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- The Role of Accelerators in Startup Ecosystems -

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## **Editorial Comments: Accelerators in Startup Ecosystems**

Prof. Dr. Jörg Freiling

There is consensus among scholars, practitioners and policy-makers that ventures as well as startups need external support at their very early steps of development. Thus, it is no big surprise that the entrepreneurship landscape is full of institutions of both the public and the private kind that help entrepreneurs – stand-alone and in teams – at this step of their endeavor. However, particularly in case of startups it is in most cases indispensable to get support also in later stages of their development. Why is this so?

Startups are rather ambitious young companies. By their very nature, they develop innovative business concepts that are in many cases disruptive. By breaking established rules in the market they need enormous power to implement their innovative concepts. More than that, startups are ambitious in terms of scaling their business. The aspire growth rates that neither typical ventures strive for nor established companies are able to achieve. Three-, sometimes four-digit percentage rates of annual growth are the footprints of startups. Such growth rates are very hard to achieve and it takes support of the different kinds to allow realizing these ambitions. Maybe the most important response to the needs of startups in these phases of business development are accelerators like e.g. the famous Y Combinator with the most impressing success stories and rack records of startups fostered over a limited period of time (Freiling & Harima, 2019).

Accelerators are very selective in what they do. They offer a rather compact support program in the range of about three months for only a very limited set of startups and they offer support by some well selected top experts in the field. In more detail, they provide different kinds of support like (e.g. Harima et al., 2018):

- financial support in terms of money for the startups – sometimes in exchange for equity, sometimes equity-free, often accompanied by perks paid for the entrepreneurs,
- community and network support to socialize the startups in the startup ecosystem,
- ‘soft landing’ services (like office space and other kinds of relevant infrastructure) that surround the network function above and
- trainings, coaching and/or mentorships.

Whereas financial capital can be provided by many startup support institutions, the transfer of knowledge and experience – all in connection with capacity building – is a very unique asset that virtually no other support institution can provide similarly. To provide these crucial services it takes a critical mass of well experienced and motivated experts that are very scarce. This is one reason why accelerators are typically located in hubs like the startup ecosystems. Startup ecosystems are regional agglomerations of actors of the startup scenery that all contribute critical input for the development of young companies. As Spigel & Harrison (2018: 152) put it, ecosystems are a conceptual umbrella for the benefits and resources produced by a cohesive, typically regional, community of entrepreneurs and their supporters that help new high-growth ventures form, survive, and expand. Not every startup ecosystem has enough scaling experts that challenge the entrepreneurial teams in such a manner that they perceive an upgrading process that compares to no other support institution. Insofar, there is some competition among startup ecosystems as there is some evidence among startup entrepreneurs where such outstanding services may be available. And having the chance to participate in a famous accelerator is a strong driver for entrepreneurs to

The following research papers have been developed with advanced students in the last couple of months at University of Bremen, Germany. All the three papers contribute to the overarching topic of accelerators in startup ecosystems and, thus, fit nicely under one thematic umbrella.

Lisa Ahuis, Irfan Cheema, Franziska Otten, Chantal-Laureen Pensky and Vanessa Vogt start this research paper by specifying the role of accelerators as drivers of a startup ecosystem. They raise the following research question: how can accelerators influence the institutional framework in ecosystems as change agents? Based on a comprehensive literature review and conceptual foundations, they apply institutional theory to specify institutional change and develop preliminary causalities to be checked by an empirical approach that rests on grounded theory.

Caspar Michael Majewski analyzes based on a Master's Thesis previously written the social capital acceleration in startup ecosystems with a focus on the role of business accelerators. There are different capitals provided in startup ecosystems. It seems that social capital is of pivotal relevance and deserves much more attention than paid to date. Insofar, the paper targets a well-chosen research gap and followed by this research question: what role do business accelerators play in the acceleration of social capital within startup ecosystems? Majewski responds to this question by an empirical research design that rests on a case study. The empirical background is the dynamic and well-developed startup ecosystem of Berlin.

Jannik Blischke addresses the role of a private business accelerator in an emerging startup ecosystem. The paper is based on a Bachelor's Thesis written prior to paper development. The empirical background is Bremen where the ecosystem is still in an infant, but moving state. The Kraftwerk City Accelerator is the targeted accelerator. To specify the role of this accelerator, Blischke refers to a model of capitals of startup ecosystems developed by Juling et al. (2016). The empirical fieldwork rests predominantly on interviews and, besides that, on observations and secondary data sources.

The papers enhance the state of research in their particular fields and contribute to the knowledge on accelerators in startup ecosystems. We hope that the papers provoke a vital discussion.

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## **Information on Contributions**

### **Accelerators as a Driver of Startup-Ecosystem**

Submitted by Lisa Ahuis, Irfan Cheema, Franziska Otten, Chantal-Laureen Pensky and Vanessa Vogt as group assignment in the Seminar on Entrepreneurship and SME Management III at the Chair in Small Business & Entrepreneurship (LEMEX) in 2017

### **Social Capital Acceleration in Startup Ecosystems – The Role of Business Accelerators**

Submitted by Caspar Michael Majewski as master thesis at the Chair in Small Business & Entrepreneurship (LEMEX) in 2018

### **The Role of the Kraftwerk City Accelerator in the Startup Ecosystem in Bremen**

Submitted by Jannik Blischke as bachelor thesis at the Chair in Small Business & Entrepreneurship (LEMEX) in 2018

# Accelerators as a Driver of Startup-Ecosystem

*Lisa Ahuis<sup>1</sup>, Irfan Cheema, Franziska Otten, Chantal-Laureen Pensky, Vanessa Vogt*

## *Abstract*

Since the establishment of the Y-Combinator in Silicon Valley in 2005, accelerators are an ever-growing phenomenon that beginning with the United States is representative on six continents until today. This should not be surprisingly as nowadays, startups seem to be a major source of innovation, contributing to the invention of novel products and business models by using new technologies and thus are reasonable to secure the secure and development of local economies.

To be defined accelerators are institutions that support high-growth, early-stage businesses support to create entrepreneur's ideas into sustainable business models through education, mentoring and funding. In counterpart to the until today better known model of incubators accelerators differ as they are limited to a shorter period of time of approximately three month, which leads to the recognition of a higher intensity that as a result shortens to time to discover the sustainability of businesses.

Nevertheless, there is still a lack of a deeper understanding of the phenomenon of accelerators itself and their role, especially in the matter of the success to create sustainable business models. Thereby as accelerators are parts local economies their influence and power cannot be seen to be isolated so that this paper investigates the role of accelerators as agents of change as a result of the dynamics of the interplay of the actors of the local startup ecosystem, they are settled in.

As this paper can be seen as a first path of investigation of the underlying phenomenon the research aim to guide and pave the way for further researches by examining previous contributions and after that elaborating a research approach that can be followed in the future. Therefore some advice regarding to research approach, data selection and sources of data collection is recommended.

## **1 Aim of the study**

### *1.1 Practical, Political and Societal Relevance*

Startups nowadays are a main source of innovation, caused by their employment of emerging technologies to invent products and reinvent business models (Kohler 2016: 347). In startup communities the phenomenon of accelerators is playing an increasing role throughout the United States and beyond (Hathaway 2016b: 2). The Y Combinator is considered as the first accelerator, which was founded in 2005 by Paul Graham in Cambridge, Massachusetts, and soon moved and established itself in Silicon Valley. David Cohen and Brad Feld, two startup investors, build up another accelerator called TechStars in Boulder, Colorado in 2007 with the objective to transform its startup ecosystem through the accelerator model. Today the number of accelerators is growing rapidly, which is shown by estimates which range from 300+ to over 2000, spanning six continents (Cohen & Hochberg 2014: 2). The task of startup accelerators is to support early stage, growth-driven companies through education, mentorship, and financing. Startups join accelerators for a fixed-period of approximately three months as a part of a cohort of companies

(Hathaway 2016a: 1-2; Cohen & Hochberg 2014: 4).

Contributions indicate that accelerator have a considerable impact in field of entrepreneurship and beyond. Thus further research to discover accelerators role in ecosystems can be seen as relevant and profitable for numerous sectors.

In this context practically accelerators help angel investors who are financially involved in companies and support the entrepreneurs with know-how and contacts in a very early stage to find the best founders to invest in. Other startup founders get the opportunity to build a high-quality business network. For other firms accelerators create new customers in the form of the startups they support (Miller & Bound 2011: 11-12). From the political perspective the government decides whether to promote accelerator programs or not and sets the frame for the accelerators presence in ecosystems. Therefore the enforcement of the accelerators activities is dependent on the government of respective countries. Thus a wider establishment of accelerators can help to lower bureaucratic hurdles what, from the societal perspective, has a positive effect on the regional founder culture by encouraging people to bring in their own ideas to the market. In this way

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accelerators support the regional innovativeness and economy (Miller & Bound 2011: 12).

### *1.2 Research Relevance and Research Question*

In the field of research of the phenomenon a clear understanding of what role accelerators play in the ecosystem is missing. The values of a culture are reflected and strengthened by social institutions, industry characteristics and behavior as well as the individual ways of thinking and behavior are influenced by them (Collins 2004: 8; Bruton 2010: 433). Due to the fact that researchers have observed that the relationships between these elements are endogenous and complex (Herbig et al. 1994: 25-27; Davidsson et al. 1995) further research in the field is important to discover accelerators role as institutional change agents. Finally, an enhancement of the knowledge about the dynamics between the accelerators and the ecosystem as their institutional framework can help to better understand how accelerators can engage in institutional change processes. According to previous explanations the following paper wants to focus on the question: How can accelerators influence institutional framework in ecosystems as change agents? The aim of the present paper is to highlight the contributions of the research and to examine a research approach which can be addressed in future research to fill the gaps.

### *1.3 Approach of Analysis and Structure*

To achieve objectivity and to analyze the research question of the thesis it is important to examine the approach of analysis. In particular the analysis contains the two main issues of institutional theory and accelerators in entrepreneurial ecosystems.

In the first step of the approach inclusion and exclusion criteria were defined. These criteria refer e.g. to the year of publication, language and the type of databases and journals. In case of the year of publication only articles which were published between 1987 and 2017 were considered for the institutional theory due to the starting point of the development of the theory. For the analysis of the literature regarding accelerators publications since 2005 were selected based on the founding of the first accelerator. Articles which were electronically or by other reasonable means unavailable have been excluded. Furthermore the focus lies on English written articles because the majority of relevant articles in the field provided by the databases are written in English. In addition articles from the national and university library Bremen, EBSCO and Google Scholar were included to

ensure to find the most important and high-quality articles.

In the second step of the approach articles which deal with new institutionalism, entrepreneurship, accelerator, institutional change agent and entrepreneurial ecosystem were selected considering the defined criteria. Summing up, the inclusion and exclusion criteria as delimitation of analysis are essential to make sure that only the relevant aspects to respond to the research question are included.

To discover accelerators role in ecosystems the thesis starts with the consideration of the conceptual background including the situation analysis of the phenomenon accelerators in ecosystem and literature analysis of institutional theory. By taking previous research contributions into account preliminary assumptions are to be defined in the third chapter. Furthermore, it is achievable to derive a method which is suitable for further research in the field to fill research gaps concerning accelerators role in ecosystems. Therefore some advice regarding the research approach, data selection and data collection is recommended. In the end a summary of the findings will be presented.

## **2 Conceptual Backgrounds**

### *2.1 Situation Analysis of the Phenomenon Accelerators in Ecosystem*

In the first step to answer the research question it is necessary to define the term entrepreneurial ecosystem. It has to be mentioned that in the area of entrepreneurship more and more research on this approach is conducting (Bischoff et al. 2017: 2). The subject of entrepreneurial ecosystem frequently refers to startups (Stam 2015: 2). Previous research shows that there is no consistent definition of this expression so far. However the current explanations usually have one thing in common. Like the definitions of Stam (2015) and Mason and Brown (2014) most authors focus on the interdependence of entrepreneurial actors which stimulate the entrepreneurial ecosystem performance (Brown & Mason 2017: 4; Mason & Brown 2014: 5; Stam 2015: 5). For this paper an entrepreneurial ecosystem is described as “a set of interconnected entrepreneurial actors [...], entrepreneurial organizations [...], institutions [...] and entrepreneurial processes [...] which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment” (Mason & Brown 2014: 5).

All over the world an increase in ecosystems and the foundation of successful startups could be registered. But the functionality and development of startup ecosystems and the way they create profitable startups still has to be found out. Since 2011 the Startup Genome report deals with these topics and includes the “Global Startup Ecosystem Ranking” (see app. 1). It is based on the idea to show the promising ecosystems for startups. In 2017 the top 20 startup ecosystems are based in North America, Europe and Asia. Silicon Valley is in the first place of the top 3 startup ecosystems, followed by New York and London. Compared to the ranking in 2015 substantial changes occurred (see app. 2). Three new cities now rank in the top 20 of startup ecosystems, among them Beijing (position 4) and Shanghai (position 8) from China as well as Stockholm (position 14). Moreover London, Berlin, Vancouver and Toronto are ranked on higher positions than in 2015 (Startup Genome LLC 2017: 3-4, 7, 28-32).

One of the actors in entrepreneurial ecosystem is called accelerator, which can also be termed as a provider of entrepreneurial resource (Brown & Mason 2017: 9). In the following it is essential to define accelerators and differentiate them from other organizations that support startups too like incubators and angel investors (see app. 3) (Cohen 2013: 19). It has to be mentioned that a homogeneous definition of accelerators is missing. Generally an accelerator stands for a program which is characterized by the support of persons who want to set up a business regarding the launch of their products, ideas or technologies and the foundation of a workable venture (Dempwolf et al. 2014: 6-7).

With a deeper look considering the dissociation from other programs an accelerator is described as “a fixed-term, cohort-based program, including mentorship and educational components, that culminates in a public pitch event or demo-day” (Cohen & Hochberg 2014: 4). The restricted period of time mainly indicates an accelerator. Normally an accelerator program takes three months. In contrast incubators perform one to five years whereas angel investors are characterized by an ongoing duration. Another central feature of accelerators which is not given by incubators and angel investors is that they are cohort-based programs. That means the program is joined and left by the companies as a group. Thereby a strong connection among these participants could be developed. Moreover accelerator programs stand for education and intense mentorship. The education area is composed of diversified seminars in the field of entrepreneurship. With regard to

mentorship there are for instance programs planning sessions for one month with the attendance of 75 mentors (Cohen & Hochberg 2014: 4, 9-12). On the other hand in case of incubators the founders have to pay a charge for mentorship given by service providers. At the end of the accelerator program the founders get the opportunity, in the context of a “demo-day”, to pitch their ideas to several investors (Cohen 2013: 19, 22-23). Because of the fixed-term character of accelerator programs it is easier for accelerators in contrast to angel investors to organize such a “demo-day” with a large number of regional, local and other investors (Cohen & Hochberg 2014: 13).

With regard to the business model there are profit and non-profit programs (Cohen & Hochberg 2014: 4). Accelerator programs are financed by different players like public actors, investors or cooperation (Clarysse et al. 2015: 6). A large number of privately owned accelerator programs could be registered which receive an equity stake in the participating startups. However in the last few years publicly funded accelerator programs appeared increasingly (Cohen & Hochberg 2014: 11). It is noticeable that the accelerator model is acquired by many local governments with the goal to change the local economies (Fehder & Hochberg 2014: 2). Another latest movement is that accelerator programs turn away from a generalist approach of their early years and specialize themselves to promote startups from selected industries (Cohen & Hochberg 2014: 2).

With a view to the history, the first accelerator was founded in Cambridge in 2005 and is called Y Combinator, based in Silicon Valley (Cohen & Hochberg 2014: 2). Throughout the world it is one of the leading programs (Hathaway 2016b: 4). Among the former participants are well-established companies such as Dropbox or Airbnb (Miller & Bound 2011: 14). With the founding year of Y Combinator in mind, accelerator programs are considered as a new phenomenon (Fehder & Hochberg 2014: 8). Since that time accelerator programs emerged worldwide and became well-known giving assistance to early-stage companies (Clarysse et al. 2015: 6). Especially between 2008 and 2014 a significant increase of the American accelerators could be registered (see app. 4). The number rose by an average of 50 percent annually. Finally in 2015, 172 American accelerators existed (Hathaway 2016b: 4-6). They came into existence due to the lack of incubation models (Pauwels et al. 2016: 23).

Summing up an accelerator program is an interesting, worth investigating actor especially for startups due to several reasons. First the limited duration of the programs enables the founders to gain knowledge quickly in a short time instead of learning without an accelerator, which takes years (Hathaway 2016b: 6). Main reasons why the companies decide to take part in the programs are the offered education and mentorship. Through the above mentioned meetings with various mentors the founders can connect with them and develop their social network, which is very important for the participants. This network is also strengthening by the cohort-based character of the programs (Cohen 2013: 22-23). Finally an accelerator is a program that can contract the company's journey towards faster failure or development (Pauwels et al. 2016: 23). Furthermore accelerator programs offer advantages for venture capital investors. The accelerator programs choose the applicants with the best future perspective and bring them together at one place. As a consequence the capital investors save searching expenses. In addition, the capital investors get the chance to listen to many founders during the public pitch (Fehder & Hochberg 2014: 7).

In spite of the fact that today accelerator programs enjoy great popularity the extensive research of this phenomenon and knowledge about e.g. the effectiveness, various accelerator approaches and types are missing (Cohen & Hochberg 2014: 15; Fehder & Hochberg 2014: 2; Clarysse et al. 2015: 6). Additionally the value of accelerator programs to the regional entrepreneurship ecosystems is unclear (Cohen & Hochberg 2014: 1). Concerning this research gap a few resources confirm a positive impact of accelerators on a startup ecosystem. For example the increasing success of Vancouver that is ranked on position 15 in the global startup ecosystem ranking could be traced back among others to accelerator cooperation. Another example refers to Atlanta. In this case accelerators are one of some actors that support the local tech scene, which developed significantly in the past (Startup Genome LLC 2017: 68, 81).

These examples highlight the need for further research and lead to the research question how accelerators can influence institutional frameworks in entrepreneurial ecosystems. To get a better insight into the dynamics between accelerators and their ecosystems institutional theory will be explained in the following.

## 2.2. Literature Analysis of Institutional Theory

In order to examine the relationship between accelerators and their ecosystem, institutionalism seems to be meaningful as a basis for consideration. For this reason the theory is to be explained in general, so that a basic understanding exists and in the further course the effects of accelerator as institutions, respectively as change agents, can be displayed.

Fundamental the institutional theory deals with how various groups better secure their positions and legitimacy by conforming to the rules and norms of the existing institutional environment (Bruton et al. 2010: 422; Meyer & Rowan 1977: 340; DiMaggio & Powell 1983: 150). The basic parallelism in different institutional theoretical claims is that the institutional environment has an extensive influence on the development of formal structure in different institutions (Amenta & Ramsey 2010: 1). Hence institutional arguments do not rely on aggregations of individual action or on patterned interaction games between individuals, but on "institutions that structure action" (Clemens & Cook 1999: 442). Fundamentally institutions are characterized as social structures which have a high degree of resilience (Scott 1995: 33) and have initiated themselves in such a way in the social environment that it would be connected to high costs to circumvent them (Lawrence et al. 2002: 282). In consideration of this fact, institutions must be taken into account as permanent and legitimate. Thus they are patterns of social relations and have a regulatory character (Jansen 2000: 2), whereby they provide stability by defining how resources are to be distributed under certain circumstances (Haller 2002: 8). Various types of carriers transmit institutions including symbolic systems, relational systems and routines (Scott 1995: 33; Scott 2001: 48). The mode of operation of the institutions ranges from different levels of jurisdiction, from world system to localized interpersonal relationships. As an example for institutions the state or universities can be listed.

According to the literature, the concept of institutionalism has evolved from the resourced-based view. Indeed institutionalism does not displace the resourced-based view, but rather a further development of the theory has to be recognized (Oliver 1997: 698). Consequently institutionalism uses the resource-based view as a basis but must be viewed as a separate theory. Initially institutionalism included only tangible assets like material resources, technical demand or money, which influence the action of institutions. This view has been changed over time, so that the

new institutionalism considers both tangible and intangible assets, e.g. know-how, education, politics or culture. Applied to the research object this means that an increase in influential variables in the respective framework affects the conditions of accelerators' operation in ecosystems. Accordingly there is an approximation between economics and social science which reveals the interactions of both subject areas (Powell & DiMaggio: 1991: 2). The new institutionalism can be subdivided into three main pillars (Scott 1995; 2005; 2008), the regulative, normative and cognitive dimension, which together with associated activities and resources, provide stability and meaning to social life (Scott 1995: 33; Scott 2001: 48).

The regulative pillar is largely derived from the economy based on sanctions and conformity (Bruton et al. 2010: 422; Trevino et al. 2008: 120; Scott 1995: 33). Therefore it includes laws, regulations and government policies. Consequently this dimension deals with the legal system. In addition it can be assumed that the involved actors must behave according to the prescribed rules. The driving force of the regulative dimension is fear and coercion (Palthe 2014: 61).

The second dimension is described as normative and represents models of organizational behaviour, based on obligatory dimensions e.g. social, professional and organizational interaction (Bruton et al. 2010: 422; Trevino et al. 2008: 120; Scott 1995: 33). Considering this background it becomes clear that the normative dimension is dealing with the moral and ethical system of society. In this context influencing factors are e.g. work roles, habits and norms. This shows that the normative aspects should be followed by institutions but are by no means mandatory. Therefore duty and responsibility is the driving force (Palthe 2014: 61).

The cognitive dimension is presented by models of individual behaviour, based on subjective and constructed rules and points the limits of societal behaviour (Bruton et al. 2010: 422; Trevino et al. 2008: 120; Scott 1995: 33). Central elements of this dimension include values, beliefs and assumptions. For this reason the cognitive pillar must be viewed as voluntary; due to this the fulfilment should be regarded as desirable (Palthe 2014: 61). The actions of the participants are characterized by social identity and personal desire. Finally it suggests that these dimensions act together in mutually reinforcing ways to contribute to the institutional context.

Figure 1 illustrates the conceptual model of the influence of regulative, normative and cognitive elements on institutional change and aims to show the important elements of their interdependence (Palthe 2014: 60). The figure portrays the influence of institutional dimensions on the human system context. Moreover it suggests that the resulting dissatisfaction with existing methods and system is affected by the existing change capacity and change resistance. Primarily the figure achieves to illustrate that a capacity to change influences the extent to which change will occur, driven by high levels of dissatisfaction and dissipation. Therefore, a high degree of openness towards change is essential for a successful change processes (Palthe 2014: 61). The greater the change resistance, the less will be the effect that the level of dissatisfaction will have on institutional change. The graphic must be regarded as a cycle so it becomes clear that the institutional change is caused by the different institutional pillars or elements. As a result there is a constant change process which among other mentioned variables is moderated by the dynamics of the three pillars of institutionalism.

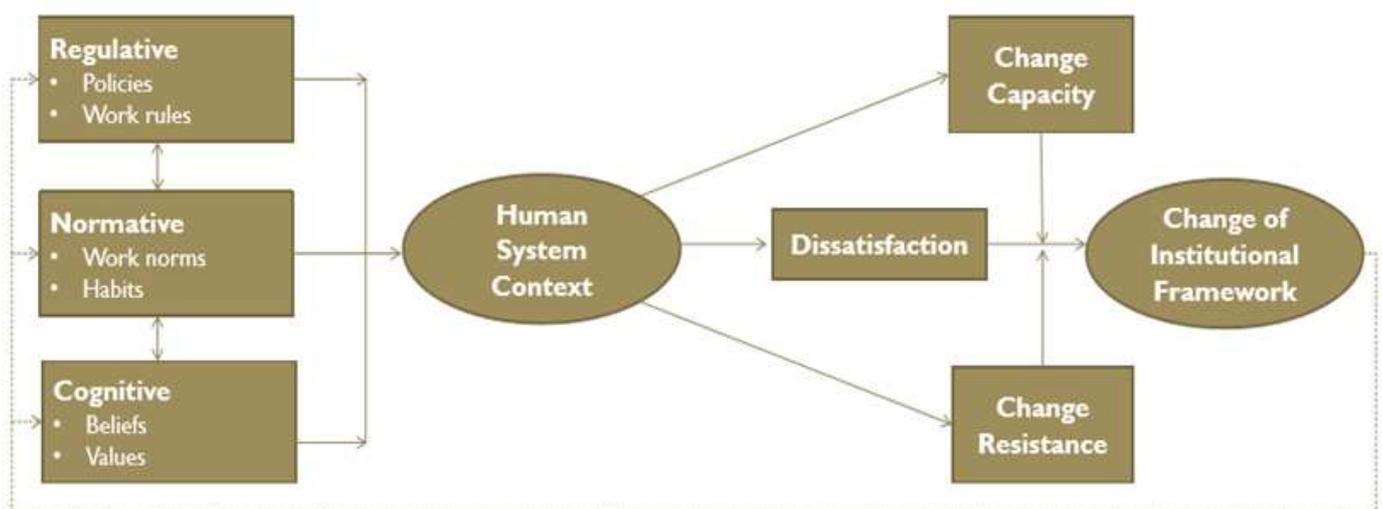


Fig. 1: Conceptual model of the influence of regulative, normative and cognitive elements on institutional change (Source: Own representation based on Palthe 2014: 16)

To sum up, in the concept on institutionalism institutional change agents are able to change the institutional framework. In essence the institutional change is a dynamic and interactive process that occurs over time with actors both being shape by and shaping the institutional framework (Chung & Luo 2008: 122). On the basis of this fact further studies can be carried out to investigate how accelerators can be institutional change agents as a driver in an ecosystem.

