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Embedding of a new business as a cumulative process of combining different but complementary types of projects: The case of a project-based firm

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ABSTRACT

Within the industrial network approach, new business formation is a cumulative process of relating the new business to the existing business network over time. This paper combines the literatures on industrial networks and projects (management) to explore the roles of two different types of (temporary) inter-organizational projects in the embedding process. The paper examines the embedding in a network of a new project-based firm that went from being a new entity to becoming capable of taking a stronger network position by using different types of projects as embedding tools. Embedding of the new firm in the business network required the combining of different but complementary types of projects to build a stronger network position. We find that (temporary) inter-organizational projects are tools for embedding the firm in a network of relationships. The inter-organizational projects can provide the firm with opportunities to both discover and develop not only its own resources but also the resources of others, leading it to change perceptions and principles on what resources are useful to access and who possesses those resources.

1. Introduction

The formation of new businesses is an area that has gained increased attention in the context of the industrial networks approach (Aaboen, Dubois, & Lind, 2011; Aaboen, La Rocca, Lind, Perna, & Shih, 2016; Ciabuschi & Perna, 2008; Hormiga, Batista-Canino, & Sánchez-Medina, 2011; Snehota, 2011). From that perspective, no firm possesses all of the resources (e.g. technological, material, knowledge and other intangibles) required to fulfill the requirements of other firms. Therefore, the firm needs to establish and develop business relationships to access the resources that the other firms directly control (Ford, Gadde, Håkansson, & Snehota, 2003). The starting point for these studies is the concept of a business network as a set of two or more connected business relationships, such that one relationship can affect the content and the development of other (directly or indirectly) connected relationships (Ford et al., 2003; Håkansson & Snehota, 1995).

The presence of business relationships implies that organizing effects on the business network exist, because the “formation of the new business builds on the pre-existing network of relationships but, at the same time, modifies the existing form of the network” (Snehota, 2011, p. 5). By emphasizing the recombination processes of resources and activities involving the new firm and its (specific network) context over time, the study of new ventures is, from an industrial networks approach, inseparable from its inter-organizational dimension (Ciabuschi,

Perna, & Snehota, 2012; Gadde, Hjelmgren, & Skarp, 2012; Snehota, 2011).

The emergence of a new business is thus a process that depends upon the establishment and development of business relationships with other actors (Aaboen et al., 2011; Ciabuschi & Perna, 2008; Guercini & Milanesi, 2016; Snehota, 2011). Because the establishment of any relationship often requires counterpart-specific investments and can affect other existing relationships, the process of embeddedness involves a rearrangement of the connections between other actors, resources and activities. Thus, the new business's formation is a collective process and its embedding in the network translates into a greater or lesser re-configuration of the network over time. Therefore, the formation or emergence of a new business should be considered in the context of the development of business relationships and the role of those relationships in the development of a new firm (Snehota, 2011).

From the perspective of a focal firm, the embedding process in a network can be understood as the establishing of an initial network position (Johanson & Mattsson, 1992; La Rocca, Snehota, & Harrison, 2017). However, establishing and developing exchange relationships and roles vis-à-vis the firm's counterparts is neither simple nor straightforward (e.g., Aaboen et al., 2011; La Rocca & Perna, 2014). Actors have bounded knowledge about the network (Anderson, Håkansson, & Johanson, 1994). Further development of the firm's position can depend upon its exposure to a diversity of business

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relationships because such exposure can enable learning about others' resources (Gadde, Huemer, & Håkansson, 2003; Håkansson & Johanson, 2001). In short, over time, the new firm might have to find (learn) new means of developing its network position and attractiveness as an exchange partner to gain access to perceived-as-vital firm-external resources and capabilities to 'get up and running' (Aaboen, Dubois, & Lind, 2013).

Considering these contributions, this paper examines, from the perspective of a focal firm (a project-based firm), the relevance and complementarity of two different types of inter-organizational projects for the embeddedness process. The relational contexts relevant for accessing, generating, disseminating and integrating resources and capabilities can be very diverse (Amin & Cohendet, 2004), and (inter) organizational projects may constitute one of those contexts (Brady & Davies, 2004; Lundin & Midler, 1998). Project-based organizations can be a fast and flexible mode of combining knowledge resources (Sydow, Lindkvist, & DeFillipi, 2004) and, according to Brady and Davies (2004, p. 1605), "[l]earning through projects is one of the main ways organizations interact with, and are changed by, their environment". Projects, as temporary entrepreneurial initiatives, can result in the development of new knowledge, but its retention and re-use often requires the existence of more permanent structures (e.g., Kuura, Blackburn, & Lundin, 2014; Midler & Silberzahn, 2008).

Projects are long-established organizational forms in a number of sectors (Bakker, 2010). One-off ventures are the norm in sectors such as construction, film production or shipbuilding (see Faulkner & Anderson, 1987; Kavanagh, 1998). Projects are also common in professional service firms such as advertising, law, architecture, management consultancies, design agencies, and software engineering (see Grabher, 2004; Lundin et al., 2015). More recently, project-based organizing has invaded traditional, mass-production industries hitherto characterized by routine, repetitive processes. The term projectification has often been used to denote the spread of project and project management techniques to a wide range of sectors, and some authors suggest that we are facing the emergence of a "project society" (Lundin et al., 2015). Projectification refers to instances in which "...there is evidence of a more general reliance on projects, and that this extends beyond the boundaries of working life to a broader 'projectification of society'" (Maylor, Brady, Cooke-Davies, & Hodgson, 2006).

The practice of project-based organizing is often encapsulated in projects' temporary character, and project management is often cast as the construction of an entity sealed from its environment (Lundin et al., 2015). However, the practice of temporary collaborations, as evidenced by multi-actor projects, relies on a pre-existing and intricate project ecology (Engwall, 2003). For this paper, the project ecology consists of an established industrial network. Inter-organizational projects, we suggest, can be a vehicle for embedding the new firm in a network of relationships and the means through which the firm progressively discovers and develops its resources and capabilities.

The link between (temporary) projects and (permanent) networks is an issue that has not been addressed with respect to the role of projects in the embedding process. In this paper, we combine the industrial networks approach with the project (management) literature to examine how a project-based firm - a design consultancy that organizes most of its activities in projects (Sydow et al., 2004) - is established and grows through two different types of projects, customer-specific and venture/exploratory, in a network context. In the first instance, the firm is remunerated for its services which must fit with a project-based schedule defined by the customer. In the second case, the project has other characteristics; participants contribute time and resources for a common purpose without expecting immediate returns in terms of, for example, payment or new business.

We approach the embedding of the firm in a network by considering two main processes. First, given the cumulative nature of establishing a position in the network (Johanson & Mattsson, 1992; La Rocca et al., 2017), projects with first customers are likely to be crucial for the

future development direction of a start-up firm. Such projects can include discovery and development of not only its own resources, but also the resources of others, leading it to change perceptions or principles concerning with whom to attempt the development of business relationships or concerning how to access and combine resources across firms' boundaries (Aaboen et al., 2011; La Rocca & Snehota, 2014).

Second, and related to the previous aspect, it can be assumed that, in addition to customer-specific projects, venture projects (Frederiksen & Davies, 2008) or exploratory projects (Lundin et al., 2015; Midler & Silberzahn, 2008) might expose the newly started firm to new possibilities to strengthen its position over time. These projects, with fewer constraints than customer-specific projects have (Frederiksen & Davies, 2008), can allow the activation and development of existing business relationships and the establishment of new relationships constituting the more permanent network.

In short, we will approach the network positioning of a newly started project-based firm over time by considering customer-specific projects and, by expanding the 'relational level' (Aaboen et al., 2011), venture or exploratory projects. The analysis is based on a case study of a small project-based industrial design firm that went from being a new unembedded entity to being capable of assuming a stronger position in the network. We address two issues: 1) how and to what extent the relationship with the first customer, involving successive projects, can influence the embeddedness process, and 2) how the position of the firm in this more permanent network, with its constraints and possibilities, becomes intertwined with more-'temporary' networks involving two different types of projects.

