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# Understanding a new generation incubation model: The accelerator

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ABSTRACT

Prior research hints at the accelerator as a new generation incubation model. Accelerators have become an umbrella term for any program providing a service structure of mentorship, networking opportunities and access to funding. The challenge, however, is to understand their distinctive characteristics and profiles geared towards reinforcing business start-ups. How do accelerators operate as a new generation incubation model and how do they differ from existing incubation mechanisms? This inductive study investigates 13 accelerators across Europe and adopts a design lens to identify the accelerator model's key design parameters. We identify five key building blocks and distinguish between three different types of accelerators, taking the primary design theme of the accelerator into account. We contribute to the incubation literature by extending recognition of the heterogeneity of incubation models, by delineating the accelerator as a distinctive incubation model and by introducing the design lens as a useful theoretical framework to investigate incubation models and their evolution.



## 1. Introduction

Over the past decades a wide variety of incubation mechanisms have been introduced by policy makers, private investors, corporates, universities, research institutes etc. to support and accelerate the creation of successful entrepreneurial companies. Whilst extant literature on incubation mechanisms agrees on their contribution to the nurturing of new ventures in general, it also points to the need to take the heterogeneity of different incubation models into account (Barbero et al., 2014). Incubation models have evolved (Bruneel et al., 2012) and continue to evolve into new generation incubation models. It is therefore important to gain insights into the specific features of evolving incubation models to assess their working and performance (Mian, 1997) and their impact on incubated ventures (Barbero et al., 2012).

A new generation incubation model, introduced in Europe in the last five years, is that of the seed accelerator program. "Accelerators" are organizations that aim to accelerate successful venture creation by providing specific incubation services, focussed on education and mentoring, during an intensive program of limited duration (Cohen and Hochberg, 2014; Miller and Bound, 2011). Accelerators emerged mid-2000 as a response to the shortcomings of previous generation incubation models, which are primarily focused on providing office space and in-house business support services (Bruneel et al., 2012). The first accelerator, Y Combinator, was established in 2005 in Cambridge, Massachusetts, and has been a source of inspiration for many accelerators to follow. In 2009, the Difference Engine kick-started the European accelerator sector and in 2013, Seed-DB, a platform which analyses accelerators and their companies worldwide, reported over 213 accelerators worldwide, which have supported approximately 3,800 new ventures.

Yet, despite these success examples and the rapid proliferation of accelerators across different regions, empirical and theoretical knowledge about the distinct characteristics and drivers of this new generation incubation model is scant (Birdsall et al., 2013). Furthermore, insights from the extant incubation literature only partly help us to understand the working of accelerators. Research on incubation models has provided in-depth insights into the differences in the organization, activities, services and objectives of incubator types (Aernoudt, 2004). However, we cannot simply assume these differences hold for accelerators, which seem to extend existing approaches to a very distinctive type of incubator. In addition, the business incubation literature lacks a theoretical lens to analyse and explain the heterogeneity among different incubation models, with the majority of published studies being largely descriptive in nature (Bruneel et al., 2012; Hackett and Dilts, 2004).

Against this backdrop, we set out to explore 13 accelerators in Europe in order to answer the following research question: "How do accelerators operate as a new generation incubation model?" Specifically, we introduce the design perspective developed by Zott and Amit (2010) in their study about business models as a

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useful theoretical lens to look at the phenomenon and identify an accelerator's primary design parameters. This enables understanding of how accelerators differ from previous generation incubation models and how they particularly create value for their ventures. By doing so, we aim to contribute to the existing incubation literature in two ways. First, by delineating accelerators as a new generation incubation model. By identifying accelerators' key design parameters, we conceptualize both the dimensions of their heterogeneity and their distinctiveness in relation to other incubation models. Second, by introducing a design lens as an appropriate theoretical framework for investigating new incubation models, so enabling the consistent monitoring of incubation model evolution.

## 2. Theoretical background

### 2.1. Incubation models

An incubation model is broadly defined as the way in which an incubation entity provides support to start-ups to improve the probability of survival of the portfolio companies and accelerate their development. It is the model used by the organization or mechanism to deliver incubation services to start-up companies and create and capture value from them (Amit and Zott, 2001; George and Bock, 2011). Incubation models have evolved since the establishment of the first incubators, science parks, innovation centres and the like. Academic research has followed this evolution by providing a variety of studies focusing on different incubation model characteristics, classifications and typologies, and their evolution over time.

#### 2.1.1. Incubation model characteristics, classifications and typologies

The main body of research on incubation has devoted considerable attention to describing different incubation mechanisms and models (Barbero et al., 2014). The literature on academic entrepreneurship for example, focuses on how universities nurture spin-offs into successful start-ups via internal approaches such as technology transfer offices, science parks and incubation infrastructures (Clarysse et al., 2005; Van Looy et al., 2003). The literature on corporate entrepreneurship illustrates how large companies, similar to universities, rely on quasi-internal activities and develop in-house incubation facilities to assist new start-ups as a means to source new ideas (Becker and Gassmann, 2006; Grimaldi and Grandi, 2005; Hill and Birkinshaw, 2014). In the public sector, business incubators are recognized as a popular instrument to foster entrepreneurship and regional economic development (Smilor & Gill, 1986) and in the private sector incubation through rent-seeking has grown into a separate industry, with the involvement of investors as a way to improve the deal flow of their portfolio (Miller and Bound, 2011). The latter is perceived as a high-risk investment model for the support of high-potential new ventures, originating from the venture capital and corporate industry.

As incubation mechanisms have matured and multiplied, different incubation models have emerged, resulting in a plethora of definitions and typologies, based on a variety of distinguishing characteristics. The most fundamental categorization concerns the distinction between non-profit and for-profit incubation models (Aernoudt, 2004; Grimaldi and Grandi, 2005). Beyond this basic dichotomy, research provided different classifications primarily depending on strategic objectives, service offerings and competitive focus, the latter distinguishing between industry sector, type of start-up, phase of intervention and geographical reach (Vanderstraeten and Matthyssens, 2012). Barbero et al. (2014) converge on four broad models: (1) business innovation centres, with a focus on regional economic development, (2) university incubators to facilitate technology commercialisation, (3) research incubators embedded in research institutes to valorise research output, and (4) stand-alone incubators, focussed on selecting and supporting high-potential ventures.

Previous research also identified a range of basic incubation model components (Bergek and Norrman, 2008; Hackett and Dilts, 2004). Despite the differences and overlaps between incubation models, an incubation model's main components include at least four of the five following services: (1) access to physical resources, (2) office support services, (3) access to capital, (4) process support, and (5) networking services (Carayannis and von Zedtwitz, 2005), with a primary focus on overcoming the participating venture's liability of newness, and hence improve its survival rate (Dettwiler et al., 2006; Schwartz, 2013).