### 3 Preliminary Assumptions

In order to gain a first basic understanding of the way in which accelerators can be seen as institutional change agents, a clear definition of the term institutional change agents must be given in order to discuss the interaction of the accelerator as an institutional change agent with their ecosystem. With reference to the relevant literature, a basic understanding of the conceptual nature of the institutional change in the interrelationship of the acting agents is going to be presented. The institutional change is characterized as a dynamic and interactive process (Wang & Gooderham 2014: 6) of actions and institutions, both as a structural and a cultural dimension (Dolfsama & Verburg 2005: 1). This process occurs in the course of time with actors who have been shaped by their institutional environment, but in the contrary have shaped it as well (Chung & Luo 2008: 125). The change includes formal rules, as well as informal constraints, norms and standards like patterns of behaviour or beliefs (Sjöstrand 1993: 38). The obstacles to institutional change are mainly the coordination, search and learning costs. The challenge of each individual is to change their existing identity in this way, to remove existing norms and to create new ones. Therefore an institutional change agent has to assume a reputable function and has to have a certain degree of legitimacy in order to convince (Riddle & Brinkerhoff 2001: 673). For this reason, institutional entrepreneurship is increasingly equated with institutional change. In this context, an entrepreneur is often referred to be an initiator of the institutional change (Khavul et al. 2012: 32). In addition to those definitions, the question arises of how accelerators can act as institutional change agents. Especially in countries and territories where professional and commercial standards are not sufficiently established, where non-governmental organizations play a more subordinate role, the civil society is not always well developed and access to capital is more difficult, particularly in

this regard institutional entrepreneurs equated with accelerators are playing an increasingly important role of development (Khavul et al. 2012: 31). As a result, accelerators as change agents stimulate thereby that they mobilize resources to new institutions which are considered to be conducive to them. They establish new institutions and not only change existing institutional environments but also create new ones that are recognized and promoted for their business (Pacheco et al. 2010: 914).

As already mentioned, regulative, normative and cognitive systems are seen as important elements of institutional change. These elements work together in a mutually reinforcing way with regard to contribute to the institutional context (Palthe 2014: 61). Therefore, in order to promote the process of institutional change, it is important to impede and overcome the institutional framework in those three dimensions in order to ultimately implement new practices. Often the incentive is there, but some accelerators are missing the force to change institutions or establish new ones (Maguire et al. 2007: 10).

However, after researching the following assumptions, it becomes evident that accelerators as institutional change agents could exert a clear influence on the institutional framework. Regarding to the regulatory dimension, it would be possible for accelerators to stimulate political and governmental institutions as well as to reduce bureaucratic hurdles and to strengthen the enhancement of support. Concerning the normative dimension it could bring the accelerator to a higher level of illustriousness and respectability in society and also establish accelerators as a common way to help startups grow which could lead to an enhancement of the regional founder culture. Furthermore, on the individual level, this change and the spread of startups and accelerators could affect the acceptance or the risk of founding which could guide towards the decision to bring own businesses to the market and to become a part of the startup culture.

In conclusion it can be said that, with regard to the already mentioned explanations, one accelerator could start to establish new institutions and lead to higher innovativeness and economic growth of the chosen area. The interaction of the accelerators is determined by the individual institutional framework by, for instance, competition regulations (Khavul et al. 2012: 32), the founder-culture and the amount of startups and accelerators. In what way and to what extent accelerators as change agents could have an influence on the

respective ecosystem could be examined in the future using the following methodology.

## 4 Methodology

### 4.1 Research Approach

Previous research contributions help to get a better insight into the topic but offer less information to answer our research question whether and how accelerators engage in institutional change processes in ecosystems. Therefore a concrete analysing plan may help future analysts to get a better insight into the role of accelerators to conceptualize the relationships and the interdependencies to their ecosystems.

Facing the complexity and lack information on the topic, a grounded theory (Strauss 1967) approach by engaging in a qualitative research process can help. It will conceptualize single connections to build some theory during the data selection and data collection process. Rather than quantitative research methods, a qualitative research design helps researchers to remain flexible and open during the process of analyses (Neuman 2014: 177). Following an inductive approach concept and selecting criteria are developed and defined over time when researchers are trying to generalize single information to build up some theory answering the underlying question (Neuman 2014: 204).

### 4.2 Data Selection

According to grounded theory's stepwise conceptualization process "of developing clear, rigorous, systematic conceptual definitions for abstract ideas/concepts" (Neuman 2014: 205), there is no clear data selecting plan in the beginning. Thus future researchers in the field must do some single investigations to get a better insight into the relationships and dynamics so that criteria can be concretized. Such an ongoing process of evaluating and determining new data is called theoretical sampling (Coyne 1997: 625-626; Neuman 2014: 204-205). A sample is defined as "a small set of cases a researcher selects from a large pool and generalizes to the population" (Neuman 2014: 246). Aim is to build up a sample out of which selected cases can be used in a "process of constant comparison" (Schwandt 2001: 110) in which researchers try to identify similarities and differences to evolve a theoretical construct concerning the selected issue (Schwandt 2001: 110-111). In social research such concept of "triangulation", as an observation from various

perspectives, is seen as needed to generalize reliable concepts concerning a specific object (Neuman 2014: 166). Over time the analysts get a better feeling, where they have to go and which questions they have to ask to get the basis of information they need to evolve a theory.

Especially the complex dynamics and relationships in the underlying research question offer many potential areas and actors to observe. Moreover the uniqueness of the accelerators and the institutional frameworks, they take place in, determine the change processes, what leads to an even broader pool of data selecting criteria to start from. Thus, to get the best insight a closer look at various areas and actors, both having differences and similarities has to be taken. According to this, countries with differences concerning the amount of accelerators, economic, culture and political situation and actors with entrepreneurial background like participants and managers of accelerators, but also those with governmental background like politicians and support organizations should be considered. This way, researchers make sure to take different insights into account and create some reliable concept in the topic.

As stated in the assumptions it is supposed that the present amount of accelerators and the inflexibility of one area's structure have much influence on the accelerators power to act as institutional change agents. Thus those differences and similarities should be given a lot attention to see if there is any correlation. Therefore to discover any correlation between existing amount of accelerators and their role as an institutional change agent it might be helpful to divide observed ecosystems into categories according to the structure of their institutional framework and the present establishment of accelerator programs.

Based on chapter 2.1 ecosystems to fill those categories can be: 1. silicon valley, which is ranked as the best ecosystem worldwide and has the longest history of accelerator programs, 2. Berlin, because since 2015 it has climbed up in the ranking and furthermore registered an increase of accelerator programs like Axel Springer Plug and Play Accelerator and 3. Shanghai, that is listed among the 20 best ecosystems and build up a strong startup ecosystem in contrast to 2015.

### 4.3 Data Collection

With regards to the previous explanations, due to the data collecting process it should be possible to create comparable information but also take the

uniqueness of the several “target populations” (Bernard 2013: 216) into account. To do so three main pillars of data collection can be identified.

Semi-structured interviews can be considered as a good possibility to get into an open conversation. In this context researchers should make use of an interview guide. This way they make sure to “control the input that triggers peoples responses so that their output can be reliably compared”, what is used to be the main benefit of structured interviews, (Bernard 2013: 216) but also remain flexible to react to individual answers. Moreover interviews should be conducted separately and not in groups in order to get isolated opinions and to avoid influence processes. Because the research question is focusing on developing processes, observation by getting involved into an accelerator for a specific period of time can be taken into account. Thus researchers get useful information by first-person experiences of the processes and dynamics. Nevertheless secondary data is essential and should be used in an ongoing process to get information of interviewees, accelerators and countries. Therefore the internet, but also written literature and company documents can be useful sources of information to conduct in conceptualization process.

According to triangulation theory future research must be representative in numbers to generate reliable findings. Nevertheless it cannot be told what exact amount regarding the number of ecosystems is needed to meet this demand. After all it is in the nature of theoretical sampling, that it terminates when saturation in the matter of needed data basis is reached in the fact that collected data confirms previous findings but does not lead to new ones (Strübing 2003: 155).

## 5 Conclusion

Due to the complexity and novelty accelerators and their role as change agents in ecosystems are still unexplored fields in entrepreneurial research. Therefore the thesis wants to guide and pave the way for further researches by examining previous contributions and after that elaborating a research approach can be followed in the future.

Since the establishment of the Y Combinator in 2005 accelerators play an increasing role in the USA and beyond. Due to their main features like the limited span of time, the intensive mentoring and the organization of a so called “demo-day” the accelerator model has positive effects for founders, investors and local innovativeness and thus is able to enhance the regional economy. The success of former participants like Airbnb and Dropbox and

latest Genome’s Startup Ecosystem Rankings legitimate accelerators as an important actor in ecosystems.

Considering the small basis of findings in the field, institutional theory seems to be meaningful to display accelerators role in ecosystems. Looking at the new institutionalism accelerators can be defined as institutional change agents. In this context Figure 1 displays the process of institutional change as a result of the interdependencies between the level of dissatisfaction and the human system context, which is affected by the three pillars of institutionalism, containing the regulative, the normative and the cognitive pillar. According to this, the three dimensions have a direct impact on institutional change processes. As a result accelerators engage in institutional change by influencing their institutional framework on the three pillars of institutionalism. Nevertheless it cannot be ignored that despite their impact, the influence of accelerators is, among other complexities, still determined by the individual institutional framework and its capacity and resistance to change.

Even though previous research can be seen as a fundamental basis to get a better insight into the dynamics between accelerators and their ecosystems, further research needs to be done. In this context a qualitative research approach is recommended to appreciate the complexity in terms of the relationships and dynamics between the individual actors. With regard to the theoretical sampling there is no

clear defined data selection plan at the beginning, so that researchers must concretize the selection criteria over time in an ongoing process of evaluating collected data sets. Referred to further explanations especially differences and similarities according to present establishment of accelerators and their institutional framework have to be taken into account, so that research should pay attention to ecosystems that differ in those aspects to generalize some reliable findings. In terms of data collecting, interviews, observations but also the ongoing consideration of secondary data can be identified as the main methods to complete the data sets. Still it has to be mentioned that before starting further research the recommended methodology has to be updated in correspondence of the existing level of research.

Contrasting the presented findings it can be assumed that the phenomenon of accelerator as a part of startup ecosystems is just in the beginning and that despite their rapid growth a lot more is

imminent. Therefore a better understanding to what extent and through which actions accelerators as agents of institutional change can affect the respective ecosystem can help founders, investors, politics but also other sectors to use accelerators in a purposeful manner to intensify its positive effects.

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# Social Capital Acceleration in Startup Ecosystems – The Role of Business Accelerators

*Caspar Michael Majewski<sup>1</sup>*

## *Abstract*

The business accelerator phenomenon is growing worldwide, with an ever-increasing number of active programs and this is so in Germany. Nonetheless, up to now there is little formal academic literature on the subject, especially on the role of business accelerators in startup ecosystems. To address this research gap, the master's thesis investigates the role of business accelerators in social capital acceleration in startup ecosystems, since according to the current state of research, social capital counts as one of the core capitals of the startup ecosystem. This is achieved by an exploratory case study approach to the impact of business accelerators on the social capital of startup ecosystems, using Berlin as the location for the case study, which applies as the most developed startup ecosystem in Germany. The business accelerators were examined through interviews, website analysis and observations and the results of the data is compared and discussed in relation to the available literature. The results led to propositions that business accelerators obtain a social capital-accelerating role in the startup ecosystem by fulfilling a framework that is needed to create and increase social capital and therewith allows actors of Berlin's startup ecosystem to speed up their efforts. Moreover, through the accelerating role of Berlin's business accelerators in the process of social capital creation, the thesis demonstrates that by their program, business accelerators also have impacts on the cultural, financial and human capital of Berlin's startup ecosystem. Nevertheless, future research is needed on the results of the thesis to support or even expand the propositions about the role that business accelerators play in startup ecosystems.

## **1 Introduction**

### *1.1 Problem Definition and Importance of Research*

Many cities, regions and countries consider startup ecosystems as the 'holy grail', as governments are still struggling to identify ways for enhancing the growth performance of entrepreneurial firms in their region (Isenberg, 2010: 3). The current state of research classifies startup ecosystems as a dynamic and complex organism that consist of various interconnected entrepreneurial actors, organizations, institutions and processes, which are mutually interrelated in a highly complex manner to connect the performance within a local entrepreneurial environment of a city, region or nation (Isenberg, 2010: 3; Mason & Brown, 2013: 5-19; Juling, Freiling & Harima, 2016: 4). According to Napier and Hansen (2011: 3-13), the strength and quality of a startup ecosystem depends on the presence of actors that are specialized and geared towards working with young high-growth firms, as well as on a dense and trustful supportive network between the actors that finally help connecting startups with their required resources in the ecosystem. Similar, Mason and Brown (2013: 5) as well as Juling, Freiling and Harima (2016: 12-13) classify social relations and the resources embedded within the social networks as a core

capital of startup ecosystems. This points to the importance of social capital as a success factor for the startup ecosystem and to the importance of research into this form of capital, especially as social capital, which, according to Walker, Kogut, and Shan (1997: 110-118), has important implications for the understanding of the formation of networks that support startups.

Within the last decade business accelerators have recently received much global attention (Miller & Bound, 2011: 3; Carmel & Richman, 2013: 2; Cohen & Hochberg, 2014: 2; van Weele, Steinz and van Rijnssoever, 2014: i). Based on the content of the business accelerator program, Zoller (2010: 1) associates business accelerators with the term 'dealmaker', which is a person who mediates entrepreneurial networks by tying multiple actors of the ecosystem. Feldman and Zoller (2012: 24-26), Carmel and Richmal (2013: 3) and Fehder and Hochberg (2015: 7) also associate business accelerators with the social capital creation within regional ecosystems. However, Zoller (2010: 138) emphasizes that it is impossible to generalize his findings and that the approach of linking business accelerators with the concept of dealmakers needs more examination, which further highlights the importance of the research topic.

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## *1.2. Research Gap and Issue*

After approximately ten years, since the first business accelerators programs were established, according to Barrehag et al. (2012: iii), Isabelle (2013: 18), Cohen and Hochberg (2014: 1) and Kawohl, Rack and Strniste (2015: 6) academic literature on business accelerators has been still comparatively slim or virtually non-existent. The current research on business accelerators has mainly concentrated on the content of the programs, the first attempts at finding a suitable definition for business accelerators and on the direct outcome for graduates of the program, mostly from a financial point of view (Fehder & Hochberg, 2015: 4). Radojevich-Kelley and Hoffman (2012: 57) and Carmel and Richman (2013: 8) point out the need for research on business accelerators that should especially focus on the impact of the business accelerators networking process within the local startup ecosystem. Furthermore, Miller and Bound (2011: 4-7, 34), Isabelle (2013: 22), Cohen and Hochberg (2014: 1-2) and Fehder and Hochberg (2015: 31) mention that there is a lack of understanding regarding the value, efficacy, spillover impacts and the importance of business accelerator programs for the ultimate success of the local startup ecosystem up to now. In addition, there is very few research on how a business accelerator could help develop startup ecosystems in future. Thus, the thesis aims to investigate which role business accelerators play in the perspective of social capital acceleration within startup ecosystems and their further impacts on startup ecosystems, in which the business accelerators work. To discuss broader impacts of business accelerators on startup ecosystems, the thesis will apply the recently developed and literature-based Eight Capital Model of Entrepreneurial Ecosystems by Juling, Freiling and Harima (2016), which helps in understanding and analyzing current conditions and the development of startup ecosystems. As the model has not been applied to practical context before, the paper will apply the model in a practical context on a city-based startup ecosystem and hence contribute to the infant stage of theoretical and empirical research of startup ecosystems, as emphasized by Autio et al. (2015: 1-2).

## *1.3 Research Question*

The overall purpose of the thesis is to investigate the impact of business accelerators on startup ecosystem development from the perspective of

social capital and as a result, determine which role business accelerators play in startup ecosystems and how they shape regional startup ecosystem development. Orientated towards a recommended research question concerning startup ecosystem by Autio et al. (2015: 2) of “How do the roles of specific participants, such as [...] accelerators [...] interact with early stages ventures in the ecosystem creation?” and with the knowledge of social capital as core capital of startup ecosystems (Juling, Freiling & Harima, 2016: 12), the following research question is developed:

What role do business accelerators play in the acceleration of social capital within startup ecosystems?

Throughout this study is expected to make contributions to the state of research on the startup ecosystem, about social capital in the entrepreneurial context and to the role of business accelerators within startup ecosystems as well as to give further impulses for research on the research topic at the end of this thesis.

## *1.4 Methodological Approach and Structure of the Thesis*

In order to answer the research question and with the knowledge of the early stage of the research topic as well as the purpose of the thesis, an exploratory inductive qualitative case study research design is selected. Therefore, based on the conceptual background, interviews are conducted, then subsequently coded are provided, analyzed, linked to current literature and finally interpreted concerning the research question.

According to Eisenhardt and Graebner (2007: 26) and Yin (2009: 3), sound empirical research typically begins with strong grounding in related literature and identifying a research gap. Thus, after the introduction, the second chapter contains the conceptual background including the research object, the conceptual lens and the research focus of the thesis. In this paper the object of research are startup ecosystems that are defined and then explained by means of the Eight Capital Model of Entrepreneurial Ecosystems. The conceptual lens of the study is social capital, which is extensively defined and includes the division of social capital in bridging and bonding social capital as well as the source and the benefits of social capital. The research focus lies on business accelerators that, like the research object and conceptual lens, are defined with particular emphasizing of the heterogeneity between business accelerators,

similarities to a related incubator program and research on business accelerators as dealmakers. All three subchapters of the conceptual background are closed with their different current states of research to expose the need for more research. The third chapter deals with the methodology of the thesis, containing the research design, the procedure of data selection, collection and analysis as well as the author's concerns about the research validity and reliability of the thesis. Chapter four sums up the results of the analysis with the main focus on the role of business accelerators in social capital acceleration in startup ecosystems and their role in social capital acceleration beyond the program. The fifth chapter comprises the discussion part of the thesis containing the contribution of the thesis towards the research question, implications concerning the impact of business accelerators on the Eight Capital Model of Entrepreneurial Ecosystems as well as the limitations of the thesis. The sixth and final chapter presents the conclusion of the thesis and recommendations for further research on the business accelerators role in the startup ecosystem.

## 2 Conceptual Background

### 2.1 Startup Ecosystems

#### 2.1.1 Definition of Startup Ecosystems

Due to the emergence of the concept in recent years, the literature currently presents no commonly shared definition of startup ecosystems, also identified in the current literature as entrepreneurship/entrepreneurial ecosystem (Spilling, 1996; Cohen, 2006; Stam, 2014; Kelley, Singer & Herrington, 2016) or ecosystem for high-growth startup firms (Napier & Hansen, 2011).

Similar to The Startup Ecosystem Report (Compas.co, 2015), this paper will apply the term startup ecosystem, as the research focus lies on the role that business accelerators play within ecosystems, which almost exclusively work together with startups (Miller & Bound, 2011: 3; Radojevich-Kelley & Hoffman, 2012: 54; Cohen, 2013: 19). Startups differ from other forms of ventures in their age, innovativeness and growth potential. In this study, startups are younger than ten years, are highly innovative with their technologies and/or business model and strive for a significant employee and sales growth (Blank & Dorf, 2012: xvii; Ripsas & Tröger, 2015: 12). Regarding these characteristics, it is clear that startups need access to specialized support and

resources that differ in many forms from the needs of classic new businesses (Napier & Hansen, 2011: 3; Mason & Brown, 2013: 4). Thus, the term startup ecosystem, instead of e.g. entrepreneurial ecosystems, seems to be more suitable and applicable in the context of the thesis.

Most of previous studies on startup ecosystems focus on the interdependencies among actors within the ecosystem and the role of the context in enabling or restricting entrepreneurial activities (Stam, 2014: 2). In a very general manner, a startup ecosystem can be described as a dynamic and complex organism (Mason & Brown, 2013: 19) that consists of a set of various individual elements that are mutually interrelated with each other in a highly complex manner within a certain city or region (Isenberg, 2010: 3; Juling, Freiling & Harima, 2016: 4-5). Therewith, a startup ecosystem represents the combination of conditions that shape the context in which entrepreneurial activities take place (Kelley, Singer & Herrington, 2016: 30). The interdependent set of actors within the startup ecosystem is governed in such a way that it enables entrepreneurial action (Stam, 2014: 2) and the resources within the ecosystem are specialized in scaling and developing young-growth firms (Napier & Hansen, 2011: 10). Heavily inspired by Lindsay, Ashill and Victorio (2007: 1), van Weele, Steinz and van Rijnssoever (2014: 3) describe startup ecosystems as “the set of tangible and intangible environmental factors that shape the performance of [...] start-ups, in a geographically and politically defined area”. Mason and Brown (2013: 5) define startup ecosystem in a more specific and complex way as “a set of interconnected entrepreneurial actors (both potential and existing), entrepreneurial organizations (e.g. firms, venture capitalists, business angels, banks), institutions (universities, public sector agencies, financial bodies) and entrepreneurial processes (e.g. the business birth rate, numbers of high growth firms, levels of ‘blockbuster entrepreneurship’, number of serial entrepreneurs, degree of sellout mentality within firms and levels of entrepreneurial ambition), which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment”. To speak of a strong and well-functioning startup ecosystem according to Napier and Hansen (2011: 3), it needs “a critical mass of dedicated investors, established businesses, knowledge institution and service providers all specialized and geared towards working with young high-growth firms [...]

characterized by a dense network and collaboration between the key actors”. It can be said that a single ecosystem actor has no significant value working alone in the ecosystem. The quality of a startup ecosystem depends on a close and trustful network between the actors supporting and helping each other and generating a kind of ‘glue’ between the single actors which connects startups to their required resources in the ecosystem. Finally, it is important to keep entrepreneurs who have succeeded with their startups, active and involved in the form of reinvesting their profit and experience back into the local ecosystem either as investors, mentors or in other ways and thereby contributing to the strength of the ecosystem (Napier & Hansen: 2011: 12-13).

*2.1.2 A Conceptual Model of Startup Ecosystems*

In recent years, some scholars and practitioners (Neck et al., 2004; OECD, 2007; Isenberg, 2011;

ANDE, 2013) have tried to develop a conceptual model to describe startup ecosystems. However, Juling, Freiling and Harima (2016: 5-6) have recently shown that these existing models are lacking in theoretical foundation as well as in their logical structure concerning the boundaries and interrelations between the proposed elements. Thus, based on previous theories and concepts, they developed the Eight Capital Model of Entrepreneurial Ecosystems, identifying eight interrelating and entrepreneurial influencing key capitals while considering different logical levels, which form startup ecosystems. The identified capitals are “(i) human capital, (ii) social capital, (iii) financial capital, (iv) political capital, (v) economic capital, (vi) infrastructural capital, (vii) cultural capital, (viii) historical capital” (Juling, Freiling & Harima, 2016: 14).

