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Why do MNEs both make and coopete for innovation?

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ABSTRACT

While multinational enterprises (MNEs) possess the resources and knowledge to develop innovation projects internally with their own international subsidiaries, they sometimes prefer to develop innovation projects with their competitors. We investigate the circumstances under which MNEs prefer to "make" or "coopete" for certain specific innovation projects, which has not previously been addressed in the literature. Based on a case study of Airbus Defence and Space, we study two telecommunication satellite innovation projects (one developed internally and the other with a competitor). We show that both make and coopete strategies lead to short- and long-term benefits as well as risks. More precisely, we underscore that coopete decisions provide more short-term benefits than make decisions. By contrast, in the longer term, make decisions are more beneficial than coopete decisions. Therefore, we emphasize that for a given project, managers weight the options for and against each choice based on specific time frames, keeping in mind the necessity of both making and coopeting at the corporate level.

1. Introduction

Multinational enterprises (MNEs) benefit from a wide variety of resources and knowledge from their international subsidiaries that enable them to develop many innovations internally (Mudambi and Swift, 2011; Pitelis and Teece, 2018). Despite the quality and quantity of internal resources, MNEs sometimes prefer to collaborate with their competitors (i.e., coopetition) to develop innovation projects (Gnyawali and Park, 2011; Fernandez et al., 2018). This is a paradoxical situation, as MNEs willingly take the risks of cooperating with a competitor even when they have the resources to develop the same innovation internally (with their own subsidiaries).

In the present study, inspired by the "make, buy or ally" literature (Geyskens et al., 2006; Puranam et al., 2013; Borah and Telis, 2014; Sako et al., 2016), we address the question of why MNEs both make and coopete for innovation. We aim to understand why they rely simultaneously on the resources of their international subsidiaries (make) and those of their competitors (coopete) to innovate for the same type of project. This question is important for two main reasons. First, alliances with noncompetitors and coopetition provide different benefits and risks (Ritala, 2012; Fernandez et al., 2014). Therefore, coopetition should be addressed, as it represents a relevant strategic option for MNEs to innovate. Second, instead of considering make or coopete strategies as exclusive options for innovation, it is important to understand how MNEs can combine these strategies at the corporate level for innovation purposes. We suggest moving beyond the opposition to consider the complementarities between make and coopete decisions for innovation.

We draw from two literature streams, MNEs and innovation on one side and coopetition for innovation on the other, that have developed seemingly in parallel. On the one hand, the literature dedicated to MNEs and innovation reflects on the benefits and drawbacks of the cultural diversity among an MNE's "internal" subsidiaries. Cultural diversity can be a valuable asset in terms of different perspectives, ideas and traditions that can reinforce creativity and innovation (Punnett and Clemens, 1999; Herzog and Leker, 2010). However, it can also lead to tensions due to language differences and physical distance that can slow the innovation process and reduce the long-term innovation capability of the firm (Ambos et al., in press; Glikson and Erez, in press; Stahl and Maznevski, 2021). On the other hand, the recent but growing literature on coopetition for innovation argues that competitors represent key

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partners for innovation, as they are capable of pooling not only complementary but also similar resources, which facilitates such combinations and fosters the innovation process (Bengtsson and Kock, 2000; Chiambaretto et al., 2020a; Seo et al., 2017). However, collaborating with competitors for innovation exposes firms to high risks of opportunism and knowledge transfers that might be used against them (Fredrich et al., 2019; Gnyawali and Ryan Charleton, 2018; Majchrzak et al., 2015).

Therefore, it seems that there is no best choice between make and coopete strategies for innovation, as each provides different benefits and risks. We argue that MNEs need both make and coopete strategies to foster innovation and that for a specific innovation project, the decision to make or coopete is a trade-off between the benefits and risks of both solutions.

To investigate these observations, we adopt a qualitative research design with an in-depth case study of Airbus Defence and Space (ADS) in the telecommunication satellite industry. More precisely, we investigate how business units (BUs) develop innovation, focusing on two new telecommunication satellite projects (Alpha and Beta) that are similar in terms of design, innovation radicalness and manufacturing. In the Alpha project, ADS develops the innovation internally and distributes the work among several teams within its subsidiaries in Europe. It thus faces significant cultural diversity as well as geographic distance among the internal partners. In the Beta project, Airbus creates an alliance with Thales Alenia Space (TAS), one of its strongest competitors (and the closest geographically) to develop the same type of innovation. In this setting, there is little cultural diversity; instead, the challenges come from the paradoxical tensions of working with a direct competitor. Through 61 interviews with key informants, we explore in depth the risks and benefits associated with the make and coopete decisions.

Our results show that make decisions provide MNEs with several short-term benefits associated with low contractual governance, a sense of belonging and limited risks of knowledge leakages but expose them to important short-term risks due to cultural differences between international subsidiaries. From a long-term perspective, make decisions can contribute to the development of a shared culture and common language among subsidiaries but can reduce the long-term innovation capacity of the firm. By contrast, MNEs decide to coopete to reap short-term benefits stemming from geographical proximity with their competitor and a common language. However, these decisions are associated with several short-term risks due to the task division process and governance issues. In the long run, as coopete decisions provide access to new knowledge, they contribute to the development of the innovation capacity of MNEs but also expose them to high risks of knowledge leakages that can strengthen a competitor. Therefore, for an innovation project, the short-term orientation encourages MNEs to adopt the coopete strategy, whereas the long-term orientation incites them to adopt the make strategy. With this paper, we underline the necessity of combining the two approaches to balance short- and long-term benefits and risks.

Our study contributes to the literature in several ways. First, it contributes to the literature on MNEs and innovation. We build on former contributions investigating the "doubled-edged sword" of how cultural diversity can both increase creativity and decrease productivity (Stahl and Maznevski, 2021). Additionally, we show how competitors can represent alternative options for developing innovations (Gnyawali and Park, 2011). However, while previous research has tended to consider the make or ally (with a competitor or not) options as exclusive alternatives for innovation (Yu et al., 2013; Borah and Tellis, 2014), our research shows that MNEs need to combine make and coopete decisions. In line with recent research, we find that MNEs rely on different development modes for their innovation projects depending on their temporal orientation and that combining the two approaches contributes to balancing short- and long-term benefits and risks (Parmigiani, 2007; Puranam et al., 2013; Sako et al., 2016). Second, we contribute to the literature about coopetition for innovation (Gast et al., 2018). Past contributions have sought to explain under what circumstances companies may need to ally or coopete for innovation (Bengtsson and Kock, 2000; Ritala, 2009; Bouncken et al., 2018) without including the make option. The combination of make and coopete decisions may not have been previously explored in the literature on coopetition because most companies do not have the resources and knowledge necessary to opt for both solutions, in contrast to MNEs, which have access to many resources (Borah and Tellis, 2014; Ciabuschi et al., 2015). We therefore make key contributions and invite future researchers to focus on portfolios of innovation modes to better understand when and how MNEs should collaborate with external competitors (Luo, 2005). Third, our findings highlight the essential role of proximity. Previous studies have shown that in coopetitive teams, geographical, cultural and cognitive proximity facilitate interactions among project members from competing firms (Klimas, 2016; Le Roy et al., 2016). Our research enriches the literature by showing how proximity encourages informal knowledge sharing and personal interactions that are beneficial for innovation (Stahl et al., 2010) and how internal teams in MNEs suffer from a lack of geographical, cultural and cognitive proximity (Sarala and Vaara, 2010). Finally, our study reveals the key role played by managers in the decision-making process when deciding the development mode for innovation projects (Kihlander and Ritzén, 2012). Previous research has highlighted the essential role of individuals in the management of coopetition (Le Roy and Fernandez, 2015), but we go further by showing how individuals actually decide when to collaborate with a competitor for innovation and how they orchestrate the innovation process (Sirmon et al., 2011; Andersen and Ljungkvist, 2021). These managers are the keystones of MNE innovation policies.

The remainder of the paper is structured as follows: first, we introduce the literature on innovating MNEs as well as on coopetition before identifying the gap in the understanding of how MNEs can make use of make and coopete strategies. In the following section, we explain our qualitative methodology and introduce the case of the ADS telecommunication BUs. We structure the findings according to the identified risks and benefits from the perspectives of short-term and long-term time frames. Then, we discuss them from a larger innovation perspective and reflect on how companies can make use of different strategies to foster innovation. We present some future perspectives in light of the limitations of our analysis before concluding.

