of the unit's performance management system, we suggest that governance issues should be anticipated, discussed, and negotiated between unit managers and top managers during the initiation phase, and not improvised over time. Seeking the help of external consultants prior to the unit's implementation could also help to avoid the mismatch between expectations and results that we observed in all cases. In the following phases, it seems necessary for unit managers to negotiate expectations so that top management knows what the unit is doing and what to expect. Conversely, top managers should warn unit managers in advance of the elements that will eventually be expected of them, so that they can anticipate and direct their explorations in that direction. Otherwise, the gradual implementation of conflicting demands related to unit reporting is likely to hamper exploration activities over time.

However, additional work is needed to further substantiate and enrich our findings and conclusions. Our focus on the level of unit managers needs to be pursued to gain additional insights into how individual-level factors socially aggregate into dynamic organizational capabilities that lead to long-term firm performance and strategic renewal. In the future, we hope to further cultivate the emergent patterns we develop in this article, and that our study will attract more researchers to study the fascinating position of exploration unit managers. While we have identified various patterns, we have not observed situations of low tension coupled with both-and approaches, referred to as anticipating mindsets (Lewis & Smith, 2022). Another avenue of research on the patterns may be to apply a process approach to other cases, which could help us to study in more detail how unit managers move from one pattern to another; for example by focusing only on how to manage one of the two paradoxical tensions encountered. This research is not without limitations, however.

First, we have not detailed the horizontal relationships between managers of exploration units and managers of external units. In fact, partnering with other firms may help pursue exploration effectively, for example, by leveraging some scarce resources or through open innovation strategies. The exploration unit manager may play a critical role in fostering these interactions by embedding the unit in an ecosystem that is new to the firm. This perspective should be explored in future research.

Second, for the sake of methodological coherence, we focused this research on large and established European firms that have launched exploration units to initiate an ambidextrous organizational design: our findings may resonate with other similar contexts that may merit further investigation. Indeed, we examined the role of exploration unit managers in the pursuit of ambidexterity through the prism of dedicated exploration units launched by established firms. However, our results focus primarily on this specific form of organizational design. Their validity

in other organizational settings as a support for the pursuit of ambidexterity needs to be solidified through further work. In this line, focusing on small firms or NGOs may lead to different results, given the specific position of middle managers in such firms. The opposite modality, which would consist of highly exploratory firms launching units dedicated to exploitation, could also be studied to enrich our results.

Finally, another limitation is due to the specifics of qualitative case study research methodology, where contextual variables may contribute to the results. For example, there is variation in the proportion of internal versus external workforce in our four exploration units: external staff might provide more exploration to the ideation stage than previous and might encounter more difficulties and opposition throughout integration. Therefore, it would be interesting to explore how this heterogeneity may impact differentiation and integration at the level of the parent business, and subsequently the innovation performance. In the same vein, our exploration units are situated in various degrees of proximity to the main company site: being physically near might lessen the degree of exploration and ease integration afterward through formal and informal ways of communications and interactions, which would affect the tensions and hence the consequences for ambidexterity at the parent business level.

Finally, based on this research, we can assume that the synchronizing pattern should generate the most valuable contributions to ambidexterity at the firm level, but these hypotheses need to be tested with larger n research designs. The broader impact of the economical shape of the parent firms and the growth or degrowth of their respective markets and of their corporate culture have also influenced the evolution of the situations described. Future research could help to explore the outcomes of the different patterns with more confidence.

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Appendices

Appendix 1. Exploration activities within CONST

Initiation phase	CONST is a European contractor that operates globally in the construction industry. Top management launched EXPLORCONST 'to identify, design, and incubate innovative opportunities for construction and beyond' targeting mainly the domain of smart cities. The exploration unit manager had to report to a strategic committee, chaired by the R&D director, who reported himself directly to the CEO. This committee was supposed to facilitate leveraging the firm's internal resources when needed, thanks to its members' networks and influence. The exploration units' reporting modes supporting these committees were not yet specified. At launch, the team was composed of three full-time employees and three dedicated external consultants. The unit was located within CONST facilities but in a specific area with a distinct visual identity (furniture, equipment, etc.). During its first semester, EXPLORCONST explored the ecosystem of smart cities, identified start-ups operating in the areas of smart buildings and urban agriculture, and explored opportunities for new services.
Ideation phase	After almost a year of existence, the EXPLORCONST manager presented the outputs of the exploration activities to the strategic committee. He presented several opportunities related to smart cities (e.g., a digital fence for construction sites which would diminish the related nuisance, a facility management app targeting the building owners, etc.). Senior executives evaluated projects with the criteria used at CONST to support investment decisions: expected profitability, potential synergies, familiarity, technical strength... It was not possible to document these criteria considering the type of opportunities explored and their high level of novelty, uncertainty, and distance from the core business. Thus, no opportunities were selected to be incubated, and the selection process was postponed to 6 months later, until the exploration unit manager could gather more data to reassure the senior executives. While trying to meet senior executives' requests, the exploration unit manager asked his team to 'stay focused on exploration without compromising' and explained that he was hoping that 'when they [senior executives] see the results, then they will acknowledge that we were right to proceed like this'.
Experimentation phase	During the third strategic committee meeting (18 months after the launch), the exploration unit manager was still unable to meet the senior executives' expectations, since the criteria and metrics used by the strategic committee to support investment decisions were still unsatisfied. The committee once again postponed the decision to invest in developing a project and reassigned two employees of EXPLORCONST to other tasks outside the unit. Two interns were recruited to replace them. After 2 years of the unit's existence, during the fourth strategic committee meeting, the exploration unit manager was still only able to highlight intangible outcomes (e.g., knowledge developed regarding digitalization in construction and smart cities, partially functional proofs of concepts for the digital fence) without any results of experimentation or testing. The discrepancy between EXPLORCONST exploration activities and the indicators used to evaluate them made it difficult to pursue the exploration projects, which eventually led to the closure of the unit by top managers.

