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**Role of Venture Capital and Startup Co-evolution in Entrepreneurial Ecosystems – Case
Stockholm**

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<p>Abstract</p> <p>The topic of this thesis is role of venture capital and startup co-evolution in entrepreneurial ecosystems. Among the reasons for the topic selection are the importance of high-growth entrepreneurship for the economy. Even though the importance is widely acknowledged, the researchers and practioners have issues in recognising why certain areas gives certain results.</p> <p>Therefore, this study collected, analysed and utilised literature on entrepreneurial ecosystems and generational units, collective memories and identities. The reason for this selection was made to understand entrepreneurial ecosystems and how the actors in the ecosystem shape it during and after the emergence process.</p> <p>The study utilised qualitative research design as its methodological choice. An extensive case study was conducted. The selection to utilise case study research was made, because it enables to understand complex and historical processes, hence the methodological choice was well aligned with the purpose of the study.</p> <p>The integration of entrepreneurial ecosystems and generational units' literature was found to be relevant theoretical choice, because the study was able to show that the main actors (Venture capitalists and startups) have significant role in transforming the suitable conditions into concrete high-growth ventures. The results of the study propose that the characteristics of an ecosystem develops over time as an outcome of the interplay between actors and context.</p>			
<p>Keywords</p> <p>generational units, collective memories, collective identity, high-growth firms, experimentally organised economy</p>			

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1. INTRODUCTION

1.1 Background

The topic of this thesis is the evolution of Stockholm entrepreneurial ecosystem. The reason to select such topic is first of all personal. I am interested to understand how entrepreneurial ecosystems work. Further on, when I have gotten familiar with the literature about entrepreneurship I have understood the importance of entrepreneurship and especially the importance of high growth firms to the economy. Indeed, Praag and Versloot (2008) have found that entrepreneurs are important for innovation, employment creation and productivity growth. It also seems that gazelles (limited number of high-growth firms) generate large share of new jobs and wealth (Henrekson & Johansson 2010). Clearly, entrepreneurship, especially high-growth entrepreneurship is important. Moreover, entrepreneurial ecosystems are the environments where high-growth entrepreneurship is either created or not. It is relevant to understand how different entrepreneurial ecosystems work to increase our understanding of them.

The importance of high-growth entrepreneurship can be seen in the public debate as well. Events like Slush gain a lot of attention. Politicians speak about the importance of startups and super entrepreneurs are well known public figures. Countries also use lots of money to enhance the performance of the entrepreneurial ecosystems. However, governments, researchers and practitioners seem to have issues to recognize what leads to success and what doesn't (Coad et al 2014). Questions such as how a country or area can enhance the emergence and performance of an entrepreneurial ecosystem are relevant, because of their importance for the economy.

Some countries/areas are more successful than other countries/areas. Many consider Silicon Valley as the most complete entrepreneurial ecosystem. This statement is backed up by looking up the amount of successful high-growth companies, which have been founded there. Companies like Google, Facebook and Apple are all from Silicon Valley. Israel is also considered as a successful country spurring out many successful startups like Waze, Viber and Wix. In Stockholm, Spotify, King, Mojang and Klarna

are well-known unicorns. Looking from the outside it seems that Stockholm has been quite successful in generating successful high-growth companies.

1.2 Research gap and research questions

Among the reasons for the selected topic are for instance Coad et al. (2014) who notes that it would be interesting to study contextual conditions of HGFs rather than focusing on the internal conditions. Further on Sipola (2015) notes in his study about Israel, Silicon Valley and Finland that external and contextual conditions had significant explanatory power in explaining success/non-success, and that it would be worthwhile to examine other countries/areas. In overall, there seems to be a gap in understanding what different countries and contexts look like and how the success/non-success can be explained through a systematic and holistic view.

The latest developments in the entrepreneurial ecosystem literature have attempted to move towards procedural view on entrepreneurial ecosystems (Stam 2015, Spigel & Harrison 2018). However, this stream of literature is still new and lacks empirical evidence and analysis as well as understanding what causes what (ibid). Questions like, how did entrepreneurial ecosystems got started and what resources in the ecosystem are valuable at different points of time and space are mainly not answered. Further on, there are no analysis about how entrepreneurs gather and utilize resources from their ecosystems. These are all relevant questions and it's hard to understand how entrepreneurial ecosystems evolve and function, if we don't understand where the resources emerge from and especially how these resources are being utilized.

Recent theoretical work about generational units, collective memories and identities is interesting and it is able to open up mechanisms about the emergence and evolution of entrepreneurial ecosystems (Lippman & Aldrich 2015). However, as a new theory it lacks empirical observations and testing.

Therefore, the primary research question to guide this study is:

- What is the role of venture capital and startup co-evolution in entrepreneurial ecosystem?

This question is asked, because there is a strong assumption that entrepreneurs are the key pieces in the puzzle of successful ecosystems (Henrekson & Johansson 2010, Stam 2015, Lippman & Aldrich 2015). The role of venture capital seems to be the most important supporting function in the ecosystem (Avnimelech & Teubal 2002). Therefore, the main focus of this study are venture capitalists and startups. The assumption of the research question is that by understanding the role of the two most important actors, the study is able to open up emergence and evolution mechanisms of entrepreneurial ecosystems, which are initiated and driven by these two actors. By understanding these mechanisms, the study is able to contribute towards the research gaps, because it clarifies the processes of entrepreneurial ecosystems from the perspective of these two actors.

Secondary research question is needed to answer the primary research question.

- How the elements of an entrepreneurial ecosystem emerge as an outcome of historical process?

The primary research question aims to understand the role of specific actors; however, these actors are located under certain context. In this case the context means the elements of the entrepreneurial ecosystem. The assumption is that when the context is understood as extensively as possible, it is possible to put the role of the primary actors into perspective. Said with other words, the goal is to understand the relationship between context and agency.

1.3 Research Methods

This thesis utilizes qualitative research design. To be more precise, case study research is the selected methodological approach. According to Eriksson and Kovalainen (2008) case study enables to study the phenomenon from a historical and contextual perspective. According to the research gap and research questions, this is what the study wants to achieve.

Data collection is conducted through semi-structured thematic interviews, because it enables some pre-defined structure, which will be decided based on the literature

review, but it also enables the interviewees to explain things in an open manner (Eriksson & Kovalainen 2008). The data collected will be categorized based on the theoretical framework. The findings will be mirrored against the theoretical framework in order to answer the research questions.

1.4 Structure of the Study

Introduction chapter explains why the selected topic has been selected. It moves on to introduce the phenomenon behind the topic and explains what is the research gap in the current literature. After defining the research gap, research questions were designed to contribute towards the research gap. Used research methods are briefly introduced to clarify how the study will be conducted.

Chapters 2, 3 and 4 will discuss the theoretical foundations of this study. The first stream of literature is about experimentally organized economy and competence block. This stream of literature enables to understand and define the basic goals and assumptions behind entrepreneurial economies.

The second stream of literature is about entrepreneurial ecosystems. Decision to choose this branch of literature was made, because it enables to illustrate the key actors and activities of an entrepreneurial ecosystem. Finally, the third stream of literature is about generational units. The decision to choose this literature was made, because it enables this thesis to understand how ecosystems emerge and evolve as a process which is human-orientated.

Below is an illustration of the selected theories.

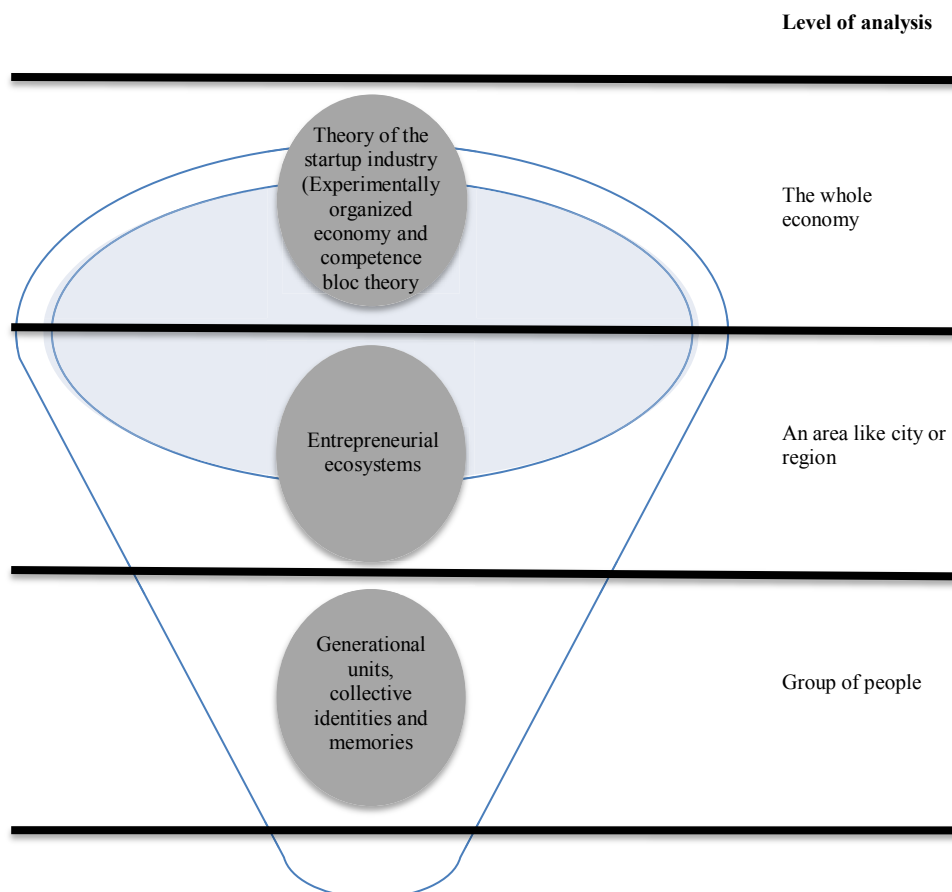


Figure 1. Selected theories.

The idea with the selected theories is that it enables to understand the selected phenomenon from macro level to micro level. It funnels the information from macro to micro and by doing this the study is able to reach the micro level, analyze what happens in the micro level and how the micro level affects to the macro level. The theoretical framework will be explained in chapter 4.2.

Chapter 5 will be a methodology chapter to explain how the thesis arrived to the selected research method. Chapter 5 will also explain how the data was collected and analyzed and gives a short introduction of the interviewees.

In chapter 6, an overview of the development of Stockholm ecosystem is given. This is done to give an overall picture about how the Stockholm ecosystem has generally speaking evolved and what are the decisions and events behind the evolvement.

The analysis of the case is made based on the theoretical framework and the data collected. The aim is to answer the research questions based on the primary and secondary data and reflect the findings against the theoretical framework. Summary, theoretical contributions and limitations, managerial implications, and future research possibilities are given and explained in chapter 7.

