

# **The entrepreneur's personal networks embeddedness in business incubators: A multi-level approach.**

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## **Abstract :**

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Interactions between entrepreneurial key actors seem to be intensified and reinforced inside business incubators to access resources. In previous research, social networks have been studied in the field of entrepreneurship, however, it has barely been introduced in the field of entrepreneurial support despite its crucial role in startup growth. Plus, the exponential number of business incubators has led to increasing research interest in the processes of entrepreneurial support. This article explores the hosted entrepreneurs' paths to access to resources (before and during the incubation process). We emphasize later the impact of the incubator on the reconfiguration of the hosted entrepreneurs' personal networks during the incubation process. Our qualitative unique case study deals with two levels of analysis by interviewing hosted entrepreneurs and business incubator managers. The sociological method "Relational chains" stresses that the entrepreneur resorts at the conceptual stage essentially with strong ties to acquire resources before the incubation period. Then, during the incubation process, entrepreneurs, gradually, distance themselves from their strong ties to enhance their engagement in professional weak ties. Some new social ties (created inside the incubator) evolve to strong ones among time and emotional exchange. Finally, interactions between the entrepreneurs and the incubator internal and external networks are reinforced to arrive to a stability and legitimation stage for resource access. This paper stresses in particular the entrepreneurs' ability inside business incubators to develop and maintain their personal social networks and the role of the business incubator managers in connecting the hosted entrepreneurs to the incubator networks to acquire resources. Managerially, this research would help the incubator managers and the hosted entrepreneurs to develop coherent strategies to bring together the structure stakeholders for a better performance and optimal resource allocation including tangible and intangible aspects.

**Keywords:** Business incubator. Social networks. Strong/Weak ties. Resource access. Multi-level approach.

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## Résumé :

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Les interactions entre les principaux acteurs entrepreneuriaux s'intensifient et se renforcent au sein des pépinières d'entreprises pour accéder aux ressources nécessaires. Les réseaux sociaux ont été largement étudiés dans le domaine de l'entrepreneuriat, cependant, ils ont à peine été introduits dans le domaine de l'accompagnement entrepreneurial malgré leur rôle crucial dans la croissance des startups. De plus, le nombre exponentiel d'incubateurs d'entreprises a conduit à un intérêt académique croissant dans le but d'étudier les processus de soutien à l'entrepreneuriat. Cet article explore les trajectoires d'accès aux ressources des entrepreneurs hébergés dans un incubateur d'entreprise (avant et pendant le programme) d'incubation). Nous soulignons plus tard le rôle des services de mise en réseau fournis par l'incubateur sur la reconfiguration des réseaux personnels des entrepreneurs hébergés au cours du processus d'incubation. Notre étude de cas qualitative unique porte sur deux niveaux d'analyse en interrogeant les entrepreneurs hébergés et les responsables de l'incubateur d'entreprises. La méthode sociologique des « Chaînes relationnelles » souligne que l'entrepreneur fait recours essentiellement à ses liens sociaux forts au stade conceptuel pour acquérir des ressources avant avoir intégré l'incubateur. Puis, au cours du processus d'incubation, les entrepreneurs, progressivement, se distancient de leurs liens forts pour renforcer leur engagement dans des liens professionnels faibles. De nouveaux liens sociaux (créés à l'intérieur de l'incubateur) évoluant vers des liens forts avec le temps et grâce à l'échange émotionnel entre les entrepreneurs. Enfin, les interactions entre les entrepreneurs et les réseaux internes et externes de l'incubateur sont renforcées pour arriver à une étape de stabilité et de légitimation pour accéder à des ressources tangibles comme le financement. Cet article souligne en particulier la responsabilité des entrepreneurs à développer et maintenir leurs réseaux sociaux personnels au sein de l'incubateur et le rôle des responsables de l'incubateur d'entreprises dans la mise en relation des entrepreneurs hébergés aux réseaux d'incubateur pour acquérir des ressources. Sur le plan managérial, cette recherche aidera les responsables d'incubateurs et les entrepreneurs hébergés à développer des stratégies cohérentes pour rassembler les acteurs entrepreneuriaux pour une meilleure performance et une allocation optimale des ressources tangibles et intangibles.

Mots clés : Incubateurs d'entreprises. Réseaux sociaux. Liens forts/faibles. Accès aux ressources. Approche multi-niveau.

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## **INTRODUCTION**

Several experiments and studies have been conducted to establish business incubators and to define them through their services, processes, and performance (Hackett and Dilts, 2004). Indeed, the term of business incubator describes organizations facilitating the emergence and development of firms by providing real estate services as office space, equipments, and entrepreneurial support in a community (Bøllingtoft, 2012a; Hackett and Dilts, 2004). They are initiated by public sector mingling with the private one (McCann and Ortega-Argilés, 2016; Theodoraki and Messeghem, 2018) to encourage project holders to cross their counterparts even globally. Therefore, potential entrepreneurs locate their startups in different support structures during the development of the project according to the attractiveness of territories to get access to local institutions, local workforce, and local events. Thus, the definition has been developed synchronously with the emergence of a new industrial revolution - the digital one. The incubators have worked to offer services that exceed sharing offices and experiences, by combining a variety of non-consulting services such as prototyping, experimentation, and networking (Chabaud and al., 2003; Pettersen and al., 2015). Consequently, these structures have been developing new inclusive strategies based on established exchange and collaboration with other stakeholders to facilitate the integration of the entrepreneurs into the local ecosystem (Hansen and al., 2000; M'Chirgui, 2012). However, despite its exponential emergence, the entrepreneurial support ecosystem research is underdeveloped and undertheorised field that needs to be institutionalized and further explored to avoid the existing uncertainty about its nature and boundaries (Adner and al., 2013; Simatupang and al., 2015; Spigel, 2017; (Theodoraki and Messeghem, 2018.)

Entrepreneurship literature has, indeed, been developed in the recent years and empirical studies have strongly institutionalized the entrepreneurial processes inside business incubators (Chabaud and al., 2003). Nevertheless, business incubators cannot be understood independently of its environment only by focusing on the process and personality traits of entrepreneurs. In fact, incubators are composed by internal stakeholders as managers, consultants, mentors, entrepreneurs (Hackett and Dilts, 2004; Theodoraki and Messeghem, 2018), and external ones as public institutions, business angels, venture capital, universities (Pettersen and al., 2015). The field of entrepreneurial support appears to be comprised of

different actors forming an ecosystem (Theodoraki and Messeghem, 2018) and resources that contribute to co-create value, attract entrepreneurs and effect, therefore, the performance of incubators and incubated startups. Indeed, a network approach to entrepreneurship has become crucial to link the development of the entrepreneurial process to all the elements of its ecosystem. This will enable scholars and practitioners to measure business incubators's efficiency and their impact on startups growth (Ben Letaifa and Rabeau, 2013).

Simultaneously, entrepreneurship literature explored the crucial role of social networks on the development of startups to overcome their "liabilities of newness" (Hoang and Antoncic, 2003; Jack, 2005). In fact, there has been an increasing interest among entrepreneurs in explicit guidance for entrepreneurial action (Mansoori and Lackéus, 2020). Several studies explained, more particularly, how the entrepreneur mobilize social ties to access to resources (Bøllingtoft, 2012b; Chabaud and al., 2003; Grossetti et al., 2006; Soetanto and Jack, 2011; Tötterman and Sten, 2005). Simultaneously, Business incubators have been forming continuous interactions with their stakeholders to create a committed network which they can deliver to their hosted entrepreneurs. Therefore, scholars and practitioners nowadays should use entrepreneurial methods that bring together multiple entrepreneurial actors, processes, and resources to co-create and to bridge this relevance gap (Mansoori and Lackéus, 2020). Surprisingly, very few studies regarding business incubators analyzed the impact of incubator's network on startups development and on the way entrepreneurs mobilize these networks to get access to resources (Pettersen et al., 2015; Audretsch and Belitski, 2017; Baraldi and Ingemansson Havensvid, 2016; McAdam et al., 2016).

