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Emerging actors within the innovation landscape: Systematic review on accelerators

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Abstract: This is an example of the abstract style. The abstract should be between 100 and 150 words.

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1 Introduction

In the decade following the dot-com boom, the rise of the digital economy has changed the landscape in which many startups operate, reducing the costs and time taken to bring a product or service to market (Clarysse and Yusubova, 2014). Within this innovation landscape the incubation model, focused primarily on providing office space and in-house business services (Bruneel et al., 2012), was no longer suitable for providing support for early-stage technology firms. Indeed, when incubators were introduced, innovative startups were particularly active in capital-intensive sectors such as biotechnology, microelectronics and electrical equipment (Wright, 2007). As a consequence accelerators have emerged in the early 2000s as a new type of business incubation model (Wise and Valliere 2014; Pauwels et al. 2016) in order to answer to the evolving needs of nascent startups. In their early stage in fact, startups might struggle because of limited financial resources (Smilor 1997), a lack of prior startup experience in the founding team (Gruber et al., 2008), a lack of legitimacy to attract skilled employees (Zott and Huy 2007). Accelerator programs aim at helping startups overcoming such challenges and weaknesses referred to as liabilities of newness (Stinchcombe and March, 1965).

In this perspective Accelerators support new venture creation through the provision of specific services over an intensive time-limited program (Cohen and Hochberg 2014).

Although considered an evolutionary descendant of incubators, accelerators are distinct. In particular, they have a shorter-term horizon than incubators and are typically cohort-based, these two important features guarantee the flexibility of the program and offer accelerated startups the opportunity to learn from each other (Hallen et al. 2016). Moreover, accelerators typically provide pre-seed investment in exchange for equity (Pauwels et al. 2016) and facilitate connections with potential investors. Accelerators focus on knowledge-intensive business services, moving away from the primary services for which the incubation model was developed (Pauwels et al. 2016).

However, while the number of accelerators proliferated over time attracting the interest of media and policy makers thanks to the success of well-known accelerated startups the "blurring" boundaries with other models of technology business incubation have caused confusion among scholars and practitioners for what concern the identification of accelerator programs. According to Hathaway (2016) of the nearly 700 U.S. based organizations identified as "accelerators" fewer than one-third are compliant with the definition provided by Cohen and Hochberg (2014).

This confusion on the definition of accelerator programs prevented the proliferation of studies assessing the efficacy of such programs through empirical research. In fact, despite some authors highlighted a positive impact on the success of accelerated startups in terms of acquisition of new knowledge (Hallen et al. 2016; Battistella et al. 2017), startup valuation (Kim and Wangman 2014; Smith and Hannigam 2015) and ability to receive subsequent funding (Radojevic-Kelley and Hoffman, 2012) 'there is a need for studies that compare accelerated ventures to a control group of non-accelerated ventures in order to provide robust insights into the contribution of accelerators.' (Pauwels, 2016:23). Moreover due to the lack of a unified interpretative framework for business accelerators (Pauwels et al., 2016) and a lack of theoretical lenses (Mian et al. 2016), a high degree of ambiguity also persists among practitioners and scholars in the identification of the phenomenon. This confusion has led to the emergence of a literature stream aiming at defining characteristics and features of accelerators through case study and qualitative research in general.

In order to fill this gap we provide a literature review of "the state of the art" of scholarly research on the accelerators topic, stressing in particular what are the literature streams and main findings and thus clarifying the boundaries of the definition of accelerator. Moreover we uncover actual knowledge gap among practitioners and scholars pointing out what are differences between current practices and scholarship and disentangling doubts about the interpretation of this emerging phenomenon.