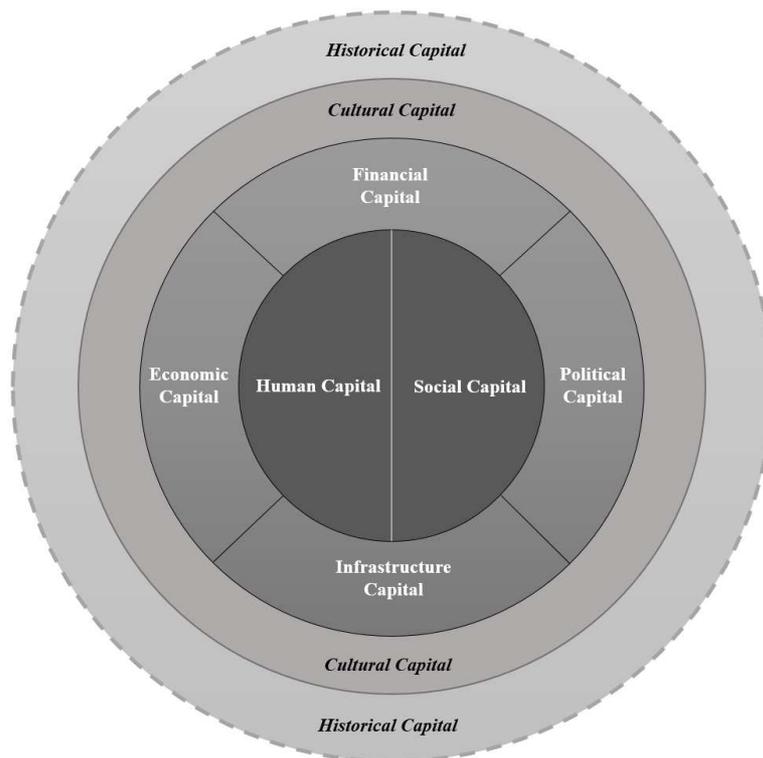


Figure 1: Eight Capital Model of Entrepreneurial Ecosystems (Juling, Freiling & Harima, 2016: 14)

The Eight Capital Model of Entrepreneurial Ecosystems is subdivided into four levels. The first level and at the same time the core of the model contains human capital (knowledge and skills of individuals) and social capital (resources embedded within the network of relationships), as both capitals strongly characterize entrepreneurs and can be directly related to the entrepreneurial activities of entrepreneurs within startup ecosystem. The second level of the Eight Capital Model of Entrepreneurial Ecosystems consists of

financial capital (availability and access to different types of financial sources), political capital (politically favorable business environment), economic capital (existing industries and consumers) and infrastructure capital (education and research, physical and support) that are closely related to each other. All four capitals are not resources that are related to entrepreneurs, like human and social capital, but are essential for a supportive and efficient ecosystem for entrepreneurial activities. The third

level of the model is represented by cultural capital (entrepreneurial related perception and intention) and the fourth by historical capital (historically embedded attributes of society and culture). Similar to cultural capital, historical capital as an embedded resource in the society and culture of an ecosystem has the least direct relation to entrepreneurial activities within a startup ecosystem. Nevertheless, since history influences many aspects of the society in an ecosystem, it is crucial to reflect the time dimension when understanding, investigating and interpreting the recent situation of startup ecosystems (Juling, Freiling & Harima, 2016: 7-14).

### 2.1.3 State of Startup Ecosystem Research

The Eight Capital Model of Entrepreneurial Ecosystems presents the latest literature-based framework that helps in the understanding and analysis of current conditions and the development of startup ecosystems. Nevertheless, the research on startup ecosystems is still at early stage of development and more theoretical and empirical work focusing on entrepreneurial ecosystem creation and dynamics is needed (Autio et al., 2015: 1-2). According to Isenberg (2010: 3), many regions and countries are still struggling to identify ways for enhancing the growth performance of entrepreneurial firms. Napier and Hansen (2011: 5) point out that there is a growing interest in understanding the dynamics, driving forces, value creation and collaborations in startup ecosystems. Additionally, according to the 3. Deutscher Startup Monitor, startup ecosystems are highly interesting research topics as they allow economic decisions to be illustrated to strength regional ecosystems (Ripsas & Tröger, 2015: 67). As the Eight Capital Model of Entrepreneurial Ecosystems has not yet been practically applied, this paper will apply the model in the practical context of a city-based startup ecosystem to give further contributions to the model in the discussion part of this thesis.

## 2.2 Social Capital

### 2.2.1 Definition of Social Capital

Based on Woolcock (1998: 161-167) and Putnam (2000: 22-23) and according to Adler and Kwon (2002: 19), the definition of social capital can be either focused on external relations between people (bridging forms of social capital) or on internal relations within collectives (bonding forms of social capital).

Bridging social capital focuses primarily on social capital as a resource that inheres in a social network tying a focal actor to different other actors. It is

located in the external ties of actors and their actions can be greatly facilitated by linkages to other actors in the social network (Adler & Kwon, 2002: 19). In this view social capital is created through relations among individuals who facilitate action (Coleman, 1988: 100, 1990: 305) and can be seen as "a resource that actors derive from specific social structures and then use to pursue their interests" (Baker, 1990: 619). More precisely, Bourdieu and Wacquant (1992: 119) define social capital as "the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition". Furthermore, Knoke (1999: 18) describes social capital as "the process by which social actors create and mobilize their network connections [...] to gain access to other social actors' resources". Thus an actor's personal social network with other actors, who can be expected to provide support and resource opportunities, can give the actor the ability to secure benefits (Boxman, De Graaf & Flap, 1991: 52; Burt, 1992: 9; Belliveau, O'Reilly & Wade, 1996: 1572; Burt, 1997a: 355; Portes, 1998: 4-6) in the way of privileged access to support as well as resources and lastly, under certain circumstances, converting his social connections into economic capital (Bourdieu, 1985: 242).

Bonding social capital focuses on collective actors' internal characteristics. Social capital of a collective is in its internal linkages among individuals and groups, which contains features that give a collective cohesiveness and further facilitate the pursuit of collective goals (Adler & Kwon, 2002: 21). Brehm and Rahn (1997: 999) highlight the relationships between actors within a web facilitating the intent of collective action for common purposes. Regarding that, Fukuyama (1997: 16) defines social capital as "a certain set of informal values or norms shared among members of a group that permit cooperation among them". Networks, norms and trust in particular, facilitate coordination and cooperation within a collective and affect the economic goal-seeking behavior of its members regarding mutual benefits (Portes & Sensenbrenner, 1993: 1323; Putnam, 1995: 67; Ingelhart, 1997: 188; Casson & Giusta, 2007: 231). Based on prior definitions of Bourdieu (1985: 247-248) and Burt (1992: 9), Nahapiet and Ghoshal (1998: 243) present a suitable and combined definition of both, the bridging and bonding view of social capital, as "the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social

unit. Social capital thus comprises both the network and the assets that may be mobilized through that network". Despite these differences in definition, the consensus is growing in the literature that "social capital stands for the ability of actors to secure benefits by virtue of membership in social networks or other social structures" (Portes, 1988: 6).

As the definitions of social capital highlight networks, relations and ties between actors, the question arises of why it is called social capital. Portes (1998: 4-5) and Casson and Giusta (2007: 221) divide the term, social capital, into two elements: the social relationship itself that allows individuals to claim access to resources possessed by their associates, and the amount and quality of those resources. More precisely, social capital has much in common with other forms of capital. Firstly, it can be seen as an asset (Wolfe, 2002: 20) in which other resources can be invested, by expecting future flows of benefits. Through investments in external ties, actors can benefit from a preferable access to information, power or solidarity within the network, whereas investments in internal ties strengthen the collective identity and expand the capacity for collective actions (Adler & Kwon, 2002: 21). Secondly, social capital is appropriable for several purposes, e.g. information gathering or beneficial resource-seeking (Coleman, 1988: 108-109). Thirdly, under certain circumstances social capital can be converted into economic capital (Bourdieu, 1985: 243) and other advantages. Fourth, social capital can be a substitute for complementing other resources, such as compensating a lack of financial or human capital through superior relations with other actors (Burt, 1992: 10) and may improve the efficiency of invested economic capital (Adler & Kwon, 2002: 21-22) by, for instance, reducing transaction costs (Lazerson, 1995: 53). Fifth, like physical or human capital, social capital needs maintenance in the sense that social bonds have to be cared for and renewed or they lose efficacy in the long-term, as social capital grows and develops with its use (Adler & Kwon, 2002: 22; Westlund & Bolton, 2003: 82). Nevertheless, unlike many other forms of capital, social capital is not the private property of those who benefit from it and is not used competitively, which makes social capital a kind of a collective good (Hechter, 1987: 34; Coleman, 1988: 116, 1990: 315; Westlund & Bolton, 2003: 88). Burt (1997b: 339) argues that social capital is the quality created between actors and is further located in the actors' relations with others and not in the actor itself according to Coleman (1988: 98), Burt (1992: 58) and Westlund and Bolton (2003:

88). Whereas economic capital is in people's bank accounts and human capital is inside their heads, social capital inheres in the structure of their relationships. To possess social capital, a person must be related to others, and it is those others, not themselves, who are the actual source of advantage (Portes, 1998: 7). Moreover, in contrast to other forms of capital, investments in building social capital are not really measurable. According to Solow (2000: 7), social capital cannot really be analyzed within the same conceptual apparatus as traditional capital. Similarly, Nobel laureate, Becker (1996: 5), states that rates of return on social capital cannot be directly measured since utilities cannot be observed. Hence, even if social capital has many things in common with other forms of capital, in some respects the term capital has to be seen more metaphorically in the context of social capital (Adler & Kwon, 2002: 22).

### 2.2.2 *Source of Social Capital*

As mentioned before, social capital is located in the structure and content of the ties that make up the social network, which can be mobilized to facilitate actions. Thereby the actors' volume of social capital depends on the size of his network of connections, which he or she can effectively mobilize as well as on the volume of the capital of those actors to whom he or she is connected (Bourdieu, 1985: 247). Based on previous research on the source of social capital (Blumberg and Pringle, 1982; Maclnnis, Moorman, & Jaworski, 1991), Adler and Kwon (2002: 24-27) see the source of social capital in the (i) opportunity, (ii) motivation and (iii) ability created by social relations.

First of all, a network of social ties creates opportunities for their actors. Bridging ties give actors within the network opportunities to access their contacts' resources, whereas bonding ties of collective actors give actors the opportunity to act together more efficiently (Adler & Kwon, 2002: 24). According to Burt (1997b: 339), social capital enhances the actors' ability to identify and develop opportunities and hence get higher returns on their capitals (e.g., human or economic capital) because the actor is more likely to identify and develop rewarding opportunities in comparison to actors that are not linked with other actors. Coleman (1988: 101-109) and Burt (1992: 9) show that direct and indirect network ties provide the opportunity to access support through other actors within the network as well as to access support that other actors can mobilize through their own network ties. Whereas Coleman (1988: 107) points out that a tight network structure helps the creation

of norms and preserves the trustworthiness within the network and thus strengthens social capital. Burt (1992: 17) shows that a sparse network often provides greater social capital benefits. In his view, the relative absence of strong ties facilitates social capital as dense networks tend to convey redundant information, while weaker ties can be a source of new knowledge and resources. Similarly, Granovetter (1973: 1369-1378) states that weak ties are indispensable to individuals' opportunities as actors who are more weakly tied are more likely to move in circles different from their own and thus can reach more people and access more information and hence, are more likely to hear about opportunities. Strong ties mainly breed local cohesion as the greater the degree of the tie, the more cohesive the community and the more capable it is of acting together, but people to whom an actor is strongly tied are likely to come into contact with the same information as the actor. Nevertheless, besides the extent to which actors' contacts are connected, network ties facilitate linkages between groups that may not otherwise be connected and hence give actors different kinds of opportunities they can use to pursue their intentions (Burt, 1997b: 340; Adler & Kwon, 2002: 24; Casson & Giusta, 2007: 230).

Complementing these opportunities, network structures provide their actors, according to Portes (1998: 5-6), with the second source of social capital, which lies in the motivation of actors to help each other in the absence of direct returns for their engagement. Putnam (1993a: 167), Portes (1998: 9), Knoke (1999: 33) as well as Leana and Van Buren (1999: 542) argue that social capital is based on shared norms and trust of the actors within a network in the sense of the willingness of actors to pursue a collective goal. However, even in the absence of immediate or certain returns of social capital, the engagement of actors helping each other is sometimes motivated by normative commitments (Putnam, 1993a: 172) in accordance with the philosophy "give before you get" (Feld, 2012: 111) or "I'll do this for you now, knowing that somewhere down the road you'll do something for me" (Putnam, 1993a: 183) that foster collective engagement and bonds communities. According to Portes (1998: 7), actors provide privileged access to resources with the expectation that they will be repaid sometime in the future.

Besides the opportunity and motivation, the third source mentioned by Adler and Kwon (2002: 26), is the ability to access competencies and resources that the network provides. Even if an actor is a member of a network and other members of the network are motivated and likely to help, without

the right expertise or resources these ties are relatively useless in following the actors goals. Gabbay and Leenders (1999: 2), Leana and Van Buren (1999: 543) and Lin (1999: 467-468) point out that the extent of social capital that is provided within a network, depends on the resources that are available to the actor within the network that the actor can potentially mobilize through its social relations. Finally, as the potential resources depend on the contacts' motivation and on the opportunity created by the contacts within the network, according to Adler and Kwon (2002: 27) all three sources must be present to activate social capital.

### 2.2.3 *Benefits of Social Capital*

Since the sources of social capital have been presented, the questions arise of which benefits, as mechanism through which social capital increase an actor's capacity for action and its usefulness in attaining a specific type of goal (Sandefur & Laumann, 1998: 485, 493), can be regarded in relation to social capital. Putnam (1993b: 35-36) has outlined it as "working together is easier in a community blessed with a substantial stock of social capital". According to Sandefur and Laumann (1998: 481), the literature on social capital presents that actors who augment their social capital gain, benefit in the form of (i) superior access to information, (ii) power in form of influence and control and (iii) social solidarity. Firstly, social capital enhances the access of an actor to a broader source of information (Burt, 1992: 2; Casson & Giusta, 2007: 230), that provides actors access to more timely and relevant information about upcoming opportunities and about other actors that permit more effective instrumental action in competition with other actors (Sandefur & Laumann, 1998: 485-486). For instance, network ties allow actors to gain information about job opportunities (Granovetter, 1973: 1371; Lin, Ensel & Vaughn, 1981: 394; Boxman, De Graaf & Flap, 1991: 69; Fernandez & Weinberg, 1997: 884), innovations (Burt, 1987: 1288), future demands and anticipate customer preferences (Uzzi, 1997: 45-49) and help firms acquire new skills and knowledge (Loury, 1992: 100; Powell & Smith-Doerr, 1994: 34-35; Podolny & Page, 1998: 62). Furthermore, Hansen (1999: 82-85) shows that weak ties within social networks facilitate the cost-effective search by product development teams for new information and that strong ties facilitate the cost-effective transfer of complex information and tacit knowledge. Moreover, in the broader aggregate view of positive externalities of social capital, Burt (1997b: 340-341) shows that social capital enables

brokering activities that bring information from one actor to another and that additionally, the entire network will benefit from an outflow of information.

Secondly, social capital can enhance the power of actors within the social network. Influence and control of an actor within a social network can occur through building up trust, norms (Sandefur & Laumann, 1998: 489) and a set of obligations to other focal actors (Coleman, 1988: 102) or by bridging groups that without the network, were disconnected and by this may get in the position of being able to negotiate terms that are more favorable for their interest (Burt 1992: 47-48). Finally, this benefit allows individual actors as well as the broader aggregate to speed up their efforts (Burt, 1992: 4; Adler & Kwon, 2002: 29).

The third major benefit of social capital is social solidarity, which is obtained among actors when a degree of mutual trust and commitment exists among them that is independent of any specific transactions (Sandefur & Laumann, 1998: 491). Portes (1998: 8) describes solidarity as a situation where people that are in a common situation, learn to acknowledge one another mutually and support each other's initiatives. Therewith trustful relationships give an actor the chance to use its resources more efficiently and effectively in order to attain desired goals (Sandefur & Laumann, 1998: 492). Bourdieu, (1985: 249) states that "the profits which accrue from membership in a group are the basis of the solidarity which makes them possible". Strong and shared social norms, beliefs and values combined with a high degree of closure of the social network, tend to increase the compliance of rules within a social network and therewith allow actors to subordinate their individual interest to the greater interest of the community as well as reduce the need for cost-effective formal controls (Adler & Kwon, 2002: 29; Wolfe, 2002: 20). Moreover, solidarity lowers monitoring costs and leads to higher commitment (Ouchi, 1980: 135), permits faster dispute resolution, prevents the accumulation of grievances and grudges (Nelson, 1989: 379) and transmits more sensitive as well as richer information (Krackhardt & Hanson, 1993: 106). In the broad aggregate, according to Putnam (1993a: 89-90), internal solidarity of members in one association may spill over through members' involvement with other associations and end in a higher level of generalized trust (Adler & Kwon, 2002: 30).

#### *2.2.4 State of Social Capital Research in Entrepreneurial Context*

It is well known that social capital can explain actors' relative success in the way that social capital among others influences career success (Burt, 1992: 116; Gabbay & Zuckerman, 1998: 213), helps workers find jobs (Granovetter, 1973: 1371), creates a richer pool of recruits for firms (Fernandez, Castilla, & Moore, 2000: 1288) or facilitates the creation of intellectual capital (Nahapiet & Ghoshal, 1998: 242). Previous research concerning social capital and entrepreneurship displays that social capital facilitates entrepreneurship (Chong & Gibbons, 1997: 18-19), influences several stages of entrepreneurship (Greve & Salaff, 2003: 30; Casson & Giusta, 2007: 230-232) and contributes to the process of new venture creation (Hansen, 2001: n.p.; Baron & Markman, 2003: 41; Davidsson & Honig, 2003: 301; Liao & Welsch, 2005: 345; DeCarolis & Saporito, 2006: 41). Moreover, regarding Walker, Kogut and Shan (1997: 109), social capital fosters the formation of startups, as startups may have an expertise related to technological innovation but they often lack resources, which are possessed by other actors, e.g. large firms. According to Isenberg (2010: 8-9) and Mason and Brown (2014: 4-21), the support of startups with network-building is at least as important as providing these firms with simple access to financial support. Enterprises and particular startups need to be better connected to other actors to profit from networking benefits. For instance, regarding social capital and financial support, The Global Startup Ecosystem Report state that the vast majority of early stage investments are found through the networks of trusted human relationships (Compas.co, 2015: 17). In an entrepreneurial sense, Leenders and Gabbay (1999: 483) as well as Casson and Giusta (2007: 221) refer to social capital as the set of resources, tangible or virtual, that results in a corporate player through their social relationships, facilitating the realization of their goals and finally show the capitalized value of improvements in economic performance that can be attributed to high-trust social networks. According to Mason and Brown (2013: 5) and Juling, Freiling and Harima (2016: 12), social capital counts as a core capital of a startup ecosystem, as entrepreneurship is inseparable from social relations (Anderson & Miller, 2002: 23) and embedded in social structures (Johannison, 1988: 83). Social relations and networks represent an invisible infrastructure, which influences aspects of entrepreneurship in the way of improving the entrepreneurial intention,

identifying entrepreneurial opportunities and mobilize knowledge and resources that entrepreneurs need for the implementation of the entrepreneurial opportunities (Adler & Kwon, 2002: 22-30; Greve & Salaff, 2003: 4; Casson & Giusta, 2007: 221-224, 230-232; Juling, Freiling & Harima, 2016: 8). Ecosystems that provide a great stock of social capital in the form of social networks, where entrepreneurs have access to valuable new information, capital, knowledge and labor, increase the probability that entrepreneurs identify and recognize business opportunities (Greve & Salaff, 2003: 5; Arenius & De Clercq, 2005: 250; Ramos-Rodríguez et al., 2010: 566). Furthermore, these ecosystems support entrepreneurs in acquiring the resources that are needed, to exploit the recognized business opportunities, to finally start or grow their business (Davidsson & Honig, 2003: 15-17; Isenberg, 2010: 8-9; Mason & Brown, 2014: 4-21). As a result it can be predicated that entrepreneurs with great social capital are more likely to acquire resources through their relations within the ecosystem and therefore increase the probability of survival and the growth potential for their newly established ventures (Brüderl & Preisendörfer, 1998: 213; Elfring & Hilsink, 2003: 413; Hoang & Yi, 2015: 6). Besides the impact of social capital on the individual level of actors within an ecosystem, according to Feldman and Zoller (2012: 24), social capital has certainly affected the vibrancy of the regional economy and the degree of entrepreneurial activity. Similarly, Portes (1998: 19-21) states that social capital is a structural property of large aggregates and that cities, which are moving ahead economically, do so because they have high social capital which tends to lead to economic development. Finally, as social capital has important implications for the understanding of the formation of startup supporting networks (Walker, Kogut, & Shan, 1997: 110, 118), the intent of this paper is to show how the programs of business accelerators foster social relationships and therewith accelerate social capital within startup ecosystems.

## 2.3 Business Accelerators

### 2.3.1 Definition of Business Accelerator

In 2005/2006 (Miller & Bound, 2011: 3; Feld, 2012: 109) the first business accelerators, also known as corporate accelerators (Kawohl, Rack & Strniste, 2015), were introduced by large enterprises, focusing on startups in the early seed and formation stage (Fishback et al., 2007: 5;

Bliemel et al., 2013: 1; Cohen & Hochberg, 2014: 4; Ripsas & Tröger, 2015: 17). Besides a small amount of seed capital and working space, their programs offer primarily networking, educational and mentorship opportunities with people inside and outside the program, such as key experts, successful entrepreneurs, program participants and graduates, venture capitalists (VCs), angel investors or corporate executives (Miller & Bound, 2011: 9, 27; Radojevich-Kelley & Hoffman, 2012: 58; Carmel & Richman, 2013: 3; Cohen, 2013: 19, 22; Fehder & Hochberg, 2015: 7). The seed capital provided by a business accelerator is usually kept to a minimum (Bluestein & Barrett, 2010: n.p.) and orientated to the amount of money, which the founder team needs in order to sustain during the program and a short period afterwards (Miller & Bound, 2011: 9). In-house experts, highly qualified mentors and coaches as well as guest speakers (Barrahag, 2012: 54; Bliemel et al., 2013: 5) give the participants educational seminars and support in startup-related subjects like unit economics, search engine optimization, legal and tax advice, pitch practice and furthermore provide individual guidance in addition to seminars (Miller & Bound, 2011: 10; Feld, 2012: 115; Caley & Kula, 2013: 14; Cohen 2013: 23; Compas.co, 2015: 17). Through teaching, mentoring and coaching, business accelerators support startups human capital (Wu, 2011: n.p.; Barrehag et al., 2012: 44; Radojevich-Kelley & Hoffman, 2012: 66) in the form of acquiring technical skills, increasing product and market knowledge, helping to define and build their initial products, identifying market opportunities and promising customer segments, secure resources (e.g., capital and employees), creating powerful networks or improving their business concept (Fishback et al., 2007: 5; Miller & Bound, 2011: 3, 26; Radojevich-Kelley & Hoffman, 2012: 57; Caley & Kula, 2013: 16; Mason & Brown, 2013: 13-15; Cohen & Hochberg, 2014: 4). The programs of business accelerators typically last about three months and finally end in pitch events, called Demo Days. There the participating startups present their businesses to a large audience of qualified investors with the intent of catching their first huge funding, which otherwise would be very difficult to reach without the accelerator program, especially for first-time founders (Miller & Bound, 2011: 10, 27; Bliemel et al., 2013: 4-5; Cohen 2013: 19; Compas.co, 2015: 17). Thus, it can be said that business accelerators are designed to help startups with the new venture process and speed up their market entry (Cohen 2013: 19; Cohen & Hochberg, 2014: 10). In counter witness for the support, most

business accelerators receive shares in the participating startups and thereby get involved in the future distribution of profits (Cohen & Hochberg, 2014: 4-5). Additionally, by supporting startups, the companies behind the business accelerator programs have access to a great amount of young talented people for recruiting new employees and to the innovative business ideas of the startups that can be useful for the company (Kawohl, Rack & Strniste, 2015: 3; Für-Gründer, 2016: n.p.). By working together with high innovative startups, companies have the opportunity to adopt knowledge about new products and service, optimize their internal innovation processes as well as the research and development (R&D) unit, rethink about their position in specific business segments to increase their competitiveness on the market and promote their image as innovative and attractive company (Gaida, 2011: 21; Kawohl, Rack & Strniste, 2015: 12).

Due to little formal academic literature, there is no clear and universally accepted definition of business accelerators (Barrehag et al., 2012: iii; Isabelle, 2013: 18; Kawohl, Rack & Strniste 2015: 6). However, Cohen and Hochberg (2014: 4) presents a suitable definition of a business accelerator, even if relatively slim and abstract, as “a fixed-term, cohort-based program, including mentorship and educational components, that culminates in a public pitch event or demo-day”. This status quo is especially justified by the (i) heterogeneity between business accelerator programs, their (ii) similarities to supportive programs called ‘incubators’ as well as the newness of these institutions (Cohen & Hochberg, 2014: 3; Fehder & Hochberg, 2015: 8; Kawohl, Rack & Strniste, 2015: 3).

The programs of business accelerators are heterogenic in the manner that the programs may vary between for-profit or non-profit, in the amount of financial support, in the size of the equity stake taken, in the length of the mentorship and educational program, in the availability of co-working space as well as in the specific sector or industry the business accelerator focuses on (Wu, 2011: n.p.; Barrahag, 2012: 55; Cohen & Hochberg, 2014: 4-5). Many business accelerators are diversified into industry sector focused programs, e.g. focusing on ICT, energy, education, healthcare, bioscience or clean-tech related startups (Miller & Bound, 2011: 35; Napier & Hansen, 2011: 12; Bliemel et al., 2013: 5; Isabelle, 2013: 19; Cohen & Hochberg, 2014: 2; Fehder & Hochberg, 2015: 6). Additionally, some business accelerators become affiliated with VC firms or

business angels, some with corporations, and sometimes others with universities, local governments, or non-governmental organizations (Cohen & Hochberg, 2014: 4-5).