Five sections follow this introduction. The next section discusses the cumulative process of embedding a new business over time by considering the relevance of first relationships to the development of its position and considering how exploratory projects can become a mechanism for supporting the embedding of the original business in the more permanent network. Sections 3 and 4 contain, respectively, the method description and the presentation of a case study of a newly-created firm entering a network. Following the analysis of the case in Section 5, Section 6 presents the major conclusions and implications for management.

2. Theoretical background

Within the industrial networks approach, new business formation is a process of connecting the new business to the existing business network over time while simultaneously changing the network (Ciabuschi et al., 2012). In this context, the embedding of a new business can be viewed as a process of 'breaking into' a pre-existing network (Snehota, 2011) by establishing a first relationship with other actors in the network. Relationships, both initial and subsequent, allow the combination of resources, the linking of activities, and the development of both formal and informal bonds between actors (Ciabuschi et al., 2012; Hormiga et al., 2011; Snehota, 2011). Thus, instead of adjusting to a given (relational) context, embeddedness in the more permanent network is, in an important sense, a cumulative process of relating the new business to other firms in the network through direct and indirect connections (Håkansson & Snehota, 1989; Holmlund, 2012; La Rocca & Perna, 2014).

Actors' knowledge about the network is limited and incomplete (Håkansson & Johanson, 1992), and the developing of business relationships is likely to generate a continuous flow of new knowledge (Håkansson & Johanson, 2001). Therefore, the process of relating is also a process of learning about (and in) the network. By interacting, actors are likely to find hidden or previously unknown qualities of physical and organizational resources during the process (Gadde et al., 2012). The firms involved can learn to explore new approaches to combining resources that might constitute collective opportunities (Mainela, 2012) for the creation and development of other resources (Ciabuschi et al., 2012; Snehota, 2011). From a new firm's perspective,

the development of a viable network position is likely to require “having experience and close contacts with the existing structure and knowledge around either activities or the resource structure” (Håkansson, Ford, Gadde, Snehota, & Waluszewski, 2009, p. 267). Because establishing a position is not a one-off event (La Rocca et al., 2017), the new businesses can change their ideas about how to develop their position in light of their experience in current and past relationships (Aaboen et al., 2013).

From the perspective of the focal firm, the establishing of a position in the network is a process in which “there is neither a given beginning nor a given point of arrival” (La Rocca & Perna, 2014, p. 71). Because the boundaries that researchers (and managers) draw around network processes are arbitrary (Easton, 1992), it is suggested that start-ups stop being a start-up “when they reached a strong or consolidated position, when they gain a clear network identity and when they enjoy considerable trust from several external counterparts” (Baraldi & Perna, 2014, p. 17). These three dimensions are closely linked. The attractiveness or identity of a firm as an exchange partner, and thus its possibility of becoming involved in various contexts (Axelsson, 1992), involves a certain level of trust from specific counterparts. This trust relates to its specific resources or capabilities to perform its (expected) role in the context of the division of labor in the activity layer (Anderson et al., 1994; Araujo, Dubois, & Gadde, 2003).

Because actors with limited and incomplete knowledge can interact and learn, neither the role of the new firm nor its resources are given and static; in fact, the initial experiences in the embedding process can substantially influence how a firm seeks to influence the process of establishing its position in the network. This study examines how the use of projects as temporary networks can be one of these tools for embedding the firm in the network. In the next section, we elaborate on the initial process of relating the new business with the first customer as the beginning of a learning process supporting its network positioning over time. Next, we discuss the likely relevance of combining different types of projects as tools or mechanisms for embedding new businesses over time, manifested in their network position and attractiveness as an exchange partner. We conclude by presenting a summary concerning the two research issues.

2.1. First customer relationship and the embeddedness process

From the perspective of a new firm, the process of developing its network position and attractiveness is neither simple nor straightforward (Aaboen et al., 2011; La Rocca, Ford, & Snehota, 2013; La Rocca & Perna, 2014). Its attractiveness or identity is not yet established, and, as noted by La Rocca and Perna (2014, p. 65) “operating with others for a new business implies first of all being recognized and accepted by some of the parties in the network”. Conversely, “potential customers may not be clearly identified, their requirements are unlikely to be well specified, the company's offering is probably undefined and undeveloped and relationships with customers and suppliers are unformed” (La Rocca et al., 2013, p. 1031). In other words, its role in the context of the division of labor in the activity layer might not be clear nor are its resources and capabilities likely to perform as expected by its counterparts (Anderson et al., 1994; Araujo et al., 2003).

The issue of how the new business attempts to establish a position in the network or how the network affects it over time is likely to be closely related to its first relationships with its customers. Several authors find that embeddedness in the network is a path-dependent process over time and explore the relevance (or imprinting) of the interactions with the first customers for the future development of a new business (Aaboen et al., 2011; Aaboen et al., 2013; La Rocca & Snehota, 2014). By extending the time frame, the analyses of the embeddedness process allowed the identification of patterns of how new businesses strive to establish their position over time (Aaboen et al., 2013). Strategic redirections were manifested by finding approaches to exploit similarities that can support further relationship development and

expand the resource base (by promoting knowledge sharing among customers), and by finding partners that can connect the new business to other customers (Aaboen et al., 2013). Thus, interactions in the context of first relationships with customers can contribute, both directly and indirectly, to the development of new relationships in the network, to developing principles concerning with whom to attempt the development of relationships, or how to combine resources across the firm's boundaries (Aaboen et al., 2011).

This process, we suggest, can be particularly relevant when the new firm is a project-based firm, the offer is customer-specific and its degree of complexity might require the involvement of several firms in the context of a customer-specific project (Lundin et al., 2015; Sydow et al., 2004). When working on a project for a customer as a service supplier, the firm's resources and services must fit with a project-based schedule and other technical and organizational specifications defined by the customer. Interactions with a first customer is likely to generate a continuous flow of new knowledge (Håkansson & Johanson, 2001) and can be critical for the new firm starting the process of being recognized and accepted by some of the parties in the network (Guercini & Milanesi, 2016).

In the context of a collaborative, multi-firm project, the new firm also has the possibility of learning not only about the customer's adjacent network - including its possibilities and constraints - but also about its role or function, based on its specific resources and experiences, in that specific context. Furthermore, by involving recurrent projects, the emergence of a business relationship with the firm's first customer increases the possibilities of new firm reusing and improving existing knowledge. This process can lead it to changing perceptions or principles regarding its intended role in the activity layer and also finding new approaches to combine its resources with those from other firms in the network.

However, the development of ideas on how to combine new businesses' resources with those of other firms (Aaboen et al., 2011, 2013) can occur not only through interactions in the context of buyer-supplier relationships but also among various firms involved in non-economic exchange relationships (Easton & Araujo, 1992). From a learning perspective, it is recognized that every firm can have an interest in “knowing something about firms other than those with which it enjoys [business] relationships” (Håkansson & Johanson, 2001, p. 8). In the next section, we elaborate on the likely relevance of venture or exploratory projects (Frederiksen & Davies, 2008) as “embedding tools” for strengthening the new business position.

2.2. Building a network position over time by using projects as ‘temporary’ networks

The embedding of new businesses in a network requires developing their positions, that is, their exchange relationships and roles vis-à-vis their counterparts in terms of both function and relative importance (Johanson & Mattsson, 1992). Because a firm's position is the result of past investments in business relationships, knowledge, and routines (Håkansson & Johanson, 1992), that position is a base from which future action can proceed (Johanson & Mattsson, 1992). In this relating process, the results of such actions are likely to depend upon the interpretations and (re)actions of other firms that are directly and indirectly connected (La Rocca et al., 2017). In fact, the (re)actions of other firms introduces the network perspective (Easton, 1992). Thus, in this context, being mobilized by other firms can be just as (or even more) important as mobilizing others for certain initiatives (Anderson et al., 1994; Axelsson, 1992; Ford et al., 2003; Håkansson & Ford, 2002).

