UCJC
Business and Society Review
(Formerly known as Universia Business Review)

María Isabel Rodríguez-Ferradas
Universidad de Navarra - Tecnum
mirodriguez@tecnun.es

Erik Bohemia
Oslo Metropolitan University
erikbohe@oslomet.no

Yasemin Canik
Loughborough University
Y.Canik@lboro.ac.uk

Startups' open innovation journeys with large companies: A multiple case study

El recorrido de innovación abierta con grandes empresas en start-ups: Un estudio de caso múltiple

1. INTRODUCTION

Increasingly large companies are incorporating strategies to stimulate their innovation by developing closer links with startup firms (Freytag, 2019). However, as noted by Minshall et al. (2010) the very same differences between the small and large organisations, which make this relationship attractive, also generate numerous management challenges to the successful setup and management of such asymmetric partnerships.

Collaboration between large firms and start-ups has usually been approached from the perspective of the large firm that needs external knowledge to strengthen its innovative performance. The licensing literature, corporate venturing literature and literature on R&D collaboration and technology acquisition all have a serious bias by analysing the collaboration from the large firm's perspective (Usman and Vanhaberbeke, 2017).

Open innovation (OI) literature is no exception. Studies about OI between large companies and startups are focused on the challenges that the management of these collaborations present for the large companies (Chesbrough, 2012; Livieratos and Lepeniotis, 2017; Weiblen and Chesbrough, 2015; Richter et al., 2018; Battistella et al. 2017a; De Groote and Backman, 2019). The main bias of researchers in this area is to focus their studies on looking for selection and collaboration strategies of large companies in order

JEL CODES:
O3, O31, O32

Received: July 2019. Accepted: December 2019

DOI: 10.3232/UBR.2020.V17.N3.02

EXECUTIVE SUMMARY

The main idea of this article is that open innovation practices between startups and large companies are a very powerful tool to accelerate the growth of startups, but they are not without risk. Through our empirical study we have analyzed in depth from the perspective of the startups this type of practices and we have identified their most relevant risks and we propose a specific strategy to minimize them. The conclusions of this article can be applied by both startups and large companies and also highlight the key role that innovation intermediaries such as incubators can play to contribute to the success of these initiatives

RESUMEN DEL ARTÍCULO

La idea principal de este artículo es que las prácticas de innovación abierta entre startups y grandes empresas son una herramienta muy potente para acelerar el crecimiento de las startups, pero que no están exentas de riesgos. A través de nuestro estudio empírico hemos analizado en profundidad desde la perspectiva de las startups este tipo de prácticas y hemos identificado cuáles son sus riesgos más relevantes y proponemos una estrategia concreta para minimizarlos. Las conclusiones de este artículo tienen la bondad de poder ser aplicadas tanto por parte de las startups como de las grandes empresas y también ponen de manifiesto el papel clave que pueden desempeñar intermediarios de innovación como las incubadoras para contribuir al éxito de estas iniciativas.

to increase the return on investment in their OI initiatives, such as corporate ventures capitals, corporate accelerators, clusters or networks.

From a scientific point of view, OI practices are a necessity for startups in order to overcome both their liability of newness and the liability of smallness (Bogers, 2011). The scarce studies that analyse these collaborations from the point of view of the startups identified a large number of challenges that startups face when enrolling in OI practices with large companies (Minshall et al., 2010) and highlighted the "door-opener" role that intermediaries, such as incubators, can play in this field (Clausen and Rasmussen, 2011). Some studies focused on the dependence of the founders background, experience and characteristics and their influence in the success of their collaboration with large companies (Gruber et al., 2013; Alberti and Pizzurno, 2017; Battistela et al. 2017a).

From a scientific point of view, OI practices are a necessity for startups in order to overcome both their liability of newness and the liability of smallness

There is a lack of studies on how startups adopt OI practices with large companies (Spender et al., 2017). New research from the point of view of the startups can contribute to a better understanding of what drives startups to develop OI practices with large companies and how they use it. This paper aims to close this gap and in order to shed light on this topic, this study sets out the following research questions:

RQ1: What are the motivations of startups to enrol in OI practices with large companies?

RQ2: What are the inherent risks for startups when collaborating with larger established organisations and how can these be mitigated for startups?

To address these questions, the authors developed a multiple case study with ten startups from two different countries, Spain and the UK, at different stages of their life cycle.

The main theoretical contribution of this study is a framework that visualizes the journey that startups follow when they collaborate with large companies in OI practices and the influence that intermediaries can have on this journey.

From the empirical point of view, the contribution of this study is threefold. Firstly, it provides in-depth insight on the motivations and benefits of the startups when enrolling in OI practices with large companies. Secondly, this study identifies the risks that startups face in different stages of maturity of their OI practices and reveals the

abyss that startups face when a successful OI pilot project with a large company goes into the industrialization phase. Thirdly, it proposes strategies to mitigate the risks inherent in the implementation of these OI practices, such as involving from the pilot phase key people from the large company that will take part in relevant decisions in the industrialisation stage.

KEY WORDS
startups; open innovation; large companies; case studies; empirical research.

PALABRAS CLAVE
Startups; innovación abierta; grandes empresas; estudios de caso; estudio empírico.

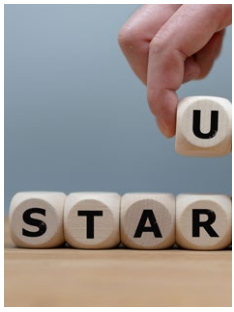
2. CRITICAL EXAMINATION OF OI BETWEEN STARTUPS AND LARGE COMPANIES

Eric Ries (2011) defines a startup as a human institution designed to create a new product or service under conditions of extreme uncertainty. One of the most accepted models of startups life cycle stages was proposed by Churchill and Lewis (1983) and includes three stages: (i) Pre-startup stage, when the founder has an idea and explores the feasibility of building a business based on this idea; (ii) Startup phase when efforts focus on refining the solution or prototype into a minimum viable product (MVP) and advancing the initial revenue model into a viable business plan; (iii) The growth stage when startup activities focus on scaling operations, processes, and systems to, at a minimum, remain profitable but preferably to grow and earn an above-average economic return on the resources employed.

Start-ups face a liability of smallness and a liability of newness, thus they engage in relationships with a variety of partners to overcome these constraints. According to Aldrich and Auster (1986), startups suffer from the liability of smallness caused by the lack of strong financial support from creditors and their difficulties in attracting qualified and competent personnel when compared to large companies that offer perceived long-term employment and career advancement. Moreover, startups suffer from their liability of newness by being unknown entities in the marketplace and not possessing a track record/reputation, which translates into a lack of trust in their abilities and offerings (Stinchcombe, 1965).

The startup phenomenon and OI are closely related. Adopting OI practices is a necessity for startups in order to overcome both the liability of newness and the liability of smallness (Gassmann et al., 2010; Dahlander and Gann, 2010; Bogers, 2011). Previous research in this field suggests that start-up's nature and liabilities not only motivate them to use OI but also shape the OI process in new ventures.