#### 2.1.2. Incubation model evolution

A more recent stream of studies adopts a dynamic view on incubation research, by focusing on the evolution of incubation models over time (Grimaldi and Grandi, 2005). These studies advance the existence of a generational sequence of incubation models, led by changing needs of participating ventures. They argue that each generation of incubation models adapts its value proposition to the evolving needs of participating ventures (Bruneel et al., 2012).

The first generation of incubation models, introduced in the early nineties, primarily focused on providing physical and financial resource support (for example office space and small financial injections) to early-stage high potential ventures (Phan et al., 2005). Throughout the nineties, new incubation models emerged, which gradually moved away from a mere focus on offering basic office space and financial support, towards a broad range of more intangible high value added services. This second generation of incubation models included, amongst other things, services such as aid in evaluating different market opportunities, access to knowledge intensive services, product development support, access to knowledge, expertise and networks of entrepreneurs and provision of entrepreneurial finance (Clarysse and Bruneel, 2007; Soetanto and Jack, 2013). More recently, we can identify a further shift, hinting at a new generation of incubation models, which focuses on knowledge intensive business services, moving away almost entirely from the primary services for which the incubation models were founded (i.e. rental services).

#### 2.1.3. The accelerator: a new generation incubation model?

The accelerator model is an exemplar of the recent shift towards a focus on intangible, knowledge intensive, support services in incubation services. An accelerator is an organization, which aims to accelerate new venture creation by providing education and mentoring to cohorts of ventures during a limited time (Cohen and Hochberg, 2014). Although the accelerator model includes intangible services, such as mentoring and networking, it has a number of other specific features that sets it apart from existing incubation models (Isabelle, 2013). First, they are not primarily designed to provide physical resources or office support services over a long period of time. Second, they typically offer pre-seed investment, usually in exchange for equity. Third, they are less focused on venture capitalists as a next step of finance, but are more closely connected to business angels and small-scale individual investors. One of the reasons for this difference is that their focus is on early-stage tech start-ups for which the costs of experimentation have dropped significantly in the last decade, rather than capital-intensive start-ups, such as technology-oriented spin-offs from universities. Fourth, the accelerator model places emphasis on business development and aims to develop start-ups into investment ready businesses by offering intensive

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mentoring sessions and networking opportunities, alongside a supportive peer-to-peer environment and entrepreneurial culture (Christiansen, 2009). Fifth, the accelerator model concerns time-limited support (on average 3–6 months), focused on intense interaction, monitoring and education to enable rapid progress, although some provide continued networking support beyond the program as well.

Although literature suggests that the accelerator model can be considered a new generation incubation model (Wise and Valliere, 2014), formal analysis about its particular characteristics and drivers is lacking. The few available studies examining accelerators are largely descriptive in nature and lack a consistent theoretical lens to study the phenomenon (Cohen and Hochberg, 2014; Miller and Bound, 2011). We address this gap by providing a more informed image of new generation incubation models in general and the accelerator model in particular, as part of a broader effort to introduce the design lens as a systematic methodological approach to study incubation evolution.

### 2.2. A design lens to study incubation model evolution

The design lens introduced by Zott and Amit in their research about business model design (Amit and Zott, 2012; Zott and Amit, 2007, 2010) is a useful framework to study incubation model evolution. This stream of research introduces the concept of an organization's activity system, concerning the set of interdependent organizational activities conducted by the focal organization and its partners, enabling the organization to create, deliver and capture value in concert with these partners. It suggests two sets of design parameters that should be taken into account when choosing the appropriate "model" or "template" for the activity system to perform its activities: design elements and design themes. Design elements are the key building blocks of the activity system's model, which set it apart from other models. Design themes represent the common theme that orchestrates and connects the different elements into a particular model and as such categorize different models of activity systems (Amit and Zott, 2012).

The activity system design perspective is particularly relevant to study a new generation incubation model, as it provides a conceptual toolbox to identify and assess its key elements and themes. It can be used to, on one hand, distinguish the new model from existing models, through identifying the model's vital elements and, on the other hand, reveal the heterogeneity within the new model, through identifying the main themes characterizing different types within the new generation model. As such it provides a structured framework for incubation researchers to consistently track and assess incubation model evolution.

## 3. Methods: sample, data collection, and analysis

Given the lack of previous research specifically on accelerators, the contemporary and therefore still relatively unexplored subject under study, and our "how"-research question, we choose an inductive, multiple case study design as a research strategy (Eisenhardt and Graebner, 2007; Tracy, 2010).

### 3.1. Sample

We use a theoretical snowball sampling approach (Yin, 2013). This means that we started our sampling by only focusing on cases that comply with a predefined strict definition of an accelerator, clearly delineating the accelerator model from other incubation models. Based on Miller and Bound (2011) we define an accelerator as having the following six characteristics: (1) Possible offer of upfront investment (£10k–£50k), often in exchange for equity (~5–10%); (2) Time-limited support, comprising programmed events and intensive mentoring; (3) An application process that is "in principle" open to all, yet highly competitive; (4) Cohorts or classes of start-ups rather than individual companies; (5) Mostly a focus on small teams, not individual founders; (6) Periodic graduation with a Demo Day/Investor Day. Using the above criteria, we identified an initial dataset of 41 accelerators in Europe that complied with our strict accelerator definition. We further imposed two additional criteria on the dataset to result in a final selection of 14 cases (a) the cases are viewed by experts who sit in the European accelerator advisory board, called the Accelerator Assembly, as accelerators which have developed a track record and have signalled to stay in the field for a longer time period and (b) they are located in one of the three "leading accelerator regions" in Europe: London, Paris and Berlin. The Regional Entrepreneurship and Development Index (REDI), a complex composite indicator of regional entrepreneurship that captures both individual-level actions as well as contextual influences such as the financial possibilities of businesses, ranked the regional entrepreneurial performance of London, Ile-de-France and Berlin amongst the top in the European Union (Szerb et al., 2014). These three cities created the conditions for accelerators to take off as they have a sufficiently dense population of entrepreneurial ventures to be attractive for accelerators and have a developed seed stage funding supply resulting in better circumstances for start-ups and start-up programs to make an impact (Salido et al., 2013). We argue that focusing on the best performing accelerators only contributes to our theoretical sampling approach as it facilitates access to rich insights about an accelerator's key design parameters. As the accelerator model is still very young (average age of 3 years) we relied on expert judgements rather than established performance indicators in incubation research such as the number of jobs created, number of graduates and occupancy rate (Barbero et al., 2012). Among the 14 selected, the managing directors of 13 accelerators agreed to participate in our study. Table 1 provides a final list of the 13 accelerators included in the study and their key characteristics.