The purpose of this paper is to understand how entrepreneurs mobilize available social networks inside business incubators to get access to resources contributing to their startup development. By addressing this question, we believe that this study contributes not only to theory development of social networks in management field but also to the entrepreneurial support field in general by using a multi-level perspective (Ben Letaifa and Rabeau, 2013). An explorative qualitative unique case study was conducted to answer our 'how' research question (Eisenhardt and Graebner, 2007). We perform a multi-level data collecting by interviewing (1) hosted entrepreneurs and presenting their "relational chains" (Grossetti, 2006) to access resources inside a known business incubator and accelerator in the south of France and (2) the managers of the same structure to explain the impact of the incubator services on the entrepreneurs-resource-access paths.

To address this issue, our paper is structured in four parts: (1) a review of the literature on social networks in business incubators and entrepreneurship research; (2) a description of the “relational chains” method employed for the data collection and analysis; (3) a discussion of our findings and the formulation of propositions that may be useful for future research; and (4) a conclusion that describes the contributions of this article, research limitations, and opportunities for future research.

## **1. LITERATURE REVUE**

### **2.1. NETWORKS GENESIS IN BUSINESS INCUBATORS**

Because of the fragmented and disconnected academic research and theories that underpin business incubators, there is no commonly accepted definition of it (Hughes et al., 2007). Some researchers define business incubation as a model of linking skills technology, capital, and know-how effectively to leverage entrepreneurial talent and accelerate business development (Allen and McCluskey, 1990). Indeed, a business incubator is a generic term designating organizations that give access to affordable office space and shared administrative services to project owners (Allen and McCluskey, 1990; Bøllingtoft and Ulhøi, 2005). According to the American National Business Incubation Association (NBIA), a business incubator is an economic development tool designed to accelerate the growth and success of businesses through a range of resources and support services.

Bruneel et al. (2012) propose to distinguish business incubators based on their value proposition. They perceive three generations of business incubators. The business model of the first generation is based on real estate services. In other words, a group of startups could share material resources (water, electricity, cleaning, telecommunications) in a common workspace. Startups could access services that they could not get easily at an early stage of development (meeting room, etc.). Based on an economy of scale approach, the more tenants an incubator received, the more money it would earn. Then, in the 1980s, a period of a gloomy employment, innovation became the keystone of economic growth. Business incubators became thus a popular tool to promote the creation of innovative businesses (Levis, 2001). A second phase of incubators allows the entrepreneurs to learn by doing and acquire skills, routines, reflexes through experience. The implementation of these routines is a slow and gradual process (Dosi and al., 2000) but business incubators allow hosted entrepreneurs to reach a high phase of the learning curve more quickly. The value proposition

of this second generation of business incubators is mainly based on business and coaching supports. A third generation of incubators emerged in the 90s, primarily aimed at providing access to services and resources via external networks (Lalkaka and Bishop, 1996). Business incubators' networks offer tenants accelerated and privileged access to potential stakeholders as customers, suppliers, technological partners and investors (Hansen and al., 2000, Scillitoe and Chakrabarti, 2010). Thus, this third generation of business incubators allow tenants to access to the entrepreneurial ecosystem that they would have taken longer to reach individually. The figure 1 explains the progression of business incubators provided services throughout time.

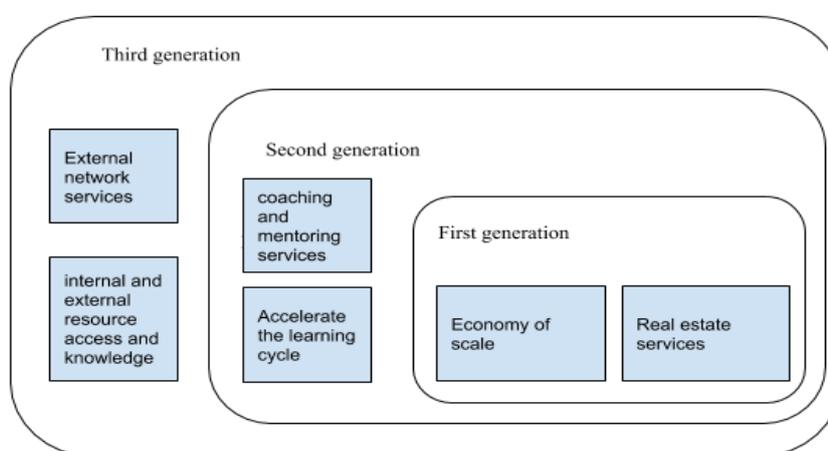


Figure 1: inspired by Bruneel and al. (2012)

“Network incubators” constitute a specific configuration of business incubators that offer a wide and diversified network to access to different tangible and intangible resources which can be exploited by hosted entrepreneurs (Hansen and al. 2000). Indeed, the incubator-provided network resources could be accessible both “internally” which means social ties inside the business incubator and “externally”, meaning social ties between the incubator and its external stakeholders (Pettersen and al, 2015). Indeed, startups’ “own” external network resources which include the "personal" network of the entrepreneurs (Pettersen and al, 2015) are mandatory and hold an interesting part of the resource acquisition in every stage of the development of the startup. Nevertheless, the incubator can represent other means of access to resources held by other collective and individual actors. Hence the choice of the two-level analysis for our research: The business incubators’ networks and the hosted entrepreneurs own social networks (personal networks) leading to the startup development.

Lyons (2002) emphasizes that the most important service offered by a business incubator is the possibility of internal networking of the hosted entrepreneurs who necessarily interact

since they are under the same roof. McAdam and McAdam (2006) also suggest that spatial proximity within the incubator can influence the frequency of peer-to-peer interactions and therefore enhance the resources exchange between hosted entrepreneurs. Based on interviews with entrepreneurs in a technology incubator in Bergen, Pettersen and colleagues (2015) defined the internal network of a business incubator as the sharing of entrepreneurial experience between the tenants and the network resources coming from inside the incubator (Pettersen and al., 2015). In fact, social ties created inside the business incubator between hosted entrepreneurs, the managers of the incubator, experts, etc., impact the different stages of the hosted startups development by the cross-fertilization of ideas and advice (Lyons, 2002; Pettersen and al., 2015). In practice, these social ties may involve intangible resources as exchanging critical business information (experiences, expertise...) and rarely tangible resources as formal or informal partnerships, commercial sales relationships or purchasing between companies (Lyons, 2002). In summary, the internal network of business incubators is rarely linked to critical tangible resources of the emerging companies (Pettersen and al., 2015). However, the social and moral support offered to the entrepreneur in critical moments and the sharing of experiences between entrepreneurs are considered mandatory for the development of emerging companies. The internal network of the business incubator meets the immediate and current needs of the hosted companies. Therefore, the hosted entrepreneur internal network expands as the entrepreneurial process moves forward (Pettersen and al., 2015). It is thus interesting to explain how the business incubator networks respond to the hosted entrepreneurs resource needs in the different stages of their startup development during the incubation process.

## **2.2. SOCIAL NETWORKS IN ENTREPRENEURSHIP**

Startups are often seen as limited organizations due to their liabilities of newness and smallness: limited resources, problems of size and market position (Aldrich and Auster, 1986). In fact, the entrepreneurship literature has well integrated, over the past 30 years, the fundamental role of the entrepreneur's social networks as a critical variable to mitigate the liabilities of newness and smallness of startups (Chauvet and Chollet, 2010). Johannisson (1988) was one of the first scholars to emphasize the importance of networks in entrepreneurship, by proving that the key to entrepreneurial success lies in the entrepreneur's ability to develop and maintain his personal social network. In addition, the social network in which the entrepreneur is "embedded" can be exploited to refine and/or redefine the concept of the enterprise (Johannisson, 1988). By mobilizing effectively her/his personal network and