Business accelerator programs bear similarities to the supporting programs for young and innovative firms called incubators, which were established in 1959 (Barrehag et al., 2012: 1; Feld, 2012: 115; Caley & Kula, 2013: 6; Cohen, 2013: 21; Isabelle, 2013: 17). These programs can be defined roughly as “facilities that shelter vulnerable new firms until they can become self-sustainable and survive in the environment” (Bliemel et al., 2013: 3). More specifically, Hackett and Dilts (2004: 57) define business incubators as “a shared office space facility that seeks to provide its incubates [...] with a strategic, value-adding intervention system of monitoring and business assistance”. However, with closer examination, these previously known institutions differ in several ways compared to business accelerators (Feld, 2012: 115; Fehder & Hochberg, 2015: 1).

Firstly, incubator programs last for one to five years (Amezcuca, 2010: 44) and nurture firms by protecting them from the market selection mechanisms for a long period (Cohen, 2013: 21; Fehder & Hochberg, 2015: 8). However, business accelerators avoid codependent relationships with participants, enhance the founders’ attention and discipline and finally speed up the process of failure or success of their participating startups in the seed stage (Miller & Bound, 2011: 28; Cohen, 2013: 21), by their short period of strong growth support and a predefined exit date of the program (Miller & Bound, 2011: 3; Bliemel et al., 2013: 4, 13). According to Isenberg (2010: 8-9) and Mason and Brown (2013: 4-5), it is a mistake to provide startups with ‘easy’ money over a period of years, as incubators do. Startups must be exposed to the rigors of the market early on, to ensure that entrepreneurs develop toughness and resourcefulness to finally achieve success.

Secondly, in contrast to incubators, startups enter and exit the business accelerator as a group (Miller & Bound, 2011: 3; Caley & Kula, 2013: 12). This cohort-based nature leads to a relationship between the participating startups characterized by close ties and communal identity. Moreover the mentioned relationship often results in helping and motivating each other during the program (Miller & Bound, 2011: 10, 28; Cohen, 2013: 22;), e.g. with problem-solving on technical issues or feedback on interactions with potential customers or investors (Carmel & Richman, 2013: 3). Additionally, coaches and mentors of the business accelerator are often responsible for various participating startups

(Fishback et al., 2007: 5) which can further foster the interactions of startups.

Thirdly, while incubators are mostly non-profit and publicly owned (Hackett & Dilts, 2004: 58; Feld, 2012: 115; Isabelle, 2013: 18), business accelerators are commonly for-profit. Even if the business models of business accelerators vary (Barrahag, 2012: 51), a classic example is that investors invest in business accelerators, which act as kind of a small fund. Some of the funds go towards the costs of running the business accelerator and some are invested into participating startups (Miller & Bound, 2011: 24). Business accelerators usually take equity (5-10%) of startups and expect to make return on those shares (Miller & Bound, 2011: 3, 29; Radojevich-Kelley & Hoffman, 2012: 58; Caley & Kula, 2013: 12; Compas.co, 2015: 17; Fehder & Hochberg, 2015: 6). Additionally, some business accelerator directors and managers are also angel investors, who provide additional financing options and are therefore more closely aligned with the startups (Cohen, 2013: 22).

Fourth, incubators typically accept and graduate startups year-round on an ongoing basis (Feld, 2012: 115), whereas business accelerators accommodate groups of startups once or twice a year within their program. This happens after an intensive as well as competitive application process and depending on the quality of applications and the available space and financial resources of the business accelerator (Bliemel et al., 2013: 4; Caley & Kula, 2013: 14; Cohen, 2013: 22). Through the open application process, business accelerators globally attract startups, which in reverse have an impact on the development of the local startup ecosystem, due to the fact that the startup unavoidably operates in the geographical area of the accelerator. (Miller & Bound, 2011: 5; Cohen, 2013: 22).

Fifth, most incubators offer office space, shared supportive services as well as office resources (Hackett & Dilts, 2004: 66; Bergek & Norrman, 2008: 21; Feld, 2012: 115; Cohen & Hochberg, 2014: 5), but specific mentorship is often offered for an additional fee (Fehder & Hochberg, 2015: 8). Business accelerators conversely offer intensive mentorship, education and great opportunities for the participants to build up their social network and create supportive long-term relationships (Miller & Bound, 2011: 3, 10; Feld, 2012: 115; Caley & Kula, 2013: 14; Compas.co, 2015: 17), which is often the primary reason for startups to participate in business accelerator programs (Cohen, 2013: 22-23). These social network relations can provide participants with the ability to receive subsequent

rounds of funding (Barrehag et al., 2012: 44) or increase their likelihood of receiving further help from mentors after the program concludes (Radojevich-Kelley & Hoffman, 2012: 65). According to Winston Smith, Hannigan and Gasiorowski (2013: 1) accelerator-backed startups are more likely to receive the first round of follow-up financing sooner than startups that have not participated in a business accelerator.

Finally, besides the previously presented opportunities for participating startups resulting from the business accelerator program as well as chances for the business accelerator itself, according to Miller and Bound (2011: 3, 12, 27), the connections business accelerators create can also have a positive effect on other actors of the ecosystem (e.g., investors, large technology firms, extern startup founders or service providers); and therewith foster the local startup ecosystem (Bluestein & Barrett, 2010: n.p.). Investors, mostly angel investors, VC firms and commercial banks (Napier & Hansen, 2011: 10; Isabelle, 2013: 21), have through social interactions with business accelerators at events and on demo days, access to a pipeline of investable seed-stage startups, proved by the application process of the business accelerator. Therewith, investors can reduce their cost and time required to find startups to invest in. Moreover, as investors often serve as mentors within business accelerator programs, they previously know the startups and their business plans, which provides them with additional information they need in order to make an investment decisions (Miller & Bound, 2011: 12, 27; Barrehag et al., 2012: 44-45; Kim & Wagman, 2014: 521; Fehder & Hochberg, 2015: 7). By examining the effects of direct and indirect ties between entrepreneurs and seed-stage investors on venture finance decisions, Shane and Cable (2002: 364) show that ties influence the selection of ventures to fund through a process of information transfer. Moreover, in connection with the business accelerators, entrepreneurs have the ability to meet and reach out to other actors of the ecosystem (Miller & Bound, 2011: 12, 27; Barrehag et al., 2012: 44-45; Kim & Wagman, 2014: 521; Fehder & Hochberg, 2015: 7). As a result of cooperations, events or other connections with business accelerators, large technology firms have the chance to scout talents more easily that fit as potential employees, find new customers for their products and services or support new startups and therewith call attention to their brand. External startup founders and service providers can create a network to meet customers or investors for their business by working together with the business

accelerator (Miller & Bound, 2011: 12, 27). Fehder and Hochberg's (2015: 31) findings suggest that regional ecosystems, in which business accelerators are established, subsequently exhibit more entrepreneurial financing activity. This activity appears to be not restricted to accelerated startups alone, but spills over to non-accelerated companies as well, as attracting VCs to accelerator activities (mentorship, demo day) may increase the investor exposure of non-accelerator companies in the same geographical area.

### 2.3.2 Business Accelerators as Dealmakers

Based on the opportunities that business accelerators represent for participating startups and other actors of an ecosystem, the term 'dealmaker', in the context of "key social capital actors who mediate entrepreneurial and investor networks by maintaining active, concurrent ties to multiple firms" (Zoller, 2010: 1) seems quite applicable. Napier and Hansen (2011: 13-15) as well as Zoller (2010: 103) associate business accelerators as organized forms of dealmakers, because of their strong motivation and abilities to connect startups with people of relevance and resources (e.g., investors, mentors, established firms or service providers). Through the mostly professional background, experience and local embeddedness in a regional network, business accelerators overcome structural gaps between groups of actors within a region and play a central role as a fiduciary in mediating, shaping and configuring the regional entrepreneurial network by sharing expertise and resources as well as facilitating communication and information flows, especially between startups and investors. Therewith, business accelerators give participants in their program the opportunity to establish their financial, economic or human capital and thereby facilitate new firm creation. As a consequence the participants potentially contribute to the overall strength and success of a regional ecosystem (Zoller, 2010: 22-37, 115-125; Feldman & Zoller, 2012: 24-35; Mason & Brown, 2013: 11). Related to this, Senor and Singer (2009: 203-204) and Winston Smith, Hannigan and Gasiorowski (2013: 1) see business accelerators as an increasingly powerful mechanism in linking financial capital and human capital. The connections between these two are further understood as crucial components of a startup ecosystem and by this actively engage in facilitating new firm formation and creating new ventures. Through the business accelerator's ties within regional ecosystems, its role of mediating relationships and drawing the community together by making connections between the actors of an

ecosystem, business accelerators create social capital surrounding entrepreneurial efforts to form kind of a backbone of the regional ecosystem (Zoller, 2010: 1-2; Feldman & Zoller, 2012: 24-26; Carmel & Richmal, 2013: 3; Fehder & Hochberg, 2015: 7). Thereby, as social capital is associated with more successful entrepreneurial regions (Feldman & Zoller, 2012: 30), business accelerators can be seen as an important, powerful part of startup ecosystems (Feld, 2012: 119).

### 2.3.3 State of Business Accelerator Research in Startup Ecosystems

Over the past decade, business accelerator programs have received much attention across the globe (Miller & Bound, 2011: 3). According to Cohen and Hochberg (2014: 2), the estimated number of business accelerator programs ranges between 300 and over 2000 on six continents and the number is increasing rapidly (Carmel & Richman, 2013: 2; Van Weele, Steinz, & Van Rijnsoever, 2014: n.p.). Since these institutions are relatively new, the academic literature is comparatively poor or even virtually non-existent (Wu, 2011: n.p.; Cohen & Hochberg, 2014: 1). As shown, research on business accelerators has so far concentrated on the definition and distinction of these programs as well as on its outcome for participating startups (Fehder & Hochberg, 2015: 4). However, the research on business accelerators that specifically focuses on networks (Carmel & Richman, 2013: 8) and moreover, on the impact of business accelerators on the local startup ecosystem has been weak as the lack of research includes the shortcoming of comprehensive data sources and the novelty of the phenomena. Little is known about the value, efficacy, spillover impacts and the importance of various aspects of these programs for the ultimate success of the local startup ecosystem in which the business accelerator operates (Miller & Bound, 2011: 34; Isabelle, 2013: 22; Cohen & Hochberg, 2014: 1-2, Fehder & Hochberg, 2015: 31). Even if Zoller (2010: 1-3) puts business accelerators in connection with the dealmaker concept and refers to the business accelerator impacts on the larger aggregate of a region, Zoller points out that it is impossible to generalize his findings and that the concept needs more examination (2010: 138). In that sense, business accelerators represent an interesting area for further exploration (Cohen & Hochberg, 2014: 15), especially for the networking process (Radojevich-Kelley & Hoffman, 2012: 57), the wider impact on startup ecosystems and how business accelerators could help develop startup ecosystems in the future (Miller & Bound, 2011: 4-

7). Regarding participants of a startup ecosystems, Autio et al. (2015: 2) point to a possible research question of “how do the roles of specific participants, such as [...] accelerators [...] interact with early stages ventures in the ecosystem creation?”. Influenced by this recommended research question, the thesis takes the approach of examining the regional effect of business accelerator programs on a startup ecosystem and particularly on the regional social capital.

### 3 Methodology

#### 3.1 Research Design

As the conceptual background in the beginning of this thesis explains the research object, conceptual lens and focus of the research topic and points out their states of research, the “research design is the logic that links the data to be collected (and the conclusions to be drawn) to the initial questions of study” (Yin, 2009: 24).

In order to the answer the research question, the purpose of this thesis is to investigate business accelerators from the perspective of social capital by collecting qualitative data to finally create propositions regarding the role of business accelerators in the context of social capital acceleration within startup ecosystems. As the aim of this thesis is to increase the knowledge on the subject of business accelerators that can be used to gain a better understanding and thereby helps to clarify the concept in order to finally create propositions through qualitative data rather than to test a given hypothesis, according to Bryman and Bell (2011: 35) and Sue and Ritter (2012: 2) and the purpose of this thesis can be defined as exploratory.

Based on the fact that the conceptual background has shown that research on startup ecosystems and business accelerators is still in its infant stage, the research of the present thesis follows a bottom up approach (Trochim, 2006: n.p.). After dealing with the conceptual background, qualitative data from business accelerators was collected. Moreover similar patterns among the collected data against the background of the underlying concepts and with regard to the research question were detected. Based on findings and results that have been identified, propositions, which end in the development of conclusions, making a contribution to the research topic, were formulated. As the line of arguments is more open-ended and exploratory, as well as moving from specific observations and findings to generalization (Trochim, 2006: n.p.; Bryman & Bell, 2011: 13, 60), the research

approach regarding Hodkinson (2008: 98-99) and Bui (2009: 14) can be seen as inductive.

As mentioned before, the research method of collecting data is qualitative. According to Eisenhardt (1989: 537-538), Shadish, Cook and Campbell (2002: 389-392), Eisenhardt and Graebner (2007: 26), Bui (2009: 14-15) and Bryman and Bell (2011: 386-389), qualitative research focuses on achieving a deeper understanding and interpreting social interactions in a unique set of contexts and is concerned with the creation of theory rather than a statistical generalization by analyzing any measurable factors. According to Stake (2010: 31), qualitative research is marked by a rich description of personal action and complex environment. For collecting qualitative data, instruments such as interviewing experts or personal observations, are recommended to get more in-depth information and insights into complex social processes, which would not be possible to obtain by using quantitative data. As the research topic and research questions point to the need of deeper understanding on how business accelerators work within a particular startup ecosystem as well as interpreting their role with focus on social interactions, qualitative research for most suitable outcome was estimated and primary data, through interviews and personal observations, was gathered. Additionally, the websites of the interviewed business accelerators as second data source were used, which serve later interpretation of the results.

Finally, the research strategy of this thesis is a case study as the present thesis strives for a full context analysis (Cooper & Schindler, 2014: 128). According to Kleining (2007: 201), Bui (2009: 14), Gibson and Brown (2009: 49), Bryman and Bell (2011: 41) and Rohlfing (2012: 9-10), case studies are typically used for exploratory qualitative research and typically combine data collection methods such as interviews and observations (Eisenhardt, 1989: 537; Cooper & Schindler, 2014: 165). Yin points out that case studies are suitable to investigate a “phenomenon in depth and within its real life context, especially when the boundaries between the phenomenon and context are not clear evident” (2009: 18). Furthermore, case studies are appropriate strategies for understanding and explaining presumed social causal links that are too complex for survey experimental strategies (Eisenhardt, 1989: 534; Yin, 2009: 4, 19-20). Regarding to Eisenhardt (1989: 548) and Eisenhardt and Graebner (2007: 25), case studies provide the opportunity for inductively building case-based theoretical constructs and propositions and/or midrange theory, by recognizing patterns of

relationships among constructs within and across cases. As the strategy is compatible with the explorative, inductive and qualitative approach of the thesis, the present thesis carries out a case study in form of an in-depth investigation of business accelerators against the background of the research question to recognize patterns across cases, develop propositions and closing off by contributing to the concepts of the research topic and their state of research.

### 3.2 Data Selection

The purpose of the research is to contribute to the development of theory. The selection of cases is therefore an important aspect of building theory from case studies (Eisenhardt, 1989: 536-537; Eisenhardt & Graebner, 2007: 27). In contrast to random or stratified sampling that is used in testing theory, the selecting of cases within case studies focuses on theoretical sampling, which describes the process of selecting research participants that are relevant to the research (Gibson & Brown: 2009: 56), theoretically useful (Rohlfing, 2002: 223), polar types in which the process of interest is observable (Eisenhardt, 1989: 536-537), suitable for illumining and extending relationships and logic among constructs (Eisenhardt & Graebner, 2007: 27) and most likely illuminate the research question (Yin, 2009: 26). According to Bui (2009: 126), for qualitative research the sampling procedures are a critical component of the data collection process including identifying the region where the research is conducted and explaining how the participants were selected.

Isenberg (2010: 3), Napier and Hansen (2011: 11) and Masen and Brown (2013: 12-27) point out that each startup ecosystem emerges under a unique set of conditions and circumstances and therefore should be seen as a regional entity. Thus, there is no 'one size fits all' approach. Every ecosystem needs a different approach that is customized to its unique local set of circumstances. Based on that, even if Germany as a startup ecosystem has become more dynamic regarding business accelerator programs in recent years (Kawohl, Rack & Strniste, 2015: 3), Berlin applies as "the accelerator city in Germany" (Für-Gründer.de, 2016: n.p.). Moreover, Berlin can be classified as the most well-known and most rapidly growing founder and startup ecosystem in Germany (Ripsas & Tröger, 2015: 15; Metzger, 2016: 3). According to McKinsey Berlin (2013: 12) Berlin is on its way to become the most powerful startup ecosystem in Europe by 2020. The Global Startup Ecosystem Report (Compas.co, 2015: 20-73) ranked Berlin

9th among the top 20 startup ecosystems around the world, moving up from number 15 in 2012, which shows that Berlin is going straight from being a local powerhouse to a global player. Moreover, Berlin topped all other ranked ecosystems in view of its growth index, whose increase can mainly be attributed to an explosion in exits and VC investments. Berlin's tech scene in particular, has grown very quickly in recent years and is today the home of between 1800 and 3000 active tech startups. However, a prosperous ecosystem for the founding of new businesses thrives on the network between all actors. Meanwhile, Berlin's startups are well networked within clusters, linkages to established companies, parts of the politics and other actors are still improvable. One form of fostering dialog, especially between startups and established companies, and strengthening linkages among the ecosystems are business accelerators (McKinsey Berlin, 2013: 8-9). Since Berlin has proven to be an interesting startup ecosystem it requires deeper investigation, due to this an online search for interesting and recommended accelerator programs of established businesses in Berlin was conducted. Firstly, the business accelerator was reached via telephone to get specific contact data of an expert who could be contacted for a potential interview. In the second round, an email was sent to the recommended contacts, containing a short introduction to the research topic and the interview request with all necessary information. In the period from the 18th to the 27th of July 2016, seven interviews were conducted and therewith represent a qualified sample for the case study. According to Eisenhardt (1989: 545), "there is no ideal number of cases, a number between 4 and 10 cases usually works well." Similarly, Yin (2009: 54) states "the ability to conduct 6 or 10 case studies, arranged effectively within a multiple-case design", or Cooper and Schindler (2014: 166) think that a "minimum of 4 cases with a maximum of 15 seems to be favored". Four of the interviews were conducted in Berlin in the business accelerator's office spaces along with a guided tour in the business accelerator's building to have the opportunity to make personal observations. Three of the interviews were conducted via telephone, as many business accelerators are too busy for a personal appointment, currently not in Berlin or have no time because they get too many interview requests from Master's and PhD students, which additionally highlights the interest in this research topic. Regarding to Eisenhardt and Graebner (2007: 28), a key approach while conducting a case study is using numerous and highly knowledgeable

informants who view the focal phenomena from diverse perspectives as well as actors from other relevant organizations and outside observers. Thus, the first interview was conducted via telephone with the Transformation and Technology - Experience Center of PricewaterhouseCoopers (PwC) which is not directly located in Berlin, but gave the author many interesting information about their three different in-house business accelerator programs, and about the development and importance of business accelerator programs in Germany and worldwide. The following table shows the interviewee, the business accelerators they work for and key notes about the data collection process. A more extensive summary of the interviewees and business accelerators can be found in Appendix I.

experts were conducted. Orientated towards Gibson and Brown (2009: 88-89), Bryman and Bell (2011: 472-480) and Cooper and Schindler (2014: 153), the author developed an interview guide, as red thread while interviewing experts and prepared a list of questions that help in developing a dialog between the interviewer and the interviewee. Before the first interview was conducted the interview guide was previously tested and adjusted through an examination by the thesis supervisor with regards to logic, content and comprehensibility. The interview guide can be found in Appendix II. According to Cooper and Schindler (2014: 153), especially at the beginning of the interview, the interview guide should begin with broader questions, designed to put participants at ease and give them a sense that they have a lot to

<b>Interview Partner</b>	<b>Business Accelerator</b>	<b>Data Collection</b>
<b>Human Nagafi</b> Global Business Transformation (Frankfurt)	1. <b>PwC Accelerator</b> 2. PwC Experience Center 3. PwC and Techstars Accelerator	Telephone interview + Confidential documents to the different programs
<b>Dr. Alexander Zumdieck</b> Managing Director (Berlin)	<b>METRO Accelerator</b>	Face-to-face interview + Personal observation
<b>Constantin von Bergmann-Korn</b> Marketing and Communications, Portfolio Management (Berlin)	<b>Axel Springer Plug and Play Accelerator</b>	Face-to-face interview + Personal observation
<b>Daniela Lopes</b> Head of Operations (Berlin)	<b>Startupbootcamp</b>	Face-to-face interview + Personal observation
<b>Philipp Limburg</b> Business Analyst (Berlin)	<b>Microsoft Accelerator</b>	Face-to-face interview + Personal observation
<b>Verena Vellmer</b> Communications (Berlin)	<b>Hub:raum</b>	Telephone interview + Personal observations

**Table 1: Interview Partner**

### 3.3 Data Collection

The research includes multiple qualitative methods for gathering data recommended by Tracy (2010: 843-844). For collecting data, the study used primary data in the sense that the author actively participates in the process of collecting data, as well as secondary qualitative data, which relies on secondary sources of information. Eisenhardt and Graebner (2007: 28) and Yin (2009: 11) point out that theory-building from case studies usually relies extensively on qualitative data from interviews as a highly efficient way of gathering rich empirical data and other sources, such as observations. Hence, within the thesis semi-structured interviews with business accelerator

contribute, followed by more specific questions to draw out details. Once the interviewee has been welcomed and the research topic has been explained to the interviewee, the author first chooses broader questions about the interviewees themselves to identify them as experts and about the business accelerator program in general, followed by more specific questions about social-capital-related information, which is useful in the final answering of the research question. Furthermore, the remaining semi-structured interview questions associated with the dialog between interviewer and interviewees allowed the participants to answer without implied choices and enabled the interviewees to explain and clarify their answers more broadly if they wanted to, as a way of getting as much as information as possible. Furthermore, by letting the interviewees talk more

freely, the author had the opportunity of learning about important aspects that have not been previously considered and to discuss certain topics in more detail (Gibson & Brown, 2009: 88). All interviews lasted between 13 and 43 minutes, were audio-taped with the permission of the interviewees (Gibson & Brown, 2009: 94) and transcribed, based on the simple rules of Dresing and Pehl (2011). As all interviews were conducted in German, in the results of the thesis all citations are analogously translated into English. The full transcripts of the interviews can be found in Appendices III – IX.

In addition to the interviews, as primary data, between the 20th and 22nd of July 2016 impressions were gathered by observing social interactions among persons before, during and after the personal interview appointments in the business accelerator working spaces in Berlin. As secondary data the author studied the websites of the business accelerator and analyzed other available materials, such as flyer. This is in line with Cooper and Schindler (2014: 165) who state that case studies combine gathering data in the form of gathering interviews, extract information from company brochures along with observations that is often done in the participant's natural setting.

### *3.4 Data Analysis*

The transcribed interviews are then analyzed by coding the data, inspired by the approaches for qualitative data analysis of Eisenhardt (1989: 540-545), Eisenhardt and Graebner (2007: 25-29), Charmaz (2008: 163-165), Bui (2009: 14-15), Gibson and Brown (2009: 131-142), Glaser and Strass (2009: 101-105), Yin (2009: 20) and Mayring (2010: 602-608).

The first phase of the coding process is known as the initial or open coding phase (Charmaz, 2008: 163). At the beginning each interview was closely read and interrogated in order to become intimately familiar with each case (Eisenhardt, 1989: 540; Yin, 2009: 20; Cooper & Schindler, 2014: 166). In this sense and with reference to Eisenhardt (1989: 540), Bui (2009: 14), Mayring (2010: 603) and Stake (2010: 151), after most of the data for the study was collected, certain topics, themes, issues and unique patterns in each case against the background of the research topic and research question have been identified to then codify the data with the focus on possible meanings of this data. Gibson and Brown (2009: 133) call this the search for empirical codes that emerge through the exploration of data, which may be a derivative from an apriority category of the conceptual background or something entirely new that was not foreseen in

the original research formulation. Once empirical codes within the cases have been identified, initial codes in relation to the research topic are then defined, split and redefined into two or more distinct elements if the codes become too complex or bring more than one analytic category together as two potentially interesting and closely connected themes prove be prominent features together (Gibson & Brown, 2009: 135-136). Finally, it has been considered and already tried to suggest emergent links between the developed codes and the conceptual background of this thesis, while at the same time being open to new insights that until now have not been considered (Charmaz, 2008: 164; Glaser & Strass, 2009: 251-257; Mayring, 2010: 603).