### 3.2. Data collection

We used two data sources: interviews and archival data. The primary data source involved semi-structured interviews with the managing directors of the 13 accelerators selected, during the second half of 2013 and early 2014, using the repertory grid method as a technique to structure the interviews (Easterby-Smith et al., 1996). The repertory grid technique focuses on the construction of meaning by individual participants in a specific setting and was chosen as a technique to supplement standard interview questions, (such as "Can you describe your ideal portfolio company?" "What makes your accelerator unique? etc.), due to its comparative efficiency and flexibility and its greater potential for objective validity and reproducibility (Symon and Cassell, 1998). Interviews ranged from 50 minutes to 1.5 h and always involved two researchers: one conducting the interview, and the other taking field notes. Each interview was tape-recorded and transcribed, which resulted in 215 pages of total interview transcripts. The French-speaking interviewees were interviewed in their mother tongue, transcribed in French and then translated into English.

The interview data was supplemented with archival data from various sources, including industry reports, internal accelerator program records, company presentations, annual reports, websites and news articles about the organisation. These secondary data sources were important sources of information to familiarize with the context and construct preliminary case histories of each

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**Table 1**
Case descriptives.

| | Name | Acronym | Location | Founding date | Program length | Investment size | Equity stake taken |
|---|---|---|---|---|---|---|---|
| 1 | *Techstars London* | TL | UK, London | 2013 | 3 months | £12500+option conv. loan | 6% |
| 2 | *Healthbox Europe* | HB | UK, London | 2012 | 4 months | £50000 | 10% |
| 3 | *Fintech Innovation Lab* | FIL | UK, London | 2012 | 3 months | / | / |
| 4 | *Bethnal Green Ventures* | BGV | UK, London | 2011 | 3 months | £15000 | 6% |
| 5 | *Climate-KIC Europe* | CKE | Europe | 2010 | 12–18 months | Max. of €95000 | / |
| 6 | *Microsoft Ventures Accelerator* | MVA | Germany, Berlin | 2013 | 4 months | / | / |
| 7 | *Axel Springer Plug and Play Accelerator* | ASPP | Germany, Berlin | 2013 | 3 months | €25000 | 5% |
| 8 | *ProSiebenSat.1 Accelerator* | PSSA | Germany, Berlin and Munich | 2013 | 3 months | €25000 | 5% |
| 9 | *Startupbootcamp Berlin* | SBC | Germany, Berlin | 2012 | 3 months | €15000 | 8% |
| 10 | *Le Camping* | LC | France, Paris | 2010 | 6 months | €4500 | / |
| 11 | *The Family* | TF | France, Paris | 2013 | indefinite | / | 3% |
| 12 | *L'Accélérateur* | LA | France, Paris | 2012 | 4 months | €10000+option for more | 7–10% |
| 13 | *Scientipôle Initiative* | SI | France, Paris | 2002 | 6 months | €20000−90000 | / |

accelerator, as well as served as triangulation sources to validate emerging insights from the interviews (Huberman and Miles, 1983).

### 3.3. Data analysis

Our data analysis evolved in three stages. We started with writing individual case histories of each case using all archival data available. We then contacted the managing directors of the accelerators through email to ask for an interview, with the preliminary case history of their accelerator attached, in order to increase response rates (Yin, 2013). Further communication through email and telephone was used to schedule interviews and validate the preliminary case histories.

Once the case histories were validated and interviews were scheduled, we proceeded with conducting the interviews, using the repertory grid method both as a data collection and data analysis technique. We followed the three stages of the basic repertory grid technique (Easterby-Smith et al., 1996). First, we defined 15 accelerators (the 13 cases under study together with the 2 pioneering accelerators in US: Y Combinator and Techstars US) as our "grid elements" (=objects of attention within the domain of investigation). Each grid element was written down onto an individual card. Second, we used "triads" and "the full context form" (Tan and Hunter, 2002) as two techniques to elicit "constructs" (=qualities describing and differentiating elements). During the first part of the interview we constructed a triad by combining the interviewee's own accelerator with two accelerators, randomly drawn from the pack of cards. The three cards were presented to the interviewee, who was then asked to identify ways in which two accelerators are similar yet different or opposite from the third. This process was repeated until no new constructs could be identified. In the second part of the interview, we presented the full repertory of cards to the interviewee and requested him or her to sort the stack of cards into any number of discrete piles based on whatever similarity criteria the interviewee chose to apply. After the sorting was completed, the interviewee was asked to provide a descriptive title for each pile of elements. Finally, after completion of each interview, we constructed a "grid" (=matrix) of grid elements and constructs and completed each cell of the grid with information from the interview (i.e. for each accelerator we entered data in the cells representing how the accelerator is regarded in terms of the identified constructs).

The third stage of our data analysis involved a cross-case analysis. As suggested by Eisenhardt (1989), one tactic in cross-case analysis is to select categories and dimensions and then to look for inter-case similarities and differences. The categories and dimensions were suggested by the elements and constructs from the grids built up for each interview and all cases were replicated against one another (Yin, 2013). We counted an initial number of 17 constructs identified by the interviewees and applied two rounds of comparative analysis to cluster constructs "that go together" (Miles and Huberman, 1994).

A first round of analysis resulted in grouping the 17 constructs together in 9 elements. After a second round we eventually agreed upon a final set of 5 design elements. The final set of 5 design elements were reviewed by the interview respondents to further validate our results. We finalized our analysis by identifying themes cutting across cases. The full context form technique applied during the interviews resulted in a number of different groups of accelerators, ranging from 2 to 5 different groups. We further compared all of the data available for each case in a matrix to reveal element relationships and agreed upon three distinct groups of accelerators in our dataset. The three different groups were again reviewed by the interview respondents to validate our findings. We employed an insider–outsider approach, which means that a third person was involved in the analysis rounds as an independent researcher so that the credibility of the findings would not rely solely on the interpretations of those conducting the interviews (Gioia et al., 2010).

## 4. Findings

This section reports the results from the repertory grid construction and cross-case analysis. We discuss the five accelerator design *elements* and three accelerator design *themes* that emerged from our findings.

### 4.1. Design elements

The design elements of an activity system capture the key parameters that describe the activity system's architecture (Zott and Amit, 2010). As outlined above, the 5 design elements of the accelerator model were identified through comparative analysis of the 13 cases involved, which led us to cluster the 17 constructs identified by the interview respondents into 5 agreed upon design elements. Fig. 1 and Table 2 illustrate how we arrived at the final selection by respectively showing which of the 17 constructs were clustered together in a design element, and portraying supportive quotes for each of the 17 constructs. In what follows we describe each design element in detail.