the social network in which she/he is embedded, the entrepreneur can access to tangible and intangible resources more easily and rapidly, Grossetti (2006) affirms that "the creation of companies constitutes an interesting field for studying the processes of embeddedness and network breakdown" (Grossetti and al., 2006, p.4). The entrepreneur activates multiple social networks to access to resources when it comes to economic and strategic insufficiency for her/his startup. Thus, there is a wide consensus that the entrepreneur is the central player in mobilizing social networks to fill these shortcomings since it is often her/his relationships that constitute "the main vector of resources" of the business (Chauvet and Chollet, 2010). However, there is little research that explain the reconfiguration of the entrepreneur personal networks to fulfill the startup needs during the different development stages (Elfring and Hulsink, 2003). In fact, during the first 3 years, different types of social strong and weak ties allow entrepreneurs to identify new business opportunities, to obtain resources below the market price and obtain the legitimacy of external stakeholders (Elfring and Hulsink, 2003). Based on a 15-year-study of social networks in entrepreneurship, Hoang and Antoncic (2003) highlighted three axes that have been extensively developed in the literature: The content of social exchanges, network governance and network structure. The content axis is based on several works which studied the resources exchanged between the actors which are mainly tangible as capital and intangible as access to information and advice, emotional support, legitimacy. The governance axis consists on social ties management which is based on trust. Indeed, trust behavior affect the persistence of inter-organizational networks and improves the quality of information flows. The structure axis deals with the interpersonal and inter-organizational links of the entrepreneurs. Research on structure is based on social network metrics including the size, the centrality, the density and the nature of ties: strong / weak / transitional links. Research on structure axis proved the mandatory role of strong ties for the entrepreneur and in nascent entrepreneurial activity (Hoang and Antoncic, 2003).

We focus in this study on the entrepreneurs' social networks reconfiguration throughout the growth stages of the startup and we identify the types of the activated social ties among each stage. In fact, the structure of the entrepreneur social network changes from one phase to another during the development of the startup. Indre Maurer and Mark Ebers (2006) have examined how entrepreneurs mobilize their networks according to the development phase of the startup, they then concluded that at each stage, the entrepreneur's social network changes the configuration and the type of the activated social ties changes. The different stages of business development can address different resource dependencies, suggesting that the

entrepreneurs' social networks may need to change to meet changing resource needs (Sullivan and Ford, 2014). Butler and Hansen's model (1991), recognize that at the first growth stage the entrepreneurs' personal social networks are extremely important, it includes friends, family and pre-existing business ties who could provide them with a range of opportunities, information and emotional support (Butler and Hansen, 1991). During the launching and the operational stages their social networks are more studied based on ties with actors and organizations that could respond directly to the most immediate needs of the startup. Indeed, the entrepreneur's network in these stages is hybrid including social ties from the preexisting personal network (family, friends...) as well as new business contacts with collective and individual actors as suppliers, customers, etc.

### **2.3. BUSINESS INCUBATOR NETWORKS RECONFIGURING THE ENTREPRENEUR'S PERSONAL NETWORK**

The social ties created between entrepreneurs and individual and/or collective actors outside the business incubator are rarely considered in different studies of incubators (Pettersen et al., 2015). However, the personal networks of entrepreneurs are not only composed of social ties built within the incubator, they also rely constantly on their outside and private network to exploit opportunities within the incubator (Pettersen et al., 2015). Indeed, to understand the role of the social network resources provided by incubators to hosted startups Pettersen and colleagues (2015) stressed that it is essential that scholars identify the personal or the private external networks of the entrepreneur that go beyond the services of the business incubator and lead to the acquisition of critical resources. The entrepreneur's personal network is the social network formed by emotional ties and the accumulated professional ties (Greve, 1995). It usually meets the specific needs in terms of resources throughout the development process of the startup. Thus, the external personal network of the entrepreneur which is not linked to the incubator is more efficient and useful than the accumulated new ties (Pettersen et al., 2015).

To summarize, there is a large consensus that entrepreneurs are the keystone players in mobilizing their own personal social networks to fill the shortcomings of their startups as their social ties constitute the core of resource access for their businesses (Chauvet and Chollet, 2010). However, in the other hand, academic research on business support has clearly identified the network services that an incubator provides to businesses and their roles in the creation and growth of startups. In fact, business incubators connect hosted startups with first external actors as the founding partners of the incubator, public and regional institutions, etc.

In addition, being hosted in a business incubator allows entrepreneurs to build social ties with a pool of stakeholders as mentors, experts, and the managers of the structure. And finally, the hosted entrepreneurs develop their internal social network more particularly their “peer-to-peer” networks by exchanging intangible resources like information, advice, experiences with their colleagues and coworkers.

Scholars have largely identified the mandatory impact of business incubators on startups growth, however, the probability of the business value creation increases when the business incubator is structured into a strategic network (Hansen et al., 2000). Studies are mainly descriptive due to the social network complexity of business incubators. Consequently, another important aspect in entrepreneurial support research is to study the “how” of entrepreneurs’ personal social networks reconfiguration and development inside business incubators. In other words, how the entrepreneur mobilizes his/her personal network inside the business incubator to access to resources in each development phase? Consequently, what is the role of the incubator network services on the entrepreneur’s personal network changes in each development phase?

## **2. METHODOLOGY**

### **3.1. RESEARCH DESIGN**

Our research design is based on an explorative qualitative method based on a multi-level single case study (Yin, 2013). In fact, Dana and Dana (2005) emphasized that entrepreneurship research needs more qualitative methods rather than quantitative ones as the field is still under-studied and lacks exploratory analysis. We also proceeded with a single case study as it is a relevant method to understand unexplored fields and complex phenomena that are still little explained in the literature (Yin, 2013). The main goal of this unique case study is to observe a contemporary phenomenon in its real context where the boundaries between the phenomenon and the context are not clearly obvious (Yin, 2013).

We also proceeded by a multi-level approach since we are trying to consider different levels of interactions simultaneously to understand the dynamics of the social ties and their types. According to Chauvet and Chollet (2010) the multi-level approach is mandatory when we try to uncover interactions between the inter-organizational and interpersonal dimensions. Lazega (2014) estimates that the engagement in two types of social networks (in our case the personal networks of the entrepreneurs and the social networks of the incubator) will lead to the confrontation of diversified levels of analysis that enrich perspectives and will obviously

contribute to important theoretical results. By interviewing the hosted entrepreneurs and the managers of the same business incubator, this qualitative method explores the nature of the social ties mobilized during the different stages of startups development during their incubation.

Our study has a triple objective:

- Identify the nature of the mobilized social ties and understand the role of the entrepreneur's personal network on resource access before the incubation period.
- Identify the nature of the social ties mobilized by the entrepreneurs during their incubation.
- Understand the role of the internal and external network of an incubator on the reconfiguration of the personal network of the entrepreneur during the period of the incubation.

### **3.2. DATA COLLECTION**

Data collection was conducted in April and May 2018 in a business incubator and accelerator located in an innovation campus in PACA region (south of France). The campus is composed of a FabLab, a business incubator and accelerator and other programs as artist collaborative residency and a youth camp all working together and forming a rich diversified internal network. We choose to conduct our research at this campus because it gathers a wide external network of French multinationals, regional and local public institutions, NGOs, Fablabs, business incubators... Finally, our choice was based on its network dynamics: the managers and decision makers at the campus have a large social networks outside the working space which could be easily shifted to the hosted entrepreneurs, also, the campus receive foreign artists, entrepreneurs, experts, mentors who are all gathered at events, workshops, masterclasses and keynotes which enable the hosted entrepreneurs to build new social ties and access to resources.

The entrepreneurial process is a complex process composed by the interaction of several actors, different resources and several levels of action which need to be studied in depth at the same time. It is thus mandatory to study it as a phenomenon that involves these different simultaneous processes and interactions.

“In the launching startup process, the founders, are considered as individual actors, who give birth to an organization, by mobilizing resources and also by leaning on individuals and existing organizations, sometimes on a more global environment or an established market.

Each of these entities has a story and these stories intertwine in the process from which the specific history of the new business emerges. "(Grossetti and al., 2006, p.5). According to Grossetti (2006) "Relational Chains" method could include multiple processes of social network embeddedness from the conception of the startup to its commercialization in multiple contexts and environments. From this perspective, we do not only focus on the entrepreneurs themselves, but we try to understand the embeddedness of their personal networks allowing the development of processes of resources access before and during the incubation program. The "Relational Chains" method is based on storytelling in which the interviewees tell the story and the historical process of the startup launching. Thus, semi-structured interviews were conducted with hosted entrepreneurs. Indeed, according to Grossetti (2006) the choice of semi-structured interviews is not random in the "Relational Chains" method as it is based on specific reminders on the nature and quality of the social activated ties by the entrepreneur (Grossetti, 2006). It is also necessary to limit the boundaries of the startup history, so we decided to fix the startup team foundation as the beginning and the end of the incubation program as the end of the story.