Since the author has intensively dealt with the coding of each interview, in the second phase the author engages in focused or selective coding that allows the author to sort and synthesize the large amount of data and focus on codes between the cases to evaluate which best explain or interpret the empirical phenomenon (Charmaz, 2008: 163-165; Bui, 2009: 15; Gibson & Brown, 2009: 134). In this sense the author moves beyond individual codes, to a kind of cross-case analysis, which should draw out the relationships between code categories and the significance of such relationships for the development of propositions as well as generalizable conclusions among the cases (Eisenhardt & Graebner, 2007: 27; Gibson & Brown, 2009: 138; Yin, 2009: 20). Therefore, the author investigates which initial codes are most frequent between the cases. By looking for similarities and differences between the cases, the overall cross-case patterns are attempted to be displayed. According to Gibson and Brown (2009: 139), the aim is drawing together a set of codes by grouping the abstracted categories that characterize the data set. Moreover, as mentioned, the idea behind this approach is to go beyond the initial impressions and therewith enhance the probability of capturing novel findings, which may exist in the data (Eisenhardt, 1989: 540-541; Charmaz, 2008: 163-165; Stake, 2010: 182). According to Eisenhardt and Graebner (2007: 25), Yin (2009:20) and Cooper and Schindler (2014: 165-166), this replication logic is central for building theory inductively from cases. Multiple case studies with the opportunity for cross-case analysis, as shown in this thesis, enable comparisons that clarify whether an emergent finding is simply idiosyncratic with a single case or consistently replicated by several cases and therefore is likely to create theory that is more robust because the propositions are more deeply grounded in varied empirical evidence

(Eisenhardt & Graebner, 2007: 27; Bryman & Bell, 2011: 63). In conclusion, the proven cross-cases codes become categories for the result of the thesis, where, if possible, the results based on the analysis are linked with the extant literature to support empirical evidence and finally formulate accurate and interesting tentative propositions of the role business accelerators play in the acceleration of social capital within startup ecosystems (Eisenhardt & Graebner, 2007: 25-29; Stake, 2010: 16). Eisenhardt (1989: 545) states in particular that “tying the emergent theory to existing literature enhances the internal validity, generalizability, and theoretical level of theory building from case study research.”. The results of the coding process of the interviews can be seen in Appendix X.

### 3.5 Research Validity and Research Reliability

According to Bui (2009: 149), Yin (2009: 41-45) and Cooper and Schindler (2014: 257-261), every study design needs to maximize its quality through (i) validity and (ii) reliability of the research. In its simplest way, Bryman and Bell (2011: 41-42) describe the validity of research as being concerned with the integrity of the conclusions that are generated from research and reliability as being concerned with the question whether the results of the study are repeatable. Similarly, Gibson and Brown (2009: 59,182) and Cooper and Schindler (2014: 664, 668) see validity as a characteristic of measurement concerned with the extent that the research measures, what the researcher actually wishes to measure and reliability as a characteristic of measurement concerned with accuracy, precision, and consistency that together describe the extent of agreement of the ‘trustworthiness’ of processes and the resulting analysis. To maximize the validity of this thesis it was firstly tried to be orientated within the conceptual background of highly ranked scientific journals, despite the novelty of research on startup ecosystem and business accelerator the scientific literature being very poor. Additionally, the different stages of research are emphasized to then explain the research design and strategy. Secondly, reasons for which Berlin is thought of as appropriate for analyzing the role of business accelerators are extensively described. Thirdly, as confirmed by Eisenhardt (1989) and Yin (2009), the analyzed sample of seven cases in form of business accelerators, which can be described as representative, to generalize the results of the study at least for Berlin, which supports the thesis’ external validity which is particularly important for qualitative research (Bryman & Bell, 2011: 61).

Fourth, an explanation is given, why it is thought that interviews are the best instrument for gathering qualitative data against the background of the research question. For securing the reliability of the study, the author used an interview guide, which is listed in the appendix and can serve as example or template for studies that investigate business accelerators in the context of social capital. Moreover, the detailed illustration of this research approach to investigate the research topic, makes the proceedings of this thesis transparent, which makes the operation of the case study repeatable with the probability of obtaining the same findings and conclusions. Besides the validity and reliability of this thesis, ethical considerations are respected, recommended by Gibson and Brown (2009: 61), Tracy (2010: 846-847), Bryman and Bell (2011: 121-138) and Cooper and Schindler (2014: 45), involving mindfulness of the authors character, actions, and consequences for others. The author asked the interviewees for permission to record the interviews, gave the interviewees an introduction to the research topic so that they could decide to participate or not, avoided asking questions that were too private and offered the interviewees the option of reading the transcribed interviews, which two interviewees made use of. Finally, all participants got the option to read through the finished thesis for personal interest and to avoid deception in the case of this thesis being published.

## 4. Results

### 4.1 The Role of Business Accelerators in Social Capital Acceleration in Startup Ecosystems

#### 4.1.1 Opportunities through Networks and Linkages of Business Accelerators

According to Vellmer (Hub:raum), von Bergmann-Korn (Axel Springer), Limburg (Microsoft), Pranter (ProSiebenSat.1), Lopes (Startupbootcamp), Zumdieck (METRO) and Nagafi (PwC) during the accelerator program participating startups are offered access to the network of highly applicable actors of the ecosystem, including actors and units of the company behind the accelerator, corporate and industry partners, corporate customers, mentors communities and potential investors.

Concerning the corporate network, in the case of the METRO Accelerator “startups have access to above 30 executives of METRO from all functions and countries” (Zumdieck, METRO). Additionally, Pranter (ProSiebenSat.1) states that the “network of ProSiebenSat.1 has many touch points which help the participants” and thus the

accelerator gives participants the opportunity to access relevant stakeholders and decision-makers within the ProSiebenSat.1 Group based on the individual needs of the startups (p7s1accelerator.com). The sales unit of the corporation is particularly interesting for the participants as startups need distribution channels to quickly put their products on the market (Vellmer: Hub:raum). Regarding the network of corporate partners, von Bermann-Korn (Axel Springer) mentioned that “nearly all major German corporates are advertising clients of Springer and hence the accelerator disposes a huge network within the corporate world”. Similarly, Startupbootcamp has many cooperating industry partners that usually reach out to one of the participants, up to three or four times per batch in a way such as “Now you have the new sensors, we have a car at the airport in Lisbon, let’s try them out together!” and therewith get the startups first customers, which is very valuable for the startups regarding further product development and access to the market (Lopes, Startupbootcamp). Additionally, Limburg (Microsoft) states that “programs of corporate accelerators can offer another access to the industry network than accelerators can that are not linked to a company”. Referring to the network of corporate customers, Vellmer (Hub:raum) shows that during the program, a network of a “large circle of corporate customers” is available to the startups which give startups the opportunity to access their first customers and therewith gather feedback on their products or services. Furthermore, mentor communities around the business accelerators are available for the startups and push them by their own network of contacts (Lopes, Startupbootcamp) as they commonly have great contact possibilities within the regional ecosystem (Limburg, Microsoft). Finally, participants of accelerator programs have access to the accelerators’ investor network (axelspringerplugandplay.com), including business angels, VCs or other mutual Funds (Vellmer, Hub:raum; Limburg, Microsoft; startupbootcamp.org) which is crucial for startups of the program as their hope is to get their first investment at the end of the program.

Besides the simple opportunity for the participants of the accelerator program to access these networks, business accelerators actively engage in linking participants and actors of the regional ecosystem (Nagafi, PwC). This is achieved by (i) introducing their participants to the actors mentioned above or (ii) introducing external actors from economy, politics and industry through partnerships and events to their participants and

simultaneously to the work of the accelerator (Limburg, Microsoft). The role of the business accelerators in introducing external actors to the concept of the business accelerator program particularly increases the awareness of business accelerators within the region as well as taking an exemplary function for other corporations that are interest in an accelerator unit for their own company (Limburg, Microsoft; Pranter, ProSiebenSat.1; Vellmer, Hub:raum).

Firstly, according to Limburg (Microsoft), if one is coming to Berlin and would like to get access to the startup scene, ‘docking points’ are needed. When startups get their first docking point through the accelerator program, they are allowed in the circle of supportive actors more easily and have the opportunity to build up and profit from their network quickly. Therefore, accelerator programs are designed to maximize the resources and potential of the participating startup by getting the startup in touch with actors of the startup ecosystem (startupbootcamp.org). Von Bergmann-Korn (Axel Springer) states that accelerators “are in the middle of a very strong and ramified network where they find connection points to integrate the startups” and for doing so, the accelerator teams know the actors involved around the program so well that they can guide their startups towards the most helpful contacts.

For instance, regarding the linkage between startups and mentor communities, accelerator teams try to connect startups with suitable mentors that fit the startup’ needs and well as with the selection of a mentor. For this purpose, business accelerators contact interesting mentors that then meet the startups and decide whether they suit their expertise, are perhaps personally interested in investing in the startup or even know somebody else from their network who could be helpful for the startups or may be likely to invest as business angel or VC (Pranter, ProSiebenSat.1). According to Zumdieck (METRO), the search of mentors for supportive contacts for the participants within their personal network runs intern and extern of METRO like “You have really interesting solutions, I know somebody who could be interesting for you!”. Moreover, when accelerator teams “see that a mentor suits one of their participants they try to push both into a closer relationship” (Pranter, ProSiebenSat.1). Another example is that business accelerators often try to communicate and connect their startups with their close customers that may have a more technical background of the industry and can further help the startups in technical or industry specific topics (Nagafi, PwC).

Concerning the relationship mentioned by Pranter (ProSiebenSat.1), von Bergmann-Korn (Axel Springer) describes the atmosphere between the actors within the accelerator program as very familiar, which often accelerates the access for startups to high-carat people. However, the relationship between the mentor community of the accelerator and the participants ranges from only one short talk during the program, working together very intensively, to mentors and startups that even become friends (Zumdieck, METRO). Von Bergmann-Korn (Axel Springer) justifies these differences in the way that “basically you can see the actors as two people, who talk with each other and as diverse as they are, so are their interactions”. According to Lopes (Startupbootcamp) and Vellmer (Hub:raum), the relationship depends heavily on how relevant the startup is for the mentor. Mentors choose teams where the dynamic and expertise fits the best. Further they will work more closely and steadily with those, even after the program, in comparison to other startups within the accelerator, which dynamics and expertise are diverse.

Secondly, accelerators help actors of Berlin’s ecosystem, such as corporates, to make links with startups as they are not as well linked within the ecosystem as business accelerators (Limburg, Microsoft). Nagafi (PwC) explained that companies often contact the accelerator with “we are interested in your program, we also have interested customers, we would like to be involved”. In this case the PwC’s accelerator carries kind of a listing of these companies and when they think a company or specialist would suit one of the startups they make the connection between them, even when these specialists are in places around the world ([pwcaccelerator.com](http://pwcaccelerator.com)). Limburg (Microsoft) describes this kind of openness of business accelerators towards actors of the ecosystem as an ‘open door policy’. Everybody who is interested in what the business accelerator does can get an introduction to the work, which according to Limburg (Microsoft) often leads to further partnerships which then reduce trust issues with business accelerators. Moreover, Lopes describes the Startupbootcamp as a ‘platform’ which is open to all actors of the ecosystem who are likely to support the participants. Similarly, Pranter calls the accelerator of ProSiebenSat.1 a ‘combining factor’ and von Bergmann-Korn (Axel Springer) thinks about the accelerator as a “platform where people can network, close deals and widen their horizon”. As an example that an accelerator also links actors that would not be linked without the business accelerator, Lopes

revealed that “apparently it needs a Startupbootcamp that for instance, Daimler and EnBW talk to each other and specifically talk about running a collective project”. Furthermore, Lopes (Startupbootcamp) and Vellmer (Hub:raum) state that business accelerators, as platforms which are to a certain degree open to all actors within and beyond the ecosystem that are interested in how an accelerator works, play a huge role in the awareness raising of startup businesses. According to Nagafi (PwC) representatives from the classic industry or consultants often have the wrong understanding of how startups work. As a result, the PwC’s accelerator organizes awareness-raising events and workshops, with e.g. their mentors, to sensitize them to treat and work together with startups successfully, because when classic industry meets startups “culturally, two worlds collide”. Similarly, Lopes (Startupbootcamp) states that business accelerators are applicable when inviting ‘old school’ businesses, presenting these classic industry business pitches of the participants which then often leads to a “wow-fantastic effect” and therewith opens their minds and raises their interest in the startup world. Besides the awareness-raising effect, according to Limburg (Microsoft), Pranter (ProSiebenSat.1) and Vellmer (Hub:raum), business accelerators also have an exemplary or ‘lighthouse’ function in a startup ecosystem. Many business accelerators introduce to the participating startups corporations and other players of the ecosystem that are interested in how an accelerator program works. Thereby the accelerators have an exemplary function for other corporations that have until now not made connections or struggle with working together with startups. According to Vellmer (Hub:raum), by introducing corporations to this subject, business accelerators strengthen the startup-related ecosystem and make startups more approachable for corporations.

To keep the term ‘platform’, business accelerators offer various forms of events with different purposes that build a platform for interactions among actors involved in the accelerator program as well as for actors outside of the program. Firstly, accelerators host events for actors involved in the program. For instance, two times per program Axel Springer has a Mentor-Day where they invite mentors of their mentor network, with consist of around 250 mentors, who during the event meet startups in fixed sessions. In advance, the accelerator team does a form of ‘matching’ between mentors and startups where they previously analyze which mentor could best complement each startup as not to waste startups

and mentors' time (von Bergmann-Korn, Axel Springer). A further example is the monthly lunch hosted by Hub:raum in the event kitchen of Telekom, where all actors that are involved in the program can network and exchange their experience. These forms of events offer the possibility for startups to have the possibility to ask: "Hey, we are looking for interns. Do you know someone?" or "We start our new round of financing. Do you know somebody?" (Vellmer, Hub:raum). Additionally, Hub:raum also organizes get-togethers with other accelerators where the teams can present themselves and can get in contact with teams from other accelerators. Secondly, business accelerators offer events that are by invitation only. A classic example is the Demo Day at the end of the accelerator program. Even when this event mainly concentrates on the invitation of investors to increase the chance of startups to gain the vital investment at the end of the program, many accelerators also invite actors of the community "who play the great role of a multiplier within Berlins ecosystem" to promote the program and their participants (Zumdieck, METRO). Similarly, Lopes (Startupbootcamp) estimates that around one-third of the tickets of the Demo Day go to actors within the local ecosystem, including partners, mentors or local media (startupbootcamp.org), that are interested or likely to support the startups. According to Pranter (ProSiebenSat.1), on the demo day startups face a "colorful audience", including investors, corporate executives, service providers, business partners (Vellmer, Hub:Raum) and even though other accelerators to increase the exchange between the several programs of corporations (Limburg, Microsoft). Furthermore, a Demo Day typically ends with a networking event where all actors can network among one another (Pranter, ProSiebenSat.1). Thirdly, some business accelerators host external events and workshops in their event space where startups have the opportunity to present themselves and may then have access to "first-class investors and other multipliers of the ecosystem" (Vellmer, Hub:raum). Fourth, business accelerators provide open events to the ecosystem "to foster the exchange between corporates, between startups and between any people who would like to drop in or are interested" (Lopes, Startupbootcamp). Startupbootcamp, for instance, offers conferences, which are open and are a great opportunity for extern people to get insights in the processes of the Startupbootcamp as well as to make contact with other actors of the ecosystem (Lopes, Startupbootcamp). Further on, METRO organizes

Meet-Ups "to open the program and so that everybody who is interest can come around" (Zumdieck, METRO). According to von Bergmann-Korn (Axel Springer), business accelerators "have a responsibility to further develop the ecosystem". In that sense, Axel Springer Plug and Play hosts events like the Founder-Speed-Matching where people who are interested in the founding of a business or have already founded their business, have the opportunity to find companions or to complement their team. The event runs like a Speed-Dating event, but instead of singles, people and startups have the opportunity to talk in a five-minute-format to see as many faces as possible, followed by a network event with drinks and food. Fifth, business accelerators implement events for their participating startups that should particularly enhance the linkages between the team and further help startups to get answers to questions, which may arise, challenges and problems within their process of development. According to Zumdieck (METRO) and Lopes (Startupbootcamp), weekly events are introduced to give participants the opportunity to update the other team about their progress and thereby increase the exchange between the teams. These kinds of events include Monday Morning Stand-Ups where all startups come together and talk about problems, plans and progresses (PPPs) which support the communication and exchange among the teams and according to von Bergmann-Korn (Axel Springer), build up an added value. These kinds of Stand-Up Meetings give startups the opportunity to talk about what happened within the past week and what they have to or would like to do in the next week. According to Limburg (Microsoft), sessions like this improve the exchange between the teams in the way of "I had the same case, I would do that in this way.", "I have a contact for you, who can help you!" or "Have you tried this software for this and that? That could work for you as well!". Pranter (ProSiebenSat.1) calls these sessions All-Hands Meetings, where the startups come together to communicate, exchange and share contacts among them, as they are all at a similar stage. Zumdieck (METRO) and Lopes (Startupbootcamp) further point out that through these social events among the participants within the program, the business accelerators give their participants the impulse for interaction and exchange among themselves, which after a while even gets its own dynamic and becomes independent from the impulses of the business accelerator. This development can be explained mainly by the startups being at similar stages as well as through the spatial circumstances

of the business accelerators' working spaces. According to von Bergmann-Korn (Axel Springer), all teams of the program are nearly at the same stage and typically face the same challenges as they work on related products. Particularly during the intensive and stressful months the teams working alongside each other; linkages between the participants are very important for the morale and psychology of the participants and hence the startups act in the way of "give and take" relating to their support for each other (Lopes, Startupbootcamp). The spatial circumstances of the business accelerator in form of open working spaces increase the sharing of support and knowledge among the teams (Limburg, Microsoft). Von Bergmann-Korn (Axel Springer) expressed it quite suitably by saying that all participants are "under one roof", talk to each other, share their experience and therewith "create enormous synergies that finally accelerate" the progress of the startups' development. Additionally, the Startupbootcamp, for instance, has a chef in their spaces during the program who makes lunch for the teams so that all participants sit together at a table and during lunch, they can get talk about the progress or problems of the teams. Furthermore, while visiting the shared working spaces of several business accelerators in Berlin it was noted that business accelerators provide job boards of portfolio companies as well as of allied startups to help the community to find employees or offer their participants a table tennis table for further interacting that is used by the participants to make Smalltalk. Nonetheless, according Vellmer (Hub:raum) it not always needs events or specific circumstances of the working spaces which bring the participants together. Often the team's get in contact with each other through a coffee break in a shared coffee corner or while smoking a cigarette outside the building and start conversations like "You working on that issue? Maybe we can do something together!" (Vellmer, Hub:raum).

The results presented above show that the business accelerators' network of social ties create opportunities for their participants to get in touch, as well as for further actors of Berlins' startup ecosystem, that, according to Adler and Kwon (2002: 24-27), is one of three source for social capital creation. In the view of bridging social capital creation (Putnam, 2000: 22-23; Adler & Kwon: 2002: 19), business accelerators promote their participants' access to various networks that can mobilize support and resources and thereby facilitate the startups on their path of growth. Moreover, business accelerators actively link startups with actors within their great networks and

further link actors outside of the accelerator program to startups and among each other through its open door policy or events that are to a large degree open for the community and foster direct and indirect exchange between all actors. The business accelerators' approach of bridging social capital creation can be confirmed by Bourdieu (1985: 242), Baker (1990: 619), Boxman, De Graaf and Flap (1991: 52), Bourdieu and Wacquant (1992: 119), Burt (1997a: 355) and Knoke (1999: 18), who see the creation of social capital in the process by which actors use their social network of relationships to gain privileged access to other actors' support and resources to pursue their interest and then, under certain circumstances, convert their social connections into economic capital. Additionally, similar to Coleman (1988: 101-109) and Burt (1991: 9), the results mentioned above, that direct and indirect network ties provide the opportunity to access support through other actors within the network as well as to access support that these actors can mobilize through their own network. In the view of bonding social capital creation (Putnam, 2000: 22-23; Adler & Kwon: 2002: 19), the open working spaces of the business accelerator promote the sharing of support and knowledge among the teams, especially as all teams are almost at the same stage of business development, typically face the same challenges and have the common aim of developing their business idea as far as possible to finally gain an investment at the end of the business accelerator program. The business accelerators then give further impulses for interaction among the teams by, for instance, weekly social events that support the communication, exchange and sharing of contacts among the participants. This approach is in line with Portes and Sensenbrenner (1993: 1323), Putnam (1995: 67), Brehm and Rahn (1997: 999), Fukuyama (1997: 4-17), Ingelhart (1997: 188), Adler and Kwon (2002: 21) and Casson and Giusta (2007: 231), who see the source of bonding social capital in the internal linkages of groups, which contain features that give a collective cohesiveness and facilitate the intent of collective actions for more or less common purposes. A certain set of shared norms, trust and values among the members of a group facilitate the cohesion and affect the economic goal seeking behavior of its members. Finally, as business accelerators not only give the opportunity for participants and other actors of the ecosystem to network among one another, but also actively try to link and give impulses for communication, exchange and networking between actors of the ecosystem. It can be stated that from the opportunity point of view,

business accelerators are mainly involved in the acceleration of bridging and bonding social capital instead of simply playing a role in its creation.

#### 4.1.2 Motivation of Business Accelerators

In addition to the intent of investors and other people around the accelerator program and from the business accelerator itself to invest and take equity of the startup to finally make money or gain benefits through intensive networking (Nagafi, PwC; von Bergmann-Korn, Axel Springer; Pranter, ProSiebenSat.1), Lopes (Startupbootcamp) describe the major motive of all people involved in the program as “we are all here to promote entrepreneurship and to help entrepreneurs”. According to Vellmer (Hub:raum) a startup ecosystem is based on a ‘give-relation: “you give and you give and you give and you give, expecting at that moment no return, and someday you may get something back”. Lopes (Startupbootcamp) describes that approach as the main motivation of all people working together with the business accelerator, as these actors “like to help people by having in mind that maybe in future they would like to found their own business and can profit from their experience”. However, in the case that people becoming successful within the startup ecosystem, according to Vellmer (Hub:raum) “you give something back, that you have received as you founded your business”. Von Bergmann-Korn (Axel Springer) support those who argue that many mentors are motivated by “giving something back”, as they have already been successful with their own business and now enjoy sharing their experience and skills. Furthermore, Zumdieck (METRO) mentioned the motivation of the foundation of the accelerator unit of METRO that in recent times METRO got great support from the startup scene in Berlin and thus is now motivated “to give something back with their resources”.

This motivational approach of actors involved around the business accelerator programs is in line with Putnam (1993a: 172, 182-183) and Portes (1998: 5-7), who see the second source of social capital in the motivation of actors to support each other in the absence of direct returns of their engagement, but in the normative commitment that actors provide a privileged access to the support and resources in the expectation that for their support they may get something back at some time in the future.

#### 4.1.3 Abilities of Business Accelerators

Within the accelerator program, people in the role of various kinds (like mentors, extern corporate partner of the business accelerator, intern and extern experts, industry leaders and experienced entrepreneurs) bring knowledge and expertise about foundation-relevant topics (von Bergmann-Korn, Axel Springer; metroaccelerator.com; axelspringerplugandplay.com; startupbootcamp.org; pwcaccelerator.com) such as product development, marketing, sales, design, IT, human resources, legal, finance (Nagafi, PwC; Lopes, Startupbootcamp; Pranter, ProSiebenSat.1) and transfer the knowledge and expertise to the participants in sessions like workshops and trainings. These sessions are held with teams of the participants as well as in one-o-one sessions (Limburg, Microsoft). Zumdieck (METRO) further points out that investors and people with VC experience are also introduced to the program early so that the startups can also learn from their skills. Moreover, Startupbootcamp, for instance, tries to provide mentoring and coaching ‘on demand’ for their startups, depending on the stage of the startup and therewith, specifically enters the needs of their participants (Lopes, Startupbootcamp). Aside from their knowledge, externs bring key corporations’ executives to the program. Furthermore leaders of the corporation behind the accelerator program also provide knowledge to the teams (von Bergmann-Korn, Axel Springer; metroaccelerator.com) and usually offer the participants access to the whole value chain of the corporation. For example, in the case of the PwC Accelerator, startups can refer to “strategy consulting, project and change Management, tax consulting, certification, cyber security, audit, financial accounting and a lot more” (Nagafi, PwC) and in participating in the program by ProSiebenSat.1, startups have access to specific knowledge about “E-Commerce, Market-Sales and Ad-Tech” (Pranter, ProSiebenSat.1).