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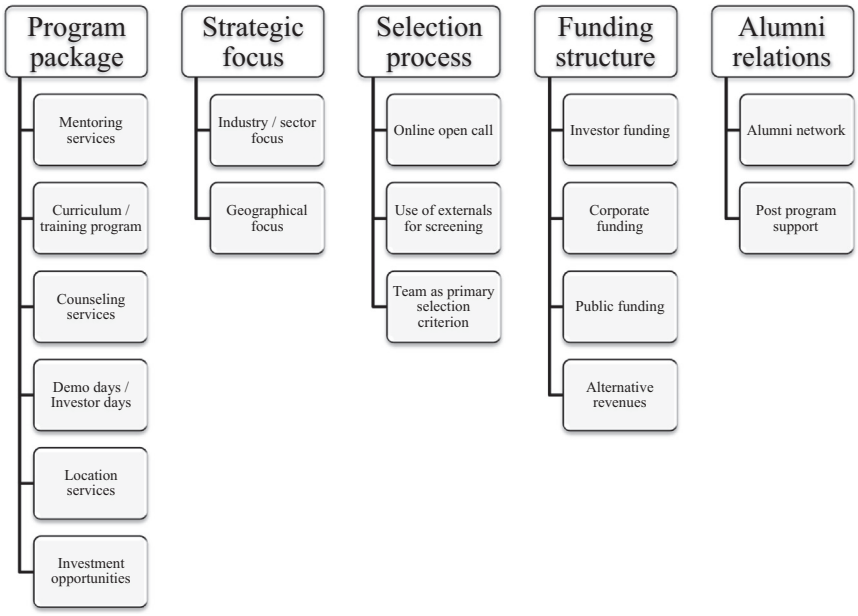


**Fig. 1.** Design elements and constructs.

*4.1.1. Program package*

The program package consists of all services the accelerator offers to its portfolio ventures. The accelerator program package's core services that most differentiate the accelerator from previous generation incubation models are the well-elaborated and carefully planned mentoring services. Mentors are typically experienced entrepreneurs, which are heavily vetted before being included in the accelerator program. They are matched to specific ventures based upon speed dating or match making events and are frequently evaluated by the accelerator management team. Mentors help ventures to define their business model and to connect with customers and investors. Although there are variations in how this mentoring is operationalized, mentoring services are evident across all accelerators.

An accelerator's program package most often also includes a curriculum or training program, covering a variety of topics such as finance, marketing and management, which the new ventures have to go through when entering the accelerator program. The ProSiebenSat.1 accelerator for instance includes courses in finance, user design, PR, marketing and legal aspects, and a program of ad hoc events, such as, expert workshops and inspiring lectures.

In addition to educational services, accelerators offer regular counselling services, provided by the accelerator management team. These are offered in the form of weekly "office hours" or evaluation moments and provide the portfolio companies with business assistance and enable monitoring of their progress.

The portfolio companies are also given the opportunity to come into contact with customers and investors through the organization of demo days or investor days. During these days, customers and/or investors are invited to visit the accelerator and attend portfolio companies' presentations, followed by formal and informal networking opportunities.

Location services are also part of the accelerator program package, but are limited to co-location in a shared open office space, with the aim to encourage collaboration and peer-to-peer learning.

Finally, the program package also consists of investment opportunities offered to the portfolio companies. We find that most programs (8 out of 13) follow the traditional accelerator model of offering a small amount of funding in exchange for equity (ranging from £3,600–£50,000 for 3–10%). The equity stakes are typically made on a dilutable basis with pro-rata investments in ensuing rounds being optional case-by-case. Some form of follow-on funding can be provided as well. For example, Healthbox Europe has shaped an Angel Fund that acts as a co-investment fund to be invested alongside the accelerator as a separate legal entity.

*4.1.2. Strategic focus*

The second design element of an accelerator is the strategic focus. The strategic focus concerns the accelerator's strategic choices regarding industry, sector and geographical focus. The industry and sector focus ranges from being very generic (no vertical focus at all) to very specific (specialized in a specific industry, sector or technology domain). For example, Fintech Innovation Lab focuses exclusively on the financial sector, while L'Accélérateur is more broadly "retail-oriented". Overall, accelerators seem to be focusing their programs increasingly on certain themes rather than being generic.

In addition to an industry and sector focus, accelerators also have a geographical focus where they choose between being locally versus internationally active in their activities. Techstars is an example of a program that initially focused on US only, but then internationalized to Europe with a program in London and Berlin. However, each local program operates autonomously, while Techstars as a whole aims to share best practice across its local units.

*4.1.3. Selection process*

Accelerators make use of a rigorous, multi-staged selection process. Usually, an open call is organized for a period of time, during which portfolio companies can register and apply online on a software platform such as F6S.com, Fundacity or Angel.co. Some programs, like Startupbootcamp and Climate-KIC, go one step further and actively scout start-ups during events before the application period.

Then, a standardized screening process is organized in which external stakeholders tend to participate. Different types of stakeholders are asked to sit in a selection committee or to do interviews. The portfolio companies are expected to present their ideas and they are screened in person. For example, Healthbox Europe uses a selection committee, which comprises of mentors, investors and alumni, to help shortlist companies in its program.

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**Table 2**
Data structure supporting accelerator design elements.