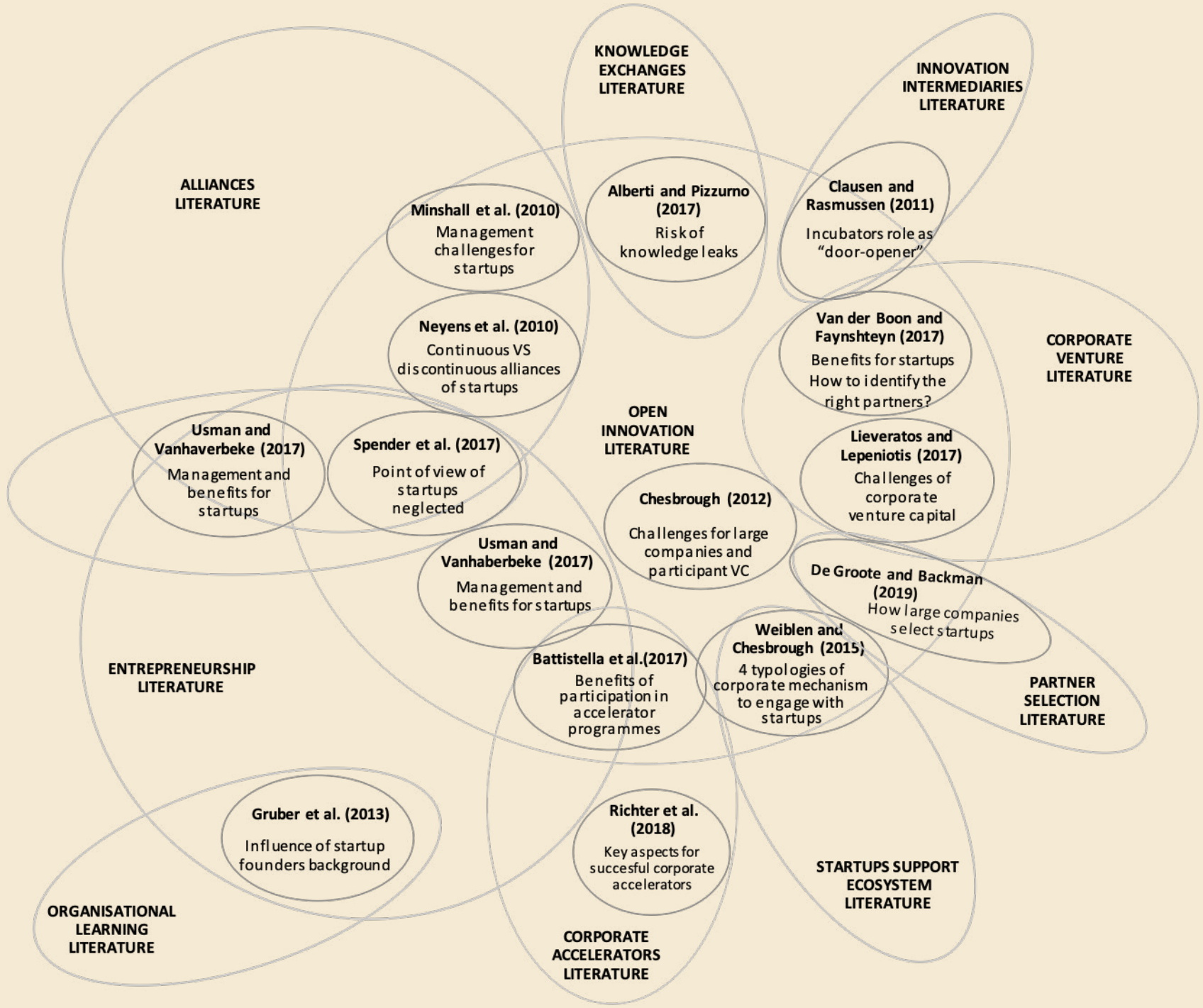
On the other hand, large companies began to pay close attention to startup firms in order to see what they are experimenting with and stimulate their own innovation. During the last few years, corporate efforts to engage with the startups have evolved from equity-based practices, such as corporate venture capital or corporate incubators, to more lightweight models, such as outside-in programs or platform programmes, which differ from previous models in that corporate ownership is not typically involved (Weiblen and Chesbrough, 2015). Both start-ups and large firms can benefit from having strategies intended to develop alliances and partnership in an open innovation context.



The research on these asymmetric partnerships even though it is scarce, encompasses a great diversity of theories as can be seen in **Figure 1**. Logically, OI literature is the central theory underlying most of the precedent research studies on this topic. Entrepreneurship and alliances theories are also very representative. Theories related to the various mechanisms that large companies use to engage with startups, such as corporate ventures, corporate accelerators or networks also ground the topic. Other studies are connected with theories related to the role that third parties can play in these OI practices, such as startups' support ecosystems or intermediaries. Finally, some references are related to theories of knowledge interchange, organisational learning and partner selection.

Spender et al. (2017) is the only scientific publication, to the extent of the authors' knowledge, which reviews the literature related to the intersection between the startups and OI phenomena. These researchers observed that most of the studies adopted the point of view of large organisations while the point of view of startups was neglected. In **Figure 1** we represented with dashed lines the studies that adopt the point of view of the startups in the literature review and in the **Appendix 1** of this paper, a summary table of the main contributions of these research works is included. Below the main contributions from these literature streams are reviewed, grouped on benefits and challenges that both partners can find in this asymmetric partnerships.

Figure 1. **Conceptual framework that summarizes the underlying theories related with this study**

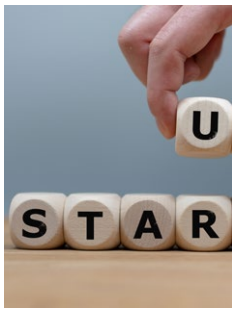


Source: own study

2.1. Benefits of OI practices between large companies and startups

From the startups perspective their relationships with established large companies can help them to overcome the negative effects of the liability of newness and the liability of smallness. For instance, through such alliances, the startup partner gets access to the large companies' financial resources and broader knowledge base (Clausen and Rassmusen, 2011) and the associative legitimacy that partners confer on the startup may compensate for the disadvantages of organisational inexperience (Hite, 1998).

Gruber, MacMillan and Thompson (2013) stress that for entrepreneurships to realise that their technology can be commercialised in a particular market, they need external knowledge sourcing about customer needs to complement their own technological expertise. Battistela et al. (2017a) revealed that the open environment offered by an accelerator boost the effort of a start-up in creating an innovative product or service in collaboration with large companies and reduce the start-up failures.



Another relevant contribution in this field is the study developed by Alberti and Pizzurno (2017) who studied a major Italian aerospace cluster, located in Lombardy (North-Western Italy), which comprised of a highly specialised group of startups and large companies. These researchers analysed the three different types of knowledge (technological, managerial and market knowledge) that the actors in this cluster exchanged and from which they achieved several benefits, such as reducing time to market, cost and risk reduction or improving access to specific expertise. Their results confirm that startups engaging in OI networks may largely benefit from absorbing different types of knowledge in either technology dynamics and applications, managerial practices and requirements or market scenarios and their evolution.

On the other hand, the large company may exploit new technologies and spur its own innovation activities by using the startup's agility and specialist expertise (Weiblen and Chesbrough, 2015).

Richter et al. (2018) studied corporate accelerators, an instrument for facilitating OI between large companies and startups where the large companies can obtain a high number of innovations from the creative and enthusiastic participants. As an incentive, the startups received investment in the form of equity, pre-seed or seed capital and they were able to benefit from the resources and expertise of the large companies.

2.2. Challenges of OI practices between large companies and startups

Despite these potential benefits for large companies and startups described in the previous section, the asymmetry between them in various organisational and cultural aspects, poses many challenges to their partnership (Minshall et al., 2010).

The world of startups is vast and diverse. It can be a daunting task for corporations seeking suitable startups as innovation partners (Van der Boon and Faynshteyn, 2017). Therefore, a first relevant challenge for large companies is how to select and approach startups (De Groote and Backman, 2019). Large companies can team up with other actors of the startups' ecosystem, such as venture capitals (VCs) and incubators, to gain information about interesting startups. Other large companies establish different formal mechanisms, such as corporate venture capital (CVC), corporate incubators or accelerators, to attract and select interesting ventures (Weiblen and Chesbrough, 2015). Finally, large companies also work via informal networks where startups are introduced through trusted network partners.