Furthermore, according to Zumdieck (METRO) the knowledge transfer between the business accelerator and the startups is a ‘two-way street’. By working together with highly innovative and young businesses, according to Nagafi (PwC), Pranter (ProSiebenSat.1) and Zumdieck (METRO), it comes to a backward knowledge transfer in the way that actors of the ecosystem like employees of their own corporation are integrated in the accelerator program so that they learn about the “new way of work” (Nagafi, PwC) from the startups and transmit new impulses to the corporation. This gives employees of the corporation the opportunity to work and share their expertise with startups and thus expand their

horizon as well as help the corporation to adapt and change its business model and customer service in future (Nagafi, PwC; Pranter, ProSiebenSat.1). Therewith, according to Zumdieck (METRO), the accelerator program gives the “interactions between startups and the corporation a structure.” Furthermore, by working together with startups, business accelerators and partners get access to innovations (Zumdieck, METRO; Limburg, Microsoft) as startups are often more innovative and have better technology than corporations. A reason for this is that startups are closer to the market and customers as well as being faster than corporations in the process of recognition and response to feedback on their products (Vellmer, Hub:raum). Additionally, business accelerators have the opportunity to take startups with innovative products and services into their program that fit into the corporations’ business model which can finally be offered to customers of their own corporation (Nagafi, PwC). According to Zumdieck (METRO), this could happen when “the participating startups develop a product or solution, our customers get the solution from us, which helps them to optimize the operation of their business. And we give the startups access to the market. Hence, it is a great deal for all actors involved”. Moreover, by working together with startups, business accelerators have the opportunities to build up startups that can be partners of the corporation in future and help the corporation to discover new business areas (Vellmer, Hub:raum), recruit new talents (Pranter, ProSiebenSat.1), introduce startups to their own products and thus generate new future customers (Limburg, Microsoft) or invest in the startups in the early stage of their lifecycle, where the ratings of the startups jump to their peak points. Finally, many corporations with accelerator units also harvest positive PR as innovative players in the ecosystem (Pranter, ProSiebenSat.1).

According to Adler and Kwon (2002: 26), besides the opportunity and motivation as sources of social capital, the third source to activate social capital lies in the ability to access competencies and resources that the network provides. Thus, in the absence of the correct expertise or resources, an actor’s ties to members of the network are relatively useless. Additionally, the extent of social capital that is provided within a network depends on the amount and quality of resources that are available to the actors and can be mobilized through social relations (Gabbay & Leenders, 1999: 2; Leana & Van Buren, 1999: 543; Lin, 1999: 467-468). As presented above, business accelerators offer their participants a wide network

of expertise and resources through the access to actors of the ecosystem, including internal and external experts of the corporation, industry leaders and experienced entrepreneurs that dispose highly qualitative knowledge and expertise about foundation-relevant topics, which is in line with previous findings of Miller and Bound (2011: 10), Caley and Kula (2013: 14) or Cohen (2013: 23). Moreover, the corporation behind the business accelerator unit usually offers their participants access to the whole value chain of the corporation. Additionally, the business accelerators network of investors and people with VC experience are usually introduced to the program early so that the startups can learn from their skill as well as become familiar with investors, which can increase the likelihood of receiving investments. The backward knowledge transfer, mostly between startups and business accelerators, including the access to innovation or the transmission of new impulses to the corporation, secure that the expertise of the business accelerator which is shared with the participating startups and therewith, with further actors of the ecosystem as well, will grow sustainably so that the degree of the ability of business accelerators will be maintained and developed in future.

#### *4.2 The Role of Business Accelerators in Social Capital Acceleration beyond the Program*

The interviews show that the overall intent of business accelerators is to stay closely in contact with the graduated startups on an ongoing basis. To accomplish this intent, according to Nagafi (PwC), von Bergmann-Korn (Axel Springer), Lopes (Startupbootcamp) and Limburg (Microsoft), the introduction of an alumni network is a suitable approach to “help the alumni connect, engage and accelerate together” (startupbootcamp.org). According to the Startupbootcamp program, Lopes states that “It is not a three-month-thing and that’s it. We are definitely interested in the participating startups becoming successful and that they get their investment”. For instance, Axel Springer Plug and Play stated that the program “...is for life. Our support doesn’t end after the 100 days. Our team, our alumni network and everyone we know is here to support you throughout your entrepreneurial journey” (axelspringerplugandplay.com). Startups will continue to leverage access to resources, networks, potential customers and partners and various opportunities to grow (microsoftaccelerator.com). Von Bergmann-Korn (Axel Springer) added that the alumni network generates synergies, as startups get the opportunity

to further participate in the direct network of the business accelerator, by sharing experience, giving advice and helping each other to offer jobs or look for jobs. Moreover, through an alumni network, accelerators also share contacts and free tickets for events and in return an alumnus may become a mentor in the next batches. Regarding the value of alumni networks, von Bergmann-Korn (Axel Springer) mentioned that “the greater the portfolio of the alumni network, the bigger the value of this network as long as it is well maintained”. Similarly, Limburg (Microsoft) expressed that “it is not the case, that after the program we think goodbye. We actively maintain the contact with the startups after the program”. Vellmer supports this point of view with “once Hub:raum, always Hub:raum. That means each startup that has participated in one of our programs can make contact and ask us for further introductions to interesting actors in the ecosystem or simply for help”. Regarding the point of further introductions, Nagafi (PwC) mentioned that for instance, a startup that has participated can become interesting for a customer of the corporation behind a business accelerator and then the business accelerator will introduce the startup to the customer. Therefore, independent of whether the startups remain in Berlin or geographically relocate, planned or unplanned meetings, frequent calls with the startups, regional facebook groups or email lists serve as instruments to keep the contact between business accelerators and startups (Pranter, ProSiebenSat.1; Vellmer, Hub:raum; Zumdieck, METRO). Additionally, according to startupbootcamp.org “these introductions lead to life-long connections and do wonders not for only the startups, but for the entire ecosystem”. The purpose of most business accelerators is to further maintain the contact and support the startup by the establishment of an alumni network and therewith taking care of the amount of social capital, is in line with Adler and Kwon (2002: 22) and Westlund and Bolton (2003: 82), who state that social capital needs maintenance in the sense that social bonds have to be cared for and renewed or they lose efficacy, as social capital grows and develops with its use. Besides the reason that business accelerators and startups continue to keep in contact for mutual support, business accelerators stay in touch with their participants and even have to stay in contact with the startups as a legal necessity in the case that the business accelerator itself invests in its participants and becomes a shareholder of the startups. Therewith they are automatically involved in major decisions of the business, will further work together with the startups and are highly interested in the development

of the startups (Nagafi, PwC; Pranter, ProSiebenSat.1; von Bergmann-Korn, Axel Springer; Zumdieck, METRO). However, even when Limburg (Microsoft) states that after the program all startups somehow stay in Berlin because they have gained many contacts within the duration of the program and have built up their own network, there are prevailing disagreements between the interviewed business accelerators about whether startups, which have participated will remain in Berlin. According to Nagafi (PwC), startups that are very young when participating in the accelerator programs will benefit from their new social network through the accelerator and then it makes definitely sense to stay in Berlin to maintain the contacts and the network. Similarly, Vellmer (Hub:raum) states that around 90% of the startups stay in Berlin after finishing the program and by relocating to Berlin expand Berlin’s startup ecosystem through the program. Contrary to this, von Bergmann-Korn (Axel Springer) estimates that around 50% of the startups, which have participated in the program stay in Berlin and it is mainly the successful ones that tend to interact for a relatively long time and stay spatially close to the team of the accelerator. Even more contradictory to this, Zumdieck (METRO) estimates that only around two of eleven startups per batch stay in Berlin after the program. However, according to Nagafi (PwC), startups that have already passed the seed stage in their home city or home country before they have participated in the program, are likely to go back after the program, as they are already linked to the ecosystem in their home country and have their ‘foot print’ there. This is supported by Lopes (Startupbootcamp) who thinks that after the program about 70% of the participating teams go back to their home country as they were already present in the home market and had customers in the home market before they came to Berlin, even when it is quite different between the batches. Similarly, Pranter (ProSiebenSat.1) argued that startups of the accelerator program of ProSiebenSat.1 are not in the very early stage and thus usually do not move to Berlin after the program. Nevertheless, about two-thirds of the participants of ProSiebenSat.1’ accelerator programs are from Berlin and therefore strengthen the ecosystem on the spot. Even if the explanation given by Nagafi (PwC) that young startups tend to stay in Berlin to keep contacts and networks, generated by the business accelerator program, and startups, which have already passed the seed stage and are linked and have their ‘foot print’ in their home market tend to leave Berlin after the program,

it seems clear, the impact on the aggregate startup ecosystems remain unclear. Startups that leave Berlin after the program may undermine the increase of economic capital within Berlin's startup ecosystem or may play an important linking role within the created linkages of the business accelerator between the different actors of the ecosystem and thereby can cause structural gaps within Berlin's startup ecosystem's social network.

## 5. Discussion

### 5.1 Contributions

The conceptual background of this thesis mentioned that the opportunity-motivation-ability framework must be present for social capital to be activated as people without network ties, without the motivation to contribute, or without the requisite ability would not be a source of social capital and that the lack of any of these three factors would undermine social capital generation.

Beginning with the network ties, in the perspective of bridging social capital acceleration, the results show that by their program, business accelerators actively link and guide their participants to a large circle of supportive and highly applicable actors within its strong network. Moreover, they even further promote relationships, if the business accelerator sees that both startups and other supportive actors from the ecosystem profit from the relation. Additionally, through the business accelerators' open door policy aimed at the community of Berlin's startup ecosystem, business accelerators link actors from outside of the accelerator program to their participants as well as among each other that often would not be linked without the business accelerator and hence, foster direct and indirect exchange between all actors that are involved in Berlin's ecosystem. According to Burt (1992: 4-48) and Adler and Kwon (2002: 29), bridging groups that otherwise would be disconnected allow individual actors as well as the broader aggregate to speed up their efforts. Therewith business accelerators act as a platform where people have the opportunity to use the business accelerators' social network of relationships to gain beneficial information about e.g. job opportunities or innovate technology, build up their own network, get privileged access to other actors' support and resources or to close deals to pursue their interest.

From the perspective of bonding social capital acceleration, business accelerators internally link their participating teams among themselves through social events in a weekly format and

shared working spaces, where startups come together and talk about problems, plans and progress which increase collective cohesiveness and facilitating the opportunity for sharing support and knowledge between the teams. This cohort-based nature of business accelerator programs, according to Miller and Bound (2011: 10, 28), Carmel and Richman (2013: 3) and Cohen (2013: 22) naturally leads to close ties and relationships between the participating startups that result in supporting and motivating each other during the duration of the program. Portes (1998: 8) and Sandefur and Laumann (1998: 491-492) describe the situation where people that are in a common situation, learn to identify with each other and support each other's initiatives as social solidarity which, according to Bourdieu (1985: 249), builds the basis for the profits which accrue through the affiliation with a collective. Moreover, according to Adler and Kwon (2002: 30) and Putnam (1993a: 89-90), internal solidarity of members in one association may spill over through members' involvement with other associations and in the broader aggregate end in a higher level of generalized trust which would mean that the increasing solidarity would also spillover to other actors of Berlin's startup ecosystem. Beyond the program, business accelerators typically have an alumni network, which serves to further share information and indications between its members and help the business accelerator to make further introductions between their graduates and actors of Berlin's startup ecosystem. Through the alumni network, business accelerators care and renew the ties that already exist within the ecosystem and create new ties, which increase the possibility that social capital grows and further develops beyond the duration of the program.

This linking role of Berlin's business accelerators is heavily accompanied by the peoples' fundamental motivational approach around the business accelerators to help startups by connecting and integrating them into Berlin's ecosystem in the absence of direct returns of their engagement, which fulfill the second source for social capital activation. Finally, as a third source for social capital acceleration, Berlin's business accelerators dispose the requisite ability to provide, first, their startups access to a strong supportive network of expertise about foundation-relevant topics and resources, which is highly important for startups as they may dispose technological innovation but mostly lack in experience, expertise and financial resources (Walker, Kogut & Shane, 1997: 109). Secondly, business accelerators offer actors in Berlin's startup ecosystem, including mentors,

regional enterprises, corporate partners of the business accelerator investors, industry leaders or experienced entrepreneurs access to highly innovative startups which constitute among others things, the source of innovation, as an attractive investment opportunity or corporate partner in the future. Through the selection process of the business accelerators, the participating teams as well as its graduates become more interesting for actors that are likely to invest or to cooperate with startups and hence business accelerators are increasingly seen as a quality label for startups. This is in line with the view of Miller and Bound (2011: 12, 27), Barrehag et al. (2012: 44-45), Kim and Wagman (2014: 521) and Fehder and Hochberg (2015: 7) on business accelerators as a pipeline of attractive investable seed-stage startups, proved by the application process of the business accelerator. Finally, the contribution supports Napier and Hansen's (2011: 13-15) and Zoller's (2010: 103) research, which already associates business accelerators with being a dealmaker, because of their strong motivation and abilities to connect startups with the right people and resources based on their professional background, experience and local embeddedness.

Based on the results, the thesis allows four propositions that emphasizes the role of business accelerators in the accelerating process of social capital creation within Berlin's startup ecosystem to be formulated:

**Proposition 1:** Business accelerators enable bridging social capital acceleration within Berlin's startup ecosystem by promoting a platform where actors of the regional ecosystem have the opportunity to network and by the business accelerators' role in externally linking Berlin's startup ecosystem which then allow actors in Berlin's startup ecosystem to gain benefits from their new social relations.

**Proposition 2:** Business accelerators enable bonding social capital acceleration between the business accelerator participants within the program, by providing shared working spaces in Berlin, where the participants work side by side which in a self-perpetuating way leads to synergy effects and by the business accelerators' role in internally linking their participating teams through weekly social events to enhance the sharing of support and knowledge.

**Proposition 3:** Business accelerators enable social capital acceleration within Berlin's startup ecosystem through the basic motivational approach to promote entrepreneurship within the regional ecosystem and by the business accelerators' role in helping actors to link and integrate into Berlin's startup ecosystem in the absence of direct returns of their engagement, but in the normative commitment to expect a response somewhere in future.

**Proposition 4:** Business accelerators enable social capital acceleration within Berlin's startup ecosystem with the ability gained through their professional background, experience and regional local embeddedness to provide actors in Berlin's startup ecosystem a wide and highly qualified network of competencies, expertise and resources and by the business accelerators' role as a dealmaker and quality label to connect startups to the right people and resources and therewith, to mobilize support and resources through business accelerators' social network.

The propositions present that the opportunity-motivation-ability framework for social capital creation is fulfilled, which demonstrates the business accelerators' active and accelerating role in the creation of social capital, as already indicated by Zoller (2010: 1-2), Feldman and Zoller (2012: 24-30), Carmel and Richmal (2013: 3) and Fehder and Hochberg (2015: 7), which is then likely to contribute to the process of new venture creation (Baron & Markman, 2003: 41; Davidsson & Honig, 2003: 301; Liao & Welsch, 2005: 345; DeCarolis & Saporito, 2006: 41) and according to Walker, Kogut, and Shan (1997: 109), fosters the formation of startups and therewith the success of the entrepreneurial region.

Beyond the program, the results of analyzing the interviews and websites of the interviewed business accelerators show that the business accelerators are interested in their graduates and keep contact through an alumni network, independent of whether the graduates remain in Berlin or geographically relocate after the program. This gives the graduates the opportunity to further participate in the social network of the business accelerators, including opportunities to access further introductions to interesting actors in the ecosystem, which care for and renew the social bonds between the startups and actors in Berlin's

ecosystem. This can be supported by the findings of Barregh et al. (2012: 44) and Radojevich-Kelley and Hoffman (2012: 65), that social network relations increase the likelihood of participants in the business accelerators to receive further help after the program concludes and the ability to receive subsequent rounds of funding. According to Winston Smith, Hannigan and Gasiorowski (2013: 1) accelerator-backed startups are more likely to receive follow-up financing sooner compared to startups that have not participated in business accelerator programs. Nonetheless, even if Miller and Bound (2011: 5) and Cohen (2013: 22) have shown that business accelerators attract international startups and that those who then participate often relocate to the same region as the business accelerator, which then expands the local startup ecosystem, the results of the thesis display that there are disagreements about the number of participating startups who remain in Berlin after the program, especially in the case when startups have already passed the seed stage in their home country and are so linked to the ecosystem in their home country. This could have an impact on the social capital of Berlin's startup ecosystem since when the graduates leave Berlin they may cause structural gaps in the social network which could undermine the accelerating effect of social capital creation within Berlin's startup ecosystem beyond the program. Similarly, Napier and Hansen (2011: 12-13) regard the strength and quality of a startup ecosystem depending on entrepreneurs who have succeeded with their startups and thereafter stay involved, in the form of reinvesting their profit and experience back into the local ecosystem.

## 5.2 Implications

Besides the accelerating impact of business accelerators on the process of social capital creation, the results of the business accelerators' role within Berlin's ecosystem displays that by linking actors in Berlin's startup ecosystem, business accelerators also have impacts on the cultural, financial and human capital of the Eight Capital Model of Entrepreneurial Ecosystems, presented by Juling, Freiling and Harima (2016):

**Cultural Capital:** In their role of social capital acceleration, business accelerators have an impact on the entrepreneurially related perception and intention of Berlin's startup ecosystem through their awareness raising and exemplary function. The degree of business accelerator openness towards the regional ecosystem, including open events for networking, helps business accelerators

strengthen the startup related ecosystem by making startups and their philosophy and working method more tangible for the traditional economy, industry and policy in Berlin. Furthermore, business accelerators demonstrate the importance of the programs for corporations that are willing to work together with startups. Thus, business accelerators take a 'lighthouse' function in a startup ecosystem for other corporations that have so far not been linked to startups and may be orientated with the model of business accelerator units in future.

**Financial Capital:** Business accelerators in their role as social capital accelerators, have an impact on the availability and accessibility of financial resources within Berlin's startup ecosystem. Firstly, business accelerators often provide their participants with a small amount of seed capital during the program, which mostly serves as a way of the team being able to pay their living costs and concentrate on their business idea without private financial concerns, which is in line with the results of Bluestein and Barrett (2010: n.p.) and Miller and Bound (2011: 9). Secondly, business accelerators are applicable as quality labels for attractive investment opportunities through their process of selecting their participants and their strong social network. Hence, the attentions of investors, including business angel, VCs or mentors inside and outside of Berlin's startup ecosystem are drawn to the participating startups as well as to further actors in Berlin's startup ecosystem that are linked to the business accelerator. This is in line with The Global Startup Ecosystem Report which mentions that early stage investments in particular, are based on the social networks of trusted human relationships (Compas.co, 2015: 17). Thirdly, and similar to the findings of Cohen (2013: 22), business accelerators as institutions or individual actors within the program sometimes provide additional financing options and invest in the participants and thus become a shareholder in the startups. All three options increase the total amount of investments and increase the financial capital of Berlin's startup ecosystem. This is confirmed by Fehder and Hochbergs (2015: 31) findings that regional ecosystems in which business accelerators are established, subsequently exhibit more entrepreneurial financing activity, and that this activity appears not to be restricted to accelerated startups alone, but also spills over into non-accelerated companies, as attracting investors also increases the exposure of non-accelerator companies in the region.

**Human Capital:** Recent research already suggests that network ties help firms acquire new skills and knowledge (Loury, 1992: 100; Powell & Smith-

Doerr, 1994: 34-35; Podolny & Page, 1998: 62) and therewith positively influence the creation of human capital (Coleman, 1988: 109; Becker, 1996: 4; Nahapiet & Ghoshal, 1998: 242). Moreover, in line with the research of Barrehag et al. (2012: 44) and Radojevich-Kelley and Hoffman, (2012: 66), who already state that business accelerators support the startups' human capital, the results of the thesis show that through the business accelerators' role in social capital acceleration, business accelerators increase the knowledge and skills of individuals as well as those of Berlin's entire startup ecosystem. On the one hand, the business accelerators' strong and wide social network allows their participants to access highly qualitative knowledge and expertise to found relevant topics through a diverse set of actors involved in the business accelerator program. On the other hand, actors in Berlin's startup ecosystem who have the opportunity of working together with highly innovative and dynamic startups, have access to kind of a backward knowledge transfer, including new innovative impulses and learning about the characteristics and the new way in which startups work.

The business accelerators in particular, impact on the financial and human capital of Berlin's startup ecosystem, which can be related to the findings of Senor and Singer (2009: 203-204), Zoller (2010: 22-37, 115-125), Feldman and Zoller (2012: 24-35), Mason and Brown (2013:11) and Winston Smith, Hannigan and Gasiorowski (2013: 1). They found out that business accelerators give their participants the opportunity to build up their financial and human capital and thereby facilitate new firm creation and build a following, are likely to contribute to the overall strength and success of the regional ecosystem.

The results of the interviews further point out that startups are often more innovative and have better technology as corporations, because startups are closer to the market and customers are more quickly involved in the process of recognition and response to feedback on their products and services than corporations, which are usually more traditional and sluggish in their approach. In line with the findings of Gaida (2011: 21), Miller and Bound (2011: 12, 27) and Kawohl, Rack and Strniste (2015: 3), the business accelerators that were interviewed responded by saying that corporations can benefit greatly by integrating a business accelerator unit, which gives corporations the opportunity to work and share their expertise with startups and as a results, get access to innovations, build up startups that can be potential partners of the corporation, help the corporation to

discover new business areas and widen their horizon or help to adapt and change the corporations' business model and customer services. Moreover, corporations can generate positive PR for the corporation as an innovative player in the ecosystem, which additionally increases the attractiveness of the corporation as an innovative employer. This knowledge can also be of special interest for local authorities, which aim at fostering the emergence of a thriving startup ecosystem in their region.

### 5.3 Limitations

Before drawing the conclusion, some important limitations of this thesis have to be addressed. Firstly, even if Berlin counts as one of the world's major startup ecosystems, because of the newness of business accelerators, the heterogeneity between business accelerator programs and their similarities to incubators, the density of the classic type of business accelerator programs is still limited and the search for suitable interviewees within Berlin's startup ecosystem was a great challenge. Eight interviews were guaranteed, which were conducted face-to-face, on the telephone and over Skype. However, as the audio quality of the recording of the final Skype interview with the Climate-KIC Accelerator was for unexplainable reasons distorted, it was not possible to transcribe the interview and thus the interview could not be utilized within the thesis' analysis. Furthermore, by the strict narrow sense of definition according to the state of research presented in the conceptual background, only four of the interviews were conducted with classic business accelerators. PwC's Accelerator, Startupbootcamp and Hub:raum are rather accelerator programs in the broader sense. PwC's Accelerator is more an initiative that detects and assists rapidly growing technology companies in going global, rather than a program, which concentrates on the integration of startups in Berlin's ecosystem or Germany's market. Startupbootcamp is more a global provider of industry-focused startup accelerators rather than a business accelerator program, backed by a classic corporation. Hub:raum conducted classic business accelerator programs in Berlin in the past, but today rather concentrates on incubator programs in Berlin, but still organizes business accelerator programs in Krakow. Nonetheless, the coding process of the interviews of the accelerators in the broader sense present, a high degree of congruency with the interviews of the classic business accelerators which minimize any reservations

about the results and interpretations of these interviews.

As justified in the methodology, in part of the thesis Berlin's startup ecosystem with an exploratory, inductive, qualitative and case study approach was analyzed. Thus, the result of the thesis is, if anything, generalizable for Berlin's Business accelerators and not for startup ecosystems on a national or even international level. Moreover, due to the qualitative nature of the thesis, the findings are the result of the authors' own interpretations of codes. Nevertheless, it was tried to minimize personal bias, and interpreted the data in an objective manner by basing the analysis and coding scheme on the conceptual framework of the thesis and to stay as close to the words of the interviewees as possible during the phases of coding and analysis.

## 6 Conclusion and Future Research

The results and discussion of the thesis indicates that Berlin's business accelerators, on the one hand, externally link the regional startup ecosystem by promoting a platform, where actors have the opportunity to network and thereafter gain benefits from their new social relations. On the other hand, the business accelerators internally link their participating teams among themselves by their supportive cohort-based nature of their program. This role of business accelerators is accompanied by the business accelerators' strong motivation and ability to link the regional startup ecosystem. The peoples' fundamental motivational approach involved in the business accelerator program is to foster entrepreneurship and to help startups and other actors of the regional ecosystem to link and integrate into Berlin's ecosystem, in the absence of direct returns for their engagement. Furthermore, Berlin's business accelerators dispose the ability to connect actors of the ecosystem through their highly qualified network of competencies, expertise and resources, their professional background and experience as well as their regional local embeddedness. Hence, as business accelerators fulfill the opportunity-motivation-ability framework that is needed for creating and increasing social capital, business accelerators take an accelerating role of social capital creation in Berlin's startup ecosystem and allow individual actors as well as the broader aggregate of Berlin's startup ecosystem to speed up their efforts. Nonetheless, the thesis presents disagreements among Berlin business accelerators about the amount of remaining startups that have participated in Berlin's startup ecosystem beyond the program.

As a consequence, a future research topic could be to investigate how sustainable the social capital which has been accelerated by business accelerators is, as the leaving process of graduates beyond the program may cause structural gaps in the social network, created by the business accelerator, which thereafter could be a sign for a decelerating effect of social capital creation in Berlin's startup ecosystem.