The "Relational Chains" method is essentially based on the stimulus questions that help to specify the "how" of resource access paths. Indeed, the interview guide is previously prepared by the interviewer which contains a list of themes that must be addressed during the interview. However, the interviewer can revive with questions that seem obvious to the research question as "Who is this person?" ", " from where have you known this person? ", "Do know this person? ", " How were you put in contact with this person? " (Grossetti, 2011, p.6). We started our research at the end of the incubation program it was thus challenging for us to interview all the hosted entrepreneurs because they have already left the incubator. So, we proceeded by interviewing two out of the three incubator managers and five out of the nine hosted entrepreneurs at the business incubator and accelerator located at the campus. Plus, the five selected startups were chosen as they are all at a same growth advanced stage (the third one: Sale growth). Thus, the interviewees were grouped in two levels: managers and hosted entrepreneurs (see table 1 and table 2). In sum, seven interviews were conducted in total.

<b>Interviewee</b>	<b>Interviewee presentation</b>	<b>Startup</b>	<b>Startup presentation</b>	<b>Startup position</b>	<b>Interview duration</b>
E1	A 32-year-old Moroccan engineer who came directly to the incubator with two friends to launch the corporate headquarter of their startup in France.	S1	A social network where members can organize themselves in groups to protect and clean up their environment	co-founder	1h12
E2	A 47-year-old Indian entrepreneur with more than 20 years of experience in tech-companies and startups. The entrepreneur came to the incubator to launch the corporate headquarter in France. The two other entrepreneurs are not based in France.	S2	Allow energy swapping among individuals to increase self-sufficiency in an environmentally friendly way.	co-founder	52 minutes
E3	A 29-year-old Franco-Moroccan entrepreneur who launched his startup when he was unemployed. He integrated 2 incubation programs before the concerned structure.	S3	Bringing health services to medical wastelands using hospital trucks.	co-founder	43 minutes
E4	A 40-year-old Turkish agribusiness-engineer who came to France to launch the corporate headquarter in France.	S4	Use technology to help farmers optimize their land and output while meeting needs in terms of	co-founder	58 minutes

			food resources and sustainability aims.		
E5	A 32-year-old experimental physicist who launched at first the startup in Nigeria and then moved to France launch the corporate headquarter in France.	S5	Bring transparency and trust within the informal economy sector in order to boost employment and guarantee the quality of service	co-founder	1h

Table 1: The hosted-entrepreneurs-interviewee profiles

Interviewees	Management position	Background	Interview duration
PC	Startup Program Manager: Sourcing Outreach Manager	International	40 minutes
LC	Startup Program Manager: Social Innovator	French	49 minutes

Table 2: The incubator-manager-interviewee profiles

The interviews were based on two interview guides. Each interview lasted in average fifty-three minutes. This average is very expected in “relational chains” method since the story should last from 5 to 6 pages (Grossetti, 2006). Notes are written in a time frame, which often require reordering information obtained during the interviews. This needs a particular attention from the interviewer to ensure the effectiveness of the collected data. Three interviews were done face-to-face, three interviews by mobile call and one interview by Skype since it was the end of the program. All interviews were recorded using a Dictaphone application after the interviewees permission and were fully transcribed.

To enhance our study results validity, we used the triangulation method, which aims at combining multiple data collection methods. First data collection was based on a non-active observation as the attending of the researcher to the incubator meetings, workshops and events organized by the incubator or the campus. Then, semi-structured interviews were

conducted and finally the interviews were completed with document analysis mainly based on online data via websites and LinkedIn profiles.

### **3.3 DATA ANALYSIS**

According to entrepreneurship literature the startup growth stages which are commonly exploited are: (1) Concept generation or Ideation, (2) Launching and commercialization, (3) Sales growth, and (4) stability (Kazanjian, 1988). Manual sequential analysis of the entrepreneurs' interviews was conducted in order to form sequences of resource access in each development stage of each startup and form consecutively the "relational chains".

The sequences of resource access involved the main actor who is the entrepreneur in our case, and several other actors, resources and mediation devices as organizations, events, digital social networks, etc. These sequences are the subject of a resource mobilization available to the entrepreneur to acquire other external resource. The interval between one sequence and another can vary between an hour and months. Nevertheless, this study focus on the nature of social ties activated by the entrepreneur and resource access in the startup growth stages and not at the time interval between sequences. Therefore, the sequences of resource access are based on network ties which stress the nature of the social ties mobilized by the entrepreneur. In addition to networks, the sequences could contain mediation devices which include any device that contributed to the acquisition of an external resource such as other incubator programs, competitions, an export agency, etc. Grossetti (2011) emphasizes that "event context" impact the life of innovative companies (Grossetti et al., 2011, p. 11) and can affect the development process of startups, thus, these mediation events or organizations should be considered in our analysis. The division of the corpus into sequences of access to resources is a qualitative coding which requires a reading of the detailed transcript of the interview which can be processed manually or through a qualitative data analysis software as Nvivo Grossetti (2011). Manipulating the software can simplify the task if the research is based on a large amount of data (40 interviews in the case of Grossetti). However, all the steps are achievable through a manual sequence processing in our case. In this phase of analysis, a precise reading of the interviews of the entrepreneurs was made to schematize the sequences of access to resources which identifies the mobilized network ties in each growth stage and the activated mediation devices (see figure.2 which presents an example of the resource access sequences of E2). Attributes have been added to the diagrams to identify the nature of the mobilized network ties and the nature of external resource acquired.