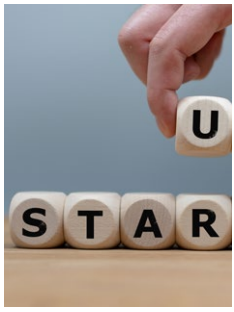
There are also challenges for startups when looking for the right large company to establish a collaboration. It can be helpful for the startup to investigate whether the corporation has collaborated with startups before. It is also important pay attention to the reputation of the corporation, because it can have unpredictable consequences for the future of the startup (Van der Boon and Faynshteyn, 2017).

Intermediaries are recognized in the OI literature as a relevant actor to overcome these challenges. Clausen and Rasmussen (2011) analysed the role of intermediaries in innovation policy in Norway. They concluded that the incubators in a publicly sponsored programme were actively serving as a 'door-opener' for external entrepreneurs seeking access to large firms.

Once the pairing between the large company and the startup has been carried out, management and cultural challenges emerged. Chesbrough (2012) studied the Ecomagination initiative from General Electric and Livieratos and Lepeniotis (2017) the corporate venture capital (CVC) programmes developed by four of the main European electric utilities. Their research studies identified the several challenges that these mechanisms pose for the large companies: (1) The need to buffer the startup from corporate bureaucracy; (2) The importance of credibility in the world of well-networked startups,

where a corporation's reputation can be ruined quickly; (3) The need for integration with the startup support ecosystem; (4) The different time frames in which decisions are being made in startups and in departments and business units of large corporations; (5) Finally how to set up a mutually beneficial commercial collaboration between startups and large companies is recognised as a major challenge.

Literature has paid less attention to the challenges that startups face. Engaging in alliances with large companies entails relevant challenges for startups due to their immaturity in managerial processes and short resources. Startups might succumb to knowledge leaks to the benefit of their larger partners who can access through them particular knowledge (Alberti and Pizzurno, 2017). Startups might also suffer from the loss of control over their own activities or find it hard to achieve real benefits from these practices due to cultural issues (Neyens, Faems and Sels, 2010). In line with this, senior managers at General Electric that participated in the Ecoimagination initiative described the need of a translation function between their needs and the added value for the startups (Chesbrough, 2012).



Usman and Vanhaverbeke (2017) highlighted the pivotal role that startup managers play in establishing and nourishing OI practices with large companies. Having prior managerial experience of working in a large company gives startup managers credibility among managers of the large firm and since they are familiar with processes in large companies they know how to knock at the right door at the right time.

In many cases, OI between large firms and startups end up going nowhere because of these challenges related to differences in goals and processes between startups and large companies (Usman and Vanhaverbeke, 2017). This critical review of the literature points to the fact that motivations of startups to enrol in OI practices with large companies remain unknown. Moreover a deeper understanding on their challenges and the identification of their associated risks and strategies to mitigate them could be very helpful for practitioners. Spender et al. (2015) already called for further research on this field from the point of view of the startups, because this was an under-investigated issue.

This knowledge could also be useful for intermediaries, such as incubators or public authorities, in order to design new instruments and programs that can help increase the success of OI practices

between startups and large companies and consequently the survival rate of startups.

3. RESEARCH DESIGN AND METHODOLOGY

According to the literature review discussed in the previous section, this exploratory study addresses two main research questions:

RQ1: What are the motivations of startups to enrol in OI practices with large companies?

RQ2: What are the inherent risks when collaborating with larger established organisations and how can these be mitigated for startups?

The main focus of this study is to gain insight into a specific problem and to provide knowledge and guidance for further research. Therefore, a qualitative approach has been employed in the form of a multiple-case study. A multiple case study approach was chosen in order to analyse the research focus in different contexts, which increases the validity and generalisability of the findings. This approach is especially useful to address how and why questions in a real-world context (Eisenhardt, 1989; Yin, 2014). Eisenhardt (1989) recommends that researchers select between four and ten cases for a valid multiple case study research.

Against the theoretical background discussed above, this study analyses the cases of ten startups, five from Spain and five startups from the UK. Including two different countries in this study will help to reduce the dependence of the results from the geographical context. The Spanish startups are located in the region of Navarra, which has an active policy to promote OI through several instruments between all the actors that participate in their innovation ecosystem, such as large companies that drive the main sectors in their economy and local startups. All the Spanish startups are located in the same incubator. This incubator founded in 1991 was the first incubator promoted by the regional government in the region of Navarra and since its foundation has incubated more than 170 startups.

The five startups from the UK were located in London. This European capital has been recognised as the biggest ecosystem of startups in Europe with more than 100 startup incubators and accelerators (Bone, Allen and Halley, 2017). The ecosystem is supported through promotion of an increasing number of events such as challenges or contest to encourage OI practices between large corporations and startups.

Through the Spanish incubator and a local community in East London, in which entrepreneurs and academics meet regularly for networking, the researchers invited startup representatives to participate in this study. All the startups participating in the study were required to have experience in OI activities. Primary data for this research was gathered through semi-structured interviews with the startups' CEOs, founders and managing directors. Methodological triangulation in data collection was implemented by using publicly available material, such as press reports, success stories, web pages and annual reports from the startups, large companies or incubators. In **Table 1**, a summary of the main characteristics of these startups is discussed:

Table 1. **Summary of the main characteristic of the ten startups (Legend: B2B: Business to business; B2C: Business to consumer).**

STARTUP IDENTIFIER/ COUNTRY	COMPANY ESTABLISHED YEAR	SIZE	PRODUCT/SERVICE (MARKET)	SECTOR	STAGE OF DEVELOPMENT
L1/UK	2017	2 people	On-line platform for learning to dance (B2C)	Sport and entertaiment	startup
L2/UK	2017	6 people	Food-truck (B2C)	Catering	startup
L3/UK	2017	1 person	Network to share information about technology between students and academics (B2C and B2B)	Media	startup
L4/UK	2016	11 people	Platform for cities to go online and share information about events' impacts (B2B)	Public services + Events market	growth
L5/UK	2014	5 people	Lighting design consultancy (B2B)	Lighting	growth
N6/ Spain	2016	2 people	Energy efficiency systems for poultry farms (B2B)	Industry 4.0	startup
N7/ Spain	2015	2 people	Artificial intelligence system applied to the classification of images for quality control based in free and open software and hardware (B2B)	Industry 4.0	growth
N8 /Spain	2013	2 people	System for evaluating movement and postures of human body in real time (B2B)	Health and ergonomics	startup
N9 /Spain	2011	8 people	System that provides surgeons with access through voice and gestures to the control of any type of medical equipment in the operating room (B2B)	Health + Industry 4.0	growth
N10/ Spain	2011	16 people	Standard for musicians for reading digital score (B2C)	Music	growth

Source: own study

A semi-structured questionnaire was developed as a guide for the interviews with startup representatives and a pilot test was developed with a startup representative. The final version of the questionnaire which is included in the **Appendix 2** section of this study was developed taking into account the feedback from this pilot test.

The interviews were done between September of 2017 and March of 2018 and lasted between 30 and 80 minutes. Researchers conducted the interviews in Spanish for Spanish startups and in English for UK startups. All the interviews were recorded, a total of 430 minutes were transcribed, and all the startup representatives were asked to verify the transcripts for correctness. The interviews to Spanish startups were conducted in Spanish and the transcriptions were translated into English by one of the researchers. This strategy allowed the three researchers to participate in the analysis of all the transcriptions. The transcribed interviews were analysed using NVivo (QRS, version 10). The initial interview data coding was guided by the research questions. Then coded segments were systematically compared with the literature. This was a particularly useful strategy for linking data with concepts as it allowed cross-case exploration of the concepts.