However, deliberate initiatives (e.g., mobilizing other actors to initiate a venture project) can be vital, “since interaction and continuously developing ideas about future network positions support their embedding in business networks” (Aaboen et al., 2013, p. 1040). The often invisible and complex connections between firms (Johanson &

Vahlne, 2009; Johanson & Vahlne, 2011) can be identified and experienced via such initiatives (Harrison, Holmen, & Pedersen, 2010) of new businesses (e.g., Aaboen et al., 2013; La Rocca & Perna, 2014). These actions can result, for instance, in gaining network intimacy (La Rocca & Snehota, 2014), learning how to balance similarity and variety in relationships with customers (Aaboen et al., 2011), or learning about the capabilities and intentions of counterparts (La Rocca et al., 2013). Thus, although firms can differ substantially in their efforts to influence others (Gadde et al., 2003), they can act to influence their network position and identity or attractiveness as an exchange partner (Baraldi & Perna, 2014).

One of the mechanisms employed to try to influence the network positioning or the embeddedness process can be ‘temporary’ networks around venture or exploration projects. A venture project is a particular organizational arrangement in the context of vanguard projects (Frederiksen & Davies, 2008). A venture project, similar to a vanguard project, is a first of its kind, and is initiated to explore new markets or technologies; both types of projects can be a “mechanism for ‘testing opportunities’, as well as mobilizing and integrating dispersed knowledge residing within, or outside the boundaries of the firm” (*op. cit.*, p. 488). However, venture or exploration projects do not involve any particular customer. In these cases, the typical constraints of a customer-specific project, such as the need to comply with specific customer requirements (e.g., technical specifications, budget, and deadlines) are less rigid. Moreover, they “may enable the testing of opportunities to connect with novel technologies, new partners, and new market activities in adjacent industries” (*op. cit.*, p. 492). By having a strong exploratory purpose (Lenfle, 2008), the results of this type of project in the form of new technical solutions need not always fit into established producer and user settings (cf. Håkansson & Waluszewski, 2002; Holmen, Pedersen, & Torvatn, 2005).

Projects are often defined as temporary organizational arrangements (Lundin et al., 2015). However, ‘no project is an island’ (Engwall, 2003); projects, as temporary arrangements, “are likely to be embedded in more permanent contexts” (Sydow et al., 2004, p. 1477) because they are “inextricably interwoven with an organizational and social context which provides key resources of expertise, reputation, and legitimization” (Grabher, 2004, p. 1492; see also Cova & Salle, 2007). From an industrial networks approach, the relevance of projects, as ‘temporary’ inter-organizational arrangements, can be appreciated in terms of their connections with a network of business relationships that reflect (and affect) the continuity of association between firms over time. From this perspective, projects can facilitate ‘explorative’ learning (Brady & Davies, 2004; cf. March, 1991) and its results can contribute to the renewal potential of a firm’s network (Baraldi, 2008).

Thus, for the purposes of this paper, (inter-organizational) projects, as temporary networks, are connected to more-permanent networks (Dubois & Gadde, 2002a), reflecting the presence of business relationships between specific firms. In the case of project-based firms, a more permanent network is manifested when activated by the recurrent use of some of the firms from project to project. Through repetition, the resources of the parties, including mutual knowledge about the resources of each party, can be re-used and developed in new projects. Conversely, inter-organizational projects, and venture or exploratory projects in particular, can help to introduce an additional variety in several dimensions, including experimenting with new combinations of resources and firms. Thus, projects as ‘temporary’ networks are performed in relation to a more permanent network, which in turn can affect the positioning of the firm in that network, including its role and attractiveness as an exchange partner.

2.3. Summary

In short, by combining the literatures on industrial networks approach and project management, we examine how a project-based firm is established and grows through different types of projects by

addressing two research questions: 1) How and to what extent can the business relationship with the first customer, involving successive projects, influence the embeddedness process? 2) How does the position of the firm in this more permanent network, with its constraints and possibilities, become intertwined with more ‘temporary’ networks involving two different types of projects? To analyze the relevance of customer-specific and venture or exploration projects (Frederiksen & Davies, 2008) for the cumulative embedding of a new firm in a network, we extend the relational level (Aaboen et al., 2011) along with the time frame (Aaboen et al., 2011, 2013).

As noted previously, from the perspective of a new firm, the process of developing its network position and attractiveness is neither simple nor straightforward. This process is supported by its resources and how they are combined across its borders as the new firm interacts with other specific actors over time. With respect to the first issue of how and to what extent the business relationship with the first customer can influence the embeddedness process, we assume that the new firm, as an unembedded entity, faces substantial knowledge limitations concerning its customer and its specific network context. Thus, initial projects, as embedding tools, can be critical for starting to build a position as the new firm discovers and develops its role and resources in that particular context. Additionally, because inter-organizational customer-specific projects can involve several firms, the new firm also has the possibility to learn about the customer’s adjacent network, namely, its possibilities and constraints. Both aspects can combine in the developing of new ideas or principles concerning the development of its position and attractiveness in the more permanent network. In this context, the promotion of venture or exploration projects can be considered as a means of deliberately co-creating with other firms contexts to experiment with new combinations of resources and firms (Frederiksen & Davies, 2008), with fewer restrictions often encountered than with customer-specific projects.

With respect to the issue of how the position of the firm in the more permanent network becomes intertwined with more ‘temporary’ networks, several aspects can be noted. First, the recurrent use of some of the firms from project to project can be considered a manifestation of the continuity of association through business relationships. Second, to the extent that participation in projects involves a degree of selectivity, the position and attractiveness of a focal firm in the network is likely to be relevant for mobilizing (and being mobilized by) other firms. Third, because venture or exploratory projects have fewer restrictions than customer-specific ones do, they can not only allow the focal firm to expose its intentions and resources but also cause other (present and new) actors to reveal theirs (Johanson & Vahlne, 2009; La Rocca et al., 2013), allowing a clearer view of their positions and attractiveness as exchange partners to be developed. Finally, resources, particularly new knowledge (not necessarily embodied in new commercial technical solutions) developed in such contexts can be re-used in the context of other business relationships with existing and possibly new customers and suppliers (Snehota, 2011). Of course, this possibility depends upon the benefits perceived and anticipated by the actors involved (La Rocca et al., 2017).

Thus, from the perspective of a focal new business, we can assume that both organizational arrangements, customer-specific projects and venture or exploratory projects, can constitute different but complementary relational contexts whose combination might be relevant for how new businesses perceive and interact in the network in order to become capable of assuming a stronger network position (in other words, ‘get up and running’) (Aaboen et al., 2013). In this framework, the dynamic interaction between these two aspects, the embedding of the firm in a network and the nurturing and development of firm-based resources through different types of projects, leads to mutual adjustments between the firm and its network.

3. Research method

Case studies are particularly suitable for understanding the dynamics in specific contexts (Dubois & Araujo, 2004; Yin, 2003). One of the characteristics of industrial networks is their dynamic nature, e.g., the notion of positioning as a time-dependent process (Easton, 1992). We use a longitudinal (retrospective) case study to focus on the process whereby a start-up evolves from being an unembedded entity to being able to assume a stronger network position by combining different types of projects over time. In our case study, we use a small industrial design firm - a project-based organization or project-based firm (Sydow et al., 2004) - that organizes most of its activities in projects. The path of this small design firm over time represents an interesting and, in a certain way, an extreme case. First, because it is an industrial design firm, the process of ‘breaking-into’ a pre-existing network (Snehota, 2011) requires its involvement in complex, customer-specific projects, involvement that requires high levels of interaction to learn about the customer context, including its adjacent network (Araujo, Dubois, & Gadde, 1999). Second, being an industrial design firm, its role over time might depend upon its capabilities to combine resources, including information and knowledge, dispersed across several firms to explore the generation and testing of solutions in several contexts (Hargadon & Sutton, 1997). Finally, by operating through and combining different ‘temporary’ organizational tools (customer-specific and venture/exploratory projects), the firm has been able to expand its original business and has embedded itself in the network. It is very unlikely that such a position and attractiveness could be built instantaneously (Johanson & Vahlne, 2009; Johanson & Vahlne, 2011); rather, doing so can require a long learning process in and about the network ‘activated’ around specific projects. Thus, extending the time frame of the case study was considered necessary to gain evidence that the new business reached a strong network position (Baraldi & Perna, 2014) and to understand how projects, as ‘embedding tools’, contributed to that process.