| Design elements | Constructs | Representative quotes |
|---|---|---|
| **PROGRAM PACKAGE** | *Mentoring services* | "80–100 individuals in our mentor network" [HB, Nov 2013]<br>"The mentor model came from Techstars US. Mentors are heavily involved in the program." [BGV, Oct 2013]<br>"Start-ups are given feedback all the time, there is a structured feedback process regarding partners and mentors." [MVA, Dec 2013)<br>"We meet every mentor face-to-face and kind of have a debrief or pre-brief." [SBC, Dec 2013]<br>"The only method that we found that works is: rent a room in a restaurant, bring in food and a lot of alcohol and close the doors, and in 4 h magic happens" [MVA, Dec 2013]<br>"First month is mentor-heavy, with matchmaking and presenting and speed dating…" [SBC, Dec 2013]<br>" We have intern mentors, so from within the company, that have expertise in a certain area." [PSSA, Nov 2013]<br>"We have godfathers… They are actually internal coaches from Axel Springer. So we match them with the teams." [ASPP, Dec 2013] |
| | *Curriculum / training program* | "We have like lawyers, accountants, and HR people that also offer their services to our start-ups through workshops, lectures or office hours. Then we have some lectures that inspire them." [MVA, Dec 2013]<br>"…fixed curriculum points they have to, or should attend. And those are sessions with internal and external mentors and coaches, with experts, with entrepreneurs, with people from the team where they learn things about specific functional topics." [PSSA, Nov 2013] |
| | *Counselling services* | "We check with the companies at least weekly if not twice a week so we do have regular conversations." [HB, Nov 2013]<br>"We also do a kind of weekly stand-up. On Friday they have to stand in front of the class explaining what they did last week and what they want to achieve." [MVA, Dec 2013]<br>"We set up an action plan and use the cash to address the bottlenecks. To identify the bottlenecks, you need to sit around the table for hours, maybe days… Then we have to follow-up by visiting the guy (~ founder) step-by-step." [KIC, Dec 2013] |
| | *Demo days / Investor days* | "Our Demo Day is slightly different. It is not about getting investors in the room, it is actually getting customers in the room for the companies." [HB, Nov 2013]<br>"The majority of people we invite for the Investor Day are investors and they could be angel investors, VC's, private equity investors…" [FIL, Nov 2013] |
| | *Location services* | "Free office space here, free Wi-Fi, free stunning view, free drinks." [MVA, Dec 2013]<br>"We ask them to come to London and we provide them with desk space and office space." [FIL, Nov 2013] |
| | *Investment opportunities* | "The deal is 100% standardized because we don't have time to negotiate with the teams… so we take 5% of equity in the companies and we give them €25,000 plus our mentoring, coaching and the office space." [PSSA, Nov 2013]<br>"We invest some cash in the beginning. Between 5 and 15 K. But if we believe that the companies are in the right track and need some money then we will invest between 500 and 200 K and we usually take between 7–12%." [LA, Nov 2013]<br>"So we have $120,000, $20, 000 dollars goes for 6% plus the program, plus all the freebies which are not insignificant. And alongside that the teams get $100,000 on a note, convertible note." [TL, Jan 2014]<br>"After graduation, we have the discretion of writing the 150,000 check. The alternative, which we do use a lot, is we basically say we will co-match." [TL, Jan 2014]<br>"We can do follow-up investments… if anyone comes and says like 'I like them' and he invests, we can give the other 50%. So we can mirror the investment." [ASPP, Dec 2013] |
| **STRATEGIC FOCUS** | *Industry / sector focus* | "Nesta's investment themes… health, education and sustainability" [BGV, Oct 2013]<br>"We are an open thematic accelerator" [LC, Jan 2014]<br>"We customized that model to be more reflective of the healthcare market and our interest in exploiting that area." [HB, Nov 2013] |
| | *Geographical focus* | "90% of our businesses are in the US and 10% is not… I used to run a stand-alone program and it would have been hard to differentiate myself." [LC, Jan 2014]<br>"The London program is very much based on the New York program that we have" [FIL, Nov 2013]<br>"There are these that are considered innovative enough since we only fund innovative projects that are less than 3 years old and are in the region of France." [SI, Dec 2013] |
| **SELECTION PROCESS** | *Online open call* | "We have an application phase that is open for about 4–6 weeks. During these 4–6 weeks we ask companies to submit and to fill in a questionnaire" [PSSA, Nov 2013]<br>"We open the online platform for two months. So future applicants have two months to register and to complete their applications" [LC, Dec 2013] |
| | *Use of externals for screening* | "We shortlist companies with the help of members of the selection committee who are representative of the mentors and some of the investors of the program" [HB, November 2013]<br>"We use alumni a lot when screening, especially if the idea is in line with their area of expertise… I even let them do interviews. And we do have a selection committee – they are involved in the selection days" [SBC, Dec 2013]<br>"The banks meet the start-ups and they interview them" [FIL, Nov 2013] |
| | *Team as primary selection criterion* | "We learned that selecting teams remotely is difficult, we want to see them face-to-face, in action" [SBC, Dec 2013]<br>"We do a final panel interview which we do in person rather than Skype, because we want to meet the team" [TL, Jan 2014]<br>"We have a focus when we look at selection: team, team, team and opportunity" [TL, Jan 2014]<br>"We have like 3 important criteria: the team, degree of innovation and market opportunity" [LC, Nov 2013]<br>"We look at personal qualities (ambition, tenacity, frugality, openness, flexibility) and strong teams which interact well" [LA, Nov 2013] |
| **FUNDING STRUCTURE** | *Investor funding* | "We are privately funded mostly by business angels and a couple of VC's" [SBC, Dec 2013]<br>"Our investors are either all professional investors or VCs or angels. And we cap the amount of money that any |

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**Table 2** (*continued*)

| Design elements | Constructs | Representative quotes |
|---|---|---|
| | | investor can put into our fund. Because we actually want diversity in our investor base rather than 1 person turning up and say 'here is half the money'. So I tend to use it much more aggressively than some others do to create a network of smart investors" [TS, Jan 2014] |
| | *Corporate funding* | "Accenture covers the operating costs" [FIL, Nov 2013] |
| | | "Then you have the ones that are corporate funded (like us), which is typically a prerequisite for providing a good program that will last for a longer period of time" [PSSA, Nov 2013] |
| | | "There is no partner funding, so this is all Microsoft funded. There is no partnership with any organisation. I am a 100% Microsoft employee, this building is financed by Microsoft." [MVA, Dec 2013]. |
| | *Public funding* | "It is a non-profit association and it is a sponsorship. So we receive some money and we allocate it, this money, to our events and our place" [LC, Nov 2013] |
| | | "Wayra UnLtd is, like us, funded from the Cabinet Office… We have a non-profit part which owns the majority of Bethnal Green Ventures LLP" [BGV, Oct 2013] |
| | *Alternative revenues* | "Actually we have a very profitable event business. We are organising a lot of events and people like our events. So we know how to sell tickets online, it is a good way to gain money, the event business is an incredible business with capital" [TF, Nov 2013] |
| | | "Startupbootcamp Berlin is renting out desks in our new co-working space called the Start-up Gallery" [SBC, Dec 2013] |
| **ALUMNI RELATIONS** | *Alumni network* | "We build the infrastructure to try to help them… We run alumni-events quite often and alumni are invited back in for all the program stuff when we run a program. So we create a lot of opportunities for them" [BGV, Oct 2013] |
| | | "We have an alumni annual meeting where we bring as many alumni as possible together. And they just share what is going on and they connect from across the programs" [SBC, Dec 2013] |
| | *Post program support* | "Our program runs from October to January but we continue to offer office space until past September. So it is one less thing for the companies to worry about because, you know, office space in London is extremely expensive. So we continue to make introductions and continue to support the companies where we can. Obviously it is not as hand-on as it was during the program but there is additional support" [HB, Nov 2013] |
| | | "We don't kick the alumni out of our space, why would we? And we run monthly alumni events in London. There is one tomorrow, every first Thursday of every month. We have it in the same space all the time" [TL, Jan 2014] |

Remarkably, all accelerators in our sample claimed that teams are the main selection factor. Entrepreneurial teams are typically selected in batches and single founders are only selected by exception. A representative example is the screening process of the Paris-based accelerator TheFamily. Their application process is perceived to be "founder-friendly", since the team as opposed to the idea is the dominant decision factor for participation in the accelerator. Some accelerators will help founders with matchmaking and team formation, which is also of benefit to teams missing a specific skill set. For example the Paris-based accelerator Le Camping organizes an event called "Adopt a CTO" before opening the call to submit applications. This event offers single founders the opportunity to find a CTO and form a team. Other accelerator programs such as Startupbootcamp and Climate-KIC have entrepreneurs-in-residence. These are entrepreneurs with a specific skill who can join entrepreneurial teams, become co-founders, or build their own companies. They are more than mere advisors (compared to mentors), as they work closely together with the teams and become team members. Some entrepreneurs-in-residence are paid, others participate in the program driven by the opportunity, experience or personal growth.