Besides, the accelerating role of Berlin's business accelerators on the process of social capital creation, the thesis shows that by linking actors in Berlin's startup ecosystem, business accelerators also have impacts on the cultural, financial and human capital of Berlin's startup ecosystem. Through the business accelerators open door policy towards the regional ecosystem, business accelerators have an impact on the entrepreneurially related perception and intention on Berlin's startup ecosystem and make the work and philosophy of startups more tangible for actors in the ecosystem, that have so far not encountered the world of startups. Thus, business accelerators take an awareness raising function as well as exemplary function of how corporations can work together with startups within Berlin's startup ecosystem. Additionally, business accelerators increase the availability and accessibility of financial capital in Berlin's startup ecosystem, by typically providing their participants a small amount of seed capital, attracting the attention of investors to Berlin's startup ecosystem by their characteristic as a quality label for promising investment opportunities or even provide additional financing options to their participants as institutions themselves in return for equity. Finally, through their program, business accelerators increase the knowledge and skills of individuals as well as those of Berlin's entire startup ecosystem through their strong and wide social network that allows actors in the regional ecosystem to access highly qualitative knowledge and expertise according their different needs. Even if the thesis gives first indications of the role of business accelerators in influencing the cultural, financial and human capital, future research is needed to support these first assumptions or even expand the business accelerators' impact on further capitals of a startup ecosystem.

Concluding, a striking feature of the business accelerators and a simultaneously highly interesting topic for future research, comes up within the process of data analysis of the thesis and highlights the incentive and motivation of corporations for the establishment of a business accelerator unit. The thesis has already pointed out

to the interest of gaining access to innovations, building up potential partners of the corporation, discovering new business areas, adapt and change the corporations' business model and customer services or generating positive PR for the corporation that among others things, increases the attractiveness of the corporation as an innovative employer. Especially in view of ongoing digitalization, speed of the market and therewith the need for corporations to quickly adapt their business model and products business, at first glance business accelerator units seem to be a great path for corporations to be able to keep up with the times.

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**Authors' Biographical Statement**

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# The Role of the Kraftwerk City Accelerator in the Startup Ecosystem in Bremen

*Jannik Blischke<sup>1</sup>*

## *Abstract*

This qualitative study examines how the Kraftwerk City Accelerator Bremen (KCAB) supports the development process of the startup ecosystem Bremen using the eight capital model of entrepreneurial ecosystems by Juling et. al (2016) to categorize the collected data in the context of Bremen. Based on three qualitative interviews, a field observation and the use of secondary data, the findings indicate that the KCAB is involved in the development of the startup ecosystem Bremen. The study points out that the KCAB and its activities affect six of the eight capitals in the startup ecosystem Bremen. However, the KCAB has a strong influence especially on the networking effects within the ecosystem and further the supply of financing opportunities. Thus, the KCAB will play an important role in the development process of the startup ecosystem Bremen in the future.

## **1 Introduction**

In order to provide an introduction to the topic, which to thesis is dealing with, the first chapter addresses, the problem considering definition and relevance. From this, the research gap and the research question be further defined. As well a short overview of how the thesis is structured be given.

### *1.1 Bremen: An Emerging Startup Ecosystem in Germany*

Since Germany is a country with emerging startup ecosystems, research in this sector is becoming more important. Berlin is one example of successful development, ranking seventh in the Global Startup Ecosystem Report (Global Startup Ecosystem Report, 2016: 28). The German Startup Monitor shows that, besides Berlin, more regions are developing startup ecosystems. This development demonstrates that the German startup ecosystem is in motion and on the right path to sustainability. Bremen is also represented in the German Startup Monitor's statistics. The comparison of 2015 and 2016 reveals a positive trend in the startup ecosystem in Bremen. In 2015, 0.3 percent of all startups in Germany were located in Bremen. In the following year, the number of startups in Bremen increased by 1.7 percent. That indicates a positive trend within this region. For the period from 2015 to 2016, Bremen and Saxony-Anhalt belonged to the fastest growing startup ecosystems in Germany. (Deutscher Startup Monitor, 2015: 15; 2016: 17)

### *1.2 Problem Definition and Relevance of the Research*

There is no research that clearly proves how these positive trends arise in smaller startup ecosystems, or which drivers support the acceleration of growth and performance in these ecosystems (Global Startup Ecosystem Report 2017: 5). However, it is well known that startups play an important role in technological change. This creates an advantage for both the region and its citizens. To achieve the benefit, startups require a sustainable and strong startup ecosystem. Over time, a sustainable ecosystem will create thousands of jobs and will contribute to the innovation process, particularly in the region where it is located. While gaining sustainability, the ecosystem will generate an enormous amount of economic and social benefit (Isenberg, 2011: 1). This positive impact encourages the global interest in establishing a sustainable startup ecosystem (Mason and Brown, 2014: 26ff).

### *1.3 Research Gap and Research Question*

As mentioned previously, the literature does not provide much information on how drivers support the startup ecosystem. There are some case studies of advanced ecosystems around the world (Motoyama and Knwolton, 2016; Kim et al., 2014; Witte et al., 2017), but research on small emerging startup ecosystems is rare. Therefore, this thesis will examine one of the drivers in the startup ecosystem in Bremen: the Kraftwerk City Accelerator Bremen (KCAB). This accelerator is

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the first ever in Bremen and aims at building up a sustainable and vibrant startup ecosystem. Subsequently, the following research question can be formulated: How does the KCAB support the development of the Bremen startup ecosystem?

#### *1.4 Structure of the Thesis*

In order to answer the research question, this academic work is structured as follows. The second chapter will focus on the conceptual background. It contains the definitions of accelerators and startup ecosystems, and introduces the capital model of entrepreneurial ecosystems. Furthermore, it includes a “State of Research” section, which serves as an overview on the current research on accelerators and startup ecosystems.

The third chapter will deal with the research approach. As this work is characterized by an explorative approach qualitative methods are used and the reasoning follows an inductive approach. Accordingly, three guideline interviews and a field observation deliver the data. Triangulation is ensured through different methods, and secondary sources are used to gather more information.

In the fourth chapter, the obtained empirical data will be presented for which the eight capital model of entrepreneurial ecosystems is used as a lens (Juling et al. 2016).

The fifth chapter is composed of the analysis and discussion of the results. The discussion will compare the examined literature of the state of research to the obtained qualitative data.

the conclusion in chapter six will briefly summarize the results and lay out the implications for practice and possible future research. Lastly, it serves to set out the limitations of this academic work.

## **2 Conceptual Background**

In this chapter, the conceptual background is addressed in order to obtain a deeper understanding of the important topics that are fundamental regarding this thesis.

### *2.1 Startup Ecosystems*

As described in the introduction, this thesis will follow the definition of startup ecosystems that will be given in the subsequent section. Furthermore, it outlines the current state of research in the field of those ecosystems and presents the eight capital model of entrepreneurial ecosystems (Juling et al. 2016).

#### *2.1.1 Definition of Startup Ecosystems*

The startup ecosystem consists of two components: “startup” and “ecosystem.” The German Startup Monitor defines a “startup” as a company that is younger than ten years of age. Its business models and technologies are innovative, and it is characterized by significant workforce and sales growth as well as expansion (Deutscher Startup Monitor, 2015: 12). The second component, “ecosystem,” can be defined as an area in which a community of interdependent actors are located (Stam, 2014: 2).

Stam and Spigel (2017) define the entrepreneurial ecosystem in one brief sentence as “a set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship within a particular territory” (Stam and Spigel, 2017: 1). The definition of entrepreneurial ecosystems of Mason and Brown (2014: 5) is similar to that of Stam and Spigel (2017: 2ff). It can be described as a set of actors, organizations, institutions, and processes in a certain region. They are interconnected and generate a network of relations and ties. Without these relations and ties, entrepreneurs’ work is more independent and isolated, leaving them to find each other more through coincidence than in an effective and sustainable way (Freiling and Baron, 2017: 68). The whole network of an entrepreneurial ecosystem includes potential and existing entrepreneurial actors as well as entrepreneurial organizations and institutions like firms, venture capitalists, business angels, accelerators, incubators, banks, universities, public agencies, and financial bodies. Furthermore, ecosystems entail entrepreneurial processes such as business birth rate, number of high-growth firms, a degree of sell-out mentality within firms, and levels of entrepreneurial ambition (Mason and Brown, 2014: 5). Entrepreneurial action is fundamental for all actors within the entrepreneurial ecosystem. It is characterized by the pursuit of opportunities for innovation (Stam, 2014: 5). These sets of actors, organizations, institutions, and processes fuse to govern the ecosystem formally and informally. In this way, the performance of an entrepreneurial ecosystem is influenced (Mason and Brown, 2014: 5).

#### *2.1.2 State of Research*

To assess the role of accelerators within a startup ecosystem, a basic understanding of how startup ecosystems are structured is required. In recent research it is pointed out that each entrepreneurial ecosystem is unique (Foster et al., 2013: 8; Vogel, 2013: 446f; Yariibeigi et al., 2014: 2906). As the

local environment provides the initial position for the development of an entrepreneurial ecosystem, each region provides different strengths, weaknesses, and resources, all of which support the development process (Cohen, 2006: 5). There are several authors who offer different ideas about startup ecosystems, and they will be presented briefly in the next section.

Research by Foster et al. (2013: 7ff) suggests that an entrepreneurial ecosystem is made up of eight pillars: accessible markets; human capital and workforce; funding and finance; mentors, advisors and support systems; regulatory framework and infrastructure; education and training; major universities as catalysts; and cultural support. The research identifies differences in each startup ecosystem and points out that governments often adopt a regional focus on startup ecosystem policies. Moreover, it has been found out that three pillars are of great importance within the system. Entrepreneurs highlight accessible markets, human capital and workforce, as well as funding and finance as meaningful pillars. It has also been concluded that the issues entrepreneurs are facing around the world, are more similar than different, and that these similar issues can be observed in all regions. When it comes to established businesses, the research highlights the potential benefits they can offer early-stage companies. Established companies “provide important leverage for early stage companies.” Furthermore, the report discloses areas in which productive relationships are feasible as well as areas in which the relationship can have an adverse influence on growth. Further findings suggest that entrepreneurs are important “in the build-out of an entrepreneurial ecosystem.” Finally, it is mentioned that government and regulatory policies can either produce faster growth or can be an inhibitor to growth (World Economic Forum, 2013: 5f).

Spigel’s (2015) research considers attributes of entrepreneurial ecosystems that exist within the startup ecosystem. These attributes can influence each other and imply that there is no hierarchy of lower or higher elements. The model of attributes clarifies that multiple configurations are possible. Spigel’s findings suggest three major contributions to the study of entrepreneurial ecosystems. The first contribution deals with the “identification of various categories of attributes that constitute an ecosystem.” The second contribution relates to the different opportunities attributes can adopt. The last contribution highlights the relations between attributes. It is argued that, for example, social and

cultural attributes prop up new material attributes (Spigel, 2015: 55f).

Isenberg (2011) has created a diagram of an entrepreneurial ecosystem with six domains. He illustrates the domains from the entrepreneurship perspective with the result that it constitutes the ecosystems as it impinges. The six domains are policy, finance, culture, supports, human capital, and markets. Further it is argued that these domains impact the entrepreneur’s decisions and success, but also mentions the lack of relations between them. The diagram does not provide a connection between the domains, with the result that it is difficult to recognize how impacts relate to the different domains (Isenberg, 2011: 6ff).

These recent studies focus on addressing the conditions, categories, or attributes inside a startup ecosystem (Foster et al., 2013; Isenberg 2011; Spigel 2015). They present a comprehensive overview of startup ecosystems, showing the structure of those systems. In this way, these holistic approaches cannot illuminate the daily operations and interaction, which influence the development. Thus, there is still a lack of research on relations between actors and how they support the development of those systems. Motoyama and Knowlton (2016: 2) argue that an understanding of the connections between these elements is essential to understand how the ecosystem works.

Therefore, Juling et al. (2016) provide a novel capital model of entrepreneurial ecosystems based on approaches in past literature. Within the Eight Capital Model, the structure of relations is determined more accurately compared to other recent approaches. Hence, the Eight Capital Model of entrepreneurial ecosystems provides a foundation for the present thesis and is described more comprehensively in the next section.

### *2.1.3 The Eight Capital Model of Entrepreneurial Ecosystems*

This capital model of entrepreneurial ecosystems is based on eight types of capitals identified by Juling et al. (2016). Human and social capital are at the center of this conceptual model, as both are directly related to the entrepreneur. Human capital is based on entrepreneurs’ experience. Entrepreneurs create human capital through their knowledge, skills and, further, receive it from education, training, and workshops (Becker, 1975). Social capital is the next important type of capital within entrepreneurial ecosystems and arises through social interaction between individuals such as entrepreneurs or other actors within the ecosystem (Anderson and Miller, 2002). It indicates that social capital is the fundament of networks, which are,

essentially, made up of social interactions (Bourdieu, 1986).

Financial, political, economic, and infrastructure capital enclose or surround the center of the model. These four types of capital are not directly related to the entrepreneur or other actors, but they are important pillars for the environment of an entrepreneurial ecosystem. Financial capital can be described as the financing requirement within the ecosystem. It is the only type of capital that can create other capitals, and this is due to its flexible nature. Political capital is expressed as policy decisions concerning the ecosystem. Additionally, policy makers have a strong influence on the development process of entrepreneurial ecosystems. They establish the framework conditions for a favorable business environment. When it comes to economic capital, this can be “determined by existing industries and consumers.” (Juling et al., 2016). In terms of entrepreneurial activities, existing industries contain several individuals who have human and social capital. These individuals can be potential actors within the ecosystem. Furthermore, consumers are essential for both startups and entrepreneurial ecosystems to succeed. It is important to emphasize that the economic environment has to be sustainable to obtain economic capital. The last of the four types of capital is infrastructure capital; this is commonly understood as the infrastructure of a region. Infrastructure capital can be divided into three categories: “(i) education & research infrastructure, (ii) physical infrastructure and (iii) support infrastructure.” The first category includes the infrastructure of education and research in the form of schools, universities, and research laboratories. The physical infrastructure is determined by “(i) access to internet and telecommunication, (ii) sufficient and affordable energy supply, (iii) transportation and logistics and (iv) affordable office space and co-working spaces” (Juling et al., 2016) and eventually impacts all kinds of business development. Finally, there is the support infrastructure. For entrepreneurs, a supporting infrastructure consisting of advisors, accelerators, incubators, and lawyers is essential for success. Thereby, accelerators and incubators support new ventures in their early stages with resources, mentorship, office space, networking, financial support and expertise. It can be assumed that the support of accelerators and incubators benefits the entrepreneurial ecosystem as they allow a lot of new ventures to appear in a short period of time (Juling et al., 2016).

Finally, cultural and historical capital complete the eight capital model of entrepreneurial ecosystems. Cultural capital is not directly related to the ecosystem. However, it can influence any of the types of capitals described above. Culture has an impact on nearly everything in a region. It can influence the mindset of the population, decision-making, and even, directly or indirectly, entrepreneurial activities. Besides cultural capital, historical capital also has a strong impact on society. Next to this, the influence of entrepreneurial activities is distinctly inferior to cultural capital. As every region contains both cultural and historical capital, the impact on entrepreneurial ecosystems varies depending on the region (Juling et al., 2016).

As accelerators play an important role in infrastructure capital, as well as in the whole ecosystem, the next chapter will give an overview of accelerators and their functions.

## 2.2 *The Concept of Accelerators*

To explain the concept of accelerators, this subchapter will first consider the definition of the term and, further, the current state of research, with current research findings being given.

### 2.2.1 *Definition of an Accelerator*

Several definitions of accelerators can be found in research. Authors point out that literature does not provide a universal definition of an accelerator (Miller and Bound, 2011: 8; Hofman and Radojevich-Kelley, 2012: 56).

According to Fishback et al. (2007), an accelerator is defined as “groups of experienced business people who provide services, office space, guidance, mentorship, networking, management services, knowledge, and expertise to nascent firms on an as-needed basis to help them succeed in the early stages of venture life” (Hofman and Radojevich-Kelley, 2012: 57). This provides a basic definition of what an accelerator is. However information is lacking regarding the structure of the framework.

Therefore, Miller and Bound (2011: 9ff) suggest five main features with which to define accelerators. The first feature deals with the application process. Accelerators offer a web-based open application process to ensure an international presence. The literature shows that various founders of startups are migrants to the country in which they live (Global Startup Ecosystem Report, 2016: 40). Furthermore, the second feature describes pre-investment; accelerators provide an investment in the early

stage in return for an equity stake. The third feature focuses on the startups themselves. Accelerators prefer to support a team rather than individuals. They argue that founding a startup and participating in the accelerator program is too demanding for one person. The fourth feature is the time limitation. The support offered by accelerators relates to a certain period of time. Several authors characterize this attribute as a boot camp for startups (Dempwolf et al., 2014: 6). The last feature suggested by Miller and Bound (2011) is the fact that startups participate in cohort batches to guarantee a co-working atmosphere, as this is a key part of accelerator programs.

These features have been developed by Miller and Bound (2011) and extend the definition of Fishback et al. (2007) by considering the structure of how accelerators behave. Therefore, this thesis will follow the definitions of accelerators described above.

### 2.2.2 State of Research

The current state of research reveals a lack of empirical studies. There are various case studies that were conducted in the past (Cohen and Hochberg, 2014; Dempwolf et al., 2014; Fehder and Hochberg, 2014). Thus, there is a gap in the structured data on accelerators. This is partly due to the private nature of accelerators and their novelty (Tasic et al., 2013: 11).

As a new form of supporting and developing business startups, the accelerator originates from known models such as incubators and business angels. They appeared due to the lack of previous incubation models and the smaller amount of supporting activities that they offered (Bruneel et al., 2012). Dempwolf et al. (2014) go further and state that “the systemic lack of coordination among the various partial programs and incubators’ specific limitations may have helped create the niche market for accelerators.” (Dempwolf et al., 2014: 18). The American accelerator Y Combinator was an outlier in this new concept of accelerating business startups and appeared in 2005 in the United States. The founding of this accelerator launched an upswing of emerging accelerators that lasted for the next decade (Pauwels et al., 2015: 13; Barrehag et al., 2012: 19).

Several authors offer a distinction between accelerators, incubators, and business angels, because of their similar natures the literature draws a clear differentiation between the different types of supporting programs (Isabelle, 2013; Cohen, 2013; Cohen and Hochberg, 2014).

Hallen, Bingham, and Cohen (2014) carried out an empirical study to investigate the impact of accelerators on startups. More precisely, a comparison of participating and non-participating startups in terms of follow-on investments. Their findings suggest that startups, which participated in top accelerator programs, have a better chance of receiving capital investments. It seems that over time the success of top accelerators correlates significantly with their experience and their established networks. Furthermore, the authors found that the success of startups within accelerator programs enhances as the accelerator’s learning process progresses. Thus, an established and experienced accelerator increases the quality of participating startups. In the same context, Hallen, Bingham, and Cohen (2014) provide a critical view of accelerators and use confirmed organizational theories to examine the acceleration in such accelerator programs. Their research suggests that, in accelerator programs, the compression of information and knowledge causes trade-offs due to time compression diseconomies (Dierickx and Cool, 1989; Levinthal and March, 1981; Vermeulen and Barkema, 2002). As a consequence, participants may absorb less knowledge and fewer skills. Further research results indicate that there is no overall accelerator effect. In summary, their findings suggest that there are several differences between accelerators, with some providing a stronger acceleration than others (Hallen, Bingham, and Cohen, 2014: 5; 2016: 21). Salido et al. (2013) examine the accelerator and incubator environment in Europe, using several case studies based on the most important economies. In this way, seven key findings have been identified. Firstly, Europe is characterized by an early-stage startup scene. Nonetheless, Europe and the US are similar when it comes to the number of accelerators per capita. Secondly, the authors identified a distinct growth in the number of accelerators since the financial crisis (2007-2013). Another finding indicates that diversity among accelerators is due to the rapid growth of accelerator programs. Further key findings highlight the lack of data and irregularity in terms of the amount of equity taken from startups.

An inductive study of accelerators presented by Clarysse et al. (2015) offers an analysis of internal systems followed by a distinction between different types of accelerator. The findings categorize accelerators into three different types. The first type is the accelerator established by investors with an elaborated business model. Another type is the public accelerator, which originates by public authorities such as policy makers to reduce the

failure of early-stage startups. And, finally, the matchmaker accelerator, created by cooperatives with the overall goal of connecting participating startups with their customers and stakeholders. The latter is mostly non-profit and offers no financial support. The author describes it as a platform to link the financial services industry with early-stage startups.

Miller and Bound (2011) regard the accelerator program as a spreading business model to support startups and founders in their early days. They conclude that, on the one hand, the accelerator phenomenon is an emerging model. However, on the other hand, the effectiveness of this model has not yet been proven. Furthermore, they argue that there is no universal strategy for establishing an accelerator. Additionally, the success of accelerators depends on how well the founders and officials, who administer the program, learn from experience, improve and iterate their service to startups. Finally, they suggest that accelerator programs bear high potential as for speeding up the growth of ecosystems (Miller and Bound, 2011: 37).

The research of Clarysse and Yusubova (2014) provides a multiple-case study, examining the success factors of accelerators in Europe. Three success factors can be described according to them: "Selection process and criteria, business support services, and networks." Furthermore, the theoretical aspect of their multiple case study suggests a better understanding of the success factors relevant to accelerators.

From recent research (Zucker, 1987; DiMaggio and Powell, 1983; Kondra and Hinings, 1998) it can be concluded that carefully considered institutional alignment improves the survival and legitimacy of organizations. Legitimacy is given when the success factors mentioned above are well organized and developed. This makes legitimacy a major success factor as it gives stakeholders a perception of safety when the accelerator is constituted correctly (Deephouse and Suchman, 2008; Zimmerman and Zeitz, 2002; Kondra and Hinings, 1998).

### 3 Methodology

The aim of this work is to answer the research question and, furthermore, gain a deeper understanding of the subject matter through a single case study. Therefore, the main part of the thesis will consist of a qualitative research, conceptualized to bring the perspective of the relevant group into focus and achieve a more open and flexible research design (Voss 2014: 21). That

is important because, as startup ecosystems and accelerators are a young research field, this thesis will have an explorative character. This shall allow a deeper understanding of the concepts of startup ecosystems and accelerators to be gained.

As mentioned in the introduction, this thesis tries to identify how accelerators support the development of a startup ecosystem. The single case refers to Bremen, selected as it is currently in an early stage of developing a startup ecosystem. Regarding the early development phase, research in this field is important to understand the startup ecosystem in Bremen. Furthermore, a case study approach is "well-suited to new research" fields such as those found in this study (Eisenhardt, 1989: 548ff). Against this background, a case had to be chosen. The study uses the KCAB and examines how this accelerator supports the development of the startup ecosystem in Bremen. In order to understand how the KCAB works, the next part of this chapter explains the framework and the conditions thereof.

The KCAB, founded in 2015, is the only standardized accelerator program in Bremen. Its basic idea is to find motivated entrepreneurs and startups that are creating sustainable ideas regarding the city of tomorrow. The overall goal is to bring these entrepreneurs together in order to meet these challenges. Therefore, the program deals with themes such as energy, transportation, waste disposal, and recycling. Furthermore the entrepreneurs have the chance to apply via the KCAB website in order to win the Smart Tech Trophy. Every time a call is launched for applications, the accelerator announces a different focus or theme within the energy field. For the application, the entrepreneurs just need to have a compelling idea relating to the advertised theme. After a pre-selection by experts, the best applicants have to pitch their idea in front of a jury. The jury is composed of experts, managers of partner companies, professors from universities in and around Bremen, and economic experts. In addition to a sovereign pitch, the feasibility of the idea is of the utmost importance. The jury selects the winning teams, with first, second, and third place receiving a financial award. Afterwards, the jury selects the best ideas from all the participants and offers them a place on the one-year support program. This program is divided into three phases, starting with the bird phase. The content of this phase is the development of business models, market analyses, team building, founder workshops, and also access to a founder network. The second phase is the nest phase, in which the founder starts to prototype their idea. Furthermore,

the founder will learn marketing techniques and how to build up an organization structure. The third phase, called the jump phase, includes sales organization and organization development. In this last phase, the KCAB provides further venture capitalist connections. The accelerator is located centrally near the main train station in Bremen and offers a co-working space with separate meeting rooms, an event area, and a thoughtfully designed office infrastructure. During the entire program, tutors from swb AG and the Mercedes-Benz factory support the startup teams. They organize community events and collaborations with other startup teams. Additionally, the actors on the accelerator side provide intensive coaching, consultation regarding financing opportunities, assistance in company structure, and various workshops (Factsheet Kraftwerk Accelerator Bremen, 2016).