The data used to perform the study came from multiple sources (Voss, Tsikriktsis, & Frohlich, 2002; Yin, 2003) but primarily from interviews in the focal firm. In this study, secondary data could be obtained online, particularly from the sites of both the focal firm and other firms involved in the projects, conferences and both internal and external reports and news published in the press. These secondary data, generated outside the influence of the research team (Johnston, Leach, & Liu, 1999), were important because they provided a reasonably good understanding of the context where the firm operates and of what in general terms the focal firm and some of its counterparts seek to achieve. Some of this information was useful in preparing the interviews, namely, by helping to create a common knowledge base that facilitated both access and dialogue with the informant. For example, (secondary) information on the results of some specific projects triggered a number of issues, e.g., concerning the motivations for initiating specific projects or concerning what criteria have been used to involve specific firms on a recurring basis. Secondary data were also useful because they provided additional evidence of the same phenomenon (Voss et al., 2002); these data are largely concerned with the project objectives, the firms involved, or other project results in terms of their relevance to other firms, e.g., to what extent new technical solutions were integrated in producer and user settings.

The primary sources of our data were two semi-structured interviews with the firm’s founder and current CEO. Semi-structured interviews are particularly suitable when “highly sensitive and subtle matters need to be covered, and where long and detailed responses are required to understand the matter the respondent is reporting on” (Ackroyd & Hughes, 1992, p. 104). The two interviews each lasted over 2 h and were transcribed and analyzed. The informant kindly provided further information during subsequent contacts. The conduct of two interviews with the same informant is a limitation of this study. However, being a small firm with 10 employees, its CEO was considered a

key informant (Voss et al., 2002) because he actively participated in almost all projects and in the interactions with customers and other firms involved in the projects. The first interview had two parts. In the first part, information was collected about the early life of the firm, with special emphasis on the creation of a business relationship with its first customer through the realization of several customer-specific projects.

The second part focused primarily on three venture or exploratory projects, a type of project that the literature on projects associates with its potential to generate new resources and capabilities (Frederiksen & Davies, 2008). Our interest in considering the exploratory projects resulted from the informant considering ‘projects-without-a-customer’ as ‘game changers’. The second interview explored this topic further by focusing on the remote causes for the firm’s involvement in venture projects and on trying to understand how these projects could affect the positioning of the focal firm in the more ‘permanent’ network. As learned during the first analysis of the data, these projects were perceived by the informant as critical to influencing the development of the focal firm, its own resources and of its business network over time. This observation led us to change the initial framework (Dubois & Gadde, 2002b) to further explore the relevance of the notion of venture or exploratory projects (Frederiksen & Davies, 2008) to the embeddedness process of the new firm. It also required redefining the boundaries of the focal network (Halinen & Törnroos, 2005).

The projects chosen were ENIGMA (1998), WINNER (2003), and LIFE (2011). The first two projects were performed with the first customer of the focal firm. In these instances, the design firm worked for the customer as a service supplier and was remunerated for services that were required to fit with a project-based schedule and satisfy other specifications defined by the customer. In contrast with these customer-specific projects, the third project (LIFE), a venture project, was a first experience in a new sector (aeronautics). In this type of project, the project-customer as the main interlocutor of the project vanishes in favor of an arrangement in which the focal firm and other participants donate time and resources for a common purpose without expecting immediate returns in terms of for example payment or new business.

By assuming that positioning is a time-dependent process (Easton, 1992), the description and analysis of the case material focused on the history and the contributions of the three projects to the embeddedness of the focal firm. In the context of our framework, such embeddedness is manifested in the development of its business relationships and re-use or developing of its resources and roles in its relationships and subsequent projects. From this perspective, who was involved in each project, its role and the results from the project (e.g., the development of existing or new business relationships) were essential to tracing and analyzing the projects’ complementarity in the positioning process. Note that as a project-based firm, the focal firm has been performing several projects over time, in particular for its first customer. The relevance of other projects to the description in the next section is cited whenever doing so helps to better understand the sequence of events, for instance, the (perceived) connections between the three chosen projects (customer-specific and/or venture projects) and specific business relationships. When appropriate, we substantiate our claims through presenting raw data in the form of quotations from the interviews in the next section.

4. The case of Almadesign

“We do not have a department of innovation. We are an innovation firm.”

(CEO, Almadesign)

Almadesign is a small firm that was founded in 1997. The firm has ten employees and produces industrial designs, mostly for the transportation sector and to a lesser extent for products and for interior designs. The firm is currently involved in various activities related to

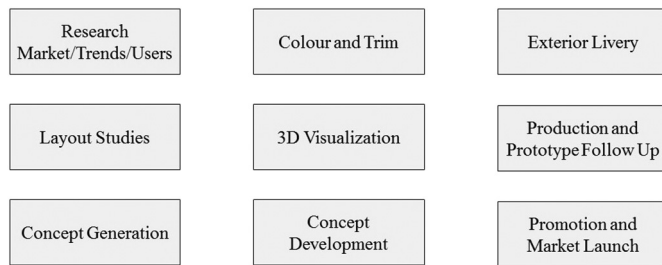


Fig. 1. Major activities of Almadesign.
(Source: www.almadesign.pt).

product development, ranging from the research of tendencies to the generation of concepts and the following up of production and commercialization (Fig. 1).

In 2014, the firm had a register of approximately 350 products being sold and had implemented more than 500 projects, some of which gained prizes in international contexts. Nevertheless, not all projects do result or must result in the commercialization of products, “either because the customer did not accept the project, or because the project was carried out to explore new areas and not necessarily to create new products”.

In the transportation sector, Almadesign performed projects for road, rail, and air transport that involve technologically complex solutions that demand the integration of various systems, subsystems, and components. According to its CEO, the firm's role in projects with other firms appears to be relatively stabilized around its capabilities in combining those of several firms in different types of projects:

“Our firm is different from other firms with whom we work. We do not keep too attached to a specific area, like production, engineering or interior. We seek to connect all these areas. Possibly that is why we show a certain ability to put parties working together that had not been used to working in conjunction. We certainly performed this role but, however, the task of carrying the projects forward has been up to each firm”.

The need to promote a new approach becoming an ‘innovation’ firm developed in approximately 2009 after a long experience in performing various customer-specific projects. This process was triggered by the perceived need to explore new solutions without the pressure to market in haste. According to the CEO:

“In most cases, the products we make are a result of our customers' response to something the market already produces... These [projects] tend to have short times to answer immediate needs, and tight budgets. As, all too often, our customers do not give us enough time to achieve the levels of innovation that would make us content, we decided to start thinking about what the market might want in the future, and then assembled the capabilities and the firms that might help us generate answers. We decided to become more proactive. This was done for railway cars, road vehicles, and airplanes, and it worked”.

Thus, Almadesign has sought to combine two types of projects, according to their purpose. The next subsections describe three specimens of these two categories: the first two projects—ENIGMA (1998) and WINNER (2003)—were developed for its first customer; the third, in the CEO's words, was a “project-without-a-customer”—LIFE (2009). This project involved several firms and, according to a public report, its goal was to create capabilities for the design, development and industrialization of functional and technical solutions for aircraft interiors.

4.1. Emergence of Almadesign: the ENIGMA project with Salvador Caetano

The firm's initial focus on industrial design and, in particular, on passenger transportation, is partly related to the background of Mr. R. M., one of its founders and the current CEO. Mr. R. M. graduated in mechanical engineering in Portugal. In 1995, he received a Master's Degree in Design of Means of Transport (Milan, Italy) and completed an internship at Alfa Romeo's *Centro Style* in the industrial district of Arese, Italy.

In 1996, Mr. R. M. proposed his services as a freelancer at Salvador Caetano, a firm that among other things developed, produced, and assembled passenger buses. At the time, Salvador Caetano had an ongoing project in its portfolio to introduce modifications to one of its models. This modification involved changes to the optics of the vehicle and to the coatings of its seats and floors. Salvador Caetano also wished to start a project for the standardization and modularization of several parts of its buses to simplify assembly processes and gain economies of scale.