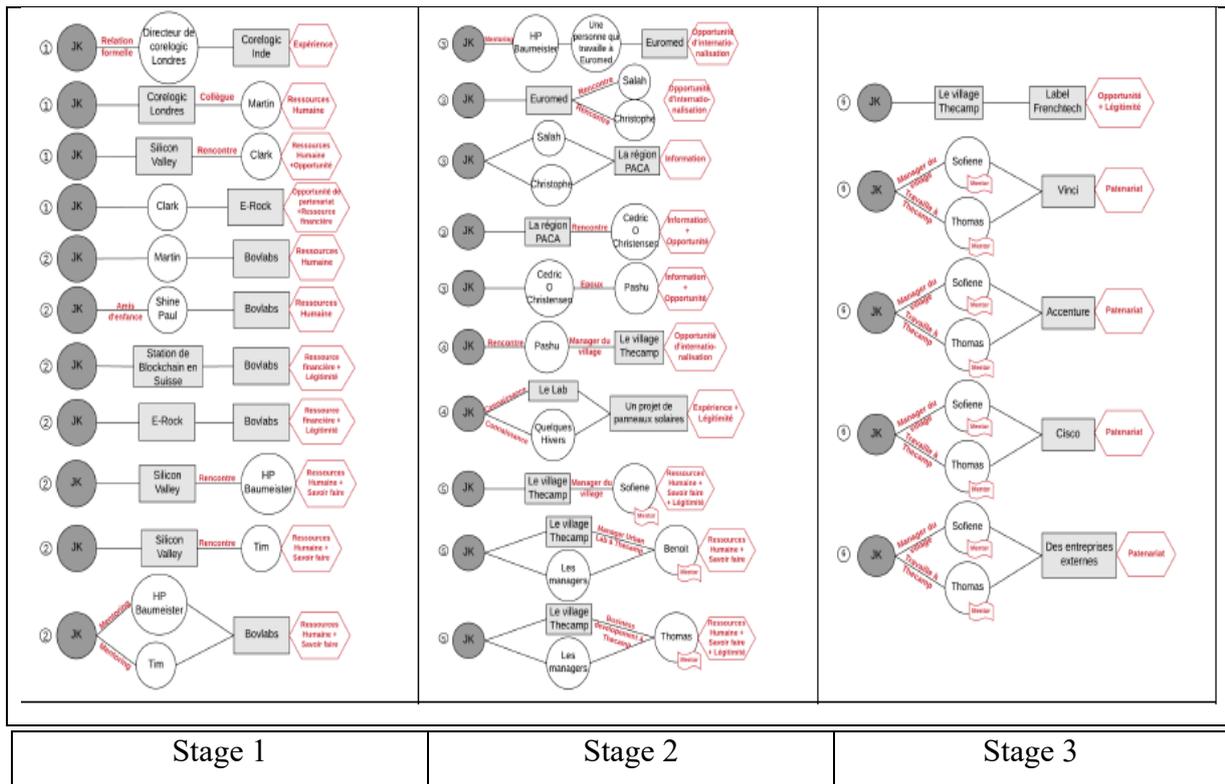


Figure 2: E2 Resource Access Sequence

Finally, the corpus of the manager interviews was analyzed by a manual thematic analysis. We chose the thematic approach to perform a content analysis that would identify pointed data and core meaning (Theodoraki and al., 2018). At this level, interviews were fully recorded and transcribed. Then, we identified key concepts through the manual coding of verbatim. The different codes describe developing ideas and predefined subthemes from the literature and the field observation. We finally proceeded with a re-coding of verbatim to identify the main networking services that help the managers to connect entrepreneurs to the internal and external network of the incubator.

The main results of our manual sequential and thematic analysis of the hosted entrepreneurs and managers' interviews are presented in the next section.

### 3. RESULTS

The first level of analysis focuses on social networks mobilized by the hosted entrepreneurs during the three stages of development. This part of the analysis explain (1) the nature of the resources (social ties or mediation devices) mobilized in each growth stage, (2) the nature of the social ties mobilized in each stage of maturity and (3) the nature of the social ties mobilized during the incubation program. The second level of analysis focuses on actions

carried out by the managers of the incubator that help hosted entrepreneurs create connections with the internal and the external network of the incubator.

#### **4.1 SEQUENTIAL ANALYSIS: HOSTED ENTREPRENEURS' LEVEL**

We stress in this part only the first three stages of startup growth of the four developed by Kazanjian (1988) as the startups from our sample did not make it yet to the stability stage (which is the last growth startup stage developed by Kazanjian (1988)). Indeed, all the hosted startups have already passed the conceptual stage and emerged the incubator during the second maturity phase which is the launching. We must mention at this level, that four out of five of the entrepreneurs' sample are foreign and represent global startups. This may indeed have an impact on our results that we mention later. We identified, therefore, 91 sequences of access to resources through the entrepreneur interview analysis. Which is an average of almost 18 sequences of access to resources by entrepreneur or by story. 51% of resources access over all the growth stages involve social ties. The number of resource access sequences to resources handled by each entrepreneur: E1 has 21 sequences, E2 has 26 sequences, E3 has 15 sequences, E4 has 14 sequences and E5 has 15 sequences.

##### **4.1.1 Type of mobilized resources in each growth stage**

At the first growth stage, the sequences analysis highlighted the importance of mediation devices for the entrepreneurs. Almost 58% of the resource access involve mediation devices, which emphasizes the importance of the financial, technical and communication support coming from mediation events and/or organizations that assist entrepreneurs at the first stage of growth. We illustrate this following extract from the E1 interview corpus:

"We have participated in "Digital Africa" in which we won 30 thousand euros: part financial and part acceleration program which will take place at Numa in Paris. We also participated in the "fbstart" program, which is the Facebook acceleration program, I got access to several well-known programs, also the promotion on Facebook which costs \$ 1,500, plus if I have any technical problem, I could easily contact one of Facebook team".

The second growth stage is the launching in which the entrepreneurs focus on the product marketing products or the official launch of the startup. At this point, almost 56% of the sequences involve social ties. This percentage can be explained by the emergence of most of the startups in international markets and their integration inside the business incubator. This percentage seems to rise to almost 67% during the third growth stage. In fact, during the last two maturity phases, entrepreneurs mobilize their personal social networks and create new social ties in their search for new markets, new customers, funds. In addition, during these

two stages the entrepreneurs lived new interactions with their co-workers at the incubator, at the campus and outside of it. Plus, as mentioned four out of five of the entrepreneurs of our sample are foreign, so, their integration at the campus involves their arrival to France which means a foreign country. Therefore, the increase of the social ties' sequences could be explained by the fact that the hosted entrepreneurs, at this stage, need to belong to a group of people professionally and emotionally.

#### **4.1.2 Type of mobilized social ties in each growth stage**

During the first growth stage of the startups almost 67% of the mobilized social ties by the hosted entrepreneurs are emotional and interpersonal. Four entrepreneurs among the five move towards close friends, former colleagues or their family members in this stage. Indeed, these results are expected because the startup process could be a difficult and isolated one and entrepreneurs need to share regularly their ideas especially during the first stage of business conception when they need to be surrounded by trusted people and have an emotional support. At this first stage, E2 explained that he turned to his childhood friends who also have the same background as him "I am always a person who wants to be surrounded by my loved ones". Emotional ties could also lead to tangible resource access as money or recruitment. Resource access sequences during the first stage emphasized that E5 activated a single sequence involving social ties. This sequence showed that E5 met his co-founder via one of his close friends. Thus, E5 activated an emotional social tie to get access to a human resource.

During the second growth stage, most of the mobilized social ties are economically embedded. Indeed, entrepreneurs participate to bootcamps, master classes and competitions abroad or in France. They thus meet people who could help them enhance their businesses or not. The case of E2 in this section illustrates the importance of weak ties. He met during the Euromed program in France, the husband of one of the incubator managers who helped him applied for the incubation and acceleration program. The mobilization of weak ties seems to be accelerated when the entrepreneurs have arrived at France.

During the third growth stage, the resource access sequences emphasized that most of social ties are economically professional. Indeed, during this phase, the entrepreneurs activate their reconfigured personal network to set up their corporate headquarters in France. The analysis also shows that all the social ties are embedded inside the incubator. The entrepreneur's personal networks strongly depend in this stage on people who work not only at the incubator but also at the campus. These intermediary or indirect social ties help the entrepreneurs

connect with either the campus founding partners and/or external big French companies and local and regional public institutions. To sum up, the type of the activated or mobilized social ties depend extremely on the fact that our sample is mostly composed of foreign entrepreneurs who came integrated the incubator to create the corporate headquarters in France.

#### **4.1.3 Type of mobilized social ties during the incubation program**

The hosted entrepreneurs' social networks are usually embedded in the internal network of the incubator. This result is intensified in our case study because the hosted entrepreneurs are mostly foreign and their social and professional life depend mostly on their presence in the incubator. Plus, through social ties inside the incubator and the campus in general, the entrepreneurs are easily connected to the external networks as the partners of the campus, the personal networks of the managers of the incubator, the mentors and the staff of the campus. We identified through the sequential analysis different levels of interactions between the entrepreneurs and the internal network of the incubator. Each level led to different resource access (see table 3). In fact, for three months entrepreneurs are hosted under the same roof with other entrepreneurs, work every day with the incubator managers, encounter daily the campus staff and meet weekly their mentors. Peer-to-peer ties were intentionally provoked since the incubator managers put in place multiple activities to provoke the interactions between the entrepreneurs. However, the evolution of this type of social ties was a natural process since almost all the startups are in the same growth stage thus the entrepreneurs shared almost the same problems. They exchange feedback, experiences, and technical problems especially during the test and the prototyping. In addition, most of the hosted entrepreneurs are foreign so they tried to create social ties that could fulfill their needs for friends and family ties who are abroad. Thus, there are some social ties that evolved from weak to strong ones.

Social ties between entrepreneurs and the incubator managers are mainly based on day-to-day needs so they are mostly professional and weak ones. Their interactions seem to be intensified in the second and third stages. The type of the activated social ties at this level and the resource access depend on (1) the manager's position inside the incubator (2) whether the manager is also one of the mentors of startups (3) and the experience and the background of the manager which form his/her personal network.