#### 4.1.4. Funding structure

A fourth design element characterizing an accelerator concerns its funding structure. We find that most programs receive the major part of their working capital from shareholders. These shareholders are either private investors, corporate companies or public authorities. Although most accelerators look to complement these sources with revenues, few of the accelerators we interviewed were able to get revenue from investments in the start-ups they support. Alternatively, this can also be because these programs are still relatively new and it will take some time before they have noticeable exits in their portfolio companies. Some accelerators diversify their model in order to source alternative revenue through the organization of events and workshops. For example, TheFamily organizes a lot of events, for which they sell tickets online, which has turned into a profitable event business.

#### 4.1.5. Alumni relations

The last design element particular for an accelerator concerns its relations with alumni. The accelerators in the study put a lot of emphasis on keeping close and active relations with the companies that graduate from their program. Most accelerators run regular events for alumni and invite them back into the program to share their experiences where possible. These companies are used as reference cases and often get actively involved in the mentoring activities discussed above.

Some accelerators experiment with the extended provision of support services to alumni companies once graduated. Accelerators that take equity in their start-ups have an additional incentive for providing continued support to help their alumni succeed. Once an accelerator has developed over a number of years, the alumni network can be an important source for mentors and investors, as successful graduates are more likely to invest back into the community that supported them in the first place.

We conclude from our analysis that the five design elements – program package, strategic focus, selection process, funding structure and alumni relations – are the key building blocks of an accelerator model, as they appear in each of the 13 cases under study and allow parallels to be drawn and differences among the cases to be identified.

### 4.2. Design themes

Our data further reveals that the accelerators in our study vary in their architecture, depending on their approach to each of the design elements. In the next section we therefore describe the second set of design parameters that characterize an accelerator: its design theme. The accelerator's design theme is the common theme underlying a particular type of accelerator, orchestrating

**Table 3**
Data structure supporting accelerator design themes.

| | ECOSYSTEM BUILDER | DEAL-FLOW MAKER | WELFARE STIMULATOR |
|---|---|---|---|
| **Design theme** | **"Matching customers with start-ups and build corporate ecosystem"** | **"Identification of investment opportunities for investors"** | **"Stimulation of start-up activity and economic development"** |
| Program package | Mentoring provided by internal coaches from corporates No seed investment or equity engagement | Mentoring provided by serial entrepreneurs and business angels-Standard seed investment and equity engagement | Mentoring provided by serial entrepreneurs and business developers; most extensive curriculum Mostly seed investment and equity engagement |
| Strategic focus | Mix of generalists and specialists International focus | Mix of generalists and specialists Local and/or international focus | Mostly generalists Local and/or international focus |
| Selection process | Favour new ventures in later stages with some proven track record | Favour new ventures in later stages with some proven track record | Favour very-early stage new ventures |
| Funding structure | Funding from corporates | Funding from private investors (business angels, venture capital funds and/or corporate venture capital) | Funding from local, national and international schemes; experimenting with funding structure and revenue model (search for sustainability) |
| Alumni relations | Establish infrastructures to build alumni services | Establish infrastructures to build alumni services | Establish infrastructures to build alumni services |
| **Cases** | **Fintech Innovation Lab Microsoft Ventures Accelerator Healthbox Europe** | **Techstars London TheFamily Startupbootcamp Berlin ProSiebenSat.1 Accelerator Axel Springer Plug and Play Accelerator L'Accélérateur Bethnal Green Ventures** | **Climate-KIC Europe Scientipôle Initiative Le Camping** |
| *Representative quotes* | *"It is more a service to strengthen our relationships with the banks" [FIL, Nov 2013]*<br>*"With Microsoft you have unparalleled access to customers, because we are still relevant and big in every small and midsize enterprise." [MVA, Nov 2013]* | *"The goal is to generate positive returns from our investments" [PSSA, Nov 2013]"We do it because we really would like to have a good investment case… So when I look back in 8 years, I would like to have two big exits because then everything we did here is fine. We help them with contracts, follow-up investment, so we are also investment bankers." [ASPP, Nov 2013]*<br>*"We want to create more exit opportunities… we are privately funded by investors" [SBC, Nov 2013]* | *"Get the economy going with social impact start-ups. It's not just about investing in start-ups" [BGV, Oct 2013]*<br>*"The most important thing is to create sustainable start-ups in the long term… about 200 jobs have been created" [LC, Dec 2013]* |

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and connecting the different design elements (Zott and Amit, 2010). The accelerator design themes were identified through application of the "full context form" repertory grid technique during the interviews (see above) and a further cross-case analysis, focused on revealing themes cutting across cases. As explained in the data analysis, our data revealed three distinct themes characterizing three different types of accelerator. Table 3 provides an overview of the different accelerator types, outlining the differences and similarities regarding the 5 design elements, and illustrates which cases belong to each group. In what follows we again describe each type of accelerator in detail.

*4.2.1. The "ecosystem builder"*

The "ecosystem builder" is an accelerator typically set up by corporate companies that wish to develop an ecosystem of customers and stakeholders around their company. Large companies such as Microsoft and Accenture install or support an ecosystem builder accelerator in order to extend their network of stakeholders. The accelerator is used as a matchmaking device to connect lead customers with promising start-ups and in this way nurture the development of an ecosystem around the company. As an example, the accelerator FinTech Innovation Lab in London is run by Accenture. It has the primary aim to create a platform for the financial services industry to collaborate on innovation with early-stage ventures. With this, Accenture seeks to strengthen its relationship with banking clients and increase its foothold in the market. Similarly, one of the drivers of the Microsoft Ventures Accelerator is to support start-ups whose solutions will benefit Microsoft's vast SME customer base across Europe.