Following conversations, Salvador Caetano assigned a project to Mr. R. M., who was delegated the task of designing the new model. He worked alone for the first few months of the project. Then, in 1997, due to the complexity of the project and the multiplicity of tasks, he and two other partners created a new firm, called Almadesign, which is our focal firm. They named their first project ENIGMA, which was performed by a team that included members from Salvador Caetano and the new firm. Almadesign was made responsible for the design of the headlights and the seats of the bus. The firm decided to use 3D design, a then little-used tool.

In addition to supervising and coordinating the project, Salvador Caetano managed all of the parts in one system to ensure their convergence and proper performance. Salvador Caetano brought in other firms to cooperate in the ENIGMA project by using suppliers with whom it had been working for years. The role of Almadesign in this respect was marginal due to its lack of knowledge in the sector and its inexperience in addressing the high complexity of the interfaces between components. However, during the course of the project, in addition to the usual follow-up meetings and on the initiative of Salvador Caetano, several visits were made to the manufacturing facilities of the suppliers involved in the project. All of these activities helped Almadesign to increase its knowledge about Salvador Caetano and its supplier base.

In 1998, after several changes, the project was concluded, and the new bus model went into production. However, the solutions developed by Almadesign were not implemented. In the case of the headlights, Almadesign visited a component factory after the design had been finished to seek support in costing the product. It found that the production of the part was not economically feasible for the number of units envisaged. Salvador Caetano thus opted to use standard headlights bought from the market. To do so, it changed the group of components from what had been initially planned. The same occurred with some other parts incorporated in the final product.

Several aspects can be noted concerning the results of this project for Almadesign. First, as described previously, its autonomy and involvement throughout the project were relatively low. However, as the project advanced, Almadesign developed new capabilities for the integrated design of components that, according to its founder and CEO, still represent crucial knowledge acquisitions to this day and are one of the major differentiators of his firm's solutions. The first project with Salvador Caetano also allowed the firm to develop capabilities in project management. Finally, the entire process enabled the development of knowledge about Salvador Caetano and its base of suppliers for Almadesign, together with general knowledge about the road transport sector. Furthermore, the firm's name was associated with a design prize that the new bus model was awarded in 1999. However, and more importantly, Almadesign's participation in the ENIGMA project opened doors for new projects with Salvador Caetano.

4.2. Continuity in Almadesign's association with Salvador Caetano: the WINNER project

After the ENIGMA project, both firms started several smaller projects that resulted in not only an increase in the number of staff working for Almadesign but also an improved integration between the work processes of both firms. In 2002, five years after the first project, Salvador Caetano brought Almadesign back in for a project named WINNER. Similar to the previous project, this one was related to designing the body for a new bus model that was to incorporate the most recent technologies. However, in contrast to ENIGMA, Almadesign had the opportunity to submit a more complex project from scratch. Almadesign invited another firm with rapid prototyping capabilities to participate. By using a concurrent-engineering approach, this partnership enabled the optical kits, the dashboard, and other inside car components to be produced and tested during the initial phase of the project. Furthermore, the experience gained in the previous project enabled the generation of more alternative solutions. The firm's participation in the project from the start allowed Almadesign "...to know what we are integrating, how it is going to be done, how it is going to be built."

The knowledge that Almadesign had accumulated concerning the automotive sector allowed it to take a prominent role in the processes for the acquisition of standardized components (e.g., air vents and panic buttons) to integrate into the new model. In addition, some suppliers had already participated in the previous project. The project was finished in 2003. That bus model was eventually used by the Portuguese football team in the Euro 2004 in Portugal, which gave great visibility to both firms. In 2005, an English version of the model was developed called LEVANTE. This version was used by National Express, a coach operator in the United Kingdom. One of the characteristics of the model that National Express valued the most was the access and seating for people with reduced mobility. Other British operators thus adopted this model. Thereafter, WINNER gave rise to two other variations: WINNER II (2007) and WINNER FACELIFT (2011), both of which were more advanced models that incorporate several improvements relative to the original model with respect to performance, efficiency, comfort, and capacity.

However, Almadesign's experience from the various projects with its first customer helped to expose the limitations of the customer-specific projects in the face of its ambition to develop its role as an innovation firm:

"After a few years, we understood that this was not the best way to manage being innovators and relevant worldwide... We call them all projects, but so-called "customer projects" usually have short deadlines, short budgets and therefore the time to explore and innovate is always very short. It is therefore inevitable that if we want to be at the forefront of customer projects, then we have to have projects that we call "projects without customer". [Thus] we decided to be more proactive and to create projects that may somehow anticipate innovation".

Thus, the firm decided to launch what its CEO called "projects without a customer", or venture or exploratory projects. Fig. 2 illustrates the difference between the project types. The previous experiences with other firms in the first customer-specific projects also helped to know who might have interest in the new projects and who might possess the required expertise:

"The first thing we did was to gather together the firms that we work with and where there is very good technological know-how, and we proposed to them concrete projects".

4.3. Exploring new possibilities: the LIFE project

The LIFE project followed on from two other exploratory projects

(iBUS and iSEAT) and benefited from the experience acquired in these projects. Almadesign's first project, iBUS, was also in the transportation sector. It involved several other firms and organizations: Amorim Cork Composites, Couro Azul (covers), SET (molds), and INEGI (R&D), along with Salvador Caetano (Caetano Components), which was Almadesign's first customer. The decision to invite Salvador Caetano was considered natural:

"We needed to have more projects to generate more innovation. Who was our oldest customer at that time? Salvador Caetano. So where could we start with such projects? In the area of bus bodies. As a result, we benefited from the involvement of Salvador Caetano, with whom we had worked, and from other partners with whom Salvador Caetano had never worked but with whom we had worked on other projects".

After 18 months of work, the model was displayed in exhibitions, at which it was well received by several operators. After the project was finished, some of the developed solutions took five years to be applied by the involved firms in other projects.

The perception that this first experience was successful supported the intention to launch a new venture or exploratory projects involving other firms, including, as in the previous project (iBUS), an important system integrator and potential customer:

"As this one went well, we decided to have another go. However, the next time we were more ambitious. We went to the railway sector and invited the largest train integrator in the world, Alstom, who owns the TGV acronym."

This project, named iSEAT, consisted of developing a seat by using new materials. Beside Alstom, the major firms involved in the new project were those that had cooperated in the previous (iBUS) project, namely Salvador Caetano (Caetano Components), Amorim Cork Composites, Couro Azul (covers), and INEGI (R&D). Nibble, an electronics firm, provided the positioning, lightning and infotainment components and controls. CIN, a paints firm, was responsible for the finished painting. Some of the results from these projects resulted in new contracts with some of the participating firms. Furthermore, Almadesign started to develop a close relationship with Alstom.

Because of these projects, Almadesign decided "to flap its wings and fly higher" by inviting Embraer to a joint project. Embraer, which is one of the largest airplane manufacturers, has some component manufacturing in Portugal. Despite initial doubts, Embraer decided to collaborate in the project. In addition to Almadesign and Embraer, other companies involved in previous projects also cooperated, such as Amorim Cork Composites, Couro Azul, SET, and INEGI.

The project started in 2009 and was named LIFE (*Lighter, Integrated, Friendly, Eco-Efficient Aircraft Cabin*). Its purpose was to develop capabilities in building airplane interior solutions and, at the same time, to stimulate the development of future projects in this area. In addition to being an innovative and revolutionary concept, the project's general lines reflected the need to use natural materials, resource preservation, interface simplicity, passenger comfort, and functional articulation of all of the subsystems and components. Several *spinoffs* were generated that could later be integrated for developing other systems and solutions.