2. Theoretical background

2.1. MNEs and the challenges of internal innovation

MNEs are defined as large corporations that are international in their vision, strategies and operations (Aharoni, 1971; Buckley and Casson, 2009). As they are present in multiple countries and have a significant level of involvement in international activities, MNEs have access to a wide range of diversified in-house resources that make them capable of developing both incremental and radical innovation internally (Ciabuschi et al., 2015). Traditionally, MNEs prioritize hierarchy and control in innovative activities, which means that they centralize high-value activities at company headquarters (Huggins et al., 2007). However, recent research has shown that MNEs are sharing knowledge and competencies across the globe with dispersed subsidiaries, leading to increasingly decentralized and globalized innovation development (Mudambi and Swift, 2011; Scalera et al., 2014; Pitelis and Teece, 2018) and the development of innovation ecosystems (Granstrand and Holgersson, 2020; Hertenstein and Williamson, 2018). Subsidiaries thus function as a network of internal resources for headquarters and allow an MNE to benefit from their diversity and host location-specific knowledge and resources in fostering innovation (Adenfelt and Lagerström, 2008).

International breadth and depth make cultural diversity a central aspect when considering MNEs' resources for innovation. Cultural diversity refers to the level of cultural heterogeneity sustained by a company through its internally and externally dispersed activities (De Jong

and Van Houten, 2014; Gomez-Mejia and Palich, 1997). It is a valuable asset in terms of openness and variety of managerial perspectives and learning opportunities that lead to increased adaptation capabilities and decision-making quality (Punnett and Clemens, 1999; Sarala and Vaara, 2010; Stahl and Tung, 2015). For these reasons, a culturally diverse team can lead to increased creativity and innovation (Nielsen and Nielsen, 2013; Stahl et al., 2010).

At the same time, MNEs can be challenged by too much emphasis on in-house solutions, as they may be limited by their "closed innovation" strategy (Herzog and Leker, 2010; Pitelis and Teece, 2018). This limitation is based on a lack of new or alternative ideas, perspectives or specialized skills stemming from a fixed corporate culture or strategy (Amirall and Casadesus-Masanell, 2010). Furthermore, MNEs can face difficulties because of internal cultural diversity that hinders the sharing of resources, especially when tensions arise due to language differences, physical distance and a lack of social integration among subsidiaries (Ambos et al., in press; Caprar et al., 2015; Glikson and Erez, in press; Stewart, 2006). These problems can cause an MNE's internal innovation process to be counterproductive and lead to lower innovation performance.

When facing internal hurdles, MNEs may rethink their approaches to innovation and choose to team up with an external partner in a strategic alliance (Mortara and Minshall, 2011). This approach can provide an MNE with access to compatible and complementary resources within the external partner organization (Goerzen and Beamish, 2005; Iurkov and Benito, 2018). When faced with scheduling difficulties due to, for example, creative limitations or internal hurdles such as cultural diversity, MNEs seek partners that can replace (or match the results of) the subsidiaries that would have been involved in in-house innovation development. In such a case, they do not necessarily seek complementary resources but rather, more pointedly, resources that are quite similar to those they already possess (Yu et al., 2013). Such similar resources are usually held by competitors, as they tend to use similar technologies to offer comparable products to similar customers (Chen, 1996). Consequently, the "ideal" partner for an MNE to replace (or work in parallel to) its in-house innovation entities is a competitor (Bengtsson and Kock, 2000; Chiambaretto et al., 2020b). Entering into an alliance with a competitor is referred to as "coopetition".

2.2. Partnering with a competitor for innovation: a double-edged sword for MNEs

Coopetition is a paradoxical situation in which firms compete in some activities, markets or products but simultaneously cooperate with each other (Fernandez et al., 2018). The combination of these antagonistic and collaborative behaviors can generate superior performance for partnering firms (Lado et al., 1997; Ritala, 2009). The collaborative dimension allows firms to access key resources or technologies to launch new products or gain entry into new markets, while the competitive dimension of coopetitive agreements is essential to avoid complacency and to maintain the creative tension between organizations (Bengtsson and Kock, 2014; Johansson et al., 2019; Quintana-Garcia and Benavides-Velasco, 2004).

However, in the coopetition context, the participating firms share only partially convergent interests; thus, the risk of opportunism and appropriation is much higher in coopetitive agreements than in traditional alliances because partners can absorb shared resources and combine them with their own capabilities for specific purposes (Fredrich et al., 2019; Gnyawali and Ryan Charleton, 2018; Majchrzak et al., 2015). This high risk of opportunism generates strong coopetitive tensions driven by the conflict between generating shared benefits and capturing private benefits (Bouncken et al., 2020; Chiambaretto et al., 2020a,b; Khanna et al., 1998; Ritala & Hurmelinna-Laukkanen, 2009, 2013).

The dilemma between sharing and protecting resources, knowledge and information is a major source of coopetitive tension (Dahl, 2014; Fernandez and Chiambaretto, 2016; Ritala et al., 2015). Coopetitors must share strategic resources, core knowledge and key information to achieve collaborative objectives while simultaneously protecting themselves from spillovers and unwanted transfers (Bouncken and Fredrich, 2016; Hurmelinna-Laukkanen and Olander, 2014). In addition, coopetitive tensions about governance and leadership may appear (Bouncken et al., 2016; Fernandez et al., 2014). Firms cooperate to achieve common objectives but at the same time compete to govern and lead projects, as a leadership position improves their image and gives them direct access to clients. Furthermore, additional coopetitive tensions arise due to operational decisions, such as those pertaining to project organization and task division (Fernandez et al., 20018; Rouyre and Fernandez, 2019).

In summary, substantial tensions arise in coopetition due to the competitive dimension. These tensions can be damaging to the quality of the collaboration between coopetitors. They can create mistrust, mutual negative effects and unresolvable conflicts (Raza-Ullah and Kostis, 2020). However, such tensions cannot be separated from coopetitive strategies, as they are at the center of these paradoxical strategies and contribute to generating incentives to outperform a coopetitor (Raza-Ullah et al., 2014; Gnyawali and Ryan Charleton, 2018). Consequently, in an innovation context, companies cannot eliminate these coopetitive tensions but instead should manage them efficiently (Bengtsson et al., 2016; Le Roy and Czakon, 2016; Le Roy et al., 2018).

2.3. Make or coopete decisions for innovation in MNEs

Because of their size and their access to a large number of internal resources across the globe, to a large extent, MNEs should have the means to develop innovations internally (Mudambi and Swift, 2011; Pitelis and Teece, 2018). At the same time, focusing their entire strategy on in-house (or internal) innovation generates challenges related to increased groupthink as well as low efficiency due to cultural diversity (Herzog and Leker, 2010). Thus, seeking external resources through alliances appears to be a valuable option to foster innovation, especially in the context of collaboration with competitors (Goerzen and Beamish, 2005; Bouncken et al., 2020; Yu et al., 2013). Indeed, within a context of market convergence, coopetition provides higher flexibility when collaboration does not directly affect companies' core business (Sick et al., 2019). However, coopeting for innovation is not without risk and requires dedicated management (Le Roy et al., 2018).

The trade-off between internal innovation and the joint development of an innovation with another firm resonates with the *make, buy or ally* literature. Indeed, in determining whether to innovate or increase their market shares, firms struggle with the strategic dilemma of choosing to make, buy or ally to achieve their goals. Making the choice among various deployment modes consists of finding the most relevant option to reach the firm's goals with a systematic assessment of the benefits and risks associated with each option (Capron and Mitchell, 2010; Borah and Tellis, 2014). As underlined by van Rijnsoever et al. (2017), the make, buy or ally decision was initially grounded in transaction cost theory and investigated the different costs stemming from each option with the idea of identifying the optimal organizational boundaries that minimize costs (Geyskens et al., 2006; Welch and Piekkari, 2017). Over time, more recent contributions have investigated the make, buy or ally choice through the resource-based view to analyze the benefits or payoffs associated with each option (Mudambi and Tallman, 2010; Borah and Tellis, 2014; Van Rijnsoever et al., 2017). In this integrative approach, in the context of innovation, making, buying, and allying are alternatives with different benefits and risks (Dyer et al., 2004; Capron and Mitchell, 2010; Castañer et al., 2014).

Within this literature, recent contributions have argued that many firms actually combine several development modes in such a way that it is crucial to understand the benefits and risks associated with such combinations (Parmigiani, 2007; Puranam et al., 2013; Sako et al., 2016). In line with these contributions and focusing on alliances with

competitors, we claim that MNEs can combine different and parallel modes to engage in innovation development. In other words, we argue that MNEs can simultaneously make and coopete to develop innovations. The make option refers to the internal development of an innovation, relying on global teams that cooperate across MNE subsidiaries, whereas the coopete option refers to the joint development of an innovation with a competitor. Such a competitor might be on the other side of the planet or located in the same country as the MNE headquarters (Le Roy et al., 2016; Vanyushyn et al., 2018). Recent research has shown that MNEs tend to combine a globalized approach for internal development and a more local approach for collaborative and coopetitive developments (Lorenzen et al., 2020). Thus, we argue that there is a need to better understand why MNEs rely on both make and coopete strategies for innovation.