Source: Own elaboration.

Appendix 2. Exploration activities within ESTAT

Initiation phase	ESTAT is a major European real estate firm. Senior executives launched to scout for opportunities to develop new digital services for customers, to foster employees' collaboration, and to address potential threats from the firm's main competitor, which had recently launched its own exploration unit. The team progressively reached ten employees, mainly recruited from other departments of ESTAT. The unit manager reported to the director of the organization, who reported to the director of operations, who, in turn, reported to the CEO. The unit was not located within the company's offices, but within a neighborhood where many start-ups were located. During the first semester, the team edited newsletters on various technology trends that were sent to the rest of the company and organized presentations to the board on various digital opportunities.
Ideation phase	After a quarter of relative autonomy dedicated to the identification of various opportunities (e.g., robots that would welcome customers in shopping malls, an ambitious enterprise resource planning digital tool), the unit manager had to present them to senior executives during a management board. They refused to invest in any of the identified opportunities because they were 'non-core investments'. Three months later, during the next presentation of the identified digital opportunities (e.g., an enterprise social network project), the executives again rejected the project, emphasizing that the benefits of such digital tools were too difficult to translate into financial savings. As a result, the unit manager decided to focus on opportunities that were 'directly related to the core business and that could make sense within ESTAT's global reporting system'.
Experimentation phase	In response to the refusal of senior management to invest in the digital project, and in order to gain their acceptance, the exploration unit manager decided to launch an experiment with a low-cost and overly simplistic collaborative digital solution that soon had numerous bugs and limited features that did not meet the needs of ESTAT users. During a review of the unit, senior executives asked the unit manager to change the confidentiality feature of the collaborative tool prototype, arguing that 'it has to be a corporate tool and not some kind of Facebook'. The exploration unit manager complied with this request, but ESTAT employees rejected this new feature, thus the whole experimentation. As a result, they gradually stopped using the tool over the next 2 months, effectively ending the project. During a subsequent executive committee meeting, 15 months after the launch, senior executives asked the exploration unit manager to abandon the original mission of exploring digital opportunities and focus on spreading an internal culture of innovation.

Source: Own elaboration.

Appendix 3. Exploration activities within INDUS

Initiation phase	INDUS is a leading European industrial gas provider operating in a business-to-business context. The mission of EXPLORINDUS was to explore and analyze key societal and technological trends and to identify an opportunity for INDUS that could generate 'a billion in fifteen years'. The team progressively reached twenty-one employees, mainly recruited from inside the firm, except for specific expertise (e.g., in user experience design). Apart from its mission to explore long-term radical innovations opportunities related to societal trends, no specific arrangements were settled on regarding the exploration unit's governance, except that the unit manager would report to the R&D vice president, who himself reported to the CEO. The unit was separate from the company's R&D facilities and located in an area where many start-ups were based. The space included a fablab to provide the unit with rapid prototyping capability. During the first few months of operation, the unit manager made monthly presentations to INDUS senior executives on newly identified technological and societal trends that could be explored further. Various top managers frequently visited EXPLORINDUS and held team meetings there, even when these meetings were not related to the unit's activities.
Ideation phase	After 12 months, the unit had identified several opportunities (related to new markets, digital transformation, technologies, and fast prototyping) that were in line with the unit's mission. However, more resources were needed to develop them further, and the exploration unit manager was concerned that the exploration projects would score poorly if evaluated using the current R&D dashboard (e.g., projects' return on investment; number of patents filed per year). In addition, the reporting timeframe was too short for the identified opportunities, as they were exploring areas that were entirely new for the firm. At this point, the exploration unit manager feared that the exploration projects would be poorly assessed, and to lose part of the unit's funding. So, he presented senior executives with various benchmarks from similar exploration units to demonstrate the incompatibility between traditional R&D dashboards and exploration activities. He also put forward partnerships being established with start-ups to 'show senior executives projects that could generate revenue in the near future'.
Experimentation phase	Senior executives were reluctant to invest in the development of the unit's projects, which they viewed as too far from INDUS' corporate strategy. To overcome these difficulties, the exploration unit manager took two time-consuming actions: he recurrently emphasized all the types of value brought by the unit to INDUS (visibility, knowledge about new ecosystems, etc.), and he systematically emphasized the specifics of exploration activities to the R&D VP during review committees. In doing so, he was able to secure funding only for an experiment that was close to core business (e.g., launch of a POC for the digitization of an industrial service). For the other more ambitious exploration projects (e.g., indoor air quality control devices; protective atmosphere for food; end-of-life support with pain-relieving gases for terminally ill cancer patients), the exploration unit manager had to seek external funding, such as crowdfunding and partnerships with other companies, to launch the experiments. In the following months, satisfied with the activities of EXPLORINDUS, the executives agreed to consider the exploration unit as 'an autonomous start-up company, if and only if it could become financially autonomous in developing its own projects' (INDUS would continue to pay the salaries of the exploration unit's employees and for the facilities).
Transfer phase	The results were mixed: while the scale-up of exploratory projects was possible and considered a success within the exploration unit, these projects were considered by senior executives to be too far from the corporate strategy and could not be brought back into operations. These projects were therefore either sold to other companies (e.g., protective atmosphere for food), developed by intrapreneurs who took over and left the group (e.g., devices for indoor air quality control), or put on hold and/or abandoned (e.g., end-of-life support with pain-relieving gases for terminally ill cancer patients).