Various studies were performed in the context of the project to identify market tendencies and to exploit potential applications for materials and possibilities for combining and integrating new and existing components. Once more, the concept development and the use of early prototyping "allowed early mistakes to be made, and this was good." Tests and trials were made during the project to register the progress made and to detect improvements that could be made. On completion, the project was displayed in several exhibitions. Table 1 describes the contribution from each participating firm. The solutions and materials developed by some of these firms are used in various sectors (e.g., automotive, railways, and aerospace). The combination in

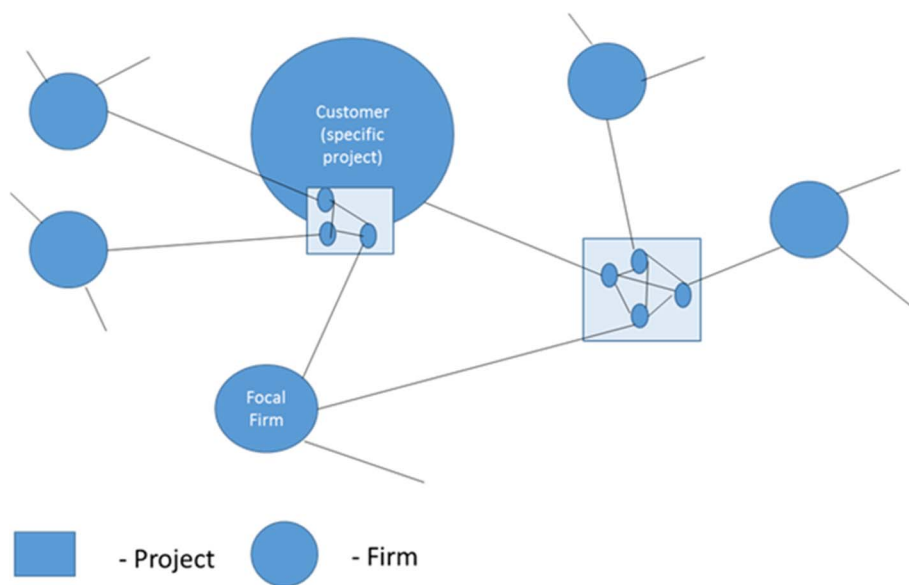


Fig. 2. Customer-specific projects & venture projects.

the same project of firms with diverse capabilities “brought in a huge sharing of experiences and knowledge, which happened very spontaneously (...)” This set of venture or exploratory projects was particularly relevant for the focal firm. In the words of Almadesign's CEO,

“These projects have a much stronger synergetic effect than any strategic plan... Cross-fertilization is very important in what we do. We learn from addressing different areas in the industry and [from] what one area can learn from another, for example from air transportation to automotive or railways. We came to understand throughout projects that there was increasing interconnection between all areas involved”.

In 2011, the project was completed. The result was a full-scale mock-up of an aircraft cabin interior. The mock-up highlighted the skills involved in its conception and realization. From the CEO.

“In this project we launched a number of possible ideas, we registered some industrial models, and some of these solutions might come to migrate to producible solutions. However the project was a research project - for the launching of new proposals and challenges that may, or may not come into production in the future”.

The project results were also important to increase the visibility of

the firm to potential customers. The LIFE project won an international prize (Crystal Cabin Award 2012, in the category “Visionary Concepts”) in competition with firms such as Boeing, Zodiac, and Airbus. From the CEO.

“From the moment these awards were won, a larger number of companies contacted us. Some of these companies were even major international competitors... and major international suppliers... although some were then unknown to us... The project served as a bridge for international and national customers to begin to know our capabilities as well as those of our partners”.

In general, collaboration with the various firms in the project has improved the Almadesign's knowledge of mold production processes, prototyping, specific requirements of the aviation industry, and the use of coating materials. However, the sharing of knowledge and access to resources and capabilities of the participating organization demanded the managing of the various interfaces and integration of diverse specializations. This role, from the CEO's point of view, required Almadesign to refrain from entering the areas of expertise of its partners:

“For example, when we become involved in developing the body of a bus, we do not work only with engines specialists. We have to

Table 1 Participants, their characterization and contributions in the LIFE project.

Participants	Characterization	Contributions
Almadesign	Design of new products and design management	Research, design, 3D modeling and definition of materials and colors. Monitoring of prototyping and processes for assembly of <i>mock-up</i> ^a
Embraer	Aircraft manufacturer that operates in the executive and commercial markets and in defense and security	Incorporation of aviation expertise, particularly in the prototyping and Assembly of <i>mock-up</i>
INEGI	Institute of R&D, that promotes university-industry interface, technology transfer, and innovation in mechanical engineering	Search for new forms of functional integration and combination and use of lightweight, renewable, and efficient materials
Amorim Cork Composites	Producer and provider of cork solutions for various applications, including the aerospace (e.g., NASA and ESA) and railway (e.g., Siemens) industries	Supplier of materials, including cork. Present in product development. It has been a key inducer of eco-design aspects in the project
SET	Provider of complete and integrated solutions for the various product development stages, from concept and design, to prototyping, virtual simulation and production	Engineering and product development, prototyping and building of mock-up. Responsible for the creation of virtual environments in which various engineering solutions have been tested and simulated
Couro Azul	Supplier of real leather, primarily to transportation industries, including automotive (e.g., VW)	Supply of tanneries and leather. Consolidation of an ecological approach to project
Sernis	R & D and production in areas related to road safety, active signs, fiber optics, LED technology, and renewable energy	Occasional collaboration
Caiaado	Supplier of electrical equipment and lighting products	Occasional collaboration

^a Actual size prototype or model.

carry out work with engines, interiors, bodywork, doors, interaction with systems, mobility, etc. All this, together, means that we have to talk with [people holding] lots of different skills. (...) We realized that if we specialized in just one of those areas, then we would lose our ability to combine them into one holistic perspective...”.

Approximately two-thirds of Almadesign's current customers resulted directly or indirectly from participation in venture or exploratory projects. In 2014, 30% of the company's business was in projects for aeronautics, and the LIFE project was crucial for this development. For example, the focal firm was responsible for designing the seats in a new generation of aircraft that Airbus (A330 neo) will deliver to an aircraft operator from 2017 onwards. These are some of the most visible results of the firm's involvement in the LIFE project.

In addition to these results, others from venture or exploratory projects that were less visible but no less important manifested over time. The successive experiments in the context of these projects were particularly important to develop the firm's knowledge about other firms:

“These projects are one way to know a little bit what our partners can do ... on which partners we can count in the future ... when and how we can call them ... The need to create common knowledge is essential. And the only way to overcome this is to create, over time, trust relationships”.

From project to project, it also became apparent that there was a need to combine a certain degree of stability in the composition of the firms involved in the projects (“we already have a common language and we trust each other”) with the introduction of new partners. After each project, some of these firms were discarded, because they lacked the required capabilities, whereas others become part of the firm's network. The involvement of new firms in each project is viewed as a means of creating new learning opportunities and of expanding the network by involving reliable firms: “We do not like this core [of firms] to be so stable that it remains unchanged [in all projects], because learning starts to slow down... and as we add one more, and then another ... we end up having a larger group of people we trust”.

This knowledge of who's who and what its partner base is capable of doing has proved to be important when being approached by potential customers to participate in new projects:

“The customers believe that we can rely on our partner network and organize a working group to develop a new project that may be useful to them in the future ... The most interesting thing for us is that, after participating in successive projects, we are invited to participate in other projects, encouraged sometimes by those same customers”.

Unexpectedly, the firm found that the invitations to participate in projects developed by other firms were based not only on Almadesign's design skills but also on its project management capabilities, which had been developed in successive projects: “[I]n some projects, we are invited to participate not only on account of our design capabilities, but also to coordinate the project ... a capability which we previously thought was not our strongest point.”

To a certain extent, the deepening of these capabilities occurred in the context of the venture or exploratory projects, in which the absence of a specific customer appears to have reinforced the role of the design firm in the coordination of activities:

“By working with several firms at the same time, we gain a lot of experience in managing projects and organizing very different skills. But this is somewhat more difficult in an exploratory project. When there is no specific customer, who is in charge in the project? Maybe that's why our company ended up having a bigger role, because we place the user at the center of our activity, and this is well accepted by our partners”.

5. Case analysis

The Almadesign case illustrates the cumulative processes of embedding a new business over time through several inter-organizational projects. In retrospective, this process involves a start-up evolving from a new, unembedded entity (the first project) to a progressively more embedded one (the second project), ultimately reaching a stronger position in the network with high-impact assignments (third project). In other words, successive projects contributed to the embedding of the focal firm by providing a ‘temporary’ context for the development of the firm's position, including its role, resources, and attractiveness, as an exchange partner for specific counterparts. Below, we analyze this cumulative process by focusing on the following two research questions: How and to what extent did the business relationship with the first customer, involving customer-specific projects, influence the embeddedness process, including the development of principles concerning its (intended) position? How did the position of the new business in a more permanent network, with its constraints and possibilities, become intertwined with more ‘temporary’ networks involving two different types of projects?