In accordance with ethics policies of the authors' institutions, the anonymity of the respondents was preserved and commercially sensitive material was kept confidential.

4. FINDINGS

This section is structured to align with the two research questions that drive this exploratory research. A brief introduction to the subject is presented, followed by the main findings from the multiple case study.

4.1. *RQ1: What are the motivations of startups to enrol in OI practices with large companies?*

This study started with a general view about the OI experiences of the participating startups in OI practices. The representatives of the startups were asked about their most relevant alliances and/or collaboration agreement with third parties. Surprisingly considering their scarce resources, the first impression was a rich one. All the interviewed startups had previous experiences that can fit into different types of OI practices and they were involved in these practices with various types of actors such as other startups, SMEs,

universities and large companies. **Table 2** summarises all the OI practices described by the startups' representatives based on the typologies proposed by Battistella et al. (2017b) for OI practices and actors whose definitions are included in **Appendix 3**.

Table 2. **OI practices described by the startups' representatives classified on the typologies proposed by Battistella et al. (2017b) for OI practices and actors involved in OI processes.**

STARTUP IDENTIFIER	STAGE OF DEVELOPMENT	TYPOLOGIES OF OI PRACTICES (BATTISTELA ET AL. 2017B)	CORE OI PROCESS MODELS (ENKEL ET AL. 2009)	TYPE OF ACTORS (BATTISTELA ET AL. 2017B)
L1	startup	External networking	Inbound	Value chain - Other companies
				External/Private - Startups
L2	startup	External networking	Inbound	Third party actors - Incubators
L3	startup	External networking	Inbound	External/Private - Startups
L4	growth	Dyadic/joint co-creation/co-development	Coupled	Value chain - Lead users
		R&D collaboration and strategic/ technology alliances/consortia	Coupled	External/public - Communities
L5	growth	Dyadic/joint co-creation/co-development	Coupled	Value chain - Other companies
				External/public - Universities and public research centres /organisations/institutions
		Innovation awards and competitions	Inbound	External/private - Experts
N6	startup	Dyadic/joint co-creation/co-development	Coupled	Value chain - Lead users
				External/public - Universities and public research centres /organisations/institutions
N7	growth	R&D collaboration and strategic/ technology alliances/consortia	Coupled	External/public - Communities
		Dyadic/joint co-creation/co-development	Coupled	Value chain - Lead users
		Supplying R&D services/activities	Outbound	External/public - Universities and public research centres /organisations/institutions
N8	startup	Dyadic/joint co-creation/co-development	Coupled	External/private - Experts
		Supplying R&D services/activities	Outbound	Value chain - Lead users
N9	growth	Dyadic/joint co-creation/co-development	Coupled	External/Private - Startups
				Value chain - Lead users
		Commercialising/selling technologies	Outbound	Value chain - Lead users
N10	growth	Dyadic/joint co-creation/co-development	Coupled	External/public - Universities and public research centres /organisations/institutions
		Supplying R&D services/activities	Outbound	Value chain - Lead users

Source: own study

In the **Table 2**, differences can be observed between the characteristics of OI practices depending on the stage of development of the startups and their geographical origin. All the startups in the "growth stage" of their life cycle developed outbound or coupled OI practices with other types of actors such as large companies or universities. However, among the startups in the "startup stage" a different behaviour is observed depending on its geographical origin. While Spanish startups in this stage reported outbound or coupled OI practices with large companies, UK's startups reported inbound OI practices with other startups or SMEs. The following step was to analyse the processes followed in these OI practices to understand startups motivations and identify relevant factors that can explain these differences.

A relevant insight coming from four of the five Spanish startups (N6, N7, N8 and N9) was the role played by the incubator in which they are located. This Spanish incubator has a programme to promote OI practices between startups and large companies within their region. The analysis of the information obtained about this programme, allowed to describe this process flow in the diagram presented in **Figure 2**.

At the beginning of the process, the incubator leads the first stages and play the role of intermediary, not only between large companies and startups, but also among the startups located in the same incubator, looking for complementarities and synergies that can drive them to present joint proposals to the large companies. At the second step, once the matching between the large company challenges and specific startups is made, the startups take the leadership of the process and they negotiate with the large company to agree on objectives, planning and conditions for each OI project. Finally, if problems arise later on and the process is blocked, the incubator offers its help to startups to unblock it by intermediating with the large company.

Figure 2. **Process flow of the OI program at the Spanish incubator**

	STAGE 1: Large Company engagement	STAGE 2: Challenge formulation	STAGE 3: Challenge discussion	STAGE 4: Startup proposals	STAGE 5: Startup selection	STAGE 6: OI project development
WHO						
Leader	Incubator	Large company	Incubator	Incubator	Large company	Startups selected
Participants	Large company	Startups	Startups	Startups → Large company	Startups selected	Large companies; Incubator (optional)
WHAT	Invitation to propose Innovation challenges to startups located in the incubator	Presentation of challenges to startups	Open discussion among startups about the challenges: • Better understanding of challenges • Identify complementarities between startups	Presentation of each startup and their proposals Networking and discussion of proposals with representatives from different departments of the large company	Communicate the results of their internal deliberations and which are the startups that they selected for going forward with the OI process	Process to define the OI Project and agree on planning and conditions If STAGE 6 is blocked by the large Company the incubator can help them to unblock it
WHERE	Incubator creative space	Large Company plant	Incubator creative space	Incubator creative space	Large Company plant	Large Company plant

Source: own study

Following, **Table 3** summarises the types of actors with which each startup has developed OI practices and their main motivations for it:

Table 3. **Main motivations for startups to develop OI practices.**

STARTUP IDENTIFIER	STAGE OF DEVELOPMENT	ACTORS	MAIN MOTIVATIONS FOR DEVELOPING OI ACTIVITIES
L1	startup	Other startups	Complement their scarce resources
L2	startup		
L3	startup		
L4	growth	Large companies, cities' representatives, universities, sport associations	Innovate in the way they are doing things (process innovation) through an early involvement of their customers and other relevant actors (academia and associations)
L5	growth	Large company	Diversification to new market niches
N6	startup	Large companies	Diversification to new market niches
N7	growth	Large companies	Pivoting until they reach a MVP
N8	startup	Large companies	Diversification to new market niches
N9	growth	Large companies	Deeper understanding of non-technological barriers for becoming an official supplier of large companies
N10	growth	Large companies	Pivoting until they reach a MVP

Source: own study

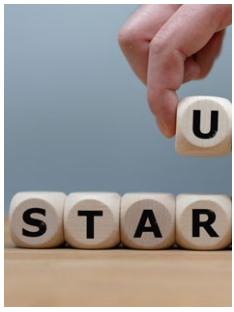
The main motivation of UK startups L1, L2 and L3, which were in their "startup stage", to develop their first OI practices was to complement their limited resources to overcome their liability of smallness.

An interesting characteristic of their OI practices is that they are non-pecuniary and, instead, there is a promise of potential for a commercial relationship in the future or an altruistic relationship of mentoring by someone that has gone through the entrepreneurship experience before. The following quotes by the CEO of L1 illustrate the non-pecuniary character of their OI practices:

> *L1: "There's a film production company and the guy who runs that is sort of a mentor for me, so in a way I'm collaborating with him but we're not collaborating in a monetary sense, it's just altruistic."*
>
> *L1: "She [their graphic designer] has been collaborating with a branding agency, which works in our same incubator, they're a startup as well but they're a little bigger, they've got like 8-9 people with more experience than her of course, so everybody*

in the startups is very friendly with each other, they collaborate a lot, so even myself, I talk to startups all the time [...] and they're on hand to help you because it serves their interest [...] whereas at the moment they know that you may not be able to afford their services but if they're there and they provide you some free consultation or just a friendly meeting, then you may become a customer of theirs in the future."