Source: Own elaboration.

Appendix 4. Exploration activities within AERO

Initiation phase	AERO is a large European company operating globally in the aeronautics industry. Senior executives launched EXPLORAERO with the mission 'to develop high value-added digital services through an agile and user-centric approach'. The unit was expected to explore new services and/or products, which could, for example, leverage the large amount of data generated by AERO's products. The exploration unit manager was also given a secondary mission: to promote a culture of digital and service innovation using new methods (user-centric design, rapid prototyping, etc.). The team gradually grew to 25 people (a mix of outsiders and members of AERO). The unit was located within the company's urban campus, but in a separate building with a strong visual identity (furniture, digital tools, prototyping facilities, creativity room, etc.). In terms of governance, the unit manager did not report to anyone individually, but to an executive committee that included the CEO and his direct reports. During the first semester, EXPLORAERO hosted a digital innovation challenge and made several presentations to the executive committee on service opportunities. During this period, EXPLORAERO was frequently mentioned by senior executives, both externally and internally, as a promising new way to accelerate innovation.
Ideation phase	Twelve months after the unit's launch, 10 opportunities for new products and services had been identified (e.g., remote engine monitoring using endoscopic technology or a predictive maintenance service based on collected data). To develop these opportunities, EXPLORAERO needed specialized resources and expertise (e.g., UX design and data analysis), as well as partnerships with lead users (airlines) that would participate in subsequent experiments. As a result, unit managers needed to leverage customer relationships cultivated by other business units in the company to learn more about the potential value to be created and the technical/feasibility issues. Conversely, despite the digital focus of the project, the exploration unit managers obtained to operate independently of AERO's IT services. With regard to the secondary mission of promoting a culture of digital services, the exploration unit manager regularly organized presentations and invited speakers on topics such as lean startup approaches, entrepreneurial management modes in the use of data according to Silicon Valley opinion leaders, or the need for EXPLORAERO to be able to pursue its mission autonomously.
Experimentation phase	Some challenges arose the exploration unit had to partner with AERO business units to experiment with the initiatives identified in the previous phase. The specifications provided by EXPLORAERO were not detailed enough and focused mainly on user needs, while the business unit managers expected technically mature specifications, as they were used to in their interactions with various other business units. As a result, the business unit managers refused to work with EXPLORAERO unless they detailed the specifications and partially adopted their methods. The unit manager agreed to update the unit's methods and go beyond the 'proof of concept' phase to facilitate interaction with other business units. However, since this evolution of the exploration unit's methods required more resources, the mission of spreading a culture of innovation within AERO would be abandoned and the people dedicated to it would be reassigned to the development of digital exploration projects. In addition, the interface between EXPLORAERO and the business units that could potentially scale the projects would be better defined, and specific reporting dashboards would be designed with top managers. The senior managers accepted the redefinition of the unit's activities and governance, agreed to invest in the development of two projects, and urged the business units to recognize the specificity of the exploration activities of the exploration unit and not to expect 'ready to industrialize' specifications. Some members who were very specialized in the mission of cultural diffusion left after the update of the unit's scope.
Transfer phase	Two years after its creation, several incubated projects (e.g., remote engine monitoring using endoscopic technology or a predictive maintenance service based on collected data) resulted in validated opportunities that could be transferred to business units, which became the basis for new services and offers of AERO.

Source: Own elaboration.