5.1. Initial process of embedding – the first customer-specific projects

A new firm must be recognized and accepted by some of the parties in the network (La Rocca et al., 2013); thus, the first project was critical for the focal firm to start developing a viable position in the network. In fact, the new firm was eventually recognized and accepted by being invited to participate in other projects launched by its first customer. In other words, the new firm appears to have succeeded in securing a network role and to have generated sufficient trust to become an attractive partner for at least its first customer.

5.2. The first two projects: discovering the limits and possibilities in the network

The process of starting to develop a viable position in the network was neither simple nor straightforward. The first project was largely a first opportunity to generate knowledge about Almadesign's own resources and its role in the context of that specific network. As the case illustrates, this first project made it apparent to the focal firm both that its role was unclear and that it did not have the resources that could support it. In fact, Almadesign did not have the resources required to develop a solution that was usable by its first customer; in relative terms, the pre-existing supplier network of Salvador Caetano had better solutions for the context of that specific project. Thus, as an unembedded entity, Almadesign lacked relevant knowledge about the potential of its own role (and supporting resources) in that particular context and lacked knowledge about existing resources in its customer's specific network.

However, despite the firm's proposals not being implemented, the first project generated resources and capabilities that proved important for the new firm when developing a viable position in the network. The first project allowed Almadesign not only to develop its resources (e.g., integrated design of components and project management capabilities) but also, and possibly more importantly, to deepen its knowledge about the customer's adjacent network and its resources. This knowledge, together with the trust obtained from its customer, was activated later on in the context of a second project (WINNER).

The WINNER project, in contrast to the first project, was far more complex. It implemented a new approach to linking several activities (i.e., design, testing, and prototyping), which required early interactions among several firms to develop an integrated solution. Because it was necessary to generate and test a variety of alternative solutions for the customer, the involved firms worked together for a longer period. For the focal firm, the resources developed in the context of the first project were critical to support the new firm's extended role in the

second project. This (extended) role involved designing and submitting a more complex project from scratch, participating in the purchasing activities of its customer and coordinating several firms involved in the project. Because several suppliers from the first project were involved in the second project, that customer-specific project allowed Almadesign to develop a more detailed view of the customer's adjacent network and its (new) position in that specific context.

5.3. Cumulative outcomes of the two customer-specific projects

Examining the cumulative outcomes of the two projects, with respect to the Almadesign position and attractiveness in the network, the new firm became progressively more embedded in the network. The potential for continuity of association between the parties, i.e., the development of a business relationship, generated in the first project manifested during the second project for the same customer. As the case illustrates, the firm could re-use resources developed in the first project, including its knowledge about several firms, to support its (extended) role in the second project.

The notion that the focal firm become progressively more embedded also manifests in other outcomes. The commercial results of the second project were particularly interesting for the customer and thus also for its suppliers and its customer's customers. The novel characteristics of the new passenger bus enabled Salvador Caetano to enlarge its customer base considerably. For Almadesign, these results contributed substantially to strengthening the emergent business relationship between the new firm and its customer (and, indirectly, to the customer's supplier network).

In short, one might suggest that the repetition of projects as more 'temporary' networks reflected (and built) Almadesign's attractiveness as an exchange partner for its customer. Because the role of a firm does not exist in a vacuum (Johanson & Mattsson, 1992), in an important sense, Almadesign was able to discover, develop and re-use specific resources, including knowledge about the network, and combine them with those of other firms to develop a viable position in the network. Additionally, the involvement in these projects appears to have contributed to the development of new principles concerning how to develop the firm's position in the network. In other words, its initial experience in the existing network was important for changing its perceptions and interpretations concerning constraints and possibilities associated with its specific network.

5.4. Reaching a stronger network position by promoting venture or exploratory projects

5.4.1. Venture projects: the need to experiment with new possibilities

Over time, Almadesign's process of developing its network position and attractiveness appears to have required a substantial change in how it combines its resources and capabilities with those of other firms in the network. Although existing business relationships might allow economies of knowledge re-use (Aaboen et al., 2013), they also can constitute constraints that limit the firm's scope of action (Håkansson & Ford, 2002). In this situation, it might be necessary to explore new approaches to counterbalance the (perceived) limitations imposed by the network in which the new firm is building a position.

As a project-based firm, Almadesign maintained and developed existing business relationships around customer-specific projects. Although these types of projects were a source of resources, they were perceived as involving a relatively rigid set of restrictions. The focal firm gradually became aware that if it kept its activities limited to customer-specific projects, then its ability to generate valuable contributions for its customers could decrease over time. To reach a stronger position and greater attractiveness in the network, the focal firm took the initiative to promote exploratory projects (Frederiksen & Davies, 2008) to be able to experiment with new possibilities for the development of new solutions, including experimenting with new

partners.

5.4.2. Combining two types of projects to strengthen the network position

In addition to this connection between customer-specific projects and exploratory projects, others aspects emerge from the analysis of the case. In all venture or exploratory projects, the firm resorted to the existing network relationships, having been able to mobilize several firms that participated in previous projects. Trust and mutual knowledge developed in the context of previous customer-specific projects were considered important resources for the realization of venture or exploratory projects. In other words, the business relationships between specific parties were re-used to activate existing resources in the network around each exploratory project. Conversely, the results of those projects also proved useful both to preserve (and even deepen) the business relationships with existing firms and to establish new ones with other firms. Finally, by their very nature, these projects allowed access to other firms with which there were no direct business relationships, generating additional variety in terms of resources and knowledge about the network. Thus, the realization of venture or exploratory projects appears to have supported the development of the firm's position (and its own resources) and attractiveness in the network.

To substantiate our claims concerning the connection between the two types of projects with the process of embedding in a (changing) network, we recall several aspects of the case. The LIFE project was the first of its kind in a new sector (aeronautics) for Almadesign. A few years after the project was completed, new business relationships started to develop; orders from customers in the aeronautics sector have become a substantial part of the firm's revenue. The firm's own resources, which support Almadesign's role as a designer firm for these customers, have been developed gradually over time by combining its own resources with those from other specific firms in the network around the two types of projects. Furthermore, a certain degree of continuity becomes apparent when examining the network activated around these two types of projects. In fact, the LIFE project is, in an important sense, a repetition of previous venture or exploratory projects because it involves a stable core of firms. For instance, the iBUS project was performed in the road transport sector using some of the firms from previous projects, in particular, Salvador Caetano (the focal firm's first customer). In all projects, the existing knowledge about other firms, developed in previous projects, was the dominant criterion for choosing the firms for that project.

Conversely, by including some firms other than those with which Almadesign has business relationships, the venture or exploratory projects allowed increased variety of experiences and resources, which was perceived as an additional means of stimulating learning. As reported in the case study, this learning was about not only technical issues or how to combine different specialties, but also a means of assessing to what extent these firms are reliable, and whether they should be invited to participate in future projects. Thus, if a degree of partner selectivity is required, its relevance for the project-based firm is appreciated not only for its effect on a specific project but primarily in terms of potential relevance for its position and attractiveness in the more permanent network, i.e., to support repetitive projects.

Finally, the experience with, and outcomes from, the LIFE project reinforced Almadesign's intention to combine venture or exploratory projects with customer-specific projects over time. Its viability in the network as an 'innovation firm' appears to depend not only upon its ability to mobilize other firms to promote inter-organizational projects but also upon its attractiveness for being approached by other firms. Its attractiveness as a partner in both customer-specific projects and venture projects depends upon its own resources and its capabilities to access the resources owned by other firms. In fact, after the LIFE project, it became clear that the focal firm had become sufficiently attractive to be invited to participate in projects promoted by others and, in some cases, to resort to its supplier network. Interestingly, the focal

firm learned that its attractiveness to some of these firms lies in not only its design capabilities and resources but also its project management capabilities developed (and exposed) over successive projects. In other words, venture projects were an additional tool that provided the design firm with opportunities to discover and develop not only its own resources and capabilities (e.g., project management) but also the resources and capabilities of others. Such projects led it to change perceptions on with whom to attempt to develop business relationships or on how to access and combine resources across firms' boundaries.