3. Methods

3.1. Research design: an embedded case study

To investigate why MNEs use make and coopete strategies for innovation development, we adopt a qualitative research design with an in-depth case study (Miles and Huberman, 1994; Yin, 2012). We choose a single case study for two reasons. First, without being constrained by preliminary decisions regarding tools or types of data, the single case study allows us to investigate a new phenomenon at various levels without focusing on a specific level of analysis (Eisenhardt, 1989; Eisenhardt and Graebner, 2007). Second, recent contributions have highlighted the relevance of single case studies to investigate the possible challenges emerging from innovative organizations interacting at an international level (Scalera et al., 2014; Welch and Piekkari, 2017; Vinokurova and Kapoor, 2020) and from coopetition strategies (Gnyawali and Park, 2011; Fernandez et al., 2014; Ritala et al., 2014; Chiambaretto et al., 2019). Furthermore, our approach incorporates what Yin (2012) calls an "embedded case study," as we study, within the same case, two innovative projects that differ in terms of innovation development mode (internal versus external).

3.2. Case selection and empirical setting

Based on our research objective, it is essential to analyze a case with the following characteristics: (a) an MNE structured around multiple project teams, (b) a company that has developed innovation projects both internally and with a competitor, and (c) a company with internal multicultural teams.

The company Airbus matches all these requirements. (a) First, Airbus claims to be "the most international aerospace and defense company in the world"[1] with production units in Europe (France, Italy, Germany, the UK, Spain and Romania), North America (the US and Canada), Latin America (Mexico, Brazil and Chile), Asia (India, China and Japan), Oceania (Australia and New Zealand) and Africa and the Middle East (Saudi Arabia, South Africa, Oman, UAE, Qatar, Morocco, and Tunisia). (b) Second, we focus on the ADS division because it is structured to respond on a project-by-project basis to calls for tenders from private and public customers around the world. For each project, ADS can decide whether to answer a call alone, involving its international subsidiaries and depending on multicultural teams, or to answer a call with a competitor and create a joint coopetitive project team (Fernandez et al., 2018). For example, the OneSat project is led by the French and British subsidiaries of ADS. By contrast, for SpainSat NG, ADS decided to collaborate with a competitor, TAS, to design and manufacture two new telecommunication satellites. (c) Finally, the company considers cultural diversity a core part of its identity, with more than 130 nationalities represented and more than 20 languages spoken within the company. Consequently, most projects at Airbus are performed by teams of individuals of various nationalities.

Within Airbus, we focus on ADS, which is the largest European defense and space company, with a revenue of €10,5 billion in 2020, and represents approximately 21% of the global income of Airbus. ADS is structured around eight BUs: Earth Observation, Telecommunications, Space Infrastructures, Launchers, Satellite Navigation, Satellite Observation, Spacecraft Equipment and Services. In this research, within ADS, we concentrate on the Telecommunications business unit (hereafter referred to as Telecom BU) because it is one of the most commercial BUs (i.e., a high share of private clients) and one of the least influenced by institutional logics (i.e., limited governmental intervention). The management of the Telecom BU supervises all responses to calls for tenders and manages a portfolio of several projects that are conducted simultaneously. The number of projects may vary depending on the demand and on several external contingencies, such as developments in geopolitics or the global economy. The management of the Telecom BU decides how to respond to calls for tenders, either alone or with an ADS partner, including competitors.

From a technical standpoint, a satellite is composed of two elements: a payload and a platform that carries the payload. For each call for tenders, the management of the Telecom BU decides who will be in charge of what aspects of a given project. For instance, for some innovative satellite projects, the management can decide to entrust ADS subsidiaries with the design and manufacture of both the payload and platform. For other innovative satellite projects, the Telecom BU can decide to entrust an ADS competitor with the design and manufacture of either the payload or the platform. It is worth noting that this decision to make or coopete is made at the BU level and is not made because ADS does not have the resources and skills to respond to a call. In fact, ADS is perfectly capable of responding alone to any call for tenders; thus, there must be specific reasons for the BU to choose to work with a competitor. To understand the decision-making process, we explored two projects with the same key characteristics that were carried out simultaneously by the Telecom BU: one innovative project being developed alone and another being codeveloped with a competitor.

In this study, the two projects are referred to as Alpha and Beta for reasons of confidentiality. The dates along with the geographical area and the characteristics of the projects would allow the projects to be identified.

In the early 2010s, ADS's Telecom BU decided to respond to a call for tenders (Alpha) from a customer in the Middle East, relying on several ADS subsidiaries located in different countries (the United Kingdom, Spain and Germany) to design and manufacture the payload for integration in France on a platform designed and manufactured by ADS's French subsidiary. A few months later, ADS's Telecom BU answered another call for tenders (Beta) from another customer from the same country but this time chose to work with its major competitor, TAS. TAS was in charge of the design and manufacture of the payload, while ADS was in charge of the integration of the payload on a platform designed and manufactured by its French subsidiary. The Alpha and Beta projects are twin projects from commercial and technological points of view. They were developed for similar clients from the same country in the same geographical area. Alpha and Beta involve the same range of satellites in terms of mass and power and represent the same degree of innovation such that the resources and skills required to execute them are substitutable. Therefore, the parallel study of Alpha and Beta should allow us to obtain a better understanding of why an MNE such as Airbus would use a make and coopete strategy for innovation.

3.3. Data collection

To achieve research quality in the case study, we followed the guiding principles (Eisenhardt, 1989; Siggelkow, 2007; Gibbert et al., 2008). The study is conducted from the perspective of the focal firm, ADS. Interviews are the core source of data (see Table 1). To build an

[1] Quote from https://www.airbus.com/careers/our-locations.html.

Table 1
Data collection process.

DATA COLLECTION			
Primary data		Secondary data	
Interviews with directors	Interviews with project managers	Internal sources	External sources
• Airbus (5) • ADS (6) • ADS Telecom BU (11)	• ADS project Alpha (20) • ADS project Beta (19)	• Financial reports: Airbus (1) and ADS (2) • Activity reports: Airbus (2) and ADS (2) • Meeting minutes of project meetings: 12 pages for Alpha; 18 pages for Beta • Presentation materials of project meetings: 53 slides for Alpha; 44 slides for Beta • Airbus and ADS websites	• Industry report: ESA (200 pages); CNES (150 pages) • Press releases: Air and Cosmos (15 pages); Space news (12 pages): l'Usine Nouvelle (35 pages)

accurate picture of the case and to minimize exposure to informant biases, we conducted 61 interviews with multiple key informants (Eisenhardt, 1989). The interviews lasted on average approximately 100 min and, whenever possible, were conducted face-to-face in the native language of the interviewee and audio recorded (otherwise, detailed handwritten notes were taken). The interviews were transcribed in the original language of the interview (French or English); the French interviews were then translated into English to homogenize the empirical material. Overall, the interview transcripts constitute approximately 720 pages of evidence. We also compiled 50 pages of handwritten notes taken during the interviews. To further ensure data triangulation, we combined the interview-based evidence with secondary information from documents and reports (Yin, 2009). Below, we describe the data collection process.

The primary data were collected through semistructured interviews with key informants at three different organizational levels: directors at the corporate level (Airbus and ADS), directors at the BU level (Telecom BU) and project managers (Alpha and Beta). We first interviewed directors at the corporate level to improve our knowledge of the company, including its composition and structure, its cultural diversity and its innovation strategy, especially with regard to space activities. Then, focusing on the Telecom BU of ADS, we interviewed directors of the BU to understand how they make innovation decisions on calls for tenders (i.e., alone or with a competitor). Finally, using the snowball sampling strategy (Miles and Huberman, 1994), we asked those participants for recommendations for contacts among their project managers. The endorsement of previous interviewees made it easier to obtain new interviews with additional informants and enhanced the participants' predisposition to share relevant information with us (Corley and Gioia, 2004; Miles and Huberman, 1994). We were thus able to interview several project managers from Alpha and Beta to understand the specifics of each project, the design and functioning of each project team and the challenges and tensions encountered (see Appendices 1 and 2 for more details about the interviews).

To enrich the data collected from the interviews, we also collected secondary data from external and internal sources. External sources include industry reports published by the European Space Agency (ESA) and the French National Center for Space Studies (Centre National des Etudes Spatiales (CNES)) as well as several press releases, representing in total approximately 410 pages of evidence. In addition, we combined financial and activity reports from internal sources, some of which were reserved for the internal use of the company; meeting minutes and presentation materials from project meetings; and information posted on the Airbus and ADS websites. These data were used to confirm the information obtained from our interviews.