2. THE THEORY OF THE STARTUP INDUSTRY

In this chapter the goal is to understand the fundamental assumptions of a system, which is based on high-growth ventures. These assumptions are important background conditions for this thesis. It helps the reader to understand what are the mechanisms and definitions of an economical system, which is based on high-growth ventures. In essence the literature about entrepreneurial ecosystems and generational units accepts these assumptions and builds on top of them.

2.1 Towards experimentally organized economy

The shift towards concepts like experimentally organized economy started to take place around the new millenium. Previously important research topics like firm size, economies of scale, and routinized innovation and production were replaced with distributed innovation and the creation and growth of new firms (Audretsch & Thurik 2000, 2010).

One of the important shifts in research happened when Kenney and von Burg (1999) introduced the concepts of economy 1 and economy 2. Economy 1 is constructed from existing incumbents and institutions. Economy 2 is constructed from new firms trying to create high growth. Said with other words, economy 1 consists of large elephant firms and small mice firms. For instance, large paper companies are called elephants. A hairdresser would be called a mice firm. Elephants and mice firms are the companies that have historically been visible to the society. Economy 2 players are the few high growth companies that are relatively new as a concept. These economy 2 companies are called gazelles.

Essentially, the distinction by Kenney and von Burg (1999) implies that economy 1 players needs its own institutions and policies, and economy 2 players would need their own institutions and policies. This does not mean that the two economies are not connected. For example, in some cases mice firms become high-growth firms and big incumbents serve as a platform for spinoffs. Other factors, such as employee movements is also vital part that connects the two economies (ibid.)

According to Saviotti and Pyka (2004) economy 2 players are important for two main reasons. The reasons are that economy 2 players are able to create variety and efficiency growth in the market. This leads to one main finding, which is that economy 2 players are the ones that enable economic renewal. This is an important economical mechanism, because without economic renewal, there will be no economic growth and without economic growth, it is hard to maintain and increase the welfare of societies and individuals.

2.2 An experimentally organized economy

The previous chapter can be seen as a description of the underlying assumptions of an experimentally organized economy. Next, this thesis moves on to explain what is an experimentally organized economy.

The theory of an experimentally organized economy has strong Swedish routes. Gunnar Eliasson (1987, 1991) and Åsa Eliasson together with Gunnar Eliasson (1996) created the foundations to EOE and competence bloc theory. The theories were at first treated as separate theories. It was Johansson (2010) who integrated the theories.

The theory of EOE is built on 5 main assumptions. The first assumption is that there are huge set of possibilities to build different kind of products, solutions and services. The second assumption is that these combinations are not completely visible to anyone in the economy. The third assumption is that these combinations always include solutions that are better than other solutions. The fourth assumption is that set of business solutions is all the time expanding when knowledge increases. The fifth assumption is that, because there are so many combinations many (even most) experiments will fail (Carlsson & Eliasson 2003.)

An analogy to understand this logic can be a game of chess. In Chess there are 64 places to put your token. After four moves of a token there are 288+ billion different position possibilities. The theory of EOE sees business opportunity possibilities with same logic. There are so many variables in business and that is the reason why the assumptions hold.

The main notions of the theory are that how can winners be created and selected and on the other hand, how can we remove the non-succeeding projects (Carlsson & Eliasson 2003). The next notion of EOE is dynamic efficiency. This means that EOE tries to assess economic capability by understanding how economy minimizes two kind of errors. The errors are 1) Keeping losers for too long and 2) Losing the winners. This situation can be assessed for instance with competence bloc theory (ibid) The two errors can be seen as an efficiency issue. It is vital for the economy to solve the two errors as effectively as possible (ibid.)

2.3 Competence bloc theory

Competence bloc theory consists of three things. The first part are the actors in the economy 2. The second part are the functions that the actors do. The third part is the level of competence that the actors have (Carlsson & Eliasson 2003.)

The first actor is *inventor*. Inventor is an actor who comes up with new novel combinations for the economy/organizations (Johansson 2010). Second and third actors are the *customer* and the *innovator*. The customer represents the demand side in the market. The innovator represents the supply side. When these two meet directly, the market can be considered dynamic (Carlsson & Eliasson 2003.) However, just the concept of a *customer* is not enough in explaining the competence bloc theory. Burenstam-Linder (1961) has introduced a concept called *competent customer*. This means that customer has more competence in the field, where the innovation is introduced, so the customer can give valuable feedback or simply just turn down the innovation.

Innovator is an actor, who combines new and old technology/solutions. Third actor in the competence bloc is an *entrepreneur*. An *entrepreneur* is an actor, whose main function is to select and introduce new innovations to the market and make profit through the new innovation. Actor number four is a *competent venture capitalist*. *Competent venture capitalist* has two roles. The first role is straight forward. The venture capitalists are there to provide external funding for the entrepreneur to bring the innovation to the markets. The second role relates to the competence. Venture capitalists second main job is to identify winners (Carlsson & Eliasson 2003.)

Venture capitalists invest money, because they expect to make more money through the investment. This means that the actor number five in the competence bloc is a *functional exit market*. Note that exit market is only viable if the first four actors are functioning sufficiently. Actor number six in the competence bloc is *industrialist*. The job of an industrialist is to move the innovation to a very big scale. Companies like Google, Apple, Amazon, Facebook and Spotify have gone through the whole competence bloc funnel and come out as winners (Carlsson & Eliasson 2003.) At this stage they also move to be actors in the economy 1.

In one sense the competence actor funnel can be seen in a way that the items in the later stage are the ultimate goals for the actors in the earlier stage. Nobody wants to commit to a high risk venture, if the reward is not high as well. Having this said vertical completeness is not enough. The horizontal variety needs to be in place as well. For example, if the competence bloc is complete only for IT solutions, this bloc would then not be diverse enough to assess innovations and solutions coming from other fields than IT and this would mean that a lot of winners are left unrecognized or even not be created in the first place (Carlsson & Eliasson 2003.) *Skilled labor* can be seen as important factor in the competence bloc as well (Johansson 2010). Skilled labor is needed at all the levels of the competence bloc. The movement of the skilled labor is also important. For instance, sometimes highly skilled first employees of a startup, later on in their careers decide to start their own startup.

2.4 Implications of EOE and competence bloc theory

The first implication is seemingly obvious. The notion is that it is a good thing when the competence bloc is as complete as possible. If there are shortcomings in the bloc it means that the effectiveness of the bloc to generate winners and to remove losers is weaker (Johansson 2010.) The second implication is that business mistakes are part of the process, because of the enormous state space of experimentally organized economy. The actors in the bloc, no matter how competent are never fully informed (ibid.)

Third implication is that competence bloc acts as an attractor (ibid). This can be seen as a winners attract more winner's kind of phenomenon. When competence bloc is

competent and it generates good results it attracts even more actors under its influence. This can be seen to be one of the reasons why so many companies have RnD centers in Silicon Valley.

Fourth implication is that competence blocs form spontaneously (ibid). It seems that complete competent blocs seem to have a high quality university close to them. There are also other factors that are similar between complete blocks, but the main notion is that one cannot plan a competence bloc. (See Sipola 2015 for comparison between Silicon Valley, Israel and Finland).

Fifth implication is that institutions can support through incentives and de-regulation the successful formation of competence blocs (Johansson 2010). For example, this has happened in Israel, where the state support has been quite successful (Sipola 2015). Sixth implication is that projects are always started and ended under uncertainty (Johansson 2010). This means that economic competence is in fact competence of the bloc to create, select, end, expand and exploit new business ideas (ibid).

Seventh implication is that competence is the main function of a competence bloc. This also implies that creativity as part of the competence is a vital function (Johansson 2010.) This differs from economy 1 players in the sense that for economy 1 actual capital is usually very important. For example, Hilton hotel chain needs the buildings to operate. Airbnb on the other hand is not tied to any buildings even though they function in the same industry.

Implication number eight is that redistribution might have a negative economic effect (Johansson 2010). The idea is that competent actors have been able to create something new, hence contributed to their own wealth as well as to the overall wealth by increasing the GDP. By redistributing the money, the competent actors have made, it can be seen that the attractiveness of the competence bloc is made weaker, hence the competence bloc becomes weaker vertically and less diverse horizontally, which makes the economy weaker. The rate of the re-distribution, which weakens the economy is not defined, but it probably depends from context to context.

Last implication can be seen to be somewhat groundbreaking. Economic analysis has widely used Smith's (1776) idea that economic output is restricted by the size of the market. EOE and competence bloc theory challenges this idea by introducing an idea that economic output is only restricted by the competence of the economy, not by the market size (Johansson 2010).

2.5 Perceived winner

Perceived winner is one part of a theoretical framework Sipola (2015) built in his dissertation. Perceived winner is part of a conceptual framework called activity system. Engeström (1987) expanded Vygotsky's (1978) triadic of "Subject", "Object" and "Mediating artifacts". Engeström (1987) added "rules", "community", "division of labor", "Sense and meaning", "Activity" and "outcome" to the activity system. The main idea of the activity system is to see humans as part of a cultural-historical continuity and system, which consists of the artifacts of the activity system.

Sipola (2015) used the activity system to describe the startup system and how it functions. In his framework; mediating artifacts are competence and business development tools. Startup team is the subject. Perceived winner is the object. Rules are the incentives. Community are the competence bloc, actors/agencies and public actors. Division of labor are the completeness of the startup industry and the institutional set-up. Activity of the startup industry is to generate potential winners and pick and scale them up. As outcomes there are potential winners, scaling and existing winners and failures. Sipola (2015) used this framework to explain the cultural-historical evolution of the case startup industries and made analysis based on the object, activity and the outcomes.

Perceived winner can be seen as the central piece of the framework, because perceived winner is the object of the activity system. Object is especially important part of an activity system, because it gives direction for the activities (Leont'ev 1978, Holt 2008). How the different actors in the activity system and in the competence bloc see and understand the perceived winner, affects to the activities and outcomes of the activity system.

3. ENTREPRENEURIAL ECOSYSTEMS

The previous chapter explains in a general level what are the main assumptions and ideas behind startup economy. This chapter changes the scope by trying to understand what are the building blocks of entrepreneurial ecosystem, who are the actors, what are the processes in the ecosystem. One way to understand this chapter is to keep in mind the previous chapter about competence bloc. The quality of the competence bloc vertically and the diversity horizontally defines how effective is the economy. All the actors of the competence bloc are present in the ecosystem literature, but the idea in this chapter is to go deeper and understand questions like, how the actors emerge, evolve and interact in an ecosystem?

In the following chapters 3.1.1, 3.1.2, 3.1.3 and 3.1.4 the aim is to define entrepreneurial ecosystems. What are the common things that the previous literature says about the entrepreneurial ecosystems? The second aim is to go through the roots of the entrepreneurial ecosystems literature. This is done to understand where does the theory derive from. By understanding where it derives from, it is easier to define the unique contribution that it has. Finally, the aim is to go through the critique that the literature of EE has received.