The ecosystem builder accelerator actively involves its corporate stakeholders in the accelerator's operations. For example, senior executives of the corporate are often involved in the selection process of portfolio companies. Hence, only those ventures that attract the attention of the corporate's executives and that will be able to enhance the corporate's ecosystem development are selected. Mentors are often sourced from the corporates as well. These corporate mentors help the start-ups to find their way through the internal decision-making system of the company. Interestingly, this type of accelerator most often has no profit orientation and offers no investment to the start-ups that participate in the program. Instead, these accelerators add value to the portfolio companies, primarily by helping them to connect with potential customers. The accelerator's network is therefore almost exclusively oriented towards the potential customer base. They are financed on a yearly basis by the corporate and often adopt soft performance measures. They frequently engage in symbolic actions such as broadcasting, newsletters, and showcase events, to illustrate their legitimacy in the absence of strict key performance indicators (Zott and Huy, 2007).

*4.2.2. The "deal-flow maker"*

The "deal-flow maker" accelerator receives funding from investors such as business angels, venture capital funds or corporate venture capital and has the primary aim to identify promising investment opportunities for these investors. This accelerator type resembles most of the original concepts of Y Combinator and Techstars developed in the US. Its objective is to bridge the equity gap between early-stage projects and investable businesses.

The deal-flow maker typically provides some form of seed financing to the portfolio companies in exchange for equity. The screening criteria in these programs tend to favor ventures that are eligible for follow-on capital and have the ability to evolve in attractive investment propositions. The mentors used in these accelerators are often active business angels themselves, who play a further role in follow-up investments. The director of Fintech Innovation Lab described the mentors of deal-flow makers as "investors in disguise".

Deal-flow maker accelerators tend to select ventures, which already have some proven track record or in some cases have already raised pre-seed finance. They hence focus on start-ups that are in the later stages of development and often choose to specialize within a specific industry. By focusing on one specific sector, the accelerator management team can develop the necessary sector-specific knowledge and expertise to identify and exploit the economic potential of entrepreneurial teams.

*4.2.3. The "welfare stimulator"*

The "welfare stimulator" accelerator typically has government agencies as a main stakeholder. The primary objective of this type of accelerators is to stimulate start-up activity and foster economic growth, either within a specific region or within a specific technological domain. For instance, the European Commission supports the establishment of accelerators within particular technological domains of its economic development program (i.e. Knowledge and Innovation Communities or KICs).

The selection criteria and processes used in these accelerators are oriented towards attracting companies that fit within the vision of welfare creation. For example, the Paris-based accelerator Scientipôle Initiative promotes its program to unemployment agencies in order to encourage unemployed entrepreneurs to apply to the accelerator. It focuses heavily on the potential for job creation in its selection criteria.

Welfare stimulators typically select ventures in a very early stage. Quite often a value proposition has not yet been developed. As a consequence, the curricula and training programs provided by welfare stimulators are most developed among the three types of accelerators. Welfare stimulators typically organize training sessions, workshops and practical learning – oriented events to help the ventures develop their idea and value proposition. The accelerator's mentors are closely involved with the portfolio companies and provide hands-on guidance and advice. In some cases mentors are consultants or business developers, who – often on a paid basis – help to commercialize the technology or sell the product/service idea.

However, for a lot of welfare stimulator accelerators, the business model is rather unclear, as most public sponsors require some form of revenue after an initial financing period. Although most welfare stimulator accelerators present the typical investment model as a potential, others experiment with other forms of revenues such as tuition fees or registration fees for particular training courses.

The above findings suggest that the accelerator design themes are determined by the objectives of the affiliated shareholders (respectively corporates, investors and government agencies). The objectives of these shareholders; building a company ecosystem in the case of corporates, identifying interesting investment opportunities in the case of investors and stimulating start-up activity and economic development in the case of government agencies, are translated into the primary objective of the accelerator and represent the common theme orchestrating and connecting the accelerator's different design elements.

However, our data also point to the existence of hybrid accelerator types, which incorporate characteristics of two different accelerator types. For examples, the London-based accelerator Bethnal Green Ventures combines characteristics of the deal-flow maker and welfare stimulator. The accelerator receives funding from the UK Cabinet Office, Nominet Trust and Nesta and runs like a traditional deal-flow maker accelerator in many aspects. It focuses on high-potential technology start-ups and invests up to £15,000 in exchange for 6% equity. However, Bethnal Green Ventures also has a strong social dimension. It is a strong advocate of "Tech for Good" and exclusively focuses on companies that

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leverage products and services for social good. In addition to financial support it plays an important role in hosting meetings and events in order to build a social community around the portfolio companies and foster economic welfare creation.

## 5. Discussion and implications

This study extends previous incubation research by delineating the accelerator model as a new generation incubation model, by revealing the distinctive features of the accelerator model and identifying the heterogeneity of accelerator strategies and operations. The extant incubation literature already identified a number of descriptive characteristics of incubation models, resulting in a variety of typologies and classifications, but, so far, failed to provide systematic evidence about whether these insights hold for accelerators as well (Hackett and Dilts, 2004). Moreover, it lacks a consistent theoretical framework to define and assess different generation incubation models in order to account for the heterogeneity among incubation models and keep track of incubation model evolution. This study addresses these gaps and thereby provides important implications for both theory and practice.

### 5.1. Theoretical implications

Against a background of sparse research about accelerators, our study has several implications for research on incubation models in general and research into the accelerator model in particular.

First, we respond to the call in extant incubation research to take the heterogeneity among incubation models into account by delineating the accelerator model as a new generation incubation model, by identifying its key design parameters and by shedding light on the heterogeneity within the accelerator model. We show that accelerators are different from other incubation models in five aspects (program package, strategic focus, selection process, funding structure and alumni relations) and highlight the objectives of the accelerator's shareholders as the main driver orchestrating an accelerator's activities. By identifying three different groups of accelerators, we further contribute to the request from incubation scholars to take different types of incubation models and their specific features into account in order to assess performance (Barbero et al., 2014; Mian, 1997).

Second, our results show that accelerator programs adopt different ways of structuring and running their programs, and that this is largely determined by the objectives of their key shareholders. Although most accelerator managers in our study mentioned Silicon Valley based accelerators Y Combinator and Techstars as sources of inspiration, many of them do not adopt a pure deal-flow maker model. We find two other types (the ecosystem builder and the welfare stimulator) prevalent in Europe. The three accelerator types differ in satisfying different shareholder needs (respectively those of investors, corporates and public agencies). As a consequence the deal-flow maker focuses heavily on mentoring by serial entrepreneurs and business angels, who know how to create legitimacy for follow-up investments. This is in line with Kim and Wagman (2014), who suggest that accelerators act as certification intermediaries, providing information and services (e.g. screening practices and mentoring) valued by outside investors to help their portfolio ventures raise new capital. The ecosystem builder is mainly focused upon helping ventures through the complex decision making structures of corporate companies. Instead of mentors, internal members of the corporates are used to support and guide the portfolio companies. Finally, the welfare stimulator tends to be more program-led by providing intensive workshops and training sessions to help the ventures find their way to first customers. With this finding, we highlight shareholder objectives as important design parameters to take into account, in addition to those of the portfolio companies participating in the accelerator. Previous research has argued that the variety of incubation models is driven by the evolution of portfolio companies' requirements and needs, which encourage incubation mechanisms to differentiate the range of services that they offer. However, our evidence leads us to argue that differentiation between accelerators is driven by additional factors. Specifically, from our qualitative evidence we theorize that differences in the objectives of shareholders supporting or financing the accelerator will lead to differences in the way accelerators run their programs. Although portfolio companies' objectives do impact the design of an incubation model (after all, changing portfolio companies' needs gave rise to the accelerator model in the first place), our study highlights the importance of other stakeholder objectives, especially those stakeholders supporting and/or financing the accelerator, to explain heterogeneity among different accelerator model designs.