Altogether, we identified possible errors in the respondents' interpretations, what was left unsaid, and information that the interviewees would perceive as being of minor importance through the parallel collection of primary and secondary data. In other words, the secondary data provided validation by clarifying or contradicting the data gathered through our interviews. Although the secondary data were sometimes particularly rich, especially in terms of economic and financial information, we mostly used them as a complement to verify accuracy or to support the management of our interviews.

3.4. Data analysis

The data were coded through systematic procedures based on the recommendations of Miles and Huberman (1994) and the "Gioia methodology" (Gioia et al., 2013). We used Nvivo software. We followed an iterative process, moving back and forth between data and theory and holding periodic discussions among the researchers to comply with the "researcher triangulation" principle (Eisenhardt, 1989).

We began the coding process by seeking empirical statements describing the make and coopete decisions made by ADS for innovation projects. Both the literature and the discovery of new empirical codes guided us (see Fig. 1). The resulting data structure was then a hybrid of empirical and theoretical codes (see Fig. 2). The data-collecting authors presented this preliminary data structure to the other authors (who were less involved in the data collection phase), who challenged the coding results by asking critical questions. This technique helped to refine the coding process and allowed us to begin ruling out alternative explanations and distilling the boundary conditions of the theoretical results. Then, the data-collecting authors returned to the data to dig deeper into the reasons behind make and coopete decisions. After several discussions and meetings between all the authors, the data were recoded to integrate the drivers of make or coopete decisions and grouped into second-order categories by connecting the data with the existing literature. An example of coding is provided in Table 2.

4. Findings

Our analysis highlights the short- and long-term benefits and risks associated with the Alpha and Beta projects.

4.1. An innovative project developed internally: The Alpha project

4.1.1. Short- and long-term benefits

For the Alpha project, French, British, German and Spanish colleagues from different subsidiaries of ADS were pooled in a common project team to develop a payload that would be integrated into a platform developed by ADS's French subsidiary.

In the short term, the creation of a common project team yielded an initial benefit of low transaction costs. As all team members were part of ADS, it was not necessary to establish a formal contract between the different subsidiaries to detail the rules for sharing knowledge or intellectual property rights. In addition, in spite of their different nationalities, the team members belonged to the same company and were all attached to the project's success, which facilitated collaboration at the team level:

> "Even if I am not a big fan of the way the Germans and Brits work, it is important for us to remember that, in the end, we all work for ADS and that we are committed to the success of our project." (Alpha Project Manager #17)

> "I sometimes wonder if you asked me what the culture of ADS is, would it be German, French, Spanish or English? I could not really

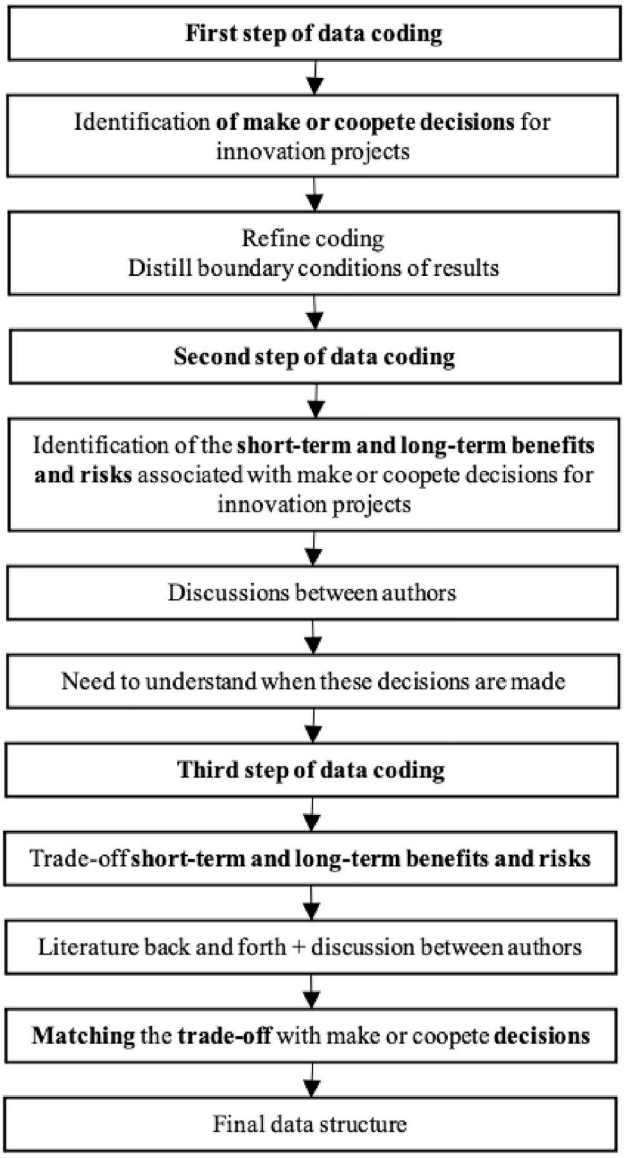

Fig. 1. The coding process.

answer. Because it is really a mixture of these, and perhaps it is a special new ADS nationality culture. Because we are all dealing with this complexity of nationalities, and we are trying hard to find some ways to work on it." (ADS Manager #6)

The limited risks when sharing information provided a second set of short-term benefits. Information sharing among team members was essential to project progress and was usually monitored by ADS to avoid unwanted leaks that could have consequences for the competitiveness of the company. In the Alpha project, as all team members belonged to the same company, the risks of sharing confidential information at the team level were limited:

"Usually, I tell my team members that they can share information with the Brits or Germans. I just don't want them to lose too much time on sharing information, but in the end, I don't care if the Brits have the information because it will still be within ADS." (Alpha Project Manager #6)

In the longer term, ADS generated several benefits by encouraging colleagues in remote branches to work together, even at a physical distance. Building internal multicultural teams was an interesting initiative to benefit from cultural diversity. By participating in the same project for a longer period, French, British, German and Spanish colleagues from different subsidiaries got to know each other. Even though they interacted remotely, over time, team members developed personal ties that facilitated communication at the team level. They became more tolerant and accepting of cultural differences. Sometimes, they even joked with each other about their cultural specificities. Owing to these friendlier relationships, team members became more willing to help each other solve managerial or technical issues:

"In our company, since it works on a project basis, it happens quite often that we encounter people we worked with on a previous project. It's not always easy to cross teams. So sometimes, I've seen teams that stayed in place for ten years, doing two or three projects in a row. It facilitated the daily work once people got to know each other. It becomes easier to work together." (Telecom BU Manager#2)

"Monitoring the project is easy because it's done all the time. But changing our culture, adapting to the culture of the neighbor to be able to work with him, that's the most difficult thing. I think now we are able to work well with the Brits. But I think that with the Germans, it took us more time to find our common language, especially on the propulsion part. But we got there. It took us more time, but we finally managed to develop the technology with them." (Alpha Project Manager #2)

On a long-term horizon, French, British, German and Spanish team members had opportunities throughout the project to overcome their cultural differences and develop a common language, shared methods and joint work routines. Indeed, during project interfaces, team members had to share their progress on the project and explain their technical difficulties and managerial issues to other team members. At first, team members did not understand each other very well, but progressively, they created a common "project language" with their own acronyms and technical references. Sometimes, they adopted the wording of a given subsidiary, and other times, they created their own terminology to describe their own processes. The common language and shared references strengthened the sense of belonging to the Alpha project and facilitated collaboration among team members:

"There is the first level, the operational one: to share the same processes, the same procedures, the same documents, to share the same knowledge about the tools we are working with. And then the second aspect, which is to me equally important to the first one, is the cultural aspect. […] And finally, the informal aspects ultimately gained the upper hand over the formal aspects. Besides, and I am glad to say it because it is for real: we are people who get along together very well, we enjoy even more meeting outside regular meetings. And today, we take the benefits of it into consideration." (Alpha Project Manager, #19)

4.1.2. Short- and long-term risks

In parallel to these benefits, the Alpha team members faced several challenges and difficulties, particularly in the early stages of the project.