In chapter 3.2 the thesis examines entrepreneurial ecosystems from a processual perspective. This direction has emerged in the literature recently and it enables to understand ecosystems as an ongoing process rather than a list of elements that one either has or doesn't have. Chapter 3.3, 3.4 and 3.5 takes a closer look on the actors, which are in the focus of this thesis, Entrepreneurs and VCs.

3.1.1 Definitions

Entrepreneurial ecosystem means a combination of cultural, social, material, economic and political elements within a region (Spigel 2015). Said with other words entrepreneurial ecosystems (EEs) are all the things (companies, support organizations, norms, rules, behaviors etc.) that are located close to each other (within a region).

The literature about entrepreneurial ecosystems is rather new. The first writings can be seen to be written by Isenberg (2010) and Feld (2012). It is rather important to note that in the beginning this literature was not scientific and was mainly directed to policy makers.

Both of these (Isenberg 2010 and Feld 2012) can be treated as lists of different elements. Feld (2012) offers a list of elements that need to be present in a functioning ecosystem. This list includes Leadership (group of strong entrepreneurs with a strong voice), Intermediaries (Advisors and mentors giving back), Network density (Community which is strongly connected to each other, i.e. entrepreneurs, investors etc.), Government (Government support through incentives), Talent (High quality people), Support services (For example legal services), Engagement (Events, hackathons and visible stuff that promotes entrepreneurship), Companies (Large companies that acts as anchors, source of spillovers, talent training etc.), Capital (Private investors with money and expertise).

Isenberg (2010) has established similar kind of list: “1: Stop emulating Silicon Valley; 2: Shape the ecosystem around local conditions; 3: Engage the private sector from the start; 4: Stress the roots of new ventures; 5: Do not over-engineer clusters; help them grow organically, emphasize ambitious entrepreneurship 6: Favor the high potentials; 7: Get a big win on the board and institutions 8: Tackle cultural change head-on; 9: Reform legal, bureaucratic and regulatory frameworks.”

Some of these findings are also backed up with academic findings (Stam 2015). For example, taking into consideration the local conditions and emphasizing the bottom-up approach are backed up by findings in the entrepreneurship literature (See Boschma & Martin 2010 and Cooke et al. 2011). Focusing on ambitious entrepreneurship and designing well-functioning meaningful institutions have also found to contribute towards successful high-growth entrepreneurship (Henrekson and Johansson 2009).

3.1.2 The roots of the entrepreneurial ecosystems literature

The roots of the EE literature can be tracked to the 1980s and 1990s. In 1980s the focus was on analyzing the entrepreneur’s personal qualities and using these qualities as

explanations why some entrepreneurs become successful while others don't. Later, the focus was moved to take into consideration contextual reasoning as well (Dodd & Anderson 2007).

EE is related to the literature streams on clusters and regional innovation systems. According to Porter (1998) clusters are: "geographic concentrations of interconnected companies and institutions in a particular field." Even the definition of clusters is very close to the definition of EE. However, there are clear differences between the theories.

Cluster literature and EE literature both rely to the work of Marshall (1920), which states that explanatory power exist outside the organizations in the environment and the context where businesses operate. Competition and cooperation drives development as competition means that the best survives and cooperation means that firms can agree on and build on top of technological platforms and standards (Spigel and Harrison 2018).

According to Henry and Pinch (2001) clusters benefit from the knowledge spillovers from universities and other firms. This enables new firms to obtain important resources, hence make the firm successful. Rocha & Sternberg (2005) states that clusters provide opportunities and resources to new firms. The general idea is that in clusters there are more quality inputs available, which makes starting and succeeding in business more probable (Glaeser, Kerr, & Ponzetto, 2010). Input means things like skilled labor, knowledge, opportunities, technological platforms etc.

In essence, the EE uses three main premises from the cluster literature. Presence of other firms makes all firms in the ecosystem more competitive. Entrepreneurs can and should get knowledge outside his/her own firm in order to develop the necessary capacities. Knowledge creation and processing leads to better capacities and knowledge is created in clusters/ecosystems (Spigel & Harrison 2018.)

The EE is also related to the literature about regional innovation systems (RIS). RIS can be understood through the three basic components it incorporates. Region refers to the importance of geographical proximity. Region acts as a container where innovation takes place. Innovation refers to the neo-Schumpeterian activities.

Innovations are new kind of solutions/services that stem from new kinds of combinations of inputs, like knowledge and materials. System refers to the level of analysis. Innovation happens not only based on geographical proximity, but based on the interaction and knowledge flow of different kind of actors in the network (Cooke, Gomez Uranga & Etxebarria 1997; Cooke 2001; Spigel and Harrison 2018.)

The EE uses three main premises of RIS. The first one builds upon the assumption that RIS has about the nature of reality. RIS sees reality as complex network, which constitutes from several actors and where the role of an entrepreneur is important in terms of gathering knowledge, learning and being able to recognize opportunities and seize that opportunity (Nijkamp 2003). The second premise is the importance of anchor organizations. The idea is that any successful region needs organizations like universities or competent firms to generate new knowledge and new skills through basic research, RnD. While these activities are being performed it means that the capacity of the people increases, which can be good for the region, if the region is able to identify and seize new opportunities (Huffman & Quigley 2002 and Spigel & Harrison 2018.) The third premise is that system matters. Not in the sense, that the system can be designed with top-bottom approach, but from a perspective that some systems are better in generating high-growth entrepreneurship than others (McQuaid 2002). For example, it seems that it is possible to create better pre-conditions for high-growth entrepreneurship to emerge (Asheim, Coenen, & Vang, 2007).

3.1.3 What is unique in the theory of the entrepreneurial ecosystems?

The above described roots of entrepreneurial ecosystem literature are well researched fields. The obvious question is that what is new in entrepreneurial ecosystem research. What are the main questions and phenomenon's that EE examines that cluster and RIS literature do not examine?

There are many differences between EE, clusters and RIS. The main difference is the scope of focus. EE is especially focusing on entrepreneurs and new ventures (Spigel and Harrison 2018). The main focus of EE are the entrepreneurs and new venture creation, because Clusters and RIS theories are not able to analyze the needs of high-growth ventures (Spigel and Harrison 2018.) The ability to analyze on the level of

entrepreneurs and new venture creation is vital, because HGFs are important to the economy (Henrekson & Johansson 2010). This has many implications with regards to the basic assumptions between the theories.

In clusters and RIS theory the role of the state is central. Top-bottom design is emphasized. This is not the case in EE. The role of the state is to provide functioning environment, where successful entrepreneurship is possible (Spigel and Harrison 2018.) Further on, Clusters and RIS theories does not differentiate between startups and large firms. EE focuses on the issues that startups have when accessing regional resources and benefits (Harrison and Spigel 2018.)

Clusters and RIS focus on the importance of industrial knowledge. This means that RIS and cluster theories hold universities and research lab in great value. EE is interested to understand what is entrepreneurial knowledge and how this affects the formation of new venture creation and success (Spigel and Harrison 2018.) Finally, EE disagrees with Porter (1998) about the importance of industry competition as a driving force of cluster development. EE sees that it is important that entrepreneurial ecosystem is trust based and the knowledge moves freely. This observation is built on an assumption that startups face global competition hence it helps if their own ecosystem is driven with collaboration, not with competition (Harrison and Spigel 2018.)

3.1.4 Critique

Entrepreneurial ecosystems are popular concepts among the scholars and practioners due to its simplicity and descriptive nature. The thinking has been that successful ecosystems consists of certain elements and that if a region wants a successful ecosystem it needs these elements (Stam 2015). This means that the thinking has been tautological. Just listing elements that are found in successful ecosystems doesn't help to understand how the ecosystem emerged, persisted and renewed (Stam 2015, Spigel & Harrison 2018). A call for rigorous social science approach is evident in order to start understanding the explanatory factors behind the elements (Spigel and Harrison 2018).

3.2 Processual approach to entrepreneurial ecosystems

The move towards more procedural approach has happened very recently. Stam (2015) has defined EE as: “The entrepreneurial ecosystem as a set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship”. Stam (2015) continues to define that the goal of the ecosystem is to create value to the society through innovation. To achieve this the entrepreneurial activity takes many forms such as “innovative startups”, “high-growth startups” and “entrepreneurial employees” (Stam 2014).

Stam (2015) has summarized the literature by four categories. In his concept ecosystems have framework conditions, systemic conditions, outputs and outcomes. Framework and systemic conditions include the elements that Isenberg (2010) and Feld (2012) have talked about. These elements transfer to outputs, which are all of the entrepreneurial activity (high-growth startups, innovative startups and entrepreneurial employees). Outputs transform into outcomes, meaning the value that the company creates. Entrepreneurial activities (outputs) and value created (outcomes) transfer back to the elements of the ecosystem. In this way the ecosystem is ever evolving (Stam 2015.) This was one of the first attempts towards a procedural approach. However, it still lacks understanding about how the elements are achieved and how they are limited (Stam 2015). In a way the approach of Stam (2015) is procedural, but it still lacks holistic understanding of cause and effect.

Harrison and Spigel (2018) have made several contributions to the procedural approach. The main idea is that instead of stagnant pack of elements, the entrepreneurial ecosystem and the elements are an ongoing process (Harrison & Spigel 2018). Harrison and Spigel (2018) looks at the processes of EEs from three perspectives. The perspectives are resource acquisition and flow, Creation and recycling of entrepreneurial resources, Creating and sustaining entrepreneurial resources.

Resource acquisition and flow means the process of how entrepreneurs draw in the right resources from the ecosystem (ibid). Meaning that how are they able to acquire the important things from the elements of the ecosystem.

The first set of propositions describe why effective resource acquisition is important (Firms that are able to access the right resources are more competitive). It gives one variable (perceived legitimacy) to understand what kind of entrepreneurs are able to acquire resources. It moves on to explain how the entrepreneurs can improve their perceived legitimacy (ability and willingness to engage with their ecosystem). Finally, it describes what public sector can do to enhance the resource acquisition flow (create opportunities for entrepreneurs to come together) (ibid.) Said with other words it is important that the entrepreneurs are able to obtain the right resources.

Creation and recycling of entrepreneurial resources means the activities that lead to the creation of the elements in the ecosystem. Recycling of the resources means the process of how the resources are recycled in the ecosystem from previous round of entrepreneurs to the next round of entrepreneurs. Creation of the resources happens through entrepreneurial activity and public investment (ibid.) To avoid tautological explanations one should explain what creates entrepreneurial activity. This topic will be covered later on in this thesis (see chapter 3.5).