	<b>Type of social ties</b>			
<b>Level of interactions</b>	<b>Peer-to-Peer: Weak to strong ties</b>	<b>Managers/Entrepreneurs: Weak ties</b>	<b>Mentors/Entrepreneurs: Weak to strong ties</b>	<b>The campus/Entrepreneurs: Weak ties</b>
<b>Type of resources</b>	Intangible resources: technical information/ institutional information/ emotional and moral support	Intangible resources: Knowledge and expertise/ Institutional information Tangible resources: day-to-day logistical services/ Funding meetings / marketing consulting/access to regional customers/ access to international markets.	Intangible resources: pointed expertise field/ coaching/ technical and institutional information/ emotional and moral support. Tangible resources: Funding meetings / access to regional and French/ customers/ access to international markets.	Tangible resources: logistical services / experimentation and test prototyping services/ access to regional and French external partners and customers.

Tableau 3: Internal mobilized social ties versus the type of resource access

The sequential analysis also highlighted the social ties created between the entrepreneurs and their mentors especially during the third growth stage and at the end of the program. Indeed, the mentors are either managers who work at the campus or external experts from the founding partners or not. Most of the mentors are selected for a specific expertise and his/her coaching ability, they all have international experience. These social ties provide rich and pointed intangible and tangible resources as funding and business contacts which respond exactly to the entrepreneurs needs. The mentors could continue seeing the entrepreneurs even after the incubation program, thus, there is also social ties development in this case. Finally,

social ties between the entrepreneurs and the staff of the campus in which the incubator is located can either be between entrepreneurs and people who work within the campus structures as the artist residency, the FabLab and/or either between the entrepreneurs and the management core team of the campus. It is, indeed, the role of the incubator manager to get the entrepreneurs in touch with the right persons from the campus to access to external contacts or to ask for technical help during the prototyping.

The sequential analysis emphasized that entrepreneurs are generally put in touch with the external networks (outside the incubator and the campus) by intermediary or indirect social ties that are created by the incubator managers and the mentors. External networks are composed of the campus founding partners network, the external networks of the incubator managers, the mentors, and the campus team. Thus, these social ties are mainly created first thanks to the networking services managed by the incubator managers. Second, they depend on the entrepreneurs and startups' needs and requests to get in touch with an institution and/or a person to access to resources.

#### 4.2 THEMATIC ANALYSIS: THE INCUBATOR MANAGER LEVEL

This part of the analysis highlights the actions implemented and carried out by the incubator managers in order to provide an effective integration of the hosted entrepreneurs in the program and connect them to the right social networks to access to resources. The thematic analysis of the data allows us to accentuate the services provided by the business incubator and their impact on the acquisition of resources throughout the startups' development processes. Below the table 4 which highlights the implemented services that facilitate the resource access, quotes from managers interviews and the type of the mobilized resources.

<b>Networking Services</b>	<b>Corpus Verbatim</b>	<b>Resource access</b>
The campus ecosystem access	“the incubator is part of a larger ecosystem which is the campus, so our role is to involve our startups in this ecosystem activities” LC	Technical and institutional information/ field testing/ external networking resources
Peer-to-peer learning	“This service is really important for the entrepreneurs. It is intentional to choose startups that are almost at the same growth stage, this makes them share the same	Technical and institutional information/ know-how/ Moral and emotional

	challenges, so they become suddenly friends” PC	support.
Mentoring	"Entrepreneurs are supported by one or mentors, and the mentor is a person with a great background and very great experience who is be able to make the startup benefit from his/her experience and especially address book” LC	Funding contacts and events/ customers contact/ technical and institutional information/ know-how.
Market fit support	“Our most important service is to help entrepreneurs finalize their prototypes to products and launch it in a market. " LC	Funding contacts and events/ customers contacts
Master classes and workshops	“Master classes could be about marketing, the business model, on how to manage their networks, it can also be on funding, everything that can help them market” LC	know-how

Table 4: The incubator provided services and related resource access

Indeed, the interviewed managers believe that the campus ecosystem makes the incubator a unique structure in terms of interaction and network dynamics. So, they consider that the campus ecosystem is the most beneficial service for the hosted entrepreneurs. However, they implement tools and strategies to help the entrepreneurs benefit as much as possible from the available resources internally and externally.

#### 4.2.1 Internal networking

Workshops and trainings initiated by the managers are often interactive sessions that allow more of interaction between the entrepreneurs and enhance the informational exchange. Plus, activities as team buildings could reinforce social ties between the entrepreneurs and other entities : "At the start of the program we put in place activities as team buildings so that they get to know each other, and a Boot Camp in their first week at the campus to get to know people who work here". Nevertheless, the incubator managers believe that their work should not "formalize the peer-to-peer interactions" because it depends essentially on the will of the entrepreneurs and their attitudes. Indeed, according to the managers, it is enough to create a stimulating framework for interactions to facilitate the integration of the entrepreneurs within the ecosystem, then, it's up to the entrepreneurs to choose to continue to evolve the

relationship or not. According to the incubator managers, networking activities form a proactive process, if they notice that entrepreneurs are satisfied, they do not plan to create other activities to make them interact.

#### **4.2.2 External networking**

The sequential analysis of the entrepreneurs' interviews emphasized the importance of the managers' experiences and backgrounds as they try to bring together their personal networks and the entrepreneurs. In fact, the incubator managers exploit their experiences, especially abroad, to enlarge their personal networks and then they enforce it in the incubation program. Thus, the managers become the intermediates between their personal networks and the entrepreneurs. In our case, the managers of the incubator formed a common network of mentors based on their personal networks and the founding partners' networks. This mentors' database helped the entrepreneurs on the development of their products in different markets. In addition, the digital social network "Slack" is also dedicated to connecting the entrepreneurs and the founding partners of the campus. In addition to the founding partners, the campus and the incubator work with external actors and institutions which could assist the entrepreneurs administratively, financially, technically, and internationally. These are personalized services which depend on the entrepreneurs needs and settled by the managers. However, the managers alike the entrepreneurs believe that external networking is not the most successful provided service of the incubator given the time constraint of the program and the distance constraint between the incubator and its founding partners whose headquarters are all in Paris.

#### **4. DISCUSSION**

According to Engel and Teece (2012), and by analyzing the Silicon Valley ecosystem, the business incubator is embedded in and external networks that links collective and individual actors such as mentors, experts, and other businesses partners to support the hosted entrepreneurs. Plus, Petterson and al (2015) emphasized that internal networking with the other hosted entrepreneurs could provide complementary resources that are not mainly based on economic interests. Using previous research and our exploratory empirical study, we explain the importance of internal and external networks of business incubators for hosted entrepreneurs and how entrepreneurs' personal networks reconfigure when they are embedded into the incubator networks.

## **5.1 MULTI-LEVEL ANALYSIS TO STUDY PERSONAL SOCIAL NETWORKS-RECONFIGURATION INSIDE THE INCUBATOR**

To analyze an entrepreneurial context, it is important to consider simultaneously different levels of interactions to understand the dynamics of the social ties' nature inside the process. In fact, the multi-level approach seemed to be mandatory in our research since it uncovered interactions between the inter-organizational and interpersonal dimensions (Chauvet and Chollet, 2010). Plus, despite the lack of time to analyze the complete network of the incubator, we did engage in the entrepreneurs personal networks before and during the incubation process and the networking services provided by the incubator which seems to deliver important theoretical and empirical results to our research. Thus, by interviewing hosted entrepreneurs and the managers of the same business incubator, this qualitative method explored first the entrepreneurs' social ties modification and evolution during the different growth stages of their startups and during the incubation process. And second, the role of internal and external networking services provided by the incubator to facilitate the resource access for the hosted entrepreneurs.