The startups at their 'startup stage' (N6 and N8) within the Spanish sample, were motivated by diversification to new market niches, so they were looking for acquiring market knowledge from the large companies. On the other hand, they were offering these companies access to their technological knowledge for solving their challenges. For example, N6 solved a challenge proposed by a large company for increasing the energy efficiency of their process of drying painted automotive parts using the infrared technology. This technology was completely new for the large company, while it was a well-known technology by N6 because they already applied it for high-efficient heating solutions in poultry farms.



Looking at the UK startups in the 'growth stage', L4 and L5 have incorporated market motivations in their OI practices. L4 recently signed an agreement with a large media company in the sports business for producing contents and agreeing standards for measurement of impacts of cities hosting major events. For L4 this OI project was key to innovate in the way they are doing things, so their motivation is mainly related to process innovation through an early involvement of their customers, which are the cities that associates to their platform.

The main motivation of L5 was to seek opportunities to diversify in the market. Their first OI experience with a large German company, was an informal agreement to present an innovative joint proposal to a large cultural project in a museum of London. For L5 this is an opportunity to diversify from architectural and habitat projects to the niche of cultural spaces. On the other hand, the German company, which has a big portfolio of previous projects in museums, benefits from the collaboration with a local startup in London that will have a positive impact in the evaluation of the proposal from the local authorities but also from the innovative technological knowledge that L5 can contribute to this project.

In the Spanish sample, N7 used OI activities with large companies for pivoting until they reach an MVP and N9 looked for a deeper understanding of non-technological barriers for becoming an official supplier for large companies.

Finally, N10 was the only Spanish startups that went through its OI journey without the help of the incubator. This was because they

have been a B2C company focused in the classical music sector and the large companies that participate in the OI programme coordinated by the incubator have an industrial profile which was very distant from their market and applications. In the case of N10 their main motivation for OI practices with large companies for the classical music sector, was to develop pilot cases of application of their technology that will provide them information about the most urgent needs of their potential customers, the musicians, to prioritize their developments.

N10 motivation was very similar to the one of N7, they use their OI collaborations with large companies, in their case with large orchestras, for pivoting until they reach a MVP that can be offered in the market even when they know that this product must continue to evolve in the future.

The analysis of the interviews offers insight into how the startups benefit from their OI with large companies. Added to the description of the specific benefits achieved from each startup, the research team looked for a classification of these benefits depending on the two main types of obstacles for chances of survival of startups identified in the literature: liability of smallness and liability of newness (Aldrich and Auster, 1986). The startups achieved benefits that can help them to overcome both obstacles, liability of newness and liability of smallness, in a very balance way (see **Table 4**).

Table 4. **Benefits for startups from their OI practices with large companies**

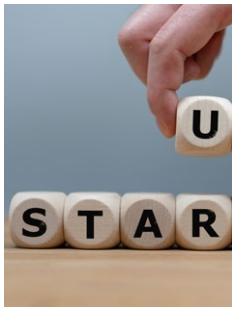
TYPE OF BENEFIT	CODE	BENEFIT DESCRIPTION	STARTUPS
Liability of newness	B1	Credibility and recognition within the market	N6, N8, N9, N10
	B2	Be a key partner in the definition of an international standard for measuring impact of events in cities	L4
	B3	Deep understanding of purchase drivers of large companies	N7
	B4	Find their differentiation from other competitor startups	N7
Liability of smallness	B5	Pivoting their MVP to fit in large companies or new market niches	L5, N7, N8
	B6	Increase their knowledge background	L5
	B7	To gain knowledge from processes and management tools of the large companies	N6, N8, N9, N10
	B8	Open opportunities for internationalisation with other large companies of the same international groups	N6, N8, N9, N10
	B9	The large company became a recurring customer	N9
	B10	Identify new needs of large companies that they can solve	N9

Source: own study

Credibility and recognition within the market are the benefits that stand out from this research in relation to the liability of newness. N8 outlined this in relation to having a well-known organisation as a partner.

> *N8: "And another benefit that I'm also seeing is that when you work with [large company], a lot of doors open up. The moment you say, well look we've done a project with [large company] everybody wants to talk to you to see what you've done to [large company]"*

In relation to liability of smallness, three main benefits are achieved by the startups of the sample. First, they benefit from pivoting their MVP to fit in large companies or new market niches. Second to gain knowledge from processes and management tools of the large companies. Third, the opportunities for internationalisation that came from other large companies that belong to the same groups as their partners.



4.2. *RQ2: What are the inherent risks when collaborating with larger established organisations and how can these be mitigated for startups?*

When asked about the risks they anticipated before starting their OI practices with the large companies, the representatives from the startups identified the concepts summarized in **Table 5**. As can be seen the types of risks were varied but intellectual property (IP) conflict is the one mentioned the most. The quotations included in **Table 5** help to understand the perspective of the startups concerning these risks.

When the startup representatives where asked about the problems that they encountered during the development of their OI practices with large companies they talked about the concepts included in **Table 6**. There is no one specific dominant type of problem across all their experiences, but some of them have a similar origin related to organisational/cultural issues, processes and strategy as can be seen in the third column of **Table 6**. Some of the startups anticipated the three problems shaded in grey in **Table 6**. The quotes included in **Table 6** show examples on how the startup representatives formulate some of these problems.

The main consequences of these problems are delays in the development of the OI practices that can compromise the time-to-market for the startups. However, some of these problems, such as the management of IP, can be considered more critical because they can cause distrust between the partners and a unilateral cessation of the OI practices on the startup side, such as the cases reported by the representatives of N7:

Table 5. **Risks that startups anticipated before starting their OI practices with large companies**

STARTUP	RISK DESCRIPTION	KEY QUOTES
L4, N7, N10	Intellectual property conflicts	L4: "There are many but, I guess, through the process, we need to be careful about content and about how we share and our property, knowledge property".
L5, N6	No risks	
N8	Image of being expensive for SMEs (bigger part of the market) because they work with large companies	N8: "One thing that gives me a bit of fear is that when we want to access the lower part of the market, I mean, with more SME-like companies, I'm a little afraid that by coming with the label of having worked with [large company] can play a little against us. In the sense that they can say, well, if this company has worked with [large company] they will be super-expensive and that this will throw them back."
N8	Uncertainty about results	N8: "When we started, we had no idea if something really was going to come out of this work. Of course, when you get into something that has a lot of research, of course it may be perfectly that we end up and say we have not been able to get anything out that was the big risk above all."
N9	Different languages	N9: "Also the subject of understanding, in the end a large company and a small company speak different languages. Therefore, especially when you talk about collaboration, you also have to assume that you have to learn several languages, […], it's about speaking the same language they speak and, above all, […] that you make yourself understandable, that is, that they understand your language […] that is sometimes rather more complicated".
N9	Discontinuity of the process from the large company side	N9: "You have the risk that at mid-development the project is stopped, you have the risk that the investment undertaken by that company is low, because the large company will not change its production model in the short term. These types of collaborations are long-term bets internally, then it will not change its production model, nor will it affect savings or an increase in profits or anything in the short term, it may never, it may be a risky bet".

Source: own study

When asked about key issues when managing OI practices with large companies, that can illustrate the different strategies that the startups put into practice to mitigate the risks inherent to these practices, the concepts that are included in **Table 7** arose from the analysis of the interviews.

"Trust building" was the most cited concept, but each of the startups approach building this trust in different ways. For example, L5 representative stated that the owner of the large company and him were part of the same international board for the past 5

Table 6. **Problems that the startups actually encountered during the development of their OI practices with large companies.**

STARTUP	PROBLEM DESCRIPTION	RELATED WITH	KEY QUOTES
N7, N9	Discontinuity or relevant changes along the process from the large company side	Organization/ Culture	N9: "The big company can change the project manager in the middle of the project and suddenly the new one that arrives and has different ideas about the integration of the project within the ecosystem of the company, so that it is not something that is isolated but that is integrated with what they already have, or you have security protocols, then you have to start working with the IT department within the company"
N6	Different paces and low availability of large company's contacts	Organization/ Culture	N6: "The problem for example with [large company] is the availability, they are all so bundled and with so many things, that it is like they never look for a moment to talk, unless it is something so extremely necessary that they look for you."
N9	Different languages	Organization/ Culture	N9: "So, especially when you talk about collaboration, you also have to assume that you have to learn several languages, that is, it's not about knowing German, English or French, it's about speaking the same language they speak […] perhaps that is the easiest, but that they understand yours that is sometimes rather more complicated.
N8, N9	Corporate bureaucracy	Processes	N8: "You have to manage their administrative complexity going you crazy and in the end it's something you have to do, of course it's a thing you have to go through and that's it, it's work, a huge volume of work that is unproductive for you."
N6	Assume costs of the prototypes to validate the viability of their proposals	Processes	N6: "You make the prototype, you do the test, you do everything and then at the end they decide not to go ahead and you end up losing money, but it is either that or nothing. Many times it seems to you, good they are big companies with great benefits and everything, but their way of working is always a bit of squeezing the supplier and they want you to validate your proposal before launching to start it up."
L5, N7	Dishonest behaviour in relation to IP	Strategy	N7:" We had to stop some Open Innovation processes for not being able to take on the issue of the management of intellectual property that is very important for us. In many cases it was for contracts whose terms were not well closed and the large companies, that have more legal knowledge, have tried to bring things over to their terrain".
L4	Conflict of interest between the actors involved	Strategy	L4: "When you sit those two in the same room to have a conversation and agree on something it's going to be quite tricky to have everyone agreeing on the same thing because for one of them the most important thing is going to be A and for the other one it's going to be B and then you need to find something in between, so that's going to be quite tricky, I'm very sure, yeah."
N7	Aggressive strategies to absorb the startup	Strategy	N7: "This company has started asking us questions like, are you going to be here in 10 years? As the results have been good, the questions are starting to be of the type, are you interested in us entering buying a part of the company?."

Source: own study

Table 7. **Key issues for managing OI practices with large companies.**

KEY ISSUES FOR MANAGING OI ACTIVITIES WITH LARGE COMPANIES	STARTUP IDENTIFIER	KEY QUOTES
Trust building	L5, N6, N8, N9, N10	N8: "The person who has been our link with the large company helped us a lot, he has fought internally. I know that he has fought internally because there it is difficult to change things is very complicated. This man took it as something personal has battled for us and the truth is that we have no complaints."
Clear win-win strategy	L4, N6, N7, N10	N7: "Well, there are companies that try to take advantage of the process to capture intellectual property and pay a very low price for it. On the other hand, there are companies that are going about it more honestly. The truth is that with those who are being honest, we are working and with those who have not been honest, we have stopped the process directly."
Managing collaboration internally in a professional way	L3, N8, N9	N9: "What we are trying are two things, first in the definition of the project is someone of higher level involved, either me or the Technical Director, and then the person in charge of that project is someone who can dedicate enough time and resources to get involved 100% with the client"
Non-pecuniary relationship	L3, N7	L3: "So that's the way I'm going to be collaborating, I'm going to be striking on negotiating deals in terms of what I'm going to give and what they can give to me because initially I don't want to be paid in money, I want to be paid with experience."
Empathy	N10	N10: "There is an empathy that makes you solve things in a more or less adequate way, or at least cordial".
Flexibility to adapt to the large company processes	N9	N9: "If indeed, we do have an agile methodology within the company, at the time of developing, but in the end we must be realistic and adapt to the client. That is, you can develop all the agile methodology you want and if the client is a dinosaur at a methodological level, simply because of the structure he has or because he does not want to adapt, then you have to adapt yourself to the client and not the other way around".

Source: own study

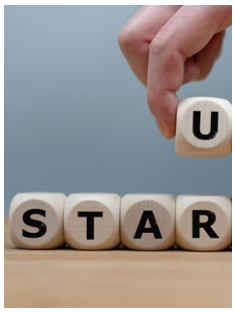
years and this previous relationship made easy to launch the OI practice between their respective companies. N8 highlights the role of the person that was in charge of their relationship inside the large company and how this person even has to "battle" internally to facilitate the changes needed to collaborate with the startup. Complexity of trust has been emphasised by representative from the N9 startup who said that other startups did not understand that beyond the technological solutions that they offer to large companies, there are many other components of their relationship such as warranty, security, support and maintenance, which create trust and differentiate them from other potential partner startups.

The second key issue for managing OI practices with large companies is to have in place a clear win-win strategy. This concept

appeared in the interviews of four of the startups and the quotation from the representative of N7 included in **Table 4** provides a good example of how startups representatives are looking for mutual benefits and thinking about the value that they can offer to the large companies and how to make it explicit.

From the rest of the identified key issues, startups are facing a difficult balance between their scarce resources and their interest in showing the large companies that they can manage their collaboration in a professional and flexible way.

5. DISCUSSION AND CONCLUSIONS



The aim of this study was to contribute to the limited literature in the field of OI practices between startups and large companies from the perspective of the startups. The results of our research can help managers from startups to understand the pros and cons of these practices and to minimise the inherent risks of their implementation.

An initial theoretical contribution of this research to the literature of OI is that startups are undoubtedly endeavouring extensively in OI practices and, more importantly, receiving through these OI practices relevant benefits that contribute to overcoming their liability of smallness and their liability of newness (Gassmann et al., 2010; Dahlander and Gann, 2010; Bogers, 2011). However, as explained in the previous section, the types of OI practices and the types of actors that the startups collaborate with depend on, first of all the life cycle development stage in which they find themselves, and secondly on the intervention of intermediaries that can contribute with their network and resources to accelerating the evolution from inbound to outbound and couple OI practices.

In agreement with Gruber et al. (2013) and Battistella et al. (2017b), this research shows that startups through the activities of OI with large companies access market knowledge that for them would be inaccessible under other circumstances and benefited pivoting their MVP or diversified to new market niches that offered these startups further opportunities to grow.

However, despite the efforts of startups to manage properly these OI practices with large companies, different types of problems arose. Some were expected by the startup managers but others were unexpected. Expected risks were related to IP conflicts, discontinuities in the process due to internal issues of the large companies and different languages (Chesbrough, 2012; Livieratos and Lepeniotis, 2017). Unexpected problems included issues related with corporate bureaucracy and different paces due to the low availability of the large companies' contacts. These were already

discussed in the literature by Chesbrough (2012) and Livieratos and Lepeniotis (2017).

Minshall et al. (2010) already reported problems associated with the transfer of responsibility within the large firm. Aligned with the proposal of these authors, the studied startups spoke of the initial enthusiasm from technologists in the large firm who "spoke the same language" as the startup during, what we can call the “pilot phase”, that starts with the definition of the conditions for the pilot OI project (objectives, resources and planning). At this phase the OI practices on the large company side are primarily managed by either R&D, Engineering or Product departments’ representatives, who are used to dealing with knowledge providers and startups. The staff of these departments understand the value that startups can add to their innovation process and the importance of being in tight contact with such dynamic and innovative companies.

Nevertheless, once the process of setting up the partnership moved to an “industrialisation stage”, the startups found themselves negotiating with procurement and legal teams. Procurement systems are typically set up to purchase standard goods and services from outside organisations with proven commercial track records. When dealing with startups, these performance oriented functions of a large company find that all their strategy and processes are completely useless and their staff is not prepared for establishing trust and win-win based relationships with representatives from the startups.

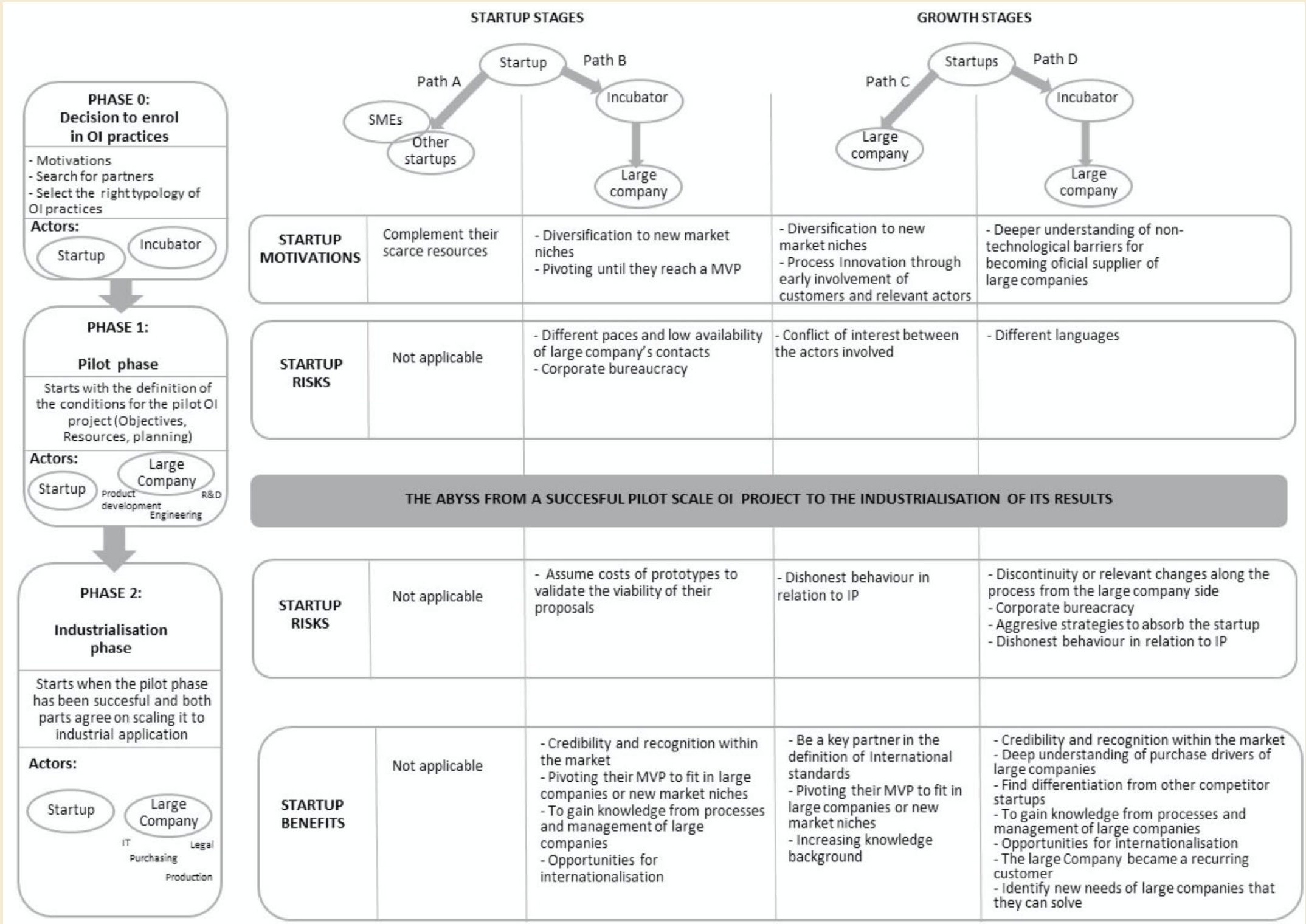
This theoretical contribution is in line with the work of Servajean-Hilst and Calvi (2018), who established a distinction between “project purchaser” and “innovation purchaser,” to explain that some departments and functions in large companies such as purchasing departments, still need to adapt to the OI context. We have verified that this is a critical problem in OI practices between large companies and startups.

Moreover, this study makes a theoretical contribution identifying new problems that were not covered by the literature such as the aggressive strategies to absorb the startup and the difficulties with sharing the cost of prototypes among large companies and startups.

All the theoretical contributions of this study are included in the framework presented in **Figure 3** that visualises the journey that embark on when collaborating with large companies in OI practices. This framework shows their motivations, the risks that can appear in each of the two phases identified along this journey and the relevant benefits that startups can reap if they are able to jump the abyss from pilot phase to industrialisation phase.

From the managerial point of view, when asked about key

Figure 3. **Theoretical framework of startups' OI journeys with large companies**



Source: own study

issues for managing their OI practices with large companies, the representatives of the startups highlighted two concepts: (i) trust building (Hasche et al., 2017) and (ii) a clear win-win strategy (Usman and Vanhaverbeke, 2017).

Directly related with these two concepts, we highlight the importance for the startup managers of identifying the key stakeholders inside the large company related to the complete lifecycle of their OI project, which includes both the “pilot phase” and the “industrialisation phase”. Making these key people participate in trust building and win-win strategies from the “pilot phase” of the OI projects, will clearly contribute to minimise risks of a failed transition from a successful pilot phase to a real industrialised result.

Moreover, this study can also help incubator managers comprehend the fundamental role they can play as intermediaries between startups and large companies at the "pilot phase" of OI practices. The key role that IP protection and management plays in this phase of OI practices between startups and large companies also reveals a need for further training and support for startup managers on issues related to a systematic approach to IP.

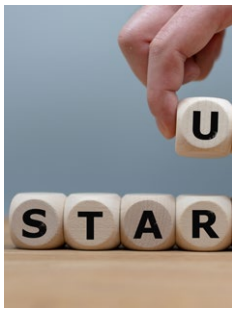
Finally, the results of this research may also be relevant for policy makers interested in promoting policies to support startups to increase their survival rate. It shows that helping these new companies to get in touch with large established companies in their regions can generate a win-win dynamic in the OI context between both types of entities. This type of OI practices can accelerate the lifecycle of startups. On the other hand and facilitate the adoption and application of new technologies by the large companies.

6. FUTURE RESEARCH LINES AND LIMITATIONS

The present paper has some limitations that open avenues for future research. First, this research was exploratory and involved 10 startups from two different countries. Thus, it is was not intended to generalise the results. Therefore, further research with a larger sample of companies and more countries will enable cross country comparisons and generalisation of the results.

Secondly, this study focused on the point of view of the startups, therefore, future studies can also incorporate representatives from the large companies to better understand their journey towards the maturity of their OI practices with startups. This research will provide insights on the internal mechanisms that are activated along this journey, the different internal roles involved in the process and identify the main problems and benefits facing large organisations while building OI processes with the startups.

Thirdly, future studies may continue to explore the phenomenon of the role of intermediaries in OI between startups and large companies through in-depth case studies of incubators that run programmes to promote and facilitate these types of experiences. Finally, despite these limitations, the achieved findings shed light on several aspects of the journey of startups towards OI that have been overlooked by previous literature and set the path for future lines of research on this topic.



REFERENCES

Alberti, F. G., & Pizzurno, E. (2017). "Oops, I did it again! Knowledge leaks in open innovation networks with start-ups". European journal of innovation management, 20(1), 50-79. doi: 10.1108/EJIM-11-2015-0116.
Aldrich, H., & Auster, E. R. (1986). "Even dwarfs started small: Liabilities of age and size and their strategic implications". Research in organizational behavior.
Battistella, C., De Toni, A. F., & Pessot, E. (2017a). "Open accelerators for start-ups success: a case study". European Journal of Innovation Management, 20(1), 80-111. doi: 10.1108/EJIM-10-2015-0113.
Battistella, C., De Toni, A. F., & Pessot, E. (2017b). "Practising open innovation: a framework of reference". Business Process Management Journal, 23(6), 1311-1336. doi: 10.1108/BPMJ-10-2016-0219.
Baxter, P and Jack, S. (2008). "Qualitative case study methodology: Study design and implementation for novice researchers". The Qualitative Report, 13, pp. 544–559.
Bogers, M. (2011). "The open innovation paradox: knowledge sharing and protection in R&D collaborations". European Journal of Innovation Management, 14(1), pp. 93-117.
Bone, J., Allen, O., & Haley, C. (2017). "Business Incubators and accelerators: the national picture" (No. 2017/7). BEIS research paper. April, pp. 1–76.
Chesbrough, H. (2012). "GE's ecomagination challenge: an experiment in open innovation". California management review, 54(3), 140-154.
Chesbrough, H., & Bogers, M. (2014). "Explicating open innovation: clarifying an emerging paradigm for understanding innovation". In H. Chesbrough, W. Vanhaverbeke & J. West (Eds.), New Frontiers in Open Innovation. Oxford, UK: Oxford University Press.
Churchill, N. C., & Lewis, V. L. (1983). "The five stages of small business growth". Harvard business review, 61(3), 30-50. doi: 10.1016/0024-6301(87)90071-9.
Clausen, T., & Rasmussen, E. (2011). "Open innovation policy through intermediaries: the industry incubator programme in Norway". Technology Analysis & Strategic Management, 23(1), 75-85. doi: 10.1080/09537325.2011.537109.
Dahlander, L., & Gann, D. M. (2010). "How open is innovation?". Research policy, 39(6), pp. 699-709. doi: i:10.1016/j.respol.2010.01.013.
De Groote, J.K. & Backmann, J. (2019). "Initiating open innovation collaborations between incumbents and startups: How can David and Goliath get along?". International Journal of Innovation Management, p. 2050011.
Eftekhari, N., & Bogers, M. (2015). "Open for entrepreneurship: how open innovation can foster new venture creation". Creativity and Innovation Management, 24(4), pp. 574-584. doi: 10.1111/caim.12136
Eisenhardt, K. M. (1989). "Building theories from case study research". Academy of management review, 14(4), 532-550.

Enkel, E., Gassmann, O., & Chesbrough, H. (2009). “Open R&D and open innovation: exploring the phenomenon”. R&D Management, 39(4), pp. 311-316. doi: https://doi.org/10.1111/j.1467-9310.2009.00570.x
Freytag, R. (2019), "On a growth track with startups: how established companies can pursue innovation", Strategy & Leadership, Vol. 47 No. 4, pp. 26-33. doi: https://doi.org/10.1108/SL-05-2019-0070
Gassmann, O., & Enkel, E. (2004). “Towards a theory of open innovation: three core process archetypes”.
Gruber, M., MacMillan, I. C., & Thompson, J. D. (2013). “Escaping the prior knowledge corridor: What shapes the number and variety of market opportunities identified before market entry of technology start-ups?”. Organization Science, 24(1), 280-300. doi: 10.1287/orsc.1110.0721.
Harms, R., Kraus, S. and Schwarz, E.J. (2009), “The suitability of the configuration approach in entrepreneurship research”, Entrepreneurship and Regional Development, Vol. 21 No. 1, pp. 25-47. doi: 10.1080/08985620701876416.
Hasche, N., Linton, G., & Öberg, C. (2017). “Trust in open innovation–the case of a med-tech start-up”. European Journal of Innovation Management, 20(1), 31-49. doi: 10.1108/EJIM-10-2015-0111.
HITE, J. M. (1998, August). “The Influence of the Firm Life Cycle on the Evolution of Entrepreneurial Dyadic Network Ties”. In Academy of Management Proceedings (Vol. 1998, No. 1, pp. C1-C7). Briarcliff Manor, NY 10510: Academy of Management. doi: 10.5465/APBPP.1998.27666784.
B. N. Hogenhuis, E. A. van den Hende & E. J. Hultink (2016). “When Should Large Firms Collaborate with Young Ventures?”. Research-Technology Management, 59(1), pp. 39-47, doi: 10.1080/08956308.2016.1117329
Livieratos, A. D., & Lepeniotis, P. (2017). “Corporate venture capital programs of European electric utilities: Motives, trends, strategies and challenges”. The Electricity Journal, 30(2), 30-40. doi: 10.1016/j.tej.2017.01.006.
Minshall, T., Mortara, L., Valli, R., & Probert, D. (2010). “Making “asymmetric” partnerships work”. Research-Technology Management, 53(3), 53-63. doi: 10.1080/08956308.2010.11657631.
Nambisan, S., & Sawhney, M. (2007). “A buyer's guide to the innovation bazaar”. Harvard Business Review, 85(6), 109.
Neyens, I., Faems, D., & Sels, L. (2010). “The impact of continuous and discontinuous alliance strategies on startup innovation performance”. International Journal of Technology Management, 52(3-4), 392-410. doi: 10.1504/IJTM.2010.035982.
Richter, N., Jackson, P., & Schildhauer, T. (2018). “Outsourcing creativity: An abductive study of open innovation using corporate accelerators”. Creativity and Innovation Management, 27(1), 69-78. doi: 10.1111/caim.12252.
Ries, E. (2011). “The Lean Startup, How Today’s Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses”. New York:Crown Books.
Rothschild, L., & Darr, A. (2005). “Technological incubators and the social construction of innovation networks: an Israeli case study”. Technovation, 25(1), pp. 59-67. doi: 10.1016/S0166-4972(03)00064-6.
Servajean-Hilst, R., & Calvi, R. (2018). “Shades Of The Innovation-Purchasing Function—The Missing Link Of Open Innovation”. International Journal of Innovation Management, 22(01), 1850008. doi:10.1142/S1363919618500081
Spender, J. C., Corvello, V., Grimaldi, M., & Rippa, P. (2017). “Startups and open innovation: a review of the literature”. European Journal of Innovation Management, 20(1), 4-30. doi: 10.1108/EJIM-12-2015-0131.
Stinchcombe, A. L. (2000). “Social structure and organizations. In Economics meets sociology in strategic management” (pp. 229-259). Emerald Group Publishing Limited.
Usman, M., & Vanhaverbeke, W. (2017). “How start-ups successfully organize and manage open innovation with large companies”. European Journal of Innovation Management, 20(1), 171-186. doi: 10.1108/EJIM-07-2016-0066.
Waguespack, D. M., & Fleming, L. (2009). “Scanning the commons? Evidence on the benefits to startups participating in open standards development”. Management Science, 55(2), pp. 210-223. https://doi.org/10.1287/mnsc.1080.0944.
Weiblen, T., & Chesbrough, H. W. (2015). “Engaging with startups to enhance corporate innovation”. California Management Review, 57(2), 66-90. doi: 10.1525/cmr.2015.57.2.66.
Yin, RK (2014). “Case Study Research: Design and Methods”, 5th Ed. Los Angeles: Sage.