The recycling of the resources is built on a mechanism of exit. When successful entrepreneurs make an exit with their company, they usually stay in the ecosystem as investors and mentors (ibid). Early stage employees will be part of the success and it has been found that many early stage employees go on and establish their own high-growth ventures later on (Toft-Kehler, Wennberg, & Kim, 2014).

Failures can also be seen as entrepreneurial resources that are recycled through the ecosystem (Harrison & Spigel 2018). This mechanism builds over an assumption that failed entrepreneurs are able to learn from the failures and not repeat the same mistakes (ibid). Further on, the employees of the failed venture will be released back to the work force and they have the ability of transferring the learnings from the failure to the new venture (ibid). Learning from the failures will not happen, if the culture and institutions punish from the failure (Cardon, Stevens, & Potter, 2011).

Finally, Harrison and Spigel (2018) discuss about sustaining entrepreneurial resources, the idea of sustaining the resources is similar as in the recycling of the resources. The idea is that successful entrepreneurs stay in their regions and while they continue to do

different kind of activities (mentorship, investment) the effect is that certain structures and practices are imprinted to new ventures (ibid).

3.3 Entrepreneurial activity

Entrepreneurial activity and its origin is an important precondition for an entrepreneurial ecosystem, therefore this thesis collects the main knowledge on the factors that create entrepreneurial activity. In one way, Stam (2015) has already answered to this question by stating that the systematic conditions create entrepreneurial activity, however he has not clearly argued what creates systematic conditions, therefore it is important to cover what research says about the creation of those systematic conditions.

One of the important elements that can be found from research is the legal framework of a country. The research is clear on the fact that Anglo-Saxon countries generate more entrepreneurship than any other areas (Glaeser et al 2016.)

Marshall (1920) states that property rights are key precondition for entrepreneurship. If there is a risk that successful company will be taken away in the event of success, the risk is too big to grow the business. This still doesn't explain why Anglo-Saxon countries are strong compared for example, with Scandinavian countries.

Taxation on profits also matters. Entrepreneurship is high risk path and if the taxation on the created value is too high it discourages high-growth entrepreneurship (Sanandaji T & Sanandaji N 2014). In a capitalistic system, especially in a business context, when companies create value, they make money. Money is the fuel that enables growth. If the redistribution from the competent to incompetent is too heavy, the rate of entrepreneurship will be affected. The right rate of taxation is not defined, but research indicates that the tax burden should be lowered from the ones who take the risk and make the growth (entrepreneurs, VCs and early employees), towards passive investors (ibid.) Regulatory burden correlates with high-growth entrepreneurship as well. In general, the less regulation (the ease of starting and making business) the more entrepreneurship a country has (ibid.)

Sanandaji T and Sanandaji N (2014) have found that most highly successful entrepreneurs have degree in higher education, either master's degree or PHD. PHDs are highly overrepresented among highly successful entrepreneurs. Further on, previous industry experience seems to matter. People who are highly intelligent and have work experience from a relevant field are more likely to become high-growth entrepreneurs.

Institutions seems to be one side of a coin. The second side of the coin can be seen as the historical development of activities. In essence, high-growth venture activity does not stem from a vacuum. How have the high-growth venture activities come about in specific countries and areas?

Examples of the development of high-growth venture activity can be found through extensive case studies. For example, Israel and Silicon Valley have strong military roots (Sipola 2015). Aligned with Sanandaji T and Sanandaji N (2014) it seems that the availability of highly skilled people is one of the most important preconditions.

Avnimelech and Teubal (2002) have concluded that Israel's startup intensive high-tech industry was borne out of internal and external factors. External factors were in the study; Diffusion of Silicon Valley model, globalization of asset and capital markets, the ongoing IT high tech Revolution, and the surge of Nasdaq.

Internal factors were: A pre-existing high tech sector, macro-economic stabilization, economic liberalization, onset of the peace process, government policies (horizontal R&D support program and targeted program supporting VC industry), highly qualified immigration from the Soviet Union, collective learning and co-evolutionary process generating cumulativeness.

Aldrich and Yang (2012) have found that in US in the 1980s and 1990s "institutional celebration" (Education system, government and media) of entrepreneurship lead to many individuals selecting entrepreneurship. This lead to high failure rates as not anyone can be high-growth entrepreneur. Quality is more important than quantity. This kind of emphasis towards institutional celebration is also present in the early ecosystem literature as an element, which is considered important (Isenberg 2010).

However, it seems that one should be careful about celebrating this kind of success as quality matters more than quantity. Research seems not to be unified on how the best talents choose entrepreneurship or what mechanism pushes them to select it.

Lippman and Aldrich (2015) notes that triggering events have explanatory power in explaining why some group of people have chosen entrepreneurship. Triggering events are discussed more widely in chapter 4. Triggering events are events that create uncertainty. From uncertainty some pioneer entrepreneurs are able to find entrepreneurial opportunities. In Israel's case the triggering event seems to be the immigration of highly qualified talent from Soviet Union and the fact that the economy needed to find employment for this group. According to Lippman and Aldrich (2015) migration and emergence of new industry are usual examples of triggering events.

In general, it seems that the initial burst towards entrepreneurial activity can come from various sources. However, it seems that when the ecosystem gets going more and more people will choose entrepreneurship as their field (Bosma et al 2012). Hence the focus of this study is in understanding what builds up the elements and sustains them after the initial burst.

Moreover, the initial burst might be important, because it can affect the configuration of an ecosystem. For example, Spigel (2015) found that incumbents in the oil industry of Calgary started to outsource many of its activities. This led to a situation that there was a big incentive for new ventures to do those activities that the incumbents didn't do anymore. The focus of the local VCs and startups was to create products and services to fill this niche. The goal of the actors was not entrepreneurship or high-growth ventures as such, but to fill the niche and make profit.

Spigel (2015) discusses another example of Waterloo. In Waterloo the configuration of the ecosystem has built around innovativeness and dense networks. The story there went in a way that German immigrants were able to build up successful thriving industrial economy. University of Waterloo was established to supply local firms with skilled engineers. Success of Blackberry surely has also contributed to the entrepreneurial ethos of the area. However, it remains somewhat unclear, which events

lead to this exact configuration. The problem of not understanding the cause and effect is present.

The initial configuration is important, because it affects to the long-term sustainability of the ecosystem. For example, in the case of Waterloo the configuration is built around innovativeness and dense networks, whereas in Calgary it is built around exploiting a niche. When the niche opportunities are drained, it means that there might be weak motivation for the actors to come up with new ideas and startups, because innovation is not in the DNA of the actors of the ecosystem. In the case of Waterloo, the assumption is that there is constant innovation, hence in the long-term it might be more probable that successful startups spur out of Waterloo, because their thinking is to constantly innovate and build new startups (Spigel 2015.)

3.4 Role of Venture Capital

There are many elements in entrepreneurial ecosystem. Like mentioned before it is hard to understand which elements matter and which doesn't. However, according to current literature two elements are vital for an ecosystem to thrive. The first element is the critical number of startups. The second element is critical number of VCs (Gompers and Lerner 2001). Especially, when an ecosystem emerges, it is valuable to understand how startups and VCs have co-evolved, because by analysing how these two elements have evolved, one can better understand why the ecosystem currently is what it is. Entrepreneurs are the key agents in the ecosystem and VCs in many cases are they key enablers of high-risk venture creation.

The first and the most obvious question about VC is that why do startups need VCs? Why don't startups self-finance or loan the money needed for growth? It is worth noting that some startups in fact, do grow organically without any external finance. However, this group of startups is much smaller than the group that receives external financing (Gompers and Lerner 2001). Startups seek for VC money, because of four reasons; uncertainty, high sensitivity to capital & product market conditions, the fact that most SU assets are Intangible, and asymmetric Information (ibid). The fact that most startups fail would mean that bank would need to set the interest rate very high. By selling shares to VCs, it means that the VC has a high interest to make the value of

the share increase in order to make profit. This is not the case in bank loans. Further on, most entrepreneurs are not able to self-finance their ventures simply, because they don't have enough money (ibid.)

VC companies usually work in cycles of 7-10 years. The full cycle includes these activities: raising funds, screening and due diligence, investment, monitoring and value added, and exit (generally either an IPO or a M&A) (Avnimelech & Teubal 2002.) The idea is that all of these activities are not simple and to succeed in the activities the VCs need to have competence. Indeed, for example, Gompers (1995) has concluded that VC backed startups perform better than non-VC backed startups. Gompers (1995) found out that VC backed startups go public faster, have higher valuations, have less underpricing and perform better after IPO. It is fair to conclude that VCs have essential role in building winners.

Hence, in the context of this thesis it is justified to examine how startups and VCs have co-evolved in Stockholm in order to understand mechanisms and patterns that build up an ecosystem.

3.5 VC and SU co-evolution

Avnimelech & Teubal (2002) have stated that to understand the emergence of VC market one needs to understand 1) the evolution of the industry that enables startups to emerge and 2) the policies, which have effected to the emergence of the VC market. In order to understand these two points, one can map out what are 1) Background structural conditions, 2) Pre-emergence conditions and triggers, and 3) Conditions assuring learning and cumulateness (ibid.)

These categories derive from the life-cycle literature (Avnimelech et al 2004). The main idea is that industries first evolve through radical innovations. For example, Internet was a radical innovation. After this, the radical innovation becomes a background condition that enables more innovation to emerge on top of it. What was once radical becomes a standard and the norm (Tushman & Anderson 1990.)

Table below summarizes how the emergence of VC and startups can be systematically assessed based on the ideas from life-cycle literature.

Background Conditions Phase	<ul style="list-style-type: none"> • Creation of high technology industry and R&D/ innovation capabilities • Concern for the financing of SME not necessarily high technology SU • Growing acceptance of technological entrepreneurship and a new model of high technology innovation involving SME
Pre-emergence phase	<ul style="list-style-type: none"> • A technological revolution • Growth of informal VC and some formal VC funds • Increasing numbers of SU excess demand for VC services • Experimentation (variation) and learning (selection); no stable distribution of VC forms
Emergence phase	<ul style="list-style-type: none"> • High rate of growth of VC and SU activity • VC-SU co-evolution process; strong collective and onset of cumulative process • Increased competition and overshooting • Entry of less skilled VC managers/firms and SU companies
Crisis phase	<ul style="list-style-type: none"> • A deep crisis that may be caused by a one or combination of factors including stock market downturn causing an inability to have IPO (sometimes termed “overshooting,” negative government actions (ERISA), more general economic downturn, etc. • Exit of VC funds and closure of SUs, while SUs suffer liquidity problems • General loss of confidence in the industry
Consolidation phase	<ul style="list-style-type: none"> • The VC industry restructures with the help of collective institutions • New institutions (formal and informal) emerge • New government policies are implemented

Table 1. VC and startup co-evolution (Avnimelech et al 2004).