In the short term, even though French, British, German and Spanish colleagues were part of the same project team, the team members were not located in the same place; thus, they had to deal with geographical distance, as well as cultural diversity, on a daily basis in dividing and coordinating their work. The geographical distances between team members complicated the coordination of the different work packages and slowed communication:

"In fact, the main difficulty is the distance, as we used to say. Working at a distance, seeing people less, being less present, that's what it's all about." (Alpha Project Manager #8)

Second, several of the interviewed managers highlighted issues in communicating with other team members because they did not speak the same language. As English is the official language of ADS, French

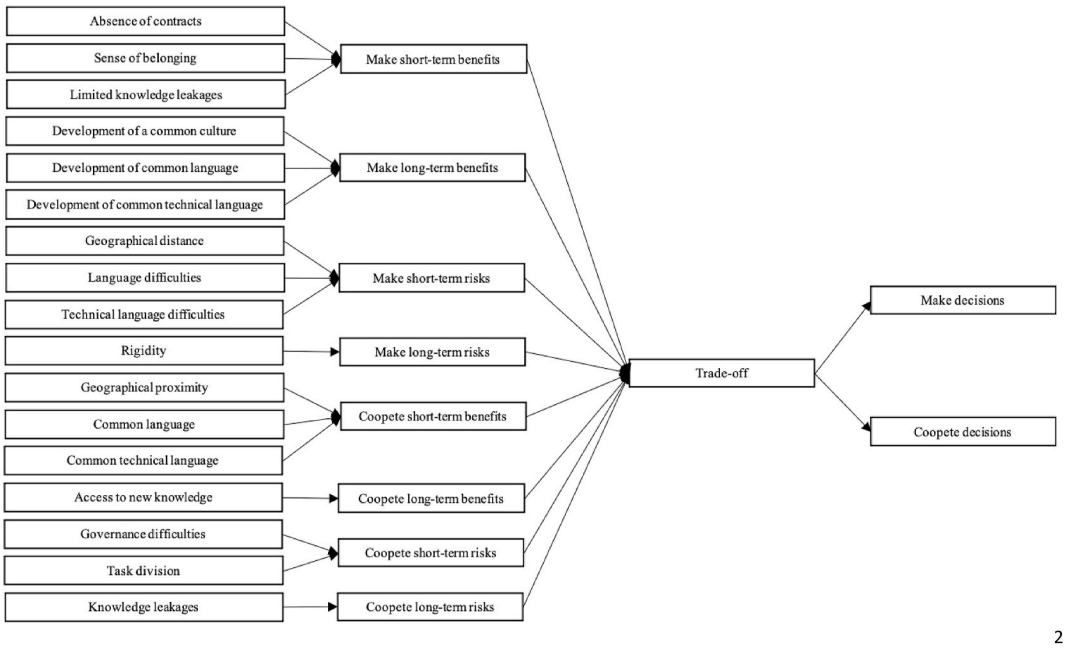

Fig. 2. The coding structure.

and Spanish team members often mentioned a lack of confidence in expressing themselves in English in comparison to native (English) or more skilled (German) speakers. Interestingly, the English members of the team took advantage of their language skills to impose their own conditions:

> *"There are some constraints because we all use English for communicating. And it is complicated for us because this is not our natural language, our mother tongue. Therefore, it is sometimes difficult for us to understand. And sometimes [British colleagues] take it as an advantage: they do not want to be understandable for their own interests.…We can see that sometimes."* (Alpha Project Manager #3)

Third, even when the different team members tried to use English as a common language, it appeared that they also did not speak the same technical language. Even when they used the same words, the meanings and expectations were sometimes extremely different:

> *"Regarding all the projects I've done with British colleagues, I noticed that we do not proceed in the same way at all. We use the same words, but they mean different things for both of us. So we have to go beyond the vocabulary to understand how they actually think."* (Alpha Project Manager #8)

Differences between individuals in terms of technical vocabulary also reflected divergent processes. Within the project team, competed and generated tensions associated with the different national cultures were felt:

> *"Our main issue is inherent in the cultural diversity: people do not work in the same way. They have different work processes, and consequently, they have difficulty working together. They will actually consider that their colleagues work badly just because they work differently. Tensions between them emerge. Therefore, the harmonization of processes is finally very tough."* (Alpha Project Manager #1)

> *"British [colleagues] basically spent all their time criticizing us. We are having a big issue with them: we have the feeling that they just do nothing within the team. And in return, they feel that the only thing we do is talk about theories. We built space systems before. So did they [British colleagues]. Therefore, their processes must be as good as ours. But we do not proceed in the same way at all. Not at all! And it's very tough to work with someone who does not work the same way as you. You have to share industrial tasks with someone who does not understand you or does not understand what you want. So you are waiting for him all the time, to have something from him. But when you need it, it's still not coming. That's why we feel that they do not bring anything to the team."* (Alpha Project Manager #9)

The difficulties due to geographical distance and cultural diversity, such as language differences, complicated early collaboration within the project team. Work packages were completed late and were sometimes incompatible due to a lack of coordination and communication among team members. As a result, the early phases of the Alpha project suffered from delays and technical problems.

> *"The coordination of the work packages involves a lot of meetings. So it is obviously much more practical to be with people from Toulouse on the other side of the Garonne than with companies on the other side of the sea."* (Alpha Project Manager #10)

> *"They [English, Germans and Spanish colleagues] have different methods. In a mixed team, you have to learn to work with both sides; there is also the culture, which is not the same. I will take the example of a project manager who was there when I joined the project. He was British. Even if we are in Europe, it is not quite the same culture. He had a very pragmatic approach. He's someone who was a bit of a go-getter but not very, shall we say, pedagogical or diplomatic with the project teams, a bit brutal. A go-getter but not afraid to do some collateral damage even in these project teams. So once you understand how it works, well, you can work together, but if you don't understand how it works, it's very frustrating. The guy comes by, he doesn't say hello, so people can take it the wrong way. Team members may experience it badly and feel that they are not considered. This person had the same behavior with all the people on the team. Those on his side were used to it, but for the others, there was a certain frustration, and it takes a certain amount of being, it takes understanding how the person works and that's it."* (Alpha Project Manager #17).

In the longer term, too much internal collaboration and groupthink had side effects that could deprive Airbus of new knowledge and reduce its ability to innovate. Despite the short-term advantages due to frequent collaborations among the subsidiaries, such as common routines,

Table 2
Example of coding.

Quotes from interviews	1st-order construct	2nd-order construct
"When we work with them (i.e., ADS subsidiaries), we can go fast. It is because **we don't have to deal with lawyers and design cumbersome and complicated contracts**, especially when it comes to the technologies we use. We have the **same rights** because, after all, we are all members of ADS." (ADS Manager #6)	Absence of contracts	Make short-term benefits
"It was quite interesting because the two subsidiaries **have different working methods**. At the beginning, we had to learn to work together, so it was after the fourth year of collaboration that we have found a way to work together." (ADS Manager #1)	Technical language differences	Make short-term risks
"After several attempts, several projects, our offices, our departments have eventually learned to communicate together; **our engineers learned to communicate together at the interface level, at the integration level as well**. We didn't have quite the same work habits, but we have learned to work together." (Telecom BU Manager #9)	Development of a common technical language	Make long-term benefits
"To remain competitive, we need fresh blood, new ideas. The market evolves really fast. We need to be able to adapt very quickly to the demand of our customers; [the] Telecom companies (i.e., the clients) are very, very demanding. **By working only with our internal guys, we do not get new ideas.** It is always the same technologies, the same processes. We need people to say to us, 'This is wrong; this is bad' to improve. Otherwise, we will die." (Airbus Manager #3)	Rigidity	Make long-term risks
"With Thales, we are clones. I mean the **engineers are the same;** they come from the same schools; the cooperation is relatively simple to do. Even if afterwards, it is war, there is no problem of understanding, no cultural problem. Everything can go very fast." (Telecom BU Manager #5)	Common technical language	Coopete short-term benefits
"So we are **cocontractors,** but ADS is **the prime.** We are equals, but we (ADS) are a little more than the others." (Beta Project Manager #5)	Governance difficulties	Coopete short-term risks
"So there are some leaks, some information that they share that should not have been shared, and for us it is good because **we learn**. Too bad for them. It happens to us also. **We learn from each other,** and it's a good thing in a way because we improve our products." (ADS Manager #2)	Access to new knowledge	Coopete long-term benefits
"There are documents that are strictly confidential because they concern our know-how, and we don't want our competitor to have access to it. We try to protect our knowledge because we do not want them **to imitate it and then to use it in future calls for tenders.**" (Telecom BU Manager #8)	Knowledge leakages	Coopete long-term risks

rigidity and inertia emerged in the long term. The input of new knowledge was limited, which posed long-term difficulties for innovation:

> "After a while, when you always work with the same people [i.e., internal subsidiaries], you go around in circles. It's always the same thing, and we don't see our mistakes anymore. We don't see them anymore; we don't correct ourselves. It has become normal. As a result, we don't progress; we don't improve. (Telecom BU Manager #10)

> "Eventually, there is a lack of new ideas. It's always the same, and it's not very good because the market is changing. You have to be able to offer new things to customers, and if you always work with the same subsidiaries, you can't do that." (Telecom BU Manager #3)

4.2. An innovation project codeveloped with a competitor: the Beta project

4.2.1. Short- and long-term benefits

To conduct the Beta project, the Telecom BU of ADS decided to design a common project team with its competitor TAS to develop a payload that would be integrated into an ADS platform. In Europe, TAS and ADS compete fiercely in international markets by offering similar products using the same technologies. However, in response to certain calls for tenders, these two competing firms join forces either to develop joint solutions or to reduce their costs.