The formation of an organization is the result of the crystallization of social ties and the entrepreneur's engagement and embeddedness into external social networks (Larson and Starr, 1993). Our multi-level analysis describes this transition from the pre-organization to the new organization by explaining the changes of the entrepreneur's social ties. The results explain the transformation of relatively simple and often one-dimensional strong social ties before the incubator integration (family, friends, colleagues...) to a dense social network composed of interpersonal, inter-organizational and multidimensional social ties. In fact, at the beginning of the incubation process weak social ties are created and then evolve to strong ones particularly at the peer-to-peer and entrepreneurs/ mentors' levels as they are mostly based on emotional and moral support. According to our sample, most of the hosted entrepreneurs are within the incubator during the third growth stage of the startup (sales growth stage), weak economically embedded ties seem to be intensified and evolve to strong ones in certain cases. The model that we develop in this research describes three successive stages of entrepreneurial activity including economic and networking aspects of the process. We emphasize that the successful mobilization of critical resources in each stage generate social networks modifications and that the successful mobilization of social networks help mobilizing new resources and generate new network ties and lead to growth. We summarize

this model in the following table by stressing the nature of social ties activated according to each growth stage inside and outside the business incubator (see table 5).

<b>Startup growth Stages</b>	<b>Concept generation or Ideation / before the incubation</b>	<b>Launching and commercialization / during incubation</b>	<b>Sales growth/ during incubation</b>
<b>Major business issue</b>	Resource acquisition	Business development	economic-relationship settlement
<b>Social ties characteristics</b>	Strong ties: family, friends, pre-existing business relationships	The start of the incubation process: spike and evolution of social ties. - Weak ties are reinforced based on emotional support - Weak non-instrumental economic ties are reinforced to strong ones.	Increased complexity of social ties. legitimation of social ties.

Table 5: The entrepreneurs' personal social ties reconfiguration.

It seems important to note that our research deals with the embeddedness approach developed by Granovetter (1985) and his idea of the balance between embeddedness and network cutting and the strong/weak ties alternation. We also confirm the idea that the type of the social network on which the entrepreneur relies is neither unique nor static. Thus, the entrepreneur resorts first essentially with strong ties to acquire resources. Then, the growth of his/her business accompanied by the business incubator integration the entrepreneur distances himself/herself from strong ties. At this stage, he/her works a lot to enhance the involvement and the professionalizing of the new weak ties. Friends and family who are sources of skills and financial resources are managed with new external individuals. The first business relationships at the incubator (which are mainly weak ties) are perpetuated and tend in some cases to become closer. The entrepreneur exchanges (on a personal: emotional and social level) with the incubator internal and external networks are reinforced to arrive to a stability and legitimation stage.

## **5.2 THE INCUBATOR MANAGER CONNECTING ROLE TO GENERATE RESOURCE ACCESS**

The management core team of a business incubator builds and institutionalize the incubator internal and external social ties to form a strategic network and make it available to the hosted entrepreneurs (Pettersen and al., 2015). This network remains constantly accessible for each incubated startup which saves considerable time for the entrepreneurs (Hughes and al, 2007). The business incubator managers seem to be always aware of available internal network resources coming from the persons working there and of context events that could help the entrepreneurs acquire resources easily. In addition, they initiate team buildings activities and workshops that encourage the entrepreneurs to exchange feedback. Plus, the business incubator managers should come from diversified backgrounds and professional experiences which enrich network resources and fulfill the entrepreneurs personalized needs. In fact, managers embed their personal professional networks into the incubator when they are hired to form the mentor and expert database and they also connect entrepreneurs to external contacts from their own networks when it's needed to acquire intangible resources as knowledge in specific area and tangible resources as funding at the end of the incubation program. Nevertheless, managers believe that the experiences and attitudes of the hosted entrepreneurs define the mobilization of the available networks. In fact, the incubator networks seem to be qualified as generic, thus, managers cannot fulfill specific network resource needs.

### **5.3 THE ENTREPRENEUR IS THE MANAGER OF HIS PERSONAL NETWORK**

The size of social capital depends mainly on the number of networks to which the individual belongs (Burt, 1995). However, the size of the social capital is not enough to access to resources. The entrepreneurs should socialize with individuals who may have resources or may connect them to other individuals or institutions that may provide them resources. So, the entrepreneur social capital is not only based on social ties number but also the way the entrepreneurs manage and mobilize their social ties to access resources. In fact, the role of the entrepreneurs inside business incubators is fundamental when it comes to mobilizing their own social ties to access resources. They are the decision-makers of the degree of the investment they establish in one relationship to another which depend on the type of the resource to gain and the startup growth stages. They are therefore the keystones of their own networks (Callon & Ferrary, 2006). Entrepreneurs can thus choose between being active in a relationship or not and they can also decide to evolve social ties or not. Aside from the existing personal network, entrepreneurs accumulate weak ties throughout their context events as competitions personal that can activate later in the process to access resources.

## 5. CONCLUSION

This exploratory research has contributed to enhancing the social networks knowledge in entrepreneurship processes inside business incubators. On a theoretical level, despite the obvious importance of the entrepreneur's social networks in startup growth, the current entrepreneurship literature is just beginning to study and examine how entrepreneurs constitute and mobilize their networks to boost their resource access strategies (Patterson and al,2015). This research aims to study the social ties mobilization processes conducted by hosted entrepreneurs by focusing on their reconfiguration before and during an incubation program. We thus emphasized that the nature of the social ties' mobilization depend on the resource access needs of each stage of the startup growth, on the networking services facilitated by the incubator managers and the attitude of the entrepreneurs.

In addition, business incubators offer a community that aims at connecting entrepreneurs and/or foreign entrepreneurs with the local ecosystem business key players by developing collaborative links (M'Chirgui, 2012). However, despite its exponential emergence, the entrepreneurial support ecosystem research is an underdeveloped and undertheorized field that needs to be further explored to avoid the existing uncertainty about its nature, boundaries and its performance (Adner et al., 2013; Simatupang et al., 2015; Spigel, 2017). Indeed, services provided by business incubators to entrepreneurs are numerous and the network dimension appears central to the startups' growth. We stressed by this research the mandatory role of the incubator managers to help entrepreneurs connect with the right people or/and external organizations to acquire resources and the mandatory role of the entrepreneur's attitudes to socialize to acquire specific resources.

On a methodological level, multi-level approach seemed interesting to consider simultaneously different levels of interactions to understand the dynamics of the social ties and their transformation throughout the entrepreneurial process. In addition, it is also interesting to study social ties embeddedness in management field using sociological methods as the "relational chains" (Grossetti and al., 2011) to stress entrepreneurs network strategies for resource access.

On a managerial level, few methods and tools are provided to business incubators to a better consideration of their networks and the networks in which they are embedded (El Drissi and Hauch, 2012). This academic work is thus useful to understand the structure and the nature of social ties that must be enhanced inside and outside the incubator. It helps the incubator

managers to develop a coherent strategy to connecting people and organizations for a better performance and optimal allocation resources strategies which includes tangible and intangible aspects. This also helps the incubator managers to build a selection process that is based on their external network needs. The hosted startup services and products should be compatible with the incubator external network needs to improve the potential partnerships and optimize the resource allocation for the hosted entrepreneurs.

Despite the results interests, which stress the entrepreneurs' social ties modifications during the incubation period and explain the networking services provided by the business incubator to acquire resources, some limits need to be mentioned. First, methodologically, due to a lack of time, the size of our sample was quite limited. In fact, out of the nine incubated startups in the business incubator there only five startups that are at the same stage of growth. Further research should thus enlarge interviewees number especially at the manager level. Plus, four out of five of the entrepreneurs' sample are foreign this could lead to enlarge our literature revue by evoking international entrepreneurship aspects for further studies. It will be interesting to collect data from other business incubators from the same region and outside France to enhance the external validity of the results. Analytically, further research mapping the structure of the complete network of business incubators and considering their social and professional relationships with individual and collective ecosystem actors would be useful to study the impact of the incubator social networks on its performance and on the startups resource access (Theodoraki and Messeghem, 2017). In addition, considering the complexity of entrepreneurial processes and the evolution of the entrepreneurs' personal networks throughout the different context events and the different growth stages, longitudinal studies must be conducted to stress their reconfiguration through time.