This is also the framework that will be used when secondary data (chapters 6.1) from case Stockholm is collected and assessed.

4. UNDERSTANDING THE EMERGENCE OF A REGIONAL ENTREPRENEURIAL ECOSYSTEM

Next this thesis aims to understand how regional entrepreneurial ecosystems emerge as a process of human initiation and orientation. Previous chapter enabled to take a systematic lens. This chapter enables to take even more accurate and micro approach. To do this, the thesis aims to use the theory of generational units, boundary objects, collective memory and collective identities. This theory enables us to examine how individuals' shared experiences affect regional entrepreneurial activities and outcomes over time (Lippmann & Aldrich 2015).

4.1 Key concepts

According to Lippmann and Aldrich (2015) generational units are “meaningful social collectives”. Said with other words generational units are groups of people who are connected together. Collective memories are shared experiences and events from the past that individuals draw upon to make meaning and take action. There are some experiences and events that are common for some group of people in a specific time period and these events affect the individuals' decisions and meaning making (ibid.)

Generational units are sensitive to time and space. They are sensitive to space, because if people are too far away, it is unlikely that they have gone through enough similar experiences to be understood as a generational unit (ibid.) According to Nora (1991) time matters, because generational units are based on the memories that individuals' have about important events. According to Wadhvani & Jones (2014) it is important to understand that time is not only an external force restricting actors, but it is also part of the cultural process that turns some generations into cohesive social groups.

4.1.1 Generational units

Like said above generational units are groups of people who are connected, because of the similar experiences they have had. Important feature of a generational unit is that it is not just a vague definition of group of people who have gone through similar experiences at around same times. Generational units are considered generational units when the individuals of the group share part of their identity with the group (Lippmann & Aldrich 2015).

According to Lippmann and Aldrich (2015) catalysts and triggering events are key functions when generational units are emerging. Catalysts can be divided to pioneers and boundary objects. Catalysts are mechanisms, which enable group of people to coalesce into a generational unit. Triggering events are events that trigger the pioneers to take action. For example, the “founding” of America opened new opportunities for Europeans to move, live and succeed there. Some individuals took the opportunity and acted. The conditions were not the easiest for the ones who decided to try their luck in America. Some individuals managed to succeed in the new continent and the ones who succeeded formed a generational unit, who can be seen as the creators of the entrepreneurial spirit of America (ibid.) The effects of this generational unit can be still seen in how Americans perceive entrepreneurship compared to Europeans (ibid).

Pioneers are the first ones to act when new contextual conditions arise. The pioneers are the ones who give the first push for the generational unit to start developing. *Boundary objects* are symbols, myths and creations stories that are 1) created and shared between the pioneers and 2) they will be shared with everyone who will be part of the generational unit (Lippman & Aldrich 2015.) When the generational unit shares the boundary objects it means that the generational unit can work together towards same destination without actually concretely agreeing what they share together, how they work, and what is it that they actually work towards (Star 2010). Said with other words, the boundary objects can be seen as the unwritten and also written rules of the generational unit. They are visible and invisible patterns that people choose consciously and unconsciously.

Triggering events are disruptive by nature (Lippman & Aldrich 2015). It seems that external disruptive events create susceptibility (Marquis and Tilcsik 2013). Susceptibility in this context means that individuals/entrepreneurs/organizations are vulnerable to external influence. Susceptibility is linked to uncertainty. In uncertain times people seek for meaning, structure and stability (Lippman & Aldrich 2015.)

Two examples of triggering events are migration and nascency. In the context of this study migration means economically motivated migration. Migration is an uncertain event, because individual finds him/herself from a completely new situation. Many/most things don't function how they functioned in the country of origin. In these kind of conditions individuals can be more susceptible to adapt new identities (ibid.) Moreover, research has shown that immigrants indeed do come together to support each other in new situation (Sepulveda, Syrett, & Lyon 2011). According to Jones, Ram, Edwards, Kiselinchev and Muchenje (2012) forming a group might help the migrant entrepreneurs to overcome the disadvantages associated with adapting to the new situation.

Two conditions advance the emergence of a generational unit. Firstly, according to Anderson and Hill (2004) it seems that industry affects to the level of cooperation between the migrant entrepreneurs. If cooperation has concrete advantages to the migrant entrepreneurs, the likeliness of cooperation is higher. Secondly, being an entrepreneur is risky business. Being a migrant entrepreneur is even riskier business. Those migrant entrepreneurs who persist often strengthen the relationships they have among themselves (Lippman & Aldrich 2015). The outcome of these two conditions is that the status of pioneer becomes institutionalized. This means that pioneers can then trigger more events that make the generational unit more coherent (ibid.)

Nascency is the second example of a triggering event. The example has similarities with the first example. The idea is that entrepreneurs, who enter/create new industry face a lot of challenges. Because of the challenges, the entrepreneurs are more likely to come together to find intra-industry synergies in order to solve these challenges (Lippman & Aldrich 2015.) As the entrepreneurs cooperate they unintentionally and intentionally form the institutions and rules of the game for the industry (ibid).

Finally, it is worth noting that geographical proximity matters. The reason is that generational units need by definition geographical proximity. Generational units share boundary objects and triggering events, which are tied to time and space (ibid.)

4.1.2 Imprinting

Imprinting as a concept traces back to 1965, when Arthur Stinchcombe presented a paper "Social Structure and Organizations". In his essay he used organization as the level of analysis. The main idea of his work is that in short periods of susceptibility an organization develops characteristics, which will persist throughout time (Stinchcombe 1965).

Marquis and Tilcsik (2013) have argued that imprinting still remains as a concept, which is hard to understand. Therefore, Marquis and Tilcsik (2013) proposed a three-step framework to understand imprinting. To analyze imprinting the focus should be in understanding 1) the conditions under, which imprinting happens 2) the role of environmental conditions in the process 3) How and why imprinted characteristics persist.

4.1.3 Imprinting through collective identity and collective memories

Generational units can emerge in any time and space; however, some generational units persist for longer time than others. The persistency depends on the meanings that are attached to the actions, identity and collective memories of the generational unit (Armstrong & Cragg 2006). Further on the generational unit strengthens the collective memories through three mechanisms. These mechanisms are 1) Leadership and legacy building 2) Institution building 3) Technologies of memory (Lippman & Aldrich 2015).

Leadership and legacy can strengthen the collective memories in many ways. One example is philanthropy work that successful entrepreneurs do after successful careers as entrepreneurs. One of the most famous generational units like this are the members of the giving pledge. By doing philanthropy they set a standard for the entrepreneurial generations to come (Lippman & Aldrich 2015.)

Many successful entrepreneurs, who are the pioneers of some regional entrepreneurial hot spot, stay close to that hot spot even after they have finished their career as an entrepreneur. Perhaps the most known example of this is Robert Noyce, who mentored Steve Jobs and many others. Steve Jobs then did the same to the next generation of entrepreneurs. There are also opposite examples where an entrepreneur leaves his/her area, which makes the area weaker (ibid.)

Institutions strengthen the collective memory and identity. Some institutions are objects that explicitly showcases what ties a specific generational unit together. For example, Silicon Valley has an official history, innovation museums, accelerators etc. These are not only institutions, but mechanisms that strengthen the collective memory and identity (ibid.)

Technologies of memory are basically any kind of information that is stored somewhere outside the human brain. For example, a book is a powerful mnemonic technology that can strengthen collective memories and identity (Lippman & Aldrich 2015.) This is important, because narratives and storytelling enables continuity in times of discontinuity (Ibarra and Barbulescu 2010). Aristotelian structure is important part of technologies of memory. Entrepreneurial hot spots tend to develop unintentionally and the emergence includes chaos. However, stories and narratives are usually told with beginning, middle and end, where chaos is reduced to predictable actions of the heroes of the story (Lippman & Aldrich 2015.) It is worth noting that charismatic and visible individuals also contribute to the actions of the generational unit and entrepreneurial region (Hobsbawm & Ranger 1983).

4.2 Theoretical framework of the study

In this chapter, the aim is to synthesize the theories explained and formulate a theoretical framework to use it as a lens to understand the Stockholm entrepreneurial ecosystem and answer the research questions.



Figure 2. Theoretical Framework

The theoretical framework is formed based on the literature review. It stands on top of ideas from EOE, Entrepreneurial ecosystems and generational units. The theoretical framework enables to examine the selected phenomenon from a holistic, well argued and justified perspective.

The assumptions behind EOE are not explicitly utilized in the theoretical framework. They work as the background assumption of the thesis. The assumptions of the EOE will be discussed with the findings of the thesis in chapter 7.2.

The idea of the framework is to start with a wide loop and then narrow the focus to get more precise answers. The first element of the framework discusses the context of entrepreneurial ecosystem. The idea is to take a historical lens to understand what elements from the ecosystem literature are present in Stockholm. The lens is historical to understand how the elements have evolved over time. Some of the issues associated with entrepreneurial ecosystems literature were tautological issues. By applying a historical lens these tautological issues can be minimized as it increases the understanding of how the elements have come about.

When the actors are mapped out and the context is as clear as possible, the next step is an attempt to understand the developments through the actions of SUs and VCs. The assumption is that the relationship between agency and context can help to understand why the ecosystem is what it is. Said with other words the framework aims to utilize the theories of generational units, collective memories and identities to analyze what is the role of venture capital and startup co-evolution in entrepreneurial ecosystems. Lastly, the framework is able to discuss the outcomes, which were observed by analysing the case through the theoretical framework.

As a summary, the study starts with a wide approach. Zooms into the historical development of the ecosystem, and finally, takes into consideration the actions of the main actors at different points of time. The outcome is increased understanding about 1) How ecosystems emerge as an outcome of interplay between agency and context, and 2) How the outcomes of the interplay imprints to become part of the ecosystem. In essence, the theoretical framework contributes towards the existing literature by increasing understanding about the emergence and evolution mechanisms of entrepreneurial ecosystems.

5. METHODOLOGY

5.1 The qualitative research design

This study utilizes qualitative data collection and analyzing method. Decision to select qualitative research method was made, because it enables to construct and examine a case. (Eriksson & Kovalainen 2008). The case in the context of this thesis is Stockholm entrepreneurial ecosystem. This study is interested to understand what is the case about and to learn from the case in order to contribute to current literature as well as to find relevant policy/managerial implications.

The selection to use case study method was made, because it enables to examine the case in relation to its historical, cultural and sociological context (ibid). The theoretical framework was also formulated on the basis of understanding historical, cultural and sociological context through generational units and EEs. In this sense the theory and the method fits well together.