In the short term, geographical proximity facilitated collaboration between ADS and TAS, which made the sharing of information more effective. The Telecom BU of TAS was also located in France, in the same geographical area as ADS, close to the city of Toulouse. Therefore, ADS and TAS decided initially to collocate the common project team at ADS.

> *"We have created a common joint project team for the different segments of the satellite and for the satellite. We put everybody together in the same building, in a small building dedicated to the project, with dedicated offices. Now we are here [at ADS], but we used to be there [at TAS]. It is complicated to be separated from our organization, but it facilitates the communication for the project. People cooperate more, as they are part of the same project team and regularly talk to each other several times a day to deal with current affairs, to get informed."* (Beta Project Manager #17)

Furthermore, telecom engineers from ADS and TAS often came from the same engineering schools and shared the same technical language and common work processes. These joint cultures and common backgrounds smoothed the interactions between the team members even if they belonged to competing companies:

> *"People will say, I think, they'd rather develop a payload with Thales than a payload with the British. Well, there are a lot of reasons for that: because it's next door, because they speak French, because when there's a problem, you just have to cross the river and you're there. There are plenty of good reasons."* (Telecom BU Manager #2)

> *"We are 'wired' like the people of Thales Toulouse […]. For a whole bunch of historical reasons, we come out of more or less the same schools. I often say that as a joke, but we have our children in the same schools [laughs]."* (Telecom BU Manager #1)

In addition to the short-term benefits, collaboration with TAS offered ADS several long-term advantages. Through the joint project team, ADS team members had the opportunity to access external sources of knowledge that could be useful to ADS in further developing innovation. In particular, TAS had developed expertise in midrange payloads. Even though ADS was capable of internally developing similar payloads, accessing TAS knowledge was an opportunity to learn about the latest developments, especially as ADS, unlike TAS, had experienced some

technical difficulties with its payloads. ADS could use the collaborative project to learn how to solve its own technical problems with other products. In other words, team members from ADS and TAS shared knowledge on a daily basis to complete their common projects, which was beneficial for each company, as it provided access to external knowledge that could be reused internally to develop the company's overall innovation capabilities:

> *"When we collaborate with TAS on Beta, we acquire and develop new competencies. This is the core of the project. It is the same for TAS. They learn from us."* (Beta Project Manager #6)

4.2.2. Short- and long-term risks

However, working closely with a competitor was not without risks. In the short term, the first set of risks came from governance difficulties. Both ADS and TAS project managers wanted to lead the project so that they could have privileged access to the market and to the client. Losing leadership on the project would mean losing their competitive advantage for future calls for tenders from the client.

"The challenge is to be the prime contractor because the prime contractor has access to the client, and it is very important to have access to the client for future calls for tenders. We both want to be prime contractor." (ADS Manager #3).

Another set of short-term risks came from the task division process between ADS and TAS. As both companies had the resources and competencies to manufacture a satellite, engineers with similar expertise competed to be in charge of the most important parts of the satellite. Some modules were more interesting and more challenging for engineers than others, and the engineers from TAS and ADS competed to develop them.

> *"The task division process was defined according to the strategic interests of the companies at the beginning of the program, and it was really difficult. It took a lot of work and a lot of meetings to agree on a distribution that satisfied both sides and is stable and sustainable."* (Beta Project Manager #3)

In addition, collaborating with a competitor exposed each firm to a long-term risk of knowledge leakage. As team members collaborated on a daily basis for several years, they shared formal knowledge but also informal knowledge during coffee/lunch breaks and informal social interactions. This informal knowledge sharing contributed to the transfer of core knowledge from one company to another. A company might realize too late that this knowledge should not have been shared. The competitor has already appropriated and reused it for other projects against the coopeting firm (ADS).

> *"It's clear that since we've been collaborating for so long, they've obviously been pumping out a lot of ideas. Good. But it's always a bit of a ransom. If you stay in your ivory tower, you don't win markets, so you don't grow. If you come out of your ivory tower, you cooperate. And then you lose a little bit of your knowledge; you disclose competence, but you gain markets. So it's a balance that you have to manage finely so that you don't get plundered and still win markets."* (ADS director #2)

In the long term, the main risk for ADS was being too cooperative in its interactions with TAS and contributing to strengthening its competitor. However, finding the right balance was challenging because if ADS did not cooperate enough, the joint project might not be a success. At the same time, this intense collaboration with TAS could generate unwanted transfers of knowledge or reinforce the legitimacy of TAS to current ADS customers:

> *"There is an interest, I would say, timely or specific, in the short term for a given program to finally say, 'It's better to go together than to compete'. But there is always this state of mind, this 'hidden agenda' to say, well, on one side, we are together, but next time, we might not be together, so I have to be careful about what I say, what I do because I can either reveal some of my weaknesses that the competitor will use against me on the next call for tenders or, on the contrary, show him some of my strengths that he will be able to copy or reuse to kill me on the next call for tenders."* (Beta Project Manager #4)

4.3. Decisions made by the telecom BU

When the Telecom BU of ADS answers a call for tenders, it can decide between two strategic options: answer the call alone and develop the project internally with its international subsidiaries (make), or answer with a substitute for its internal subsidiaries and jointly develop the project with a competitor (coopete). Both options have multiple short- and long-term benefits and risks. No option is perfect in the sense that it would provide only short- and long-term benefits and would limit short- and long-term risks. The question is therefore when ADS should make or coopete. This choice is made at the BU level by Telecom BU managers based on a temporal trade-off between the benefits and risks of each option:

> *"It's one of the hardest decisions to make because you know you won't be able to keep everyone happy. For each project, we look at the advantages and disadvantages of each solution, and we think, discuss, compare, especially in terms of time, and then we decide."* (Telecom BU Manager #2)

> *"There is no universal choice or perfect solution. We make a case-by-case assessment of the pros and cons of doing business with our German, English or Spanish colleagues or with our colleagues at TAS in Toulouse. We define short- or long-term priorities, and, depending on them, we choose."* (Telecom BU Manager #7).

Answering a call for tenders alone presents several short-term advantages for the Telecom BU, such as the contractual ease of implementation and the limited risks of knowledge leakages among the subsidiaries. However, persuading physically distant engineers to collaborate is challenging even when they are part of the same company. Cultural diversity further creates difficulties in communicating and coordinating the work, which leads to risks of delays.

> *"It's just that as an international manager, it takes twice as long, I find, to get things done. You know, because you're dealing with this culture and this other culture. So you think, 'Oh my God, I have to build with these differences.' If you build a project, you take twice as long to do it. Because you have to socialize, you have to discuss it with people and explain it to them. […] I'm not saying it's wrong, but you have to be aware of it. And I've seen that, very often. And sometimes you lose patience."* (Alpha Project Manager #2)

> *"Working with our subsidiaries is at first glance easy to set up. What I mean is that we know how to do it, no contract, no lawyer to call, it goes fast. But the problem is that communication difficulties make it difficult for us to work together, and we sometimes fall behind."* (Telecom BU Manager #8)

Designing such internal multicultural teams is particularly interesting for the BU in the long term. Joint project teams allow team members time to develop their own routines and their own language, which is particularly beneficial for ADS, as it strengthens the corporate culture. This experience of close collaboration among individuals from international subsidiaries will facilitate the implementation of future projects. The BU can then expect difficulties from cultural diversity to be increasingly less intense in future projects.

> *"Today, I really think that the divisional structure is more important than … the countries, or the national aspect. I don't really think … I mean 'Oh, it's because the Germans are acting like that' or 'You see, that's how the French react, or how the Spanish react, etc.' It's not something that hits*

me every day. I prefer to say, 'Oh, you see, it's an Airbus perspective, or an ADS perspective.'" (ADS Manager #4)

"It is again a question of individuals. Sometimes, we have people who are very Airbus oriented, and they can be German or French; there is no difference, they are just Airbus. And others are maybe more French and not so much Airbus, so … it depends on the person and maybe also on the experience. It means that the more you are in the company and the more you are in a specific environment, let's say BU, divisions, sites, the more you are blind or the more you focus on certain things." (Airbus Manager #2)

Therefore, building internal multicultural teams to respond to calls for tenders is a good strategy to develop the company's culture in the long term. Encouraging ADS colleagues to work together despite cultural diversity and physical distance is risky and difficult in the short term; however, establishing common routines and processes will facilitate future projects and make collaboration increasingly easy to implement. However, if the BU builds only on internal multicultural teams, it might be less efficient in the short term because of the risks inherent in internal multicultural teams, which might reduce innovation capacity in the long term. In other words, if the BU relies only on internal resources to conduct innovation projects, it might miss opportunities to develop new resources and new ideas. Thus, external knowledge sources may be necessary at some point to support innovation processes.