## REFERENCES

- Adner, R. Oxley, J.E. and Silverman, B.S (2013), *Collaboration and Competition in Business Ecosystems*, Emerald, Hanover, NH.
- Allen, D.N. And McCluskey, R. (1990), *Structure, Policy, Services, and Performance in the Business Incubator Industry*. *Entrep. THEORY Pract.* 18.
- Audretsch, D.B. And Belitski, M. (2017), *Entrepreneurial ecosystems in cities: establishing the framework conditions*. *J. Technol. Transf.* 42, 1030–1051.
- Baraldi, E. And Ingemansson Havenvid, M. (2016), *Identifying new dimensions of business incubation: A multi-level analysis of Karolinska Institute’s incubation system*. *Technovation* 50:51,53–68.
- Ben Letaifa, S. and Rabeau, Y. (2013), *Too close to collaborate? How geographic proximity could impede entrepreneurship and innovation*, *J. Bus. Res.* 66, 2071–2078.
- Bøllingtoft, A. (2012), *The bottom-up business incubator: Leverage to networking and cooperation practices in a self-generated, entrepreneurial-enabled environment*, *Technovation*, 32, 304–315.
- Bruneel, J. Ratinho, T. Clarysse, B. and Groen, A. (2012), *The Evolution of Business Incubators: Comparing demand and supply of business incubation services across different incubator generations*, *Technovation* , 2, 110–121.
- Burt, R.S. (1995), *Le capital social, les trous structuraux et l’entrepreneur*, *Rev. Fr. Sociol.* 36, 599.
- Butler, J.E. and Hansen, G.S. (1991), *Network evolution, entrepreneurial success, and regional development*, *Entrep. Reg. Dev.* 3, 1–16.
- Callon, M. And Ferrary, M. (2006), *Les réseaux sociaux à l’aune de la théorie de l’acteur-réseau*. *Sociol. Prat.* 13-37.
- CHABAUD, D. EHLINGER, S. And PERRET, V. (2003), *Les incubateurs d’entreprises innovantes : un réseau entrepreneurial reconfiguré ?* 27.
- Chauvet, V. And Chollet, B. (2010), *Management et réseaux sociaux. Bilan et perspectives de recherche*, *Rev. Fr. Gest.* 36, 79–96.
- Dana, L.P. and Dana, T.E (2005), *Expanding the scope of methodologies used in entrepreneurship research’*, *International Journal of Entrepreneurship and Small Business*, 2 :1, 79–88.
- Eisenhardt, K.M. and Graebner, M.E. (2007), *Theory building from cases: opportunities and challenges*, *Academy of Management Journal*, 50: 1, 25–32.
- Elfring, T. And Hulsink, W.(2002), *Networks in Entrepreneurship: The Case of High-technology Firms* 14.
- Elidrissi, D. And Hauch, V. (2012), *Entrepreneuriat international et réseaux sociaux pour les PME innovantes : quelles perceptions pour quelles stratégies ?* *Rev. L’Entrepreneuriat* 11, 15.
- Engel, J.S. and Teece, D.J. (2012), *John Freeman: entrepreneurship and innovation defined – a personal remembrance*, *Industrial and Corporate Change*, 21 : 1, 245–248.
- Greve, A. (1995), *Networks and entrepreneurship — an analysis of social relations, occupational background, and use of contacts during the establishment process*, *Scand. J. Manag.* 11, 1–24.
- Grossetti, M. (2011), *Les narrations quantifiées. Une méthode mixte pour étudier des processus sociaux*, *Terrains & travaux*, 2:19, 161-182.
- Grossetti, M. Barthe, J.-F. And Beslay, C. (2006), *La mobilisation des relations sociales dans les processus de création d’entreprises. Aperçus à partir d’une enquête en cours*, *Sociol. Prat.* 13,47.
- Grossetti, M. Barthe, J.-F. And Chauvac, N. (2006), *Les chaînes relationnelles dans un suivi longitudinal d’entreprises de création récente* 15.
- Hackett, S.M. And Dilts, D.M. (2004), *A Systematic Review of Business Incubation Research*, *J. Technol. Transf.* 29, 55–82.
- Hansen, M.N. Horhia and J. Berger (2000), *The State of the Incubator Market Space*, Harvard Business School.
- Hoang, H. And Antoncic, B. (2003), *Network-based research in entrepreneurship*, *J. Bus. Ventur.* 18, 165–187.
- Hughes, M. Ireland, R.D. and Morgan, R.E. (2007), *Stimulating Dynamic Value: Social Capital and Business Incubation as a Pathway to Competitive Success*, *Long Range Plann.* 40, 154–177.
- Indre Maurer and Mark Ebers. (2006), *Dynamics of Social Capital and Their Performance Implications: Lessons from Biotechnology Start-Ups*, *Adm. Sci. Q.* 51, 262–292.
- Johannisson, B. (1988), *Business formation — a network approach*, *Scand. J. Manag.* 4, 83–99.
- Kazanjian, R.K. (1988), *RELATION OF DOMINANT PROBLEMS TO STAGES GROWTH IN TECHNOLOGY-BASED NEW VENTURES*, *Acad. Manage.J.* 31, 257–279.
- Lalkaka, R. And Bishop, J. (1996), *Business Incubators in Economic Development—an Initial Assessment in Industrialising Countries*. United Nation Development Programme, New York.

- Larson, A. And Starr, J.A. (1993), A Network Model of Organization Formation. *Entrep, Theory Pract*, 17, 5–15.
- Lazega, E. (2006), Capital social, processus sociaux et capacité d’action collective, *La Découverte*, 213-225.
- Lyons, Thomas S. (2002), Building Social Capital for Sustainable Enterprise Development in Country Towns and Regions: Successful Practices from the United States.
- Mansoori, Y. & Lackeus, M. (2020). Comparing effectuation to discovery-driven planning, prescriptive entrepreneurship, business planning, lean startup, and design thinking. *Small Bus Econ* 54, 791–818.
- Mark Granovetter. (1985), Economic Action and Social Structure: The Problem of Embeddedness, *Am. J. Sociol*, 91, 481–510.
- McAdam, M. And McAdam, R. (2006), The Networked Incubator: The Role and Operation of Entrepreneurial Networking with the University Science Park Incubator (USI), *Int. J. Entrep. Innov*, 7, 87–97.
- McAdam, M. Miller, K. And McAdam, R. (2016), Situated regional university incubation: A multi-level stakeholder perspective, *Technovation*, 50:51, 69–78.
- McCann, P. & Ortega-Argilés, R. (2016). Smart specialisation, entrepreneurship and SMEs: issues and challenges for a results-oriented EU regional policy. *Small Bus Econ* 46, 537–552.
- M’Chirgui, Z. (2012) Assessing the Performance of Business Incubators: Recent France Evidence, *Bus. Manag. Res*, 1.
- Pettersen, I.B. Aarstad, J. Høvig, Ø.S. And Tobiassen, A.E. (2015), Business incubation and the network resources of start-ups, *J. Innov. Entrep*, 5.
- Scillitoe, J.L and Chakrabarti, A.K. (2010), The role of incubator interactions in assisting new ventures, *Technovation*, 30, 155–167.
- Simatupang, T.M. Schwab, A. and Lantu, D.C (2015), Introduction: building sustainable entrepreneurship ecosystems, *International Journal of Entrepreneurship and Small Business*, 26 : 4, 389–398.
- Soetanto, D.P. And Jack, S.L. (2013), Business incubators and the networks of technology-based firms, *J. Technol. Transf*, 38, 432–453.
- Spigel, B. (2017), The relational organization of entrepreneurial ecosystems, *Entrepreneurship Theory and Practice*, 41 : 1, 49–72
- Sullivan, D.M. And Ford, C.M. (2014), How Entrepreneurs Use Networks to Address Changing Resource Requirements During Early Venture Development, *Entrep. Theory Pract*, 38, 551–574.
- Theodoraki, C. And Messeghem, K. (2017), Exploring the entrepreneurial ecosystem in the field of entrepreneurial support: a multi-level approach, *Int. J. Entrepreneurship and Small Business*, 31-1.
- Theodoraki, C. Messeghem, K. & Rice, M.P. (2018). A social capital approach to the development of sustainable entrepreneurial ecosystems: an explorative study. *Small Bus. Econ*. 51, 153–170.
- Tötterman, H. And Sten, J. (2005), Start-ups: Business Incubation and Social Capital, *Int. Small Bus. J.* ,23, 487–511.
- Yin, R.K. (2013) *Case Study Research: Design and Methods*, Sage Publications, London