It is worth noting that case study is not limited to using qualitative data. Using quantitative data is also possible. It is important to understand when to use quantitative data and when to use qualitative data. In general, quantitative methods can be seen as a way to produce statistical generalizations (Ghauri and Gronhaug 2005). Qualitative data should be used when complex issues are being examined and generalizations are hard to make. In the context of this topic, entrepreneurship scholars have often used quantitative data and tried to find generalizable patterns from the data (Henrekson and Johansson 2010). This kind of research has offered lots of value to understand the topic

better, but studying entrepreneurship is by essence a complex issue, hence constructing a case and analysing empirical data might bring about new and interesting findings.

Case studies can be divided into two kinds of studies. The study can be either intensive or extensive. Harre (1979) explains that intensive case study is aimed at providing a complete picture of a single case. Extensive case study aims to find generalizable findings across several cases. This research is an intensive case study as it focuses on one case.

About the generalization of the results, it is good to note that this study does not aim to produce generalizable results, which can be applied in other cases as well. One of the assumptions behind this study is that entrepreneurial hotspots are unique and they have their own history and ways of functioning. Intensive case study fits to this assumption as well, because intensive case study is specifically interested of the uniqueness of the case (Eriksson & Kovalainen 2008).

When doing case selection, the most important things to consider are theoretical requirements (ibid). The formulated theoretical framework is the guiding principal for the study. This means that the case needs to be selected in a way that a discussion with the theory is possible.

Patton (1990) acknowledges five different ways of sampling:

Deviant case sampling is used to identify a subgroup within a culture.

Typical cases provide a cross-section of a larger group.

Maximum-variation case sampling identifies units that are able to adapt to different kinds of contexts and conditions.

Critical case sampling looks for units representing the most 'critical' or relevant cases for transfer of findings to other related cases.

Sensitive cases are used to investigate important issues through the use of individuals or groups who have particular viewpoints.”

This study will use critical case sampling as it fits the theoretical framework. This study is interested to understand how specific generational units have affected the entrepreneurial ecosystem in Stockholm. The assumption based on Lippmann and Aldrich (2015) is that there are units, which persist throughout the time and this leads to imprinting implications, which means that the whole entrepreneurial ecosystem has imprints of the critical generational units. The qualities, which have stemmed from the history can be used to explain why the case is what it is currently.

The literature review of this study was mainly based on peer reviewed research papers. The selected papers are at the bottom of this study as the references. The articles were found by using databases such as Ebsco, ProQuest and Google Scholar. Couple of most meaningful books were also used in this study. The books were found to be useful, if many articles specifically referred to a book.

With regards to the form of the case study report an impressionist tale was conducted (Van Maanen 1988, 1995). This means a one by one description of the main components of the case (Eriksson & Kovalainen 2008). The whole research was designed based on the linear-analytic structure (Yin 2002). This means that this study started by executing a problem formulation, continued to the literature review, described the theoretical framework, proceeded to the methodology and finally presents analysis, findings and conclusions.

5.2 Data collection and analysis

The most common way to generate data in a case study is an interview (Eriksson & Kovalainen 2008). The data for this study is collected with semi-structured interviews. The reason for this is that semi-structured interview keeps the strengths that are associated with open interviews. When the interview is semi-structured it means that the interview questions can be also designed accordingly based on the theoretical framework and the research questions (ibid.)

The question of who to interview and what to ask are important. Firstly, some interviewees ideally have as extensive experience as possible from the Stockholm entrepreneurial ecosystem. Secondly, the interviewees have background in VC or/and being an entrepreneur in a startup. By having these two conditions in place, the study is able to assess and analyze the possible generational unit(s) in the Stockholm entrepreneurial ecosystem, assess the imprints and boundary objects and answer to the research questions. Below the interviewees categorized.

Interviewee	Years of experience in the ecosystem	Date of the interview	The interview platform
Interviewee A: Venture Capitalist	36 years	5.3.2019	Skype
Interviewee B: Venture Capitalist	20 years	14.3.2019	Zoom
Interviewee C: Startup CEO	5 years	13.2.2019	Skype
Interviewee D: Startup CEO	4 years	15.4.2019	Skype

Table 2. Categorization of the interviewees.

The interview questions were designed based on the theoretical framework. The themes were 1) Background of the interviewees. This helped to understand how they

have moved and interacted in the ecosystem. 2) Open up the purpose and the activity of your organization. Explain the key moments. This helped to understand how their organizations had moved and interacted in the ecosystem. 3) Open up your views on the development of the Stockholm entrepreneurial ecosystem. This gave insights into understanding how the ecosystem has built up from their point of view. 4) Open up your views on the current situation of the ecosystem. This gave insights into how the ecosystem is seen now.

Data analysis is an uncertain process. As a researcher it is important to stay objective. However, the nature of qualitative research demands the research to possess sensitivity towards the case. The process of data analysis is a process in which researcher needs to balance between structured and unstructured, between sensitivity and objectivity and between simplification and richness (Strauss & Corbin 1998.)

The data analysis of this thesis was made based on secondary and primary data. With both of the data sets the main data analysing methods were chronological storytelling and pattern matching. Ghauri (2004) explains that chronological storytelling method is effective when researcher aims to understand a longnital phenomenon, which has developed over time. Pattern matching means that the empirical findings are compared to the pre-propositions of the developed theoretical framework.

The interviews were recorded and transcribed verbatim. Interviews were held in English. After transcribing the interviews, the data was read and summarized. After this the data was arranged into categories based on the theoretical framework and chronological events.

6. ANALYSIS

6.1.1 The evolution of Stockholm entrepreneurial ecosystem

This chapter is made solely based on secondary data about Swedish entrepreneurial ecosystem. The loop is wide, because the aim is to understand the Stockholm entrepreneurial ecosystem in context. Ecosystems are not systems that born in a vacuum and by applying a wide loop this thesis is able to understand big developmental lines in the context. In many ways these big developmental lines have played a big role in the Stockholm entrepreneurial ecosystem, because many characteristics and institutions can be traced back to these developmental lines. The literature review of the thesis helped to make this part as it was easier to know what to look for after understanding the theoretical foundations of startup economy and entrepreneurial ecosystems.

This chapter also helps the reader of this thesis to understand the context of Sweden and Stockholm. This context is important, because basically everything this thesis reveals is tied to the context. Entrepreneurship is contextual phenomenon and the idea is to avoid simplifying the reality too much.

World Wars and post war times till 70s:

A decision to start from the times of the world wars was made due to the fact that Sweden is an old country (or kingdom to be precise) with long historical roots. Sweden was one of the dominating European countries throughout the history and has always been the dominating country in Scandinavia.

Before the world wars Sweden was, like most of the countries an agrarian country, which was dependent from agriculture. Since 1850 Sweden started to focus more on mining. This meant that the engineering skills started to develop. (Lundvall & Edquist 1993.) When engineering industry started to develop the first seeds of technological capacities were planted.

Another factor, which still actually describes Sweden well is the high level of concentration in the business sector. What this meant is that also power and wealth were concentrated. The concentration happened especially in the financial industry where the three largest banks were controlled by three different families. Further on when Saab, Volvo, Ericsson, Electrolux, Atlas Copco etc. were founded in the beginning of the 20th century, they were 1) founded by families 2) they collaborated with the three main banks in Sweden (Magnusson 2000.)

Third important point are the world wars, especially the second world war. Before, during and after the second world war the Swedish government was doing projects in collaboration with the big Swedish corporations. For example, telecommunication projects with Ericsson and defense projects with Saab (Edquist & Lundvall 1993.)

Swedish institutions started to develop after the second world war as well. The first Swedish technology policy institution was the technical research council (TFR). Its aim was to ensure that Sweden has high quality research and that the research is aimed at solving the issues in Sweden as in the above mentioned example when university research was aimed at solving issues in the telecommunication area. This meant that industry had a lot to say in what is being researched. Additionally, this meant that many of the Swedish big industrial corporations end up employing PHDs from the university to lead development projects (OECD 2013.)

A policy, which has directed Sweden's technology/innovation policy in a fundamental level was introduced as early as 1942. The Malm Commission decided that there will be no setup of national technological institute (For example, in Finland there is VTT and in The Netherlands there is TNO). A mandate to serve the general public needs was given to the universities. This is important to understand, because this mandate still is within the Swedish universities and it directs the public discussion. (OECD 2016.)

In 1968 TFR changed the name for Board for Technical Development (STU). This institution was more widely responsible of the industrial policies. STU continued to heavily coordinate the development projects within Sweden and it was heavily integrated to Swedish business landscape. However, it was not much different from its

predecessor TFR, except for the more sharpened focus on RnD activities with the businesses (OECD 2013.)

After the world wars Sweden went to similar direction as other western European countries. This meant that social democrats were in power and GDP growth was fast (Magnusson 2000.) This all lead to the model called the Swedish Model. What this essentially means is that there were three main forces in the societal level of Sweden. These forces were labor unions, capital (or the big corporations) and the social democratic government. A historical compromise was made after second world war where the labor unions accepted that corporations need to be profitable. At the same time there was a goal of full employment. These were the agreed foundations behind every negotiation that were made between the capital and the labor. What is notable that negotiations were done with the goal to reach consensus and to avoid conflict. The negotiations were voluntary and aimed to fulfill these two goals. Sweden was considered as a good-case-practice to take the middle road between capitalism and socialism (Magnusson 2000.)

This is something that can be still seen to affect the Swedish business landscape. For example, strikes have not been in the toolbox of the labor union. This is something different compared to for example France and Finland. It can also have effects to the concept of perceived winner and how innovation and disruption have been integrated to the Swedish society. The need for business to grow, innovate, expand and export have been in Sweden for a very long time. This has lead the whole society to always strive to same direction, which are big companies who succeed globally, but the companies also need to contribute back to the society especially in the form of employment, but also tax payments. This model encountered issues later on, but the effects of the Swedish model can still be seen in the Swedish society in the way that society accepts and sees the relevance of successful companies and accepting the changes that disruptive companies create.

These above mentioned were the main driving forces in the Swedish society till 1970s when the first economic crisis with the global oil crisis became real and started to change the landscape.

The crisis in the 1970s and 1980s starts to change the “Swedish Model”:

The 70s were challenging times in Sweden. The oil crisis at the beginning of the 70s was one global factor affecting Sweden and its economy. At the same time the oil crisis revealed that the big industrial power houses of Sweden had become less profitable. This led to devaluation of the Krona, because the Swedish government wanted to restore the competitiveness of the Swedish industry. Towards the end of the 70s the devaluation had worked. However, it had left Sweden with high unemployment and big budget deficit (Magnusson 2000.) New tools were needed at this point of time.

At this time Sweden started to look towards US to find ways to increase the employment rate. (Jørgensen and Levin 1984). The legislation was tweaked to treat capital market more favorably. This led to the first VC cycle in Sweden. The actors behind the VC firms were corporates, banks and government.