6. Conclusions

The cumulative process of embedding a new business over time can be viewed as a process of learning about a network that is characterized by invisible and complex connections between firms that are diverse in terms of their resources, intentions, and interpretations. The embedding process in the network can be approached as establishing a position in the network. In this paper, we combine the thus far rather separated literatures on industrial networks and project (management) to examine the relevance and complementarity of two different types of inter-organizational projects for the embeddedness process.

By combining the literatures on industrial networks and projects (management), we assumed that inter-organizational projects, as temporary networks, exist in the context of a more permanent industrial network and examined how a project-based firm, a design consultancy, is established and grows through different types of projects over time. With this purpose in mind, in addition to customer-specific projects, we extended the relational level (Aaboen et al., 2011) to include venture or exploratory projects (Frederiksen & Davies, 2008) and the time-frame to analyze how and to what extent the projects with the first customer influence the initial embedding process. We also analyzed how the position of the firm in the more permanent network became intertwined with more 'temporary' networks involving two types of (temporary) projects.

Our analyses with respect to the first issue suggest that the initial customer-specific projects can be crucial for a new business that is starting to gradually build its position and attractiveness as an exchange partner in the network (Baraldi & Perna, 2014). The analysis of the case suggests that these projects can constitute (temporary) contexts that allow the new firm to initiate its learning process about the network, about its own resources and, thus, about the need to (re)define its role in that network, which might require the development of new resources. Moreover, through successive customer-specific projects, the establishment of a business relationship with its first customer might itself become an important resource for the new firm assuming a stronger position in the more permanent network and for exploring new approaches to combining its resources with those from other firms in the network. In the case of Alamadesign, the new firm's relationship with its first customer emerged and developed partly through successive customer-specific projects. The successive customer-specific projects allowed several firms to expose and combine their resources and relationships and thus allowed the focal firm to develop a more differentiated view of its role and resources in the network. This consequence is consistent with the notions that, by interacting, network actors reveal their capabilities and relationships to each other (Johanson & Vahlne, 2009; La Rocca et al., 2013) and that the relationship with a first customer might influence the development of a new business's resources, principles, and new connections to the existing network (Aaboen et al., 2011; La Rocca & Snehota, 2014; Snehota, 2011).

However, by differentiating between customer-specific projects and venture or exploratory projects (Frederiksen & Davies, 2008; Lenfle, 2008; Lundin et al., 2015), our study allowed us to examine how 'temporary' networks around (inter-organizational) venture projects can also contribute to the embedding process in a network of connected relationships. In our framework, the firm's network positioning is a

cumulative process (Johanson & Mattsson, 1992), and venture projects, as 'temporary' networks, are performed in relation to a more permanent network. As our study suggests, the results from venture projects are often highly uncertain and not always easy to recognize or even retain. However, they can be relevant for the new firm to explore and develop new resources and capabilities, which in turn might affect its position and attractiveness in the (permanent) network. In the case of our project-based firm, venture projects arose from the need to address some of the restrictions of customer-specific projects to develop its role in future projects. There is an important element of connection between those projects and the network - the emergence and consolidation of the principle (and practice) (Aaboen et al., 2011) of preserving the continuity of association or interaction among specific firms around the inter-organizational projects. In other words, the resources in the existing network, including mutual knowledge between specific counterparts and their resources, provided a basis upon which both venture and customer-specific projects could occur.

Our case illustrates well the relevance of considering the complementarity between venture projects and customer-specific projects to understand their relevance for the positioning and attractiveness of the focal firm in the network. Venture projects, because of their exploratory nature, might place additional requirements on the new firm. However, to address this requirements, our focal firm developed new resources and capabilities (e.g., project management capabilities) which unexpectedly improved its attractiveness to other (present and new) firms. Conversely, these projects, due to their strong exploratory aim, allowed both the discovering and involvement of new firms to test new combinations of resources. If some of the new technical solutions are to be integrated into producer and user settings, the existing network, with its resources and capabilities, is likely to be re-used in the context of customer-specific projects.

The findings concerning the two research issues support the main conclusion that inter-organizational projects are tools for embedding a new firm in a network of relationships and are the means through which the firm progressively discovers and develops its resources and capabilities. The dynamic interaction between these two aspects, the embedding of the firm in a network (acquiring a position) and the nurturing and development of firm-based resources and capabilities, leads to mutual adjustments between the firm and its network. In other words, inter-organizational projects can provide the new firm with opportunities to both discover and develop not only its own resources and capabilities but also those of others, leading it to change perceptions on what resources are useful to access and who possesses those resources. To the extent that the positioning, role and attractiveness of a firm is closely related to the resources and capabilities that support it, customer-specific projects and venture projects can be complementary tools for a new unembedded entity to progressively become capable of assuming a stronger network position.

This finding is consistent with the notion that the formation of a new business builds on an existing network (Snehota, 2011) and thus depends on the establishment and development of business relationships with other actors (Aaboen et al., 2011; Ciabuschi & Perna, 2008). However, by viewing (temporary) projects as mechanisms for access and developing new resources and capabilities (e.g., Brady & Davies, 2004; Lundin & Midler, 1998) in relation to (permanent) business networks, our study also contributes to a better understanding of the role of different types of (inter-organizational) projects for the embedding of a new firm in a network of connected relationships. In the context of the industrial networks approach on the formation of new businesses, the process of starting up a project-based firm can require addressing the long established question concerning the link between different temporary structures (projects) and the development and reuse of more permanent structures (networks) to establish and develop its position (Aaboen et al., 2011; Baraldi & Perna, 2014). Conversely, this study is also relevant to the growing interest in examining projects as entrepreneurial acts in the literature on projects (Frederiksen &

Davies, 2008; Lundin et al., 2015). As projects have a tendency to reach out beyond the level of the firm, its relevance can be analyzed in relation to a network involving connected relationships among specific counterparts.

Further research can address how the boundaries of the new firms might change during the process of embedding over time (Snehota, 2011) from both a network and capabilities perspective (Araujo et al., 2003; Mota & Castro, 2004). In our case, the role of the focal firm in the network changed to include project management activities because its customers began to request this activity, thereby enhancing the resources and capabilities it developed in successive projects. It appears that, throughout the process, firm managers also realized that they should avoid becoming involved in other activities, because other firms have better skills in those areas than does the focal firm. Conversely, existing relationships with those firms allow not only access to but also the development of new resources. A related theme addresses the relevance of different approaches to combine knowledge about user and producer contexts for the embedding process to balancing efficiency requirements with innovation (Araujo et al., 1999) in the pre-existing network. It is reasonable to assume that those firms in a pre-existing network might have different expectations (and routines) about how to combine different types of resource interfaces. In our case study, the transition from the first to the second customer-specific project involved a substantial change in how the involved firms combined their resources in the product development process. A new approach to the generation of product and process specifications is likely to have affected the activities and respective roles of the various firms in the network.

This study offers two significant managerial implications. Typically, a new business faces significant resource constraints and is unknown by important firms in the network. The first managerial implication addresses the decision by which firms try to establish a first business relationship. As demonstrated in our study, the evaluation should consider the relative importance of the potential customer in the industry, in particular its network of relationships with other companies. Given the uncertainty about the new firm's capabilities, the initial transactions with the customer should be considered the beginning of a gradual process to demonstrate that the new firm is a reliable partner. This process can open further opportunities to increase knowledge about both the customer and its adjacent network of suppliers and customers. The second implication addresses the need to know about and expose the new firm to other firms in the network, apart from those with which it enjoys business relationships. Some of these firms can be extremely difficult to reach directly because the new business' attractiveness might not be sufficient to start doing business with it. Our study suggests that firms should consider launching venture projects because these projects can then be bridges to explore new possibilities to develop their customer and supplier bases. However, note that they should be considered investments processes and, as such, should be viewed in the context of other investments. Moreover, the results from venture projects are often highly uncertain and not always easy to recognize or even retain to develop new offers. In the case of a project-based firm, the development of specific resources (e.g., project management) might require its exposure to a diversity of projects as means of improving its own resources, including knowledge about what resources are useful to access and who possesses those resources.

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