"We need fresh air, new ideas, to see something else, other ways of doing things; otherwise, we quickly become obsolete. Telecoms are going very fast. If we don't follow what our customers want and what our competitors are doing, we're screwed. We have to be able to propose new solutions and new technologies fast if we want to survive. Between us, Airbus or ADS, we sometimes go in circles. That's why sometimes we need to work with TAS." (Telecom BU Manager #4)

Therefore, for some calls for tenders, the ADS Telecom BU might decide to collaborate with its closest competitor, the TAS Telecom BU. This choice was not the easiest one from a contractual perspective; however, it was facilitated by geographical proximity, shared language, a common French engineering culture and previous collaborative experiences. In the short term, designing such a team allowed the ADS Telecom BU to address the demand of the client more quickly and efficiently.

"When we work with TAS, it's true that we have a whole battery of contracts to sign and we have to involve the lawyers and we don't like that too much. But we're used to it. And above all, we are efficient. We're used to working together, so we know how to do it. We know how to make teams; we know how to organize ourselves. We don't waste time. It goes fast. That's why the client accepts it." (Telecom BU Manager #11)

However, collaborating with a competitor exposed the BU to high risks of opportunism in the long term. As explained above, the competitor can easily capture and reuse the knowledge shared at the project level against ADS for other projects. Therefore, even though this option provides several short-term benefits, it exposes the firm to high risks in the long term. Consequently, this option is sometimes declined.

"Even if sometimes we'd like to, we can't do everything with Thales. It would be too risky. We would be too similar. We would have the same technology and the same products. It wouldn't be right. We have to continue to be different, even if we work together on a regular basis." (Telecom BU Manager #5)

While make decisions generate more challenges than benefits in the short term, they clearly provide more benefits than risks in the long term. By contrast, coopete decisions involve more benefits than risks in the short term but more risks than benefits in the long term. Therefore, the management of the Telecom BU constantly arbitrates between these two perspectives (short-term and long-term).

"For each call for tenders, we have to compare what it brings us and the constraints we are going to have. What helps us to choose is the priority we want to give ourselves. If we think it's better to give our teams a chance to get to know each other, if we don't want to bother with contracts, we'll do it ourselves. If we want to go fast, we'll do it with TAS. Of course, we are careful not to offend anyone." (Telecom BU Manager #3)

"We make calculations each time, well, calculations, it's not really calculations, but we compare the pluses and minuses. Working with TAS is efficient, but it's risky; you can get robbed, we know that. So we don't do it all the time. Just when we need to go fast." (Telecom BU Manager #8)

As a result of the arbitration, the Telecom BU managed a portfolio of several projects composed of projects conducted with ADS international subsidiaries and projects conducted with TAS. It is interesting to note the share of each type in the portfolio and the relative stability of this share over time. As explained by a Telecom BU manager, approximately 35% of telecom projects were achieved with TAS and 65% with the subsidiaries of ADS.

"This is difficult to evaluate because projects don't always start at the same time, they don't always finish at the same time, and some of them fall behind. But I would say that about one project out of three is done with TAS, more or less. Of course, it depends on other parameters, as we said before, but if we want to simplify, it is about that. We must have between 30 and 40% of projects with TAS. The rest is internal. If you look at ten to fifteen years, that's pretty accurate. It doesn't vary much. We've been operating like this for fifteen years, and it's not too bad." (Telecom BU Manager #2)

In summary, before answering a call for tenders, the Telecom BU arbitrated between the short- and long-term benefits and risks associated with both make and coopete decisions (see Table 3).

5. Discussion

5.1. Implications for research

We find that MNEs simultaneously develop innovation projects internally and in cooperation with their competitors to benefit from both strategies while limiting their risks in the short and long term. The decision between make and coopete is made at the project level according to the time horizon. The results of the case study provide four core contributions to the existing literature.

First, this research contributes to the literature about MNEs and innovation. We build on former contributions investigating the "doubled-edged sword" of how cultural diversity can both increase

Table 3
Short- and long-term benefits and risks of make and coopete decisions.

		Make decisions	Coopete decisions
Benefits	Short-term	- Low contractual governance - Sense of belonging - Limited risks of knowledge leakages	- Geographical proximity - Common language - Common technical language
	Long-term	- Development of a common culture - Development of a common language - Development of a technical common language	- Access to new knowledge - Increase the innovation capacity of the firm
Risks	Short-term	- Geographical distance - Language differences - Technical language differences	- Governance difficulties - Tasks division
	Long-term	- Reduction of the innovation capacity of the firm	- Knowledge leakages - Potential strengthening of the coopetitor

creativity and decrease productivity (Stahl and Maznevski, 2021). MNEs have the resources and knowledge necessary to develop innovation projects internally, especially when considering the advantages found in their culturally diverse resources among subsidiaries (Stahl et al., 2010). However, cultural diversity can also hinder effectiveness due to frictions and conflict (Caprar et al., 2015), which is why MNEs sometimes form alliances with external partners (Mortara and Minshall, 2011). We add to this field by underlining the attractiveness of a competitor as a potential partner for MNEs to develop innovation. The competitor offers not only complementary but also similar resources that are essential to develop innovations (Gnyawali and Park, 2011). However, while previous research has tended to oppose make or ally (with a competitor or not) options as exclusive alternatives (Yu et al., 2013; Borah and Tellis, 2014), our research shows that MNEs combine make and coopete decisions for innovation. In line with recent research on development modes (Parmigiani, 2007; Puranam et al., 2013; Sako et al., 2016), we find that MNEs rely on different development modes simultaneously. At the project level, MNEs arbitrate between the benefits and risks in the short and long term to decide whether innovation development will be internal or with a competitor. When short-term benefits are privileged, an MNE can choose to jointly develop the project with a competitor (coopete). However, being too short-term oriented exposes an MNE to high risks of leakages and may strengthen its coopetitor in the long term while reducing its own cohesion (Chen et al., 2007; Ritala and Hurmelinna-Laukkanen, 2009). When long-term benefits are prioritized, an MNE may prefer to develop the project internally (make) (Sarala and Vaara, 2010). This strategy can, however, lead to a lack of efficiency in the short term through internal cultural diversity and in the long-term increase groupthink due to the absence of external new knowledge (Stahl et al., 2010). We find that by combining make and coopete decisions in their portfolio of innovation projects, MNEs benefit from both solutions. These results suggest that future researchers should not necessarily oppose the two strategies but rather consider them to be complementary at the corporate level. Consequently, future research should investigate the different configurations of MNE innovation project portfolios to achieve short- and long-term benefits while trying to minimize short- and long-term risks (Sako et al., 2016; Chiambaretto and Fernandez, 2018; Lorenzen et al., 2020).

Second, our findings contribute to the literature about coopetition for innovation. Past contributions have sought to explain under what circumstances companies may need to ally or coopete for innovation (Bengtsson and Kock, 2000; Ritala, 2009; Bouncken et al., 2018). We build on these contributions by showing that the make option (i.e., the development of internal innovation) should be considered a possible development mode. The combination of make and coopete strategies may not have been previously explored by the literature on coopetition because most companies do not have the resources and knowledge necessary to opt for both solutions (Borah and Tellis, 2014). MNEs represent a particular type of firm that holds large resources and knowledge to develop innovation internally (Ciabuschi et al., 2015). At the same time, coopetition practices in MNEs have essentially been investigated through the lens of internal coopetition (Luo, 2004, 2005; Chiambaretto et al., 2019). We argue that future research should focus on investigating the specificities of the coopetition decisions of MNEs to understand when and how they collaborate with competitors.

Third, our findings highlight the essential role of proximity as a facilitator of coopetitive innovation projects (Le Roy et al., 2016). Previous research has shown that a common culture facilitates collaboration between competitors (Czakon and Czernek, 2016) and that resource similarity plays a significant role in the attractiveness of competitors as partners (Bengtsson and Kock, 2000; Chiambaretto and Fernandez, 2016; Chiambaretto et al., 2020a,b). Acknowledging that coopetitive capabilities have one analytical part and one executional part (Johansson et al., 2019), we go beyond these contributions and highlight the key role of proximity in the development of coopetitive innovation projects. Indeed, we find that proximity appears to be a key success factor of coopetitive teams, while the lack of proximity seems to be a major source of difficulty among subsidiaries when innovating internally. In coopetitive teams, geographical, cultural and cognitive proximity facilitates interactions among project members from competing firms (Klimas, 2016). We find that proximity encouraged informal knowledge sharing and personal interactions that were beneficial for innovation (Stahl et al., 2010). By contrast, internal teams suffer from a lack of geographical, cultural and cognitive proximity (Sarala and Vaara, 2010). We invite future researchers to investigate the role of geographical, cultural and cognitive proximity as moderators of collaboration between competitors (Stahl and Maznevski, 2021).