The first venture capital cycle can be treated as a learning process. The government set up many regional development funds to enhance the creation of new companies. However, Swedes had similar obstacles compared to the US market. The managers in the companies were not experienced in high growth venture creation and the management styles applied were meant for big industrial companies, not towards high risk, high reward business experiments (Isaksson 2006.) Later on all the VC companies set up at the end of the 70s were not successful and got closed. No winners were created through the first VC cycle in Sweden (ibid).

In 1972 the Swedish Trade Council was established with a mission to help Swedish companies to do business abroad (Proposition 1972:31). This institution was merged with Invest Sweden 2013. Now they operate with the name Business Sweden (Similar to Business Finland).

Even though the government was seemingly seeking for alternative solutions and even established an institution to promote internationalization, the biggest effort was to increase the public sector (the taxes were very high at this point) and to secure that the incumbents in the home market are doing well. This led to a situation that firms that did exporting did not have enough labor to expand and run their operations. This was

due to the fact that public sector and subsidized industries/companies were sucking all the talent. At the same time devaluation had led to high inflation. High inflation backed up with more liberated capital market led the Swedish economy to overheat. In fact, Sweden was at this point growing below the OECD averages and when entering to the 1990s new tools were again in need (Magnusson 2000.)

Industrifonden (Swedish Industrial Development Fund) was also established 1979. Nowadays, Industrifonden is executing Swedish Governments Venture Capital investment strategy. Back in 1979, Industrifonden was in reality a soft loan provider for the big Swedish corporations (Isaksson 2006). This illustrates well what was the concept of winner in Sweden at this time and how the institutional setting was tuned towards the Swedish model.

In the mid 1980s STU continued its control over research with 14 different focus areas ranging from genetics to ICT. However, a debate started to arise about the relationship between government/industry driven research and between bottom-up basic research. This debate is still present in Sweden. However, the main focus is still in the business relevance of the research (OECD 2013.) This can be seen as affecting to the Swedish entrepreneurship landscape still today through the fact that the people that go through the higher education have knowledge from relevant fields.

In the 70s started also a developmental line that affects the current state of the entrepreneurial ecosystem in Sweden. Glimstedt and Zander (2003) explains how the Swedish telecommunication industry was formed and developed since the 1970s. Basically, what is described is a concept called “pockets of competition”. This means that the telecommunication industry was already in the 70s allowing competition in two fields; mobile telephony and data communications. This led to a situation where private companies entered these fields.

The above starting point eventually led to a structure where there were established performing incumbents, but also room for innovative entries. The room for innovative entries was enabled by the deregulation of the industry and early adopting of PCs and Internet. Glimstedt and Zander (2003) points out that the Swedish Telecommunication

market was the most advanced in the whole world in the 90s. The table below illustrates how the Swedish market was formed in the 90s:

Layer	Service	Typical Firm Types
4	<i>Application Layer:</i> E-mail, FTP, Web design, including online information for business or private use, software platforms for B2B and B2C e-commerce, etc.	Entrepreneurial software firms
3	<i>Navigation and Middleware Layer:</i> WWW browsers, electronic payment systems, WAP related applications, search engines	Entrepreneurial software firms
2	<i>Connectivity Layer:</i> Internet access, Web server parks	Primarily large firms due to sunk costs of network provision
1	<i>Network Layer:</i> trunk networks, fixed local access networks, radio networks, Ethernet LANs	Large, integrated network equipment manufacturers

Table 3. The structure of the Swedish telecommunication market in the 90s. (Glimstedt and Zander 2003).

While Ericsson was dominating the layer one, the layer two was dominated by Tele2 and Telia. The layers 3 and 4 were filled with young and entrepreneurial firms. Towards the end of the 90s the Internet bubble was starting to heat up. This was also true in Sweden, where the VC market was booming, but there was also significant growth in the startups rates. In 1999, there were over 950 Internet companies operating in Stockholm alone. On top of this there are other regional hotspots like Gothenburg where Chalmers Institute of Technology is located (Glimstedt and Zander 2003.) The critical mass of young and innovative companies was there at the end of the 90s. This is the time when the founders of Skype and Spotify where also doing their first business experiments. IPOs were also happening at this time (Isakkson 2006). The first Swedish unicorn, Skype was established 2003 in Stockholm by Nicklas Zennström. Since 2003 Sweden has been able to generate unicorns and smaller successes in a stable pace. King was founded 2003, Klarna 2005, Spotify 2006, Avito 2007 (Founded by two Swedish serial entrepreneurs, but the company was founded in Russia), TrueCaller 2009, Mojang 2009. Many of the founders of these companies are still active in the Swedish startup scene by the means of investing, mentoring or still continuing as CEOs.

The 1990s: The time for drastic contextual changes

When Sweden entered the 1990s the economy was overheated. The government reacted by introducing several proposals to slow down the overheating, including ban on strikes, ban on taxes and wage freezes. This was not taken well by the labor unions and the government was voted down in the parliament. New government stepped in and introduced milder restrictions. However, the real reason to cool down the Swedish economy was the international economic turndown. At the same time the Swedish credit market was found not to be healthy but based on property speculations. The inflation turned to deflation and Sweden experienced its worst economic downturn it had ever seen. (Magnusson 2000.)

The antidote for the 1990s crisis was a packet of several reforms to the Economic Policies. According to Andersson et al (2016) these can be seen as the key drivers why Sweden was able to catch up other OECD countries in terms of GDP growth. The first reform was to dismantle the central wage negotiations, the corner stone of the Swedish model since 1930s. The individual bargaining opportunities were increased and this enabled companies to invest to their human capital as the wages were not set centrally.

Second reform was to dismantle many of the monopolies in Sweden, including telecommunications, electricity and air travels. On top of the dismantling Sweden introduced legislation, which enforced competition and did not allow concentration through mergers. This made inefficient firms to disappear and allowed new entrants to enter with more ease compared to the previous decades (ibid.) For entrepreneurial ecosystem it is important that there is a mechanism that removes inefficient firms. High growth business experiments need real and honest feedback from the market. Well-functioning and competitive market place can offer this. (Johansson 2010.)

Third reform was to open the Swedish corporate ownership for internationals as well. This enabled foreign capital to flow in Sweden. Along with this reform corporate taxes were decreased from 52 percentage to 28 percentage. Top marginal tax was also decreased from 35 percentage to 25 percentage. The tax system was also tweaked to not favor big and capital intensive industries anymore (Andersson et al 2016.) At 1996 it was also allowed that public pensions funds invest to venture capital (Isaksson 2006).

In 1995/1996 the Swedish venture capital industry saw its second cycle. The reasons were the improved financial situation in the stock market and the above mentioned reform to allow public pension funds and international investors to invest to venture capital funds (Isaksson 2006). Andersson et al (2016) notes that from 1989 to 1999 the foreign ownership in Swedish companies increased from 8 percentage to 40 percentage. This is especially important, because the VC market was already established in the US at this time. Now, Swedish VCs could co-invest with investors from abroad and this enhanced the learning of the VCs and entrepreneurs. It is noteworthy that this activity was organic. There were no similar kind of programs what Israel and US used. Glimstedt and Zander (2003) notes that companies like IBM and Cisco were entering to Sweden at the end of the 90s. These kind of competent economy actors would not enter to Sweden if the market would not be mature enough. There was a lot of potential in Sweden at the end of the 90s and investors from US had noted this.

On the policy side 1994 can be seen as the year when Swedish government for the first time tried to focus on the creation of entrepreneurship. In 1994 Teknikbrostiftelserna (The Foundations for Technology and Business Bridge Building) had an aim to bridge the gap from education and research to entrepreneurship. Along with the creation of the new foundation regional science parks were also created in order to enhance the innovation flow. However, there is no data showing whether this policy was successful or not (Glimstedt and Zander 2003.)

In 1991 STU is merged with Statens Industrivek and State Energy. The new institution is named NUTEK and was formed due to the strong industry relationships. However, this structure was found inefficient as it maintained structures, which were non-competitive. Despite this fact NUTEK was dismantled only in 2009. Before this the institutions that NUTEK was created upon were split into four different organizations. State energy became agency of energy, some parts of the organization became Institute for Growth Policy Studies, a whole new innovation agency VINNOVA was created 2001. NUTEK continued to maintain cooperation programs with the corporations till 2009 until it was merged to become part of Swedish Agency for Economic and Regional Growth (Tillväxverket). Tillväxverket and Vinnova are still functioning (OECD 2013.)

Additionally, Sweden had interesting policy in the 90s to bring PCs to the hands of the Swedes. This meant that Government gave tax breaks to the companies who got computers for their employees. In many media articles top Swedish entrepreneurs point out that this was one of the key reasons why they got interested about computers and IT. These top entrepreneurs include for example, Spotify's CEO Daniel Elk and Tictails co-founder Birk Nilson (Semuels 2017).

The 90s were a time for throughout reforms in terms of enabling entrepreneurship. Few of the important reforms for the context of this thesis were for example, removing barriers for foreign ownership of Swedish companies. This meant that more capital was free to flow to be invested to Swedish companies. (Braunerhjelm and Henrekson 2013.) Another important policy was to deregulate many markets. For example, telecommunications was one of the deregulated markets and a lot of entrepreneurial activity did revolve around this market (Glimstedt and Zander 2003, Braunerhjelm and Henrekson 2013.) Taxes were also lowered from top marginal tax rate of 75% to 50%. Corporate tax was cut to half (Braunerhjelm and Henrekson 2013.) According Johansson (2010) too heavy re-distribution is destructive for high-growth entrepreneurship.

The labor market was made more dynamic through accepting for-profit employment agencies, temporary employment contracts were allowed, firms with no more than 10 employees were allowed to terminate employee contracts with ease, centralized wage bargaining was dismissed. It is known in literature that dynamic talent movement is good for an entrepreneurial ecosystem (Braunerhjelm and Henrekson 2003.) See the full list of reforms [here](#).

The 2000s – Two strong decades for Sweden

Macro economically speaking Sweden has been doing really well since the change of the millenium. GDP growth has been among the strongest among the OECD countries. Sweden among other countries was hit by the burst of the Internet bubble in the beginning of 2000s and by the global crisis of 2008, but the hits to the economy were smaller than to other OECD countries. Sweden's ability to rebound back to growth after the global crisis has also been exceptionally strong (OECD 2013, OECD 2016.)

The improved economic situation since the mid 90s can also be seen in the VC industry. Since mid 90s the Swedish venture capital industry started to boom. What is notable that Swedish government started to withdraw from the VC investments. It still has Industrifonden, which is a major player in the Swedish venture capital market, but the market has been mainly constructed from private actors since the mid 90s. The last major government interventions were Atle and Bure founded in 1992. The aim of this fund was to solve market inefficiency and the ultimate goal was to privatize the funds. This happened relatively fast and by 1995 the government had sold its holdings in the funds (Isaksson 2006.)

The VC market grew both in number of VC firms and amount of SEK invested till 2000, which was the peak year. From 2000 to 2004 the VC capital dropped due to the IT crash. 2004 was the lowest amount of VC money invested in the time period of 2000-2017. In 2000 there were 200 VC firms managing around 120 billion SEK. In 2004 the amount of VC firms had dropped to 70 and there were 80 billion SEK managed by these firms (Isaksson 2006.) What is notable that even though the drop from 2000 to 2004 was significant, the capital under management, amount of VC firms and amount of deals made was still higher than it had ever been since post world war. According to OECD reports (2013, 2016) Sweden has managed to maintain strong VC industry. Only Israel and US being able to do better within OECD countries. According to Isaksson (2006) in the mid 2000 the IPO market started to boom in Sweden as well, being the strongest in Europe.

As of today the VC market can be considered stable, both in terms of the money invested and exits generated. Data is somewhat hard to compile, but the data found gives a general understanding. For example, a report from Creandum (2015) concludes that from 2000 to 2014, 263 Swedish companies made an exit. Out of this little bit less than 10% were IPOs. The combined exit value was 23,7 billion dollars. Factset report (2018) collected Swedish IPOs from 2014 to 2017. There were 280 IPOs documented, so the pace has increased compared to 2000-2014. Compared to other Nordic countries, Sweden has over 50% better performance. In terms of investments going in, the level of VC investments has stabilized to a level of 200 million dollars, in time period of 2010 to 2017 (Tillväxtanalys 2018).

6.1.2 Summary

Opening up the dynamics for the success of Sweden is complicated. It is hard to pinpoint exactly, which input lead to the described output in the new millenium. One reason has been pinpointed to be the policy reforms made in the 90s. (Andersson et al 2016). Another fact is that RnD spending has been among the highest among the OECD countries (OECD 2013, 2016). Many big Swedish corporations are now part of larger multinationals. This has enabled information to flow into Sweden from abroad, which has improved the capacity of the Swedish companies. Additionally, Sweden has been the center of Scandinavia. This means that many big corporations (for example Apple and Amazon) has RnD operations in Sweden. Basic infrastructure is also in place. Swedish private people and Swedish companies have access to Internet and they are capable of utilizing Internet and Internet related services in their activities (OECD 2013, 2016.)

One reason for Swedish success probably is good level of higher education. Swedish universities are able to publish high amount of high quality research (OECD 2013, 2016). This indicates that Swedes are among the top nations to understand the most recent developments in research, as well as within the STEM areas. Sanandaji (2014) points out in his research that this is what entrepreneurial economies need.

According to OECD (2013) the performance of the economy 1 in the new millenium in Sweden is very good. Sweden has performing big companies within many industries. The employees in the company are individuals with high knowledge and capacities and the RnD spending of these companies is high. The fact that many big companies exist and perform is a good thing, because it means that the economy is not too dependent from one industry or company. Some research indicates that spillover from economy 1 combined with the high quality of higher education might be one important factor affecting to entrepreneurial ecosystem (Like in the case of Silicon Valley and Israel where movement from big corporations to startups and vice versa is happening) (Sipola 2015).

Finally, one important reason is the developmental line started in the 1970s in the field of telecommunications. The so called pocket of competitions and disbundled networks have been good playing grounds for entrepreneurs (Glimstedt and Zander 2003).

In terms of Innovation Policy Sweden is still heavily affected by the consensus building. Sweden follows so called “triple helix” -model, which means collaboration between universities, industry and the government. Some agencies like Tillväxverket follow this model quite conservatively. VINNOVA on the other hand follows more the European way of managing innovation (OECD 2013.) In general, what can be seen from Swedish innovation policy is that it is complex. There are over 20 different governmental and semi-governmental agencies doing some sort of operations in the field of innovation policy. It is hard to coordinate this many agencies and get them to go into same direction. It is also hard to grasp, which agencies (if any) are relevant for the Stockholm entrepreneurial ecosystem (ibid.)

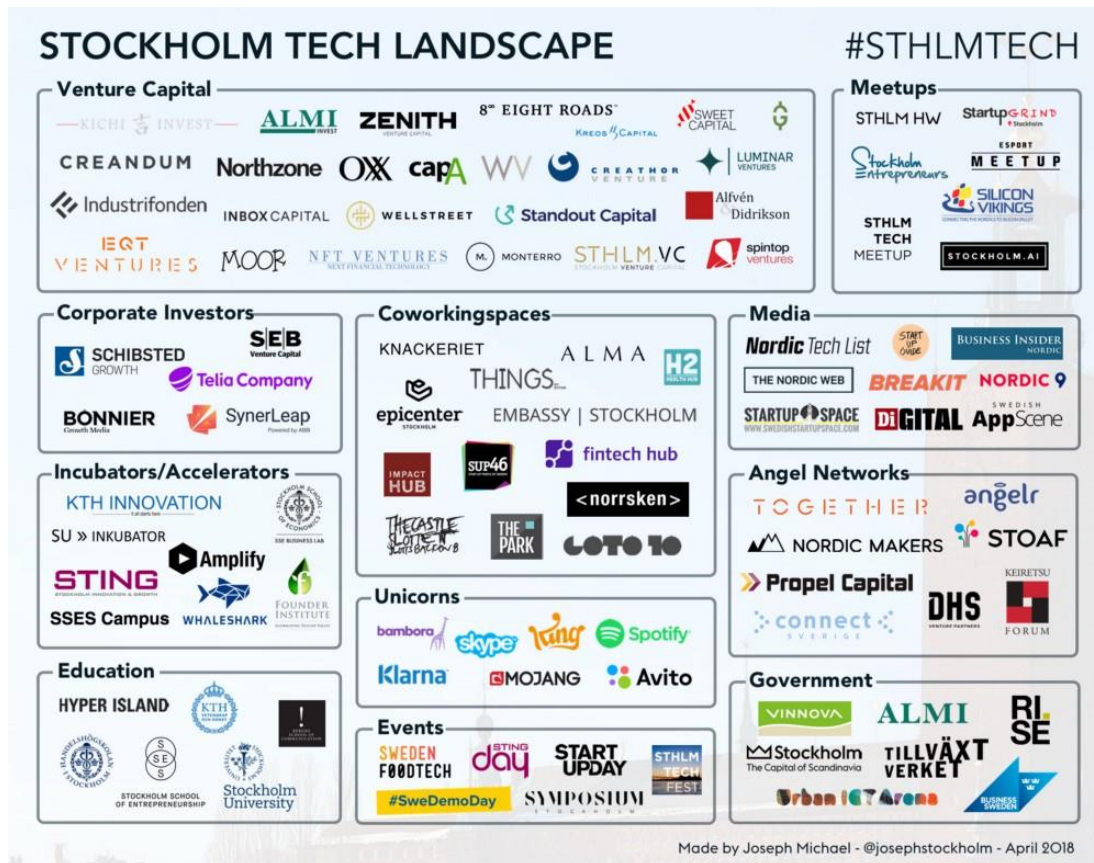
There was a time when Swedes did large projects and tried to solve big issues with the triple helix –model. This was pointed out in the examples given from Ericsson when telecommunications were developed in Sweden. In the 70s and 80s Sweden was not successful. This could be seen both on the macro economical level, as well as in the micro level of technology policy execution. Big projects executed with the triple helix –model did not work. This had effects to the structure of the innovation actors. In the 80s and 90s Sweden took a step back from trying big projects, but it maintained the approach of consensus and triple helix, which lead to the situation that Sweden has now over 20 governmental agencies, which coordinate projects vertically and horizontally and try to do little bit of everything (OECD 2013.)

In OECD report (2013) VINNOVA is considered main institution in the area of innovation policy. It claims to want to shape the innovation policy and wants to be disruptive at some sense. However, it is not mandated with a big budget. In 2012 the budget was 220 million. This is around 1/3 of the budget that TEKES has in Finland or FFG has in Austria. Another difference compared to other OECD countries is that VINNOVA has to co-operate and co-fund projects with other governmental and/or semi-governmental agencies. Additionally, only 30% of the budget goes directly to

companies. Much more goes into universities and research centers. In Finland and Austria this share is 60-65%.

According to Sipola (2015) it can also be challenged whether TEKES is doing good job or not in the field of HGF. Maybe in the end it is good thing that Vinnova is by design not strong and doesn't provide a lot of money directly to the market. In general, literature is quite unanimous about the fact that HGF don't only need finance, but competent finance (Johansson 2010, Gompers & Lerner 2001).

As of today, the Stockholm entrepreneurial ecosystem can be considered looking somewhat similar to Israel. It has high quality universities, it has track record of building HGFs, it has high quality economy 1 players, it has a domestic VC market and a presence from the best VCs in the world (like Sequoia Capital), it has high quality business angels (former entrepreneurs), It has incubators and accelerators with track record (For example STING), supporters and mentors. Below is an illustration from Michael (2018) about the Stockholm entrepreneurial ecosystem now.



Picture 1. Illustration of Stockholm Entrepreneurial Ecosystem (Michael 2018).

Author granted the permission to use in this thesis.

6.1.3 Background, pre-emergence and emergence phases summarized

Finally, all of the previous is attempted to bring together using the life-cycle framework from Avnimelech et al (2014).

Category	Requirements	Present in Sweden?
Background Conditions Phase	<ul style="list-style-type: none"> • Creation of high technology industry and R&D/ innovation capabilities • Concern for the financing of SME not necessarily high technology SU • Growing acceptance of technological entrepreneurship and a new model of high technology innovation involving SME 	<ul style="list-style-type: none"> • Yes. Created through fast development since WW2 • Yes. Since 70s. Even more in the 90s. • Yes. Since 70s. More in the 90s.
Pre-emergence phase	<ul style="list-style-type: none"> • A technological revolution • Growth of informal VC and some formal VC funds • Increasing numbers of SU excess demand for VC services • Experimentation (variation) and learning (selection); no stable distribution of VC forms 	<ul style="list-style-type: none"> • Yes. Since 70s. More in the 90s. (Internet bubble). • Informal and governmental experiments since 70s. Formalising in the 90s. • More and more in the 90s. • In the 90s.
Emergence phase	<ul style="list-style-type: none"> • High rate of growth of VC and SU activity • VC-SU co-evolution process; strong collective and onset of cumulative process • Increased competition and overshooting • Entry of less skilled VC managers/firms and SU companies 	<ul style="list-style-type: none"> • From mid 90s to 2001 (Internet bubble). • Same as above. • Overshooting in the bubble. Competition increased after policy reforms in the 90s. • Yes. Many of these exit after the bubble.
Crisis phase	<ul style="list-style-type: none"> • A deep crisis that may be caused by a one or combination of factors including stock market downturn causing an inability to have IPO (sometimes termed “overshooting,” negative government actions, more general economic downturn, etc. • Exit of VC funds and closure of SUs, while SUs suffer liquidity problems • General loss of confidence in