Third, by introducing a design lens to look at the accelerator model, we contribute to recurrent requests in incubation research to develop more theoretically grounded approaches to analyze incubation activities (Bruneel et al., 2012; Hackett and Dilts, 2004). We propose the activity system design perspective, highlighting design elements and themes as important design parameters to take into account, as an adequate theoretical lens to study incubation models and their evolution. The design lens offers a structured way to identify the key building blocks of the incubation model, enables classification of different incubation models, as well as allows heterogeneity within the model to be taken into account. Moreover, an additional advantage of this framework is that it allows accounting for hybrid models. Within our sample we note that two accelerators have hybrid models. Bethnal Green Ventures has a clear welfare stimulation focus but nevertheless copies the mentorship model typically present at the deal-flow maker model, while Healthbox has a clear ecosystem building focus but also provides some capital to its start-ups (see also Table 3). The introduction of a design lens in incubation research embodies rich possibilities for further theoretical development and refinement. It not only gives researchers a concrete tool to study incubation models and their evolution but also brings the importance of design thinking, i.e. the design of an incubation model is seen as a key decision in the creation of an incubation entity, to the forefront of incubation research.

### 5.2. Managerial and policy implications

The accelerator design elements and themes identified in this study can be used to position different accelerators within the overall ecosystem. We suggest that initial advisors to early-stage ventures (e.g. government support agencies; university student and alumni entrepreneurship offices) should consider the different accelerator design elements and themes in order to orient nascent entrepreneurs towards particular types of accelerators that may best meet their needs.

The diversity of accelerators we have identified also has implications for policymakers in supporting different types of accelerators and evaluating their role. Rather than evaluating the effectiveness of an accelerator using using a fixed set of criteria, there is a need to develop measures that take into account the different objectives of different types of accelerators. Policymakers typically have specific objectives, such as regional development and employment. Taking these objectives into account, policymakers have to realize that the accelerators they finance might not necessarily be profitable in the short or even medium term. The ventures they invest in, the program they have to develop and their strategic focus do not always allow this. The systematic

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research evidence is sparse, but only deal-flow maker accelerators in very dense ecosystems such as Silicon Valley appear to have a proven business model. Unfortunately, we often see that policy-makers expect welfare stimulators to have similar outputs as deal-flow makers.

As accelerators have grown in popularity, many nascent entrepreneurs and organizations such as universities, companies and regional development agencies feel attracted to the idea of starting an accelerator. Universities see it as a way to promote student entrepreneurship, companies as a way to tap into start-up innovation and talent, and development agencies as a way to create employment. Examples of university-led accelerators include "Beta Foundry" at Oxford University, InnovationRCA at the Royal College of Art and the pre-accelerator "Imperial Create Lab" at Imperial College, London. Our research shows that starting an accelerator needs a clear vision and strategy, and a good fit between the different design parameters and the objective one wants to achieve with the accelerator. Given the results so far, it seems unlikely that accelerators will be profitable or even sustainable without continued financial support for a number of years. Although accelerators play an important role, the need for this type of support needs to be legitimate. If not, the accelerator initiatives will disappear as soon as the financial support for them decreases.

Finally, our findings suggest that accelerators may help solve some of the problems associated with previous generation incubation models. Earlier, some incubation models have been accused of merely acting as life support and keeping tenants alive in order to secure rent and fill their incubation space. As most accelerators invest in their start-ups the accelerator model has an added incentive to make sure that the selected start-ups survive and scale. Accelerators are a way to shorten the journey of start-ups, resulting in either quicker growth or quicker failure. However, as some accelerators do allow alumni to remain in the space after the program has ended, we have to take into account the potential of creating adverse consequences if not time limited.

### 5.3. *Limitations and future research*

As all studies, this study is not without limitations. This final section aims at outlining the particular limits of this study, which provide interesting avenues for further research. First, the paper is based on accelerators located in the three leading accelerator regions in Europe: London, Paris and Berlin. These different European regions imply different contexts in which accelerators need to function and be sustainable. However these three regions may not be representative of all types of regions in Europe. As spatial context may have an important influence on entrepreneurial and innovation ecosystems (Levie et al., 2014), further research is needed to test our findings in similar regions in other countries and in different environments in general. Moreover, further research is needed to examine the influences of policy, industry, density and economic conditions on the configuration of different accelerator types in a particular region.

Second, as accelerator programs develop, our framework, highlighting the accelerator's key design parameters, can serve as a basis for more rigorous evaluations of accelerator performance and can be used to define suitable success metrics in achieving certain objectives. Subsequent analyses might also usefully examine the challenges faced by particular accelerators as they evolve over time into different models, depending on the success of their initial configuration.

Third, whilst beyond the scope of this paper, which has focused on the accelerator as a unit of analysis, the study of the impact of different accelerator types on their portfolio companies might be an interesting avenue for further research as well. The approach used by the accelerator is likely to have an impact on the entrepreneurial journey of start-ups and on the value added to them. Further research on the differences between different accelerator types and their impact on the entrepreneurial process would be interesting, as this would enable identification of best practices with the aim of implementing a customized acceleration strategy to propel start-ups.

Finally, in order to truly gauge the effectiveness of different models 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. Furthermore, as decision makers perceive a focus on one sector or technology as an interesting strategic option, assessment of differences in effectiveness and value-added contributions to the start-ups can improve our understanding of the possible benefits of specialist versus generalist accelerators.

## 6. Conclusion

Accelerators play an important role in stimulating entrepreneurship. However, prior research has provided only limited insight into their distinctive features and the heterogeneity of their strategies and operations. Against a background of sparse prior research, this study has produced several interesting results about an accelerator's key design parameters that have novel implications for the incubation literature and practice. Obviously, because the phenomenon is so new, uncertainty still exists about the future success of accelerators. What is undeniable, though, is the compelling economic logic of such organisations. We hope that the findings of our study will open the way for further systematic analyses of the processes and impacts of accelerator programs.

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