Finally, our results reveal the essential role of managers in the decision-making process when deciding the development mode for innovation projects (Kihlander and Ritzén, 2012). While previous research has highlighted the essential role of individuals in the management of coopetition (Le Roy and Fernandez, 2015), we suggest that individuals also play a key role in deciding when to collaborate with a competitor for innovation. At the corporate level, the portfolio of innovation projects must be balanced between internal and coopetitive development modes (Bengtsson et al., 2016). We extend this knowledge by showing that at the BU level, managers act as orchestrators of the broader innovation process for their company (Sirmon et al., 2011; Andersen and Ljungkvist, 2021) and contribute to its evolution within the firm's innovation ecosystem (Granstrand and Holgersson, 2020). They develop specific mindsets and capabilities that enable them to simultaneously adopt and measure benefits and risks from short- and long-term perspectives. These managers are thus the keystones of the innovation policy of MNEs. Future research should investigate the role of these individuals as well as their personal characteristics (experience, psychological traits) in greater detail to better understand their decision making.

5.2. Implications for practitioners

This research allows us to draw several implications for managers. First, we specify that managers must consider combining different innovation development modes (Kihlander and Ritzén, 2012). In other words, while the make or coopete decision may make sense at an innovation project level, it is essential that managers consider combining the two modes at the corporate level (Bengtsson et al., 2016; Garcia Martinez et al., 2017). Indeed, choosing to innovate solely through one type of innovation mode could be a risky strategy.

Second, we encourage managers to continue to rely on their multicultural teams for the development of their innovations (Punnett and Clemens, 1999). While cultural diversity may generate challenges on a short-term basis, it is important to encourage employees to work together despite their cultural differences to increase creativity (Sarala and Vaara, 2010; Efrat, 2014). The development of routines based on cultural differences will make employees more efficient and contribute to a sense of belonging to the same company (Lemon and Sahota, 2004). Furthermore, if internal development projects stall, managers can rely in parallel on coopetition on other projects with stricter time constraints.

Finally, we argue that managers play a critical role in the orchestration of innovative projects and thus contribute to developing the innovation capabilities of firms in the long term (Klerkx and Aarts, 2013; Fernandez and Chiambaretto, 2016). As such, for each innovative project, managers must not only assess the short-term benefits and risks of each development mode but also take into account the long-term effects of such choices.

5.3. Limitations and directions for future research

Our contributions must be understood alongside the limitations of the research, which mainly concern the methodology used for the identification of our case study and research design.

First, since our findings are based on a single case study from a large

multinational firm, they are particularly relevant for the space industry at a given time, and we must be cautious about their external validity (Gibbert et al., 2008). Nevertheless, we believe that our findings provide valuable insights beyond the space industry and that our conclusions are valid for various industries, especially modular industries in which make and coopete strategies are often pursued. For instance, in the automotive industry, car manufacturers are MNEs that decide to either produce internally (make) or collaborate with other firms (including competitors) for some parts of their cars (compete). While Mercedes and Renault are strong competitors, they cooperate on several activities and car models and are thus highly interdependent. For example, the Mercedes Smart and the Renault Twingo are produced in the same factory and have more than 60% of parts in common. In the same vein, the Renault Kangoo and the Mercedes Citan share many common parts (engine, platform, etc.). In summary, Mercedes uses a make and coopete strategy with some car models, such as the Mercedes A-Class, that integrate a Renault-produced engine (*coopete*), although for other models, such as the Mercedes C-Class, it prefers to use its own engines (*make*) (Barmeyer and Mayrhofer, 2015). Such strategies are also observed in the enterprise resource planning (ERP) industry. Pellegrin-Boucher et al. (2013) reveal how Oracle simultaneously offers a complete ERP in which it provides all the applications and functionalities (*make*) and a joint ERP with some functionalities provided by Oracle and others by its competitor SAP (*coopete*). However, compared to the ADS/TAS or Renault/Mercedes examples, the level of interdependency or cooperation between Oracle and SAP is much lower; thus, short-term competitive or opportunistic actions generate less risks for the parent firms. Therefore, although our research builds upon a single case study and future research could adopt a multiple-case-study approach to investigate additional empirical settings, we remain confident in the external validity of our conclusions.

A second limitation is our focus on two projects (Alpha and Beta) without taking into account the potential spillovers on other projects carried out by Airbus and TAS. Indeed, as one of the interviewees pointed out, beyond the Beta project, Airbus and TAS were coopeting on several innovation projects simultaneously, so opportunistic behavior in one project could have repercussions in another (Chen et al., 2007). Thus, the existence of several coopetitive projects at the same time should reduce, ceteris paribus, the risk of opportunistic behavior between the coopetitors as their interdependence strongly increases (Casciaro and Piskorski, 2005; Czakon, 2009). We thus invite future researchers to investigate in greater detail such spillover effects among projects in a company's innovation portfolio (Chiambaretto and Fernandez, 2018). Another approach could rely on the recent combination of the multimarket competition and coopetition literature (Klein et al., 2020) to assess how an increasing number of common projects between coopetitors impacts their aggressiveness (market entry, opportunistic behavior, knowledge plunder, etc.)

A final set of limitations comes from the focal firm perspective in our study. As our analysis is conducted exclusively from the Airbus perspective, it would be interesting to obtain the complementary point of view from the Airbus competitor (i.e., TAS) to confirm our findings from the competitor's point of view. In addition, it would be interesting to investigate an MNE with subsidiaries in more "distant" cultures (meaning national cultures with fewer common dimensions than the Western European ones observed here) (Stahl and Maznevski, 2021). Another extension of our research could involve an investigation of an MNE that coopetes with an international or distant competitor rather than a coopetitor situated in the same local economic area, as analyzed in our study (Le Roy et al., 2016).

Overall, despite these limitations, we believe that the investigation of make and coopete strategies implemented by MNEs represents a promising research topic, and we encourage scholars to investigate the challenges of this growing phenomenon in greater depth.

6. Conclusion

In this research article, we aimed to explain why MNEs both make and coopete while exploring the conditions that lead them to arbitrate such strategic decisions for their innovation development. We revealed that decisions to make or coopete could be the results of a trade-off between the numerous benefits and risks of both solutions. As such, even though there is no best solution *per se*, we provided evidence that make and coopete strategies are two alternatives that can be combined – instead of opposed – for the development of innovation in MNEs. We further found that managers play critical roles in assessing the circumstances leading to the most suitable strategy depending on time-frame considerations.

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Appendix 1. Additional elements of the interviews

The same interview guide with semistructured questions was used for all the interviews. All interviews began with a presentation of the research and a presentation of the interviewee. Next, we asked questions about the company to better understand the challenges it was facing and how it is structured and organized to meet these challenges. Then, we focused the conversation on the challenges of innovation in the space industry and the telecommunications sector. The objective was to better understand how ADS responded to calls for tenders and why. Afterwards, we asked about how projects were implemented once the company had won a tender. The objective was to gather data on the project design, team composition, project organization, tensions and difficulties encountered, and how they were handled. In conclusion, each interviewee was invited to add personal comments and to make recommendations for future interviews.

Appendix 2. Interview guide

Introduction	- Presentation of the study (context and objectives) - Presentation of the interviewee (position, educational background, previous experiences in both the company and the industry)
Company background	- Could you present your organization? - Could you explain the structure and the organization of the company? - In your opinion, what are the benefits and the challenges of this structure/organization? - What do you think about the diversity within your company? - In your opinion, what are the related benefits and challenges?
Innovation challenges and calls for tenders	- Could you explain the innovation challenges you face? - How does the company handle them?

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(*continued*)

	- Could you detail the process of answering calls for tenders? - Could you detail the different strategies that can be used for answering calls for tenders? - Could you explain the benefits and drawbacks of these options?
Project organization	- How are the project teams designed and composed? - Could you explain why? - What are the difficulties faced by project teams? - How are these difficulties managed? - What are the benefits and challenges related to the diversity of project teams? - How are these challenges managed?
Conclusion	- Is there anything you would like to add? - Could you recommend other people who would be interested in participating in this study? - Acknowledgments and greetings

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