We contribute to existing literature providing an overview of the research on the phenomenon of accelerators and defining three aspect of interest arising from current literature on business accelerators: (i) The characteristics and features of accelerator programs (Cohen and Hochberg, 2014; Clarysse et al., 2016) (ii) The impact of Accelerators on accelerated startups (Kim and Wagman, 2014; Battistella et al., 2017) and ecosystems (Wright et al., 2017; Frimodig and Trokkeli, 2017) (iii) The role of accelerators in promoting the interaction between corporations and startups (Kohler, 2016; Kupp et al., 2017). Moreover we provide a comprehensive framework for the interpretation of the phenomenon allowing to break the ground for a future development of unitary research on this topic.

2 Methodology

Figure 1 shows the five steps of the review methodology, identifying the relevant research on business accelerator. We included all paper published from 2005 to 2017 as 2005 was the year in which the first Accelerator Y Combinator started his activity. In the first identification step, three databases were considered: Scopus, Web of Science and EBSCO. To target the Business Accelerators domain the following terms were considered: accelerator, start-up, venture, corporate, mentoring, seed, business. We searched for these terms in titles, abstracts and keywords of each article, we also used the * (wildcard character) in order to include plurals of each keyword. Moreover, in order to increase the focus of results, we created queries and we searched the databases using the following: startup* AND accelerator*, start-up* AND accelerator*, venture* AND accelerator*, corporate* AND accelerator*, start-up* AND mentoring, seed AND accelerator*, business AND accelerator*.

The identification, step resulted in 196 articles. The abstracts and introduction of each article were read to ensure that the articles met the established criteria. During the second step we refined our search strategy. The list was refined by excluding articles not available in English language, double citations, publication non-compliant with the chosen type (i.e. Articles, proceedings and conference papers) and articles in which the word accelerator was used in a different context (e.g. case study of Startups producing "plasma accelerators"). In this step we removed 132 articles from the list. During the eligibility step the content of the remaining 64 articles was read. To ensure a contribution to the specific domain of business accelerators, we excluded 27 articles which did not focus on business accelerators as the unit of analysis, therefore giving only a marginal contribution to the field of research. Following this flow, only 37 papers focusing on the topic of business accelerators were compliant with the selection criteria. Reading papers and becoming aware about the topic we found 11 high cited papers that were not present in database. Those articles included monographies, working papers and technical reports. After this qualitative inclusion the final sample resulted in 48 included studies. We created an Excel workbook and we coded the content of each article by its author(s), journal title, subject area, investigated area, number of citations, subtopics, and methodologies (Petticrew, 2006). We identified the main literature streams in the business accelerators domain, and we classified it into three main topics and five sub-topics. Table 1 shows the classification of the scholarly studies according to the main topics identified.

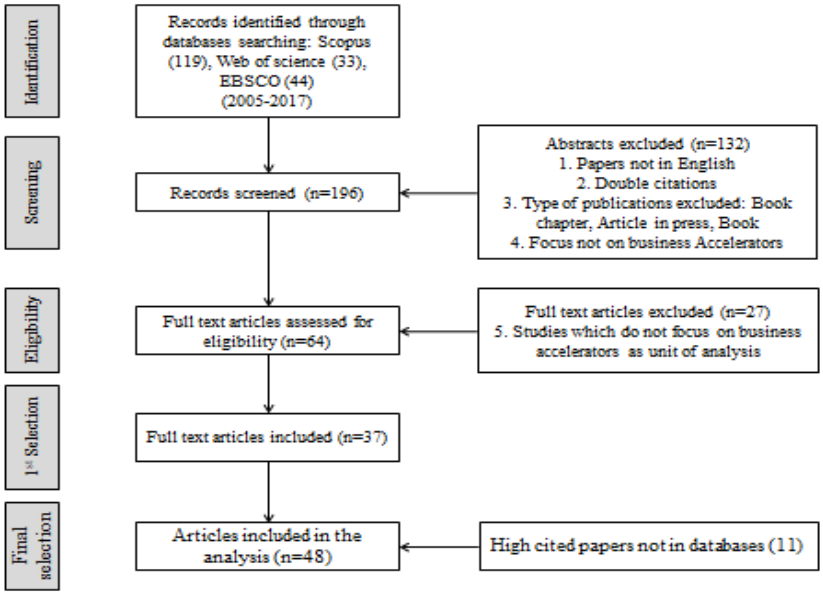

Figure 1: Logic Flow chart used to find and select articles

In the following sections the results of the literature review are considered, according to the main topics identified.

	Definition of business accelerators and description of accelerator programs		**Impact of business accelerator programs**		**Business accelerators as an open innovation tool**
Papers	The differences with other models of startup assistance	Characteristics and features of business accelerators	The impact on accelerated startup	The impact on ecosystem	Building bridges between corporations and startups
Battistella, C., De Toni, A. F. & Pessot, E. (2017)			X		
Block, J. H., Colombo, M. G., Cumming, D. J., & Vismara, S. (2017)	X				
Carmel, E., Káganer, E., (2014)				X	
Carvalho, A.C., Grilo, A., Pina, J.P., Zutshi, A. (2017)		X			
Clarysse, B., & Yusubova, A. (2014)			X		
Clarysse, B., Wright, M., & Hove, J. V. (2016)		X			
Cohen, S., Hochberg,Y.V., (2014)	X				
Cohen, S., (2013)	X	X			
Dempwolf, C. S., Auer, J., & D'Ippolito, M. (2014)	X	X			
Fehder, Daniel C. and Hochberg, Yael V. (2014)				X	
Frimodig, L., & Torkkeli, M. (2017)				X	
Haines, J. K. (2014a)		X			
Haines, J. K. (2014b)		X		X	
Hallen, B. L., Bingham, C. B., & Cohen, S. (2014)			X		
Hallen, B. L., Bingham, C. B., and Cohen, S. (2016)			X		
Hathaway, I. (2016a)		X			
Hathaway, I. (2016b)		X			
Hernández, C., González, D. (2016)				X	
Hochberg, Y. V. (2016)				X	
Isabelle, D. A. (2013)	X				
Jackson, P., Richter, N. (2017)			X		X
Kanbach, D. K., & Stubner, S. (2016)					X
Kim, J. H., & Wagman, L. (2014)			X		

Kohler, T. (2016)					X
Komarek, R., Knight, D., Kotys-Schwartz, D.A. (2016)		X			
Kupp, M., Marval, M., Borchers, P., (2017)					X
Malek, K., Maine, E., & McCarthy, I. P. (2014)	X	X			
Mansoori, Y., & Mansoori, Y. (2017)			X		
Mian, S., Lamine, W., & Fayolle, A. (2016)	X				
Miles, M. P., de Vries, H., Harrison, G., & Kasouf, C. J. (2017)			X		
Mitra, S., Euchner, J. (2016)		X			
NESTA (2015)	X				
NESTA, (2011)		X			
Pauwels, C., Clarysse, B., Wright, M., & Van Hove, J. (2016)	X	X			
Radojevich-Kelley, N., & Hoffman, D. L. (2012)		X	X		
Richter, N., Jackson, P., & Schildhauer, T. (2017)					X
Seo, W.S., Hwangbo, Y., Ha, K.S., (2014)		X			
Shepard, J. M. (2017)	X				
Smith, S. W., & Hannigan, T. J. (2015)			X		
Wei, J., (2017)	X				
Stayton J. & Mangemetin V. (2018)			X		
Weiblen, T., & Chesbrough, H. W. (2015)					X
Wise, S., & Valliere, D. (2014)			X		
Wright, F. (2017)	X				
Wright, M., Siegel, D. S., & Mustar, P. (2017)				X	
Yang, Y., Hwangbo, Y., (2015)	X				
Yu, S. (2016)			X		

3 Definition of Business Accelerators and description of Accelerator programs

A first topic clearly identified in the reviewed literature includes a significant stream of research focused on the identification of business accelerators with respect to other models of startup assistance. Due to the novelty of such topic, a well-identifiable literature stream has attempted to clarify the context in which accelerators emerged (Grimaldi and Grandi 2005; Mian et al.,2016) and which are the main distinguishing features of accelerators in respect to other models of startup support (Wright 2017; Block et al. 2017). We divided the topic into two sub-topics namely "The differences with other models of startup assistance" and "The characteristics and features of Accelerators".

The differences with other models of startup assistance

Since the establishment in 2005 of Y Combinator (2005), the first accelerator program in the United States, the number of accelerators has grown steadily in US (Hathaway 2016) and EU (Clarysse and Yusubova 2014). However literature on such topic is surprisingly limited, and sometimes showing contrasting evidences. In particular, the lack of a unitary interpretative framework allowing to distinguish such programs from other models of startup assistance lead to contrasting results in empirical studies aimed at differentiating of such programs from other models of technology business incubation. Some studies have considered accelerators in the context of entrepreneurial finance, as a part of an ecosystem of banks, crowdfunding, corporate venture capital and venture capital (Wright 2017 and Block et al. 2017) pointing out their importance in providing seed investment to early stage startups. According to them, differently from traditional investors, accelerators focus exclusively on early stage startup to provide training and network access. Moreover also the investment goal could be different, accelerators in fact may have political goal, as demonstrated by the accelerator program IMPACT sponsored by the EU commission to facilitate the dissemination of FIWARE technology. Other studies have considered Accelerators in the context of students' entrepreneurship (Wright et al. 2017). Actors within this ecosystem help students to become successful entrepreneurs through entrepreneurship education programs. According to this interpretation, accelerators differ from other actors because they do not provide very early stage support of embryonic venture ideas but intervene when startups are formally established. However the bulk of literature within the topic has more systematically looked on Accelerators as new generation of business incubation model (Pauwels et al., 2016). With respect to traditional business incubators, typically designed for technology-based ventures operating in capital intensive industries, such as biotechnology or microelectronics (Wright et al. 2007), accelerators show a number of distinctive features:

- Modern accelerator programs are designed for a limited period of time (three to six months) and focus on cohorts or classes of startups (often within a sector focus), to avoid the "life support incubation trap", one of the main challenges faced by the traditional incubation models (Mian et al. 2016a; Clarysse et al. 2016)

- With respect to traditional incubators, more focused on VC as a next stage of finance, accelerators operate in connection to business angels and small-scale individual investors providing pre-seed finance ($10K–$50K investments in exchange of 5–7% of equity) (Miller & Bound, 2011; Pauwels et al. 2016).
- Accelerators move away from the primary services for which the incubation model was designed (i.e. providing office space and in-house business support services) (Pauwels et al. 2016), with education and mentoring services mostly focused on small teams rather than individuals.
- Importantly, their legal status often differs: most incubators are not-for-profit organizations, whereas accelerators are generally for-profit organizations with a view of bringing a return on investment to their sponsors (Knopp 2012).

As such, accelerator is commonly seen as an organization, which aims to accelerate he early stage strartup phase (Pauwels et al. 2016)., by providing education and mentoring to cohorts of ventures during a limited time (Cohen and Hochberg, 2014). And resulting in faster growth or faster failure (Clarysse et al., 2016). According to Dampwolf et al. (2014) the main difference between accelerators and traditional business incubation models resides the "client" dimension. Accelerators in fact focus on "firms that do not require significant investment or proof of concept" whereas incubators do not have a specific focus. According to Cohen (2013) another fundamental difference is the limited duration of the program compared to the continuous nature of incubators and angel. This small difference leads to many other differences which are summarized by Malek et al. (2014). According to them the two models are distinct in 5 major ways: (i) Entrepreneurial teams must compete to be selected to join an accelerator, this competition is very fierce and opened to startups worldwide while incubators are more focused locally (ii) Accelerators typically accept and nurture a much greater number of startup teams than a typical incubator. (iii) Accelerators typically take some equity in the startups in exchange for providing capital and development services. (iv) The accelerator development experience is much more rapid and intensive than that offered by an incubator. (v) The startup teams that join an accelerator are expected to interact and network with other teams to support each other. In addition to such differences Isabelle (2013) found that the motivations for entrepreneurs to participate in such programs are not homogeneous among accelerators and incubators. In particular she found that when considering whether or not join a technology incubator or accelerator a technology entrepreneur should consider five factors: The stage of their venture; The fit between the entrepreneur's needs and incubator's mission, purpose, and sector focus; The selection and graduation policies; The nature and extent of services provided; The network of partners.

Characteristics and features of business accelerator models

Due to the success of well-known accelerated startups such as Dropbox, Airbnb and Zenefists, scholars have attempted to point out, describe and categorize the main features of business accelerator models. The most accepted definition of an accelerator is the one provided by Cohen and Hochberg (2014) which define an accelerator as "a fixed-term, cohort-based program, including mentorship and educational components, that

culminates in a public pitch event or demo-day". However this definition appears quite generic, and therefore needs to be expanded and deepened. Scholars on this vein have defined characteristics and features of accelerators through cases studies and qualitative research in general. Pauwels et al. (2016) have adopted an activity system design perspective and identify five elements characterizing an accelerator. These elements are: a) the program package, which consists of all services the accelerator offers to its portfolio ventures b) the strategic focus which concerns the accelerator's strategic choices regarding industry, sector and geographical focus. c) the selection process, which refers to a standardized process organize in steps which helps accelerators to select the most promising startups 4) the funding structure which refers to composition of shareholders which finance the accelerator program and 5) alumni relations. Depending on their approach to each of the design elements accelerators can be classified into three different types: Ecosystem builder, Deal Flow Making, the Welfare Stimulator. The "ecosystem builder" is an accelerator set up by corporate that wish to develop an ecosystem of customers and stakeholders around their company. The "deal-flow maker" accelerator receives funding from investors such as business angels or venture capital funds and has the primary aim to identify promising investment opportunities for these investors. The "welfare stimulator" accelerator typically has government agencies as a main stakeholder and his primary objective is to stimulate startup activity and foster economic growth, either within a specific region or within a specific technological domain. On the basis of the same design elements Clarysse et al. (2015) identified three accelerators archetype: the investor led archetype, the matchmaker archetype and the ecosystem archetype. The classifications provided by Pauwels et al. (2016) and Clarysse et al. (2015) are consistent with Dempewolf et al. (2014) which identified three general characteristics of an accelerator. According to them, in fact, accelerators are for profit organizations that receive equity in exchange for the provision of funding to the startups, they do not necessarily provide office space for the startups they support but typically they provide meeting space and they target regional, national, or even global startups. Cohen (2013) characterized the accelerators on the basis of 7 dimensions and found that accelerator programs have a duration of 3 months, accelerate cohort of startups, invest in accelerated startups, have a competitive and cyclical selection process, focus on early stage startups, provide intensive mentorship and education through seminars, accelerate startups on site. Radojevich-Kelley and Hoffman (2014) stressed the importance of the mentorship provided by accelerators using a resource based view. According to them mentors provide external validation that the idea should be further developed. The nascent firm's founder brings resources to which the mentors add initial resources. On this vein Frimoding and Trokkeli (2017) found that the access to relevant knowledge provided by mentors and the ability to transfer it to startups is a fundamental precondition for the success of an accelerator. Malek et al. (2014) developed a typology of accelerator capabilities taking into account their strategy, governance, business model, operations and finance. From these they identify four types of accelerator capabilities: R&D focused, technology enabled, market enabled, and network enabled.

4 Impact of business accelerator programs

Research on accelerators must intensify before definite conclusions can be drawn on the value of such programs to entrepreneurs and local ecosystems (Fehder and Hochberg 2015; Hochberg 2016). According to Pauwels (2016, 23) "there is a need for studies that compare accelerated ventures to a control group of non-accelerated ventures in order to provide robust insights into the contribution of accelerators." We divided this literature streams in two sub-stream namely the impact of Accelerators programs on accelerated startups and on ecosystems.

The impact on accelerated startups

This literature stream empirically assesses whether accelerators have a positive effect on the outcomes of the participating companies. Hallen et al. (2016) found evidence that accelerators support the development of ventures by complementing founders' prior experience. Further, Kim and Wangman (2014) found that startups in accelerators' portfolios have higher valuation then non-accelerated startups. Overall, Smith and Hannigam (2015) believe that accelerators speed up the exit through either acquisition or quitting. Stayton et al. (2018) found that accelerators innovative venture launch and increase entrepreneurial orientation in the startup technology firms. These overall positive impacts on accelerated startups can be attributed to the mentorship-driven nature of accelerator programs. Radojevich-Kelley and Hoffman (2012) showed that mentorship programs typically found in accelerators increase the overall success rate of startups, defined as the ability to receive subsequent funding, by providing entrepreneurs with access to investors such as business angels and venture capitalists. Accelerator managers and mentors can add value in two different ways: they can have relevant personal knowledge and skills developed through their own direct experience in startups, and they can access the knowledge and skills of others through their professional networks (Wise and Valliere 2014). Moreover accelerators can be useful as authentic learning platforms for the development of entrepreneurial competences (Miles et al. 2017). Recently, Battistella et al. (2017) found that accelerators can affect the successful growth of participating startups from the perspective of the open innovation context provided by such programs. Open innovation practices provided by accelerators help address specific problems affecting startups, such as the development of product or service features, strategic focus and lack of managerial skills and industry know-how (Battistella, De Toni, and Pessot (2017). Overall, findings from this literature stream highlight a positive impact on the success of accelerated startups in terms of acquisition of new knowledge (Wise and Valliere 2014; Hallen, Bingham, and Cohen 2016; Battistella, De Toni, and Pessot 2017), startup valuation (Kim and Wangman 2014; Smith and Hannigam 2015) and ability to receive subsequent funding (Radojevic-Kelley and Hoffman, 2012).

The impact on ecosystem

While the limited research on accelerators has primarily focused on the outcomes for "accelerated" startups, recently authors are focusing on the overall regional effects of such initiatives. Many local governments, in fact, hope to use accelerators to transform their local economies through establishment of startup technology clusters. Accelerators

are actors of an ecosystem which helps students and young entrepreneurs to become successful entrepreneurs (Wright et al., 2017). According to Frimoding and Trokkeli (2017) the success of an accelerator can improve a local startups ecosystem and might have an influence on the economic development of a region. Metropolitan statistical areas (MSAs) in which an accelerator is established exhibit more seed and early stage entrepreneurial financing activity, and this activity appears not be restricted to accelerated startups. The presence of such programs, in fact, may increase the exposure to investors of non-accelerated companies located in the area. Moreover Hochberg (2016) demonstrated a striking shift in the nature of the seed and early stage funding environment for startups located in regions characterized by the presence of an accelerator. These shift results primarily from additional funding events for non-accelerated companies and the emergence of new, local investor groups (Hochberg 2016). The positive impact of accelerator programs on ecosystem is confirmed by Bred Feld, founder of Techstars which suggest the use of accelerators as policy tools. According to him in fact "Every major metro area in the world will eventually be able to support an accelerator".

5 Business accelerators as an Open Innovation tool

During 2010, a special type of accelerator managed by corporations has emerged in response to growing interest of corporations to engage with the startup ecosystem. Large companies have become interested in corporate accelerators due to their perceived need to learn about emerging technologies that have disrupted or can potentially disrupt their industries. Additionally, companies are seeking new ways of working that are more flexible and agile, as well as wanting to recruit talent more in sync with a digital and entrepreneurial mindset. Corporate accelerators are modelled upon commercial accelerators which are run in order to develop early stage startups and identify investment opportunities. Differently from private accelerators the main goal of corporate accelerators in to build a bridge between corporations and startups.

Building bridges between corporations and startups

The knowledge necessary to generate innovation resides outside the modern's corporation's boundaries (Chesbrough, 2003; Von Hippel, 2005) and entrepreneurial startups may be a valuable source of that knowledge (Dushnitsky and Lenox, 2005). Due to the fact that entrepreneurial startups are driving major innovations that are replacing incumbent technologies and existing business models, established firms are building structured programs to harness entrepreneurial power (Mocker, 2015) by adopting Open Innovation paradigm. Within this framework corporate accelerator programs provide a unique platform for long-term growth and corporate renewal favouring the interaction between corporations and startups. For these reason they are considered by scholars and practitioners a promising way for established companies to explore new ideas for their corporate innovation efforts. This new model of startup interaction emerged in recent years and have attracted the interests of scholars. Weiblen and Chesbrough (2015) were among the first which categorize corporate accelerators examining how large

corporations from the tech industry begun to tap into the entrepreneurial innovation from startups. They found that corporate accelerator is a typology of corporate mechanism to engage with startups that balance speed and agility against control and strategic direction. On this vein Kanbach and Stubner (2016) proposed dimensions which differentiate corporate accelerators; these dimensions are Objectives and Configurational dimensions. According to them accelerator programs may have financial or strategic objectives and are different for what concern configurational dimensions such as program focus and program organization. In addition Kohler (2016) found that, in order to leverage startups innovation and make a corporate accelerator an effective part of a firm overall innovation strategy, managers need to systematically consider four dimensions of a corporate accelerator, proposition, process, people and place. Proposition refer to what the program offers, process refers to how the program is run, people refers to who is involved and place to where the corporate accelerator is hosted. Drawing from these studies Richter et al. (2017) outlined the key features of corporate accelerator programs. As reported in figure 1 corporate accelerators are characterized by three core processes, selection, development and demonstration which are made up of different dimensions.

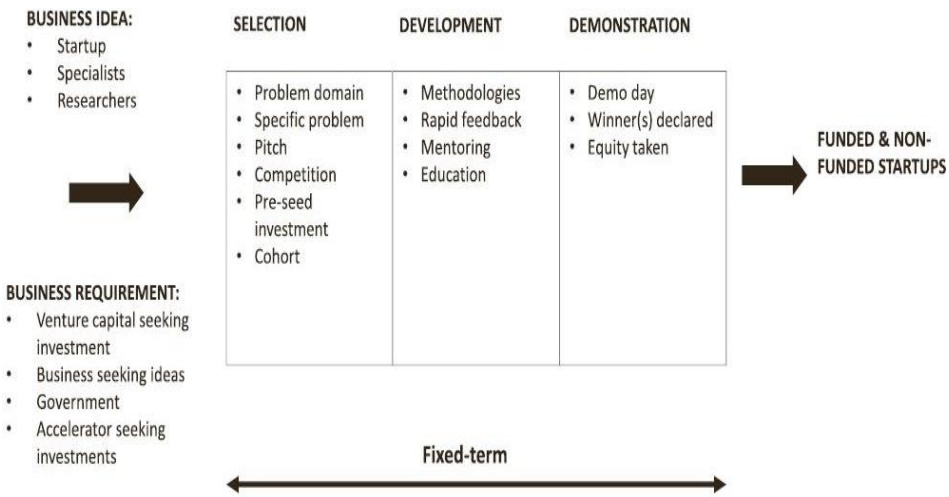

Figure 1: Model of corporate accelerator
Source: Richter et al. (2017)

Once defined the characteristics of a corporate accelerator scholars have analysed success factors and tensions of the collaboration between corporate and startups through a corporate accelerators. Kupp et al. (2017) performed a single case study of the German corporate accelerator Hub:raum run by Deutsche Telekom and found which are success factors for tapping into the startups world. According to them an incumbent running a corporate accelerator have to set transparent and aligned goals between corporation and startups, recruit an independent team that view themselves as advocates for the startups, secure a large and committed external network, set a long term objectives and secure top-management backing. Following these indications should reduce tensions inherent in the

collaboration between established firms and startups analysed by Jackson and Richter (2017). According to them "these tensions are not only competitive contradiction arising from disputes about resources or fairness within the some general structure, they are constraining contradictions between the elements of cultural and structural system themselves" (Jackson and Richter, 2017, 18).

6 Conclusions and future research

The literature reviewed shows that, since the establishment of the first accelerator Y Combinator in 2005, accelerator models have attracted increasing attention by scholars and managers. Our analysis confirms some of the preliminary findings drawn from the literature about accelerators, in particular the difference between accelerators and other model of startup assistance (Isabelle, 2013; Pauwels et al. 2016) and the overall positive effect of such programs on accelerated startups (Kim and Wangman, 2014; Hallen et al. 2016) and ecosystem (Hochberg, 2016; Frimoding and Trokkeli, 2017). The analysis suggests three emerging literature streams.

First, the definition of characteristics and features of accelerators and of the differences between accelerators and other model of startup assistance. On the basis of our review we have found that the most commonly accepted definition of accelerators is "a fixed-term, cohort-based program, including mentorship and educational components, that culminates in a public pitch event or demo-day" (Cohen & Hochberg, 2014, p. 4). In addiction accelerators provide seed investment in exchange of equity (Miller and Bound, 2011).

Then, another literature stream concerns the effectiveness of accelerators. Scholars have analysed the impact of accelerators on accelerated startups and they found an overall positive effect. In particular scholars found a positive impact on three dimensions; acquisition of new knowledge (Hallen et al. 2016; Battistella et al. 2017), startup valuation (Kim and Wangman 2014; Smith and Hannigam 2015) and ability to receive subsequent funding (Radojevic-Kelley and Hoffman, 2012). In addiction scholars analysed the impact of accelerators on the ecosystem and found that the presence of an accelerator increases the exposure to investor of companies located in the area (Hochberg, 2016).

Last, but not least, a third literature stream refers to the use of accelerators as open innovation tools. In particular, within this stream, scholars have analysed emerging theme of corporate accelerators. The review shows that this recent topic is attracting interest of scholars and practitioners. In particular corporate accelerators are seen from big corporations as a tool for the implementation of an open innovation strategy which allow companies to tap in into knowledge residing outside the corporation's boundaries (Chesbrough, 2003) which may be provided by entrepreneurial startups (Dushnitsky and Lenox, 2005).

This review comes up with three main contributions. First, it provides an exhaustive definition of accelerators clarifying the boundaries of such emerging phenomenon, in particular for what concerns differences with other model of startup assistance. Second our review points out the importance and effectiveness of such programs summarizing the most relevant contributions assessing their impact on startups and ecosystems. Third, it identifies three areas of potential research. In particular, two main bodies of research emerged as important in deepening our understanding on accelerator programs, namely

the impact of accelerators on accelerated startups and ecosystems and the corporate accelerator phenomenon.

Nonetheless the paper presents the following limitations. First, due to the novelty of such phenomenon contributions are still limited and growing in number. Second, in order to enlarge our sample we included conference papers and not top management journal. Third, the analysis of the paper could have been done via a software for qualitative analysis. In order to overcome these limitations, future research should analyse the topic via a bibliometric review, combining for example bibliographic coupling and co-citation analysis (Boyack & Klavans, 2010; Small, Boyack, & Klavans, 2014) in order to depict thematically related publications and shed light on theoretical foundations.

Whether our review of the literature may contributes to a deeper comprehension of accelerators and help practitioners and managers to design processes and features of their own accelerator programs, a strong theoretical approach is still lacking. For example a resource based view approach can be adopted in order to see which are the core resources provided by accelerators to accelerated startups. Moreover a knowledge transfer view can be used to shed light on the mechanism through which knowledge is transferred within accelerator programs.

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