Based on the qualitative research design and the explorative character of this thesis, interviews and a field observation were conducted. They confirmed the validity of the inductive approach used in this work, which was chosen as the literature does not reveal a general theory in this research field. For this purpose, the data selection was composed of three interviews, a field observation, and the use of second sources. The interviews followed a semi-structured construction in order to gain deeper insights. This left the opportunity for interview partners to answer freely, without limitations, with the result that openness and flexibility were guaranteed (Lamnek, 2016: 319ff). To ensure that all important aspects were addressed, the interview followed a guideline (Kromrey, 2000: 364). Interview partners were selected from a small group of prospective candidates. Against the background of the research question, one director from the KCAB and two startups were selected. One of the startups is a participating startup and the other one has already completed the accelerator program. Thus, the thesis has the perspective of an initiator on the one side and the perspective of startups on the other. The interview with the director was conducted in German, while the interviews with the startups were in English. Two separate interview guidelines were drawn up because the director's perspective may provide different information compared to the startups (Kaiser, 2014: 53). The interviews were recorded, as recommended by Lamnek (2016: 368). Further information was collected through a field observation. As the research field is difficult to access due to insufficient research and its young nature, it was important to use different social science methods. Therefore, the field observation

allowed an active participation in a natural environment within the accelerator and aimed at exploring interaction patterns through accurate observation. Thus, a deeper understanding of the observed natural environment could be ensured (Lamnek, 2016: 516ff).

The use of different socio-scientific methods contributes to considering the phenomenon from different perspectives. Thereby, the field observation supplements the interview by information and insights, which are determined by participation in the active interactions. As a consequence, triangulation can be guaranteed. According to Flick (2011: 15ff.), validity is ensured by the composition of the methods used and an increase in reliability can be obtained by applying different methods.

The methods employed present several limitations. The field observation is related to a personal perception and, thus, may offer a limited grasp of information. Ultimately, the observer can only use his eyes and ears to gather information. Moreover, the observation can only show snapshots of the overall social interactions, although this is justified by the limited time (Lamnek, 2016: 520ff).

The evaluation of the interviews is separated into four phases. It starts with the transcription. Afterwards, the interviews are analyzed individually to highlight the main passages. The next step involves the examination of similarities and type generalizations. The last phase comprises the control of misinterpretation. Therefore, the analyzed material is constantly compared to the entire transcription (Lamnek, 2016: 380ff). Thereby, the capital model of entrepreneurial ecosystems is used to categorize the information.

The results of this case study are rich in detail, which makes it more complex to generalize from the results. Since only a single case study was used, it is difficult to investigate whether a result is important in general or whether it is merely related to Bremen (Eisenhardt, 1989: 547).

## 4 Results

In the following chapter, the collected qualitative data is compared to the presented literature to illustrate similarities. As the qualitative data does not contain insights regarding cultural capital and historical capital, both were excluded. To classify the obtained perceptions, the previous described eight capital model is applied. Thus, findings are displayed and separated into human capital, social capital, economic capital, financial capital, political capital, and infrastructure capital.

#### 4.1 Human Capital

Regarding the role of human capital within the KCAB, the interviewees mentioned the support by mentorship such as inviting pitch trainers, who help startups to develop their present pitch presentation step by step, from bird-phase to jump-phase. Accelerator manager A stated in terms of pitches, that in each phase the startups have to convince different audiences to be successful. Furthermore, the KCAB support founders in scaling the startup by business experts, who have the experience and capabilities at one's disposal, as indicated by the startup founder A. Besides, the officials of the accelerator show interest in promoting the startups in Bremen. Moreover they have the capabilities to promote startups in terms of networking, as startup founder A stated. Another aspect, which belongs to human capital, is the provision of co-workers, who work independently. Thus, it implies co-workers as an additional workforce. Hence, startups have the opportunity to outsource a certain amount of work to co-workers. Besides, co-workers confer startups in different disciplines. Accelerator manager A mentioned the combination of startups and co-workers to produce a cultural cross section within the program. Following from this, the combination creates an open atmosphere, as it is typical in the startup culture. However, startup founder B said that he would like to see more co-workers and freelancers within the accelerator to provide more different services startups can use. Furthermore, he sees a lack of different disciplines, like people with design and media skills, to use their service as well. By participating in the program, the swb AG tries to guarantee the allocation of one or two tutors to each startup, if the capacities allow it. The task of tutors is to support and help startups with information about contracts, legal aspects and the drawing up of a business plan. Another point is, that tutors should be the link to the swb AG, as accelerator manager A explained. But at the same time, he pointed out the meaning of working together with a startup. Tutors from the swb AG have to learn, what it means to work with startup's. Usually, they are working with established companies, which are quite different in organizational and structural aspects. In this way, he mentioned the non-existent hierarchies and the speed of growth of the business, as well as the fact that some of the startup's are in an early stage of creating a business. In this context, startup founder B talked about his experience with regards to working with the swb AG itself. By dealing with operational people from the swb AG, he pointed out the decrease of acceleration as those people do

not have the experience in working with startups. He considers this progress as a challenge for the swb AG and its accelerator.

In terms of mentors like successful businessmen with experience and knowledge in starting a venture, startup founder B referred to the absence of these people. Thus, a lack of knowledge sharing and advices from the mentor side, which support, help and accelerate startups in growing their ventures, becomes evident.

Accelerator manager A highlighted that one of the partner of KCAB (EWE) plans to organize boot camps for startups in nearby future. These boot camps should have capacities to take up ten to 15 startups. The event arena within the KCAB should, therefore, be used as the location for boot camps. Within such a boot camp, the overall goal is to push and accelerate the process of creating a startup business. Furthermore, he considers to organize these training camps at least four times a year to achieve a measurable value. The accelerator manager A referred to a more external use of the accelerator facilities, when he stated that the space is moreover used for employee education and developing ideas within the companies of partners (Mercedes-Benz, EWE).

Due to the universities and the universities of applied science, the environment in Bremen provides a high educational level, which is beneficial to start-ups in terms of employee recruiting. Proceeding from the international team within the accelerator, universities provide a high number of international students. Startups search for those students, because of their international education and their social and business networks. For example, startup founder A reported that they recruited a student from the Jacobs University.

#### 4.2 Social Capital

For social capital, different kinds of relations are fundamental. Along these lines, accelerator manager A said that within the accelerator the atmosphere and hands-on mentality drive the creation of relations as well as the open-minded climate. Furthermore, he regarded the culture within the accelerator as a very important characteristic. Additionally, he mentioned the familiar working behavior of start-ups, which emerge through the typical open, friendly and helpful atmosphere. Therefore, the managers changed the office space formation from separate group tables into one large table to promote the interaction of all actors within the accelerator program, as startup founder A explained. Regarding the atmosphere, startup founder B also

mentioned that it is helpful to work in an open co-working or office space. It strengthens the interaction between participating startups. As a result, the interaction affects the atmosphere in a positive way. He further explained that by making small talk, employees interact and talk about, for example, their success and problems which occurred initially when starting a business. This is underpinned by startup founder B when he said that startups within the accelerator share information about software solutions or tools that can be easily used to optimize certain processes. Besides that they provide advice to other startups based on their experience. In that respect, the accelerator manager A cited an example, which emphasizes the advantages of this interacting atmosphere. One of the startups in the last batch developed a sensor technology to monitor parking spaces. Another startup developed an automatic electric vehicle changing stations and a third startup developed smart lights. Due to problems with the changing stations in terms of, whether the parking spaces are occupied or not. Especially, when someone is merely using the parking space. In this context, the startups on smart lights and sensor technology are able to use their technology to prove whether a parking space is occupied or not. This collaboration only occurs if participating startups interact and talk about their experience and problems.

At the beginning of the program, batches are invited to different sport events to meet each other. These visits are part of the teambuilding activities, as startup founder B described. In addition, he reported that during the program he became good friends with participating people. Within the program most of the startups come from different countries to take part in the KCAB. According to the open-minded atmosphere and hands-on mentality, startups share their international networks with each other, with the result that they spread their existing networks.

In terms of social capital, all interview partners stressed the importance of networking for startups as well as for the accelerator. Therefore, startup founder A stated that according to the young nature of the KCAB, networking is a very important aspect to evolve the accelerator and its environment. In this regard, the accelerator is located in an early stage of developing a sustainable network that complement to each other. The existing network based on the accelerator provides connections to local companies as the organizational structure of the accelerator allows companies to cooperate with them. Mercedes-Benz and EWE are current partners of the KCAB and certainly the swb AG. Especially the swb AG

provides a large network in Bremen, because it supplies energy to nearly all residents and companies. According to networks, the cooperation with those companies increases the scope of networking, as accelerator manager A said. Furthermore, the KCAB is connected to universities in Bremen and Oldenburg. There are meetings with professors from universities to talk about potential improvement in different areas. For example, accelerator manager A organized a meeting to talk about the need of a counsellor, which provides advice and support to the accelerator itself. Additionally, he is networking with government officials and public institutions like Bremer Handelskammer and Wirtschaftsförderung to foster the development of a startup ecosystem in Bremen. During the field observation, the Wirtschaftsförderung invited startup founders from Groningen on a guided tour through the startup hot spots in Bremen. They visited the KCAB and presented their startups in a short pitch. Afterwards, the group had the opportunity to talk in an open atmosphere to managers, co-workers and startups from the KCAB. Thereby, it appeared as if those people are markedly interested in networking in form of exchanging contact information's. According to successful businessmen and funding opportunities, like business angles and venture capitalist, startup founder B mentioned a lack of a financial network. In terms of events, which foster the development of networks, startup founder B said that there are only a few startup events in Bremen and that it is incomparable to Berlin. Besides, accelerator manager A mentioned the efforts of his team to set up regular meetings for startups and other actors in the facilities of the KCAB. But there has not been the expected resonance they had hoped for. Furthermore, he mentioned that there are efforts of universities in terms of organizing events like pitches or startup weekends.

#### *4.3 Economic Capital*

Regarding the existing industry, accelerator manager A mentioned Bremen as a great location for business. Crucial for that are already established companies. Especially Mercedes-Benz, Airbus, swb AG and BLG are international acting companies with a large awareness. Moreover, the city provides strengths in logistics, ocean engineering and space engineering. He further stated that Bremen, as location for business, is not to be underestimated. Proceeding from the companies mentioned above, the swb AG is a major Bremen-based company. Accelerator

manger A explained that the KCAB was founded by the swb AG and benefits from their business field. As the swb AG is the largest energy supplier, they supply energy to nearly every industry and household in Bremen. Thus, they are able to provide their large customer network to participating startups to connect them with potential B2B or B2C clients. Another advantage for startups, proceeding from the swb AG, is that they open the company facilities for their startups. The swb AG affords an opportunity to use their facilities in terms of proving their technology or developing prototypes.

Furthermore, accelerator manager A stated the need of partners to admit more startups within the KCAB. As the city of Bremen provides several international companies, the number of potential partners is sufficient. Unlike than expected, the search for potential partners emphasized as a challenge for the accelerator manager. Crucial for this challenge is the location of headquarters of local companies, as he explained. For example, the headquarter of Mercedes-Benz is located in Stuttgart and the one of Airbus is located in Paris. The involvement in the KCAB is a business investment. Thus, it is a strategic decision for companies that is decided by the head office. In this context, startup founder B criticized the connection to the local industry. He mentioned that they have to work on linking their startups to those companies by inviting them more often to the facilities of the KCAB, with the result that startups can easily talk and connect to the local industry.

Moreover, the accelerator manager A remarked that the employment market around Bremen offers sufficient capacities. However, startup founder A countered with the difficult access to low-cost talents in form of students and employees. On the contrary, startup founder B said that Bremen has a high rate of employment, enabling startups to cover their requirement of employees.

#### *4.4 Financial Capital*

The accelerator program provides one year of funding for participants to give them the opportunity to concretize and develop their idea. After one year of funding and the exit of the program, the accelerator confers the opportunity to achieve ongoing funding. Therefore, the accelerator manager A explained that the overall goal is not to buy those successful startups after they leave the program. On the contrary, the accelerator is more interested in a cooperation with those startups to keep the particular structure of startup ventures, like fast decision making, small

hierarchies and the speed of growing the venture. Startup founder A stated that after leaving the program, the accelerator provides the use of the co-working space and the opportunity for further funding. Nonetheless, the equity stake supports the intention of giving an ongoing support. After the engagement of Mercedes-Benz and EWE as a partner, the capacities for funding increased within the KCAB.

As financial resources are very important to startup founders, the interview partners agreed on financial capital as a need of improvement. Accelerator manager A pointed out the minor external funding possibilities around Bremen. There is a lack of venture and risk capital and, therewith, an incomplete network of financier like business angles or venture capitalist, which is necessary to build up a sustainable financial environment for startups. In this context, startup founder A stated that they access funding mostly online or search for opportunities on conferences which they attend. A similar statement was made by startup founder B when he said that connections to outside funding do not exist at the present time. Furthermore, he mentioned that startup founders search for outside funding mostly on their own. This implies that Bremen has to develop more funding opportunities alongside the accelerator and other similar programs and institutions like team neusta. In that regard, the accelerator manager A mentioned the successful businessman as an opportunity to generate more funding opportunities. He also hoped to convert the businessman to be a part of the startup community in Bremen. He argued that people like that could have an important impact on the startup ecosystem Bremen in terms of financial capacities and mentorship.

#### *4.5 Political Capital*

As a driving force of developing the conditions for a sustainable ecosystem, policy in Bremen is motivated to work on this development process as accelerator manager A explained. He noticed that the city is willing to cooperate together with the Wirtschaftsförderung and KCAB officials to create better conditions for startups. Thus, it appears that the accelerator is a perceived actor in the overall ecosystem, which is contacted to talk about adjustment of the environment and room for improvement. Startup founder B mentioned that at the beginning of the program several government officials presented all the options they have within Bremen. Over the course of the field observation, a delegation of startup founders from Groningen was invited by the Wirtschaftsförderung to have a look

at the KCAB and the Bremen startup scene. For one day, officials from the Wirtschaftsförderung and other government officials guided the delegation from the KCAB to Weserwerk and further supporting institutions. This implies a collaboration between the Wirtschaftsförderung and the accelerator. Furthermore, accelerator manager A mentioned that they founded three startups within the last year. In doing so it can be seen as a contribution towards the Wirtschaftsförderung, which benefits from growing business formations.

For startups, the accelerator provides access to networks of government officials. This is essential for startups when it comes to founding a venture. In this context, startup founder A mentioned the friendly and helpful manner of government officials like Finanzamt, Handelskammer, and other public institutions, as well as the good support for startups. He further highlighted the booking of meetings with government officials as simple.

#### *4.6 Infrastructure Capital*

As the infrastructural capital is divided into three components the first component is about education and research institutions. Within Bremen, accelerator manager A mentioned a well-developed network of education opportunities. Besides the University of Bremen, several other universities of applied science and the private Jacobs University are located in Bremen. Thereby, the access to research facilities, which can be used by startups, is given. In terms of research about entrepreneurship, the University of Bremen provides a chair in small business and entrepreneurship (LEMEX). Moreover, the Jacobs University is willing to cooperate with the KCAB. As accelerator manager A reported there are efforts in idea development of students. During their study, they have to complete a practical semester. The conception is to give students the opportunity to work on ideas and elaborate on them within the KCAB.

In terms of the second component, the physical infrastructure, accelerator manager A mentioned Bremen as an outstanding location for logistics. There are several logistic companies located in Bremen. In that way, the logistic industry profits from the harbor, which provides good opportunities for startups to expand as startup founder A said. Following physical infrastructure, accelerator manager A regarded the manageable size of Bremen as well as a clear amount of actors as positive within the startup community. This would

foster the communication between those actors, in terms of shorter decision-making processes. In this context, startup founder B said that the city is well-connected and affordable to live which contributes to time savings. He also mentioned the central location of Bremen within Germany and added that the distance to Hamburg, Berlin and the Netherlands is short. Thus, besides Bremen, the more international airports in Hamburg and Hannover are easy to reach. Another point is the well-developed infrastructure of the rail network in Germany. The central station in Bremen is reachable without great efforts from the facilities of KCAB. According to the central location of the KCAB, people can reach nearly everything in Bremen by streetcars, busses or by foot.

The third component deals with the support infrastructure. At this point, accelerator manager A stated that in connection with support institutions or programs (besides team neusta which is specialized in IT and the KCAB), merely a few supporters in cultural fields exist. In terms of office space, he sees the possibility to take up 20 to 30 startups per program. Regarding the provision of office space, the present capacities of the KCAB are underutilized. During the field observation, construction work was realized on additional office space within the KCAB. The infrastructure of professional advisors like successful businessmen is lacking, proceeding from statements from startup founder A and B. This does not imply that these people do not exist, but they are not directly connected to the startup community at the present time.

## **5 Discussion**

In the following, the insights gained from the conducted literature research as described in the second chapter will be compared to the collected qualitative data, which was presented in detail in the previous chapter. By this, the comparison will be further served to examine its validity.

The perceptions from the qualitative data show a connection between the KCAB and public institutions of the city. Regular meetings with government officials imply the KCAB as a contact within the emerging startup community Bremen. As research by Foster et al. (2013: 5) points out that governments adapt a regional focus on startup ecosystems policies, the KCAB provides knowledge about the startup community from the inner perspective to support the government in developing a favorable environment. In this context, Mason and Brown et al. (2014: 5) stated the set of actors, organizations, institutions, and

processes, which affect the performance of entrepreneurial ecosystems. As this set of actors includes policies and government officials as well, the collaboration between them and the KCAB can promote the development and performance of a favorable environment. Certainly, Foster et al. (2013: 5) suggests that governmental and regulatory policies can, for one thing, produce faster growth and, apart from that, be an inhibitor for growth. That implies that the KCAB impacts the development process due to the provision of inner information to policy and government officials and, additionally, link startups with the government and policy. However, impacts can be positive as well as negative in terms of decelerating the growth. Along these lines, the KCAB influences the establishment of political capital within the eight capital model of entrepreneurial ecosystems (Juling et al. 2016).

Regarding the financial capital, the interviews show a lack of funding opportunities within Bremen. According to Isenberg's diagram of entrepreneurial ecosystems, which consists of six domains (policy, finance, culture, supports, human capital, and markets) and the proposition that each domain impacts the entrepreneur's decisions and success, it implies that funding opportunities are crucial for entrepreneur's as well as for entrepreneurial ecosystems. In this context, the KCAB provides pre-investment for participating startups in return for an equity stake. Concerning Fishbacks et al. (2007) definition of accelerators, the provision of networks includes potential funding opportunities. Startup founders A and B criticize the connection with different funding opportunities within the program. Based on all interviews, the KCAB itself confirms the possibility for an ongoing funding after leaving the program. Thus, it implies the KCAB as one of a few funding opportunities in Bremen. However, it does not close the gap of funding. There are surely potential funding opportunities. Accordingly, it is an untapped resource and it is not connected to the startup community currently. Regarding to the eight capital model of entrepreneurial ecosystems, the accelerator has a minimal effect on financial capital.

In spite of minor funding opportunities within the KCAB, two startups were founded in 2016. That indicates that over time various startups will be found out of the KCAB. These startups will then acquire experience during their growth. Thus, they can be an issue in terms of advisors and experience business mentors within the entrepreneurial ecosystem Bremen. This corresponds to the statement of Manson and Brown (2014: 5) that the

whole network of entrepreneurial ecosystems includes potential and existing entrepreneurial actors. Furthermore, it indicates that the KCAB has an effect on those entrepreneurial actors in terms of yielding potential entrepreneurial actors. Besides, after leaving the program startup ventures can establish their business in the entrepreneurial ecosystem Bremen. As the definition of startups determine a startup by a significant workforce and sales growth and expansion, startups of the KCAB can grow to become a Bremen-based established venture.

Considering established firms, the KCAB provides the connection to firms like Mercedes-Benz, EWE or swb AG, which are directly related to the KCAB. According to Foster et al. (2013: 20ff), established businesses have potential benefits they can offer early-stage companies in terms of providing "important leverage for early stage companies" (Foster et al., 2013: 8). Proceeding from the statements of startup founders A and B, which criticize the cooperation with those companies as insufficient. In this context Hallen, Bingham, and Cohen (2014: 26ff) mentioned that the success of accelerators is closely linked with their experience over time and their established networks. It implies that those connections to established firms and their cooperation evolve by experience, which they gather over the years. Therefrom, the economic capital within the startup ecosystems is given in terms of established firms, but not developed sufficiently. Furthermore, the economic capital entails potential customers as well. The structure of the KCAB enables the cooperation with established companies, as it is similar to cooperate accelerators. Both interviews and the literature concur regarding to connecting startups with potential customers provided by the customer base of those companies. Assuming Clarysse, Wright, and Van Hove (2015: 5ff) statement that accelerators can be classified into three different types, the matchmaker accelerator is similar to the KCAB. Established by cooperates, the matchmaker accelerator connects participating startups with their customer base and stakeholders, is usually non-profit and offers no financial support. As the KCAB is both for-profit and offers financial support, it does not fit exactly in any of the three outlined types.

Furthermore, the KCAB is involved in building a sustainable network for an entrepreneurial ecosystem in Bremen. As the definition of entrepreneurial ecosystems of Manson and Brown et al. (2014: 5) determines it as a set of actors, which generate a network of relations and ties, the KCAB can play a central role. According to the

interviews, the KCAB is situated in developing a network to various actors within Bremen. Thus, it implies that the overall emerging entrepreneurial ecosystem Bremen profits from the networking of the KCAB in terms of relations to universities, public organizations, policies and established firms. Another point is that the KCAB facilitates the growth of a sustainable network in Bremen. According to the interview of startup founder B, the international presence of startups within the KCAB promotes the international advancement of this network. In this sense, the KCAB makes an intense contribution to the development of social capital, especially in connecting various actors within Bremen.

Concerning infrastructural capital, the KCAB as a supporting program is situated in the support infrastructure, due to its efforts of supporting startups by providing office space, workshops, pitch training, co-working, funding, and networks. As the presence of supporting institutions or programs is limited in Bremen, the KCAB can be of significance. Therefore, the specialization on energy topics benefits the growth due to minor supporting activities in this field within Germany. As infrastructural capital is separated into three categories “(i) education & research infrastructure, (ii) physical infrastructure and (iii) support infrastructure.” (Juling et al., 2016). The KCAB itself is situated in the support infrastructure. In this context, the qualitative data delivers certain supporting activities. The interviews and secondary data illustrate workshops, mentorship, co-working, financial support and office space as supporting activities. This corresponds to Fishbacks et al. (2007) definition of accelerators. As a consequence, the KCAB contributes to the emergence of infrastructural capital in the field of support infrastructure.

## 6 Conclusion

As various actors have an impact on the development of startup ecosystems, the goal of this thesis was to investigate the role of KCAB within the startup ecosystem Bremen. Therefore, the eight capital model of entrepreneurial ecosystems developed by Juling et al. (2016) served as a basis to categorize the supporting activities of the KCAB into those capitals. Thus, an evaluation of how the KCAB contributes to the development of a startup ecosystem in Bremen was possible.

In summary it can be said that the KCAB has an impact on all presented capitals. Thereby, the measurable impact distinguishes among these capitals. However, based on the eight capital model

of entrepreneurial ecosystems findings demonstrate that the KCAB supports the development of a startup ecosystem in Bremen. According to infrastructural capital and, in this way, the support infrastructure, the KCAB is one of two major supporting programs or institutions due to their efforts of supporting startups with workshops, mentorship, co-working, financial support, networks and office space. Accordingly, the KCAB itself provides a substantial contribution to infrastructural capital. Concerning financial capital, funding opportunities are barely available. As Bremen lacks in activated venture capitalist and business angles, the accelerator itself provides funding for startups. Further findings suggest a distinct industry within Bremen. As the KCAB is directly connected with swb AG, Mercedes-Benz, and EWE, startups benefit from knowledge, technologies and an access to customer bases companies offer. Based on the industry, the KCAB may be the juncture within the emerging startup ecosystem Bremen. In terms of political capital, regular meetings with policies and government officials together with KCAB managers imply an exchange of information to foster the development of favorable conditions for startups. According to the literature, government and policies can either accelerate or decelerate the growth of startup ecosystems. Summarizing social capital, networks seem to be an important aspect in terms of the contribution of the KCAB. More precisely, the KCAB is connected to universities as well as universities of applied science, established firms, public organizations, and policies. Finally, over time the accelerator gains in experience and improves its program and supporting activities. Therefore, it will found several startups in the future. It can be concluded that the KCAB has another effect on social capital in terms of yielding advisors and successful businessmen, which may support startups in the future.

The obtained perceptions based on the qualitative data are carefully to consider due to the limited time and modest extent of the collected quantitative data. Additionally, the dynamic of this research field makes it difficult to present perceptions, which can be generalized for further researches.

As present researches mainly investigate startup ecosystems and deduce from this perspective on accelerators, this work contributes research on the impact of accelerators within startup ecosystems by providing conceptual knowledge for future research. Especially, research on German accelerators and startup ecosystems are barely conducted. Thus, this thesis should have delivered initial insights for further research on these topics

in Germany. Considering the absence of cultural and historical capital within the findings, future research should apply the impact of both capitals within startup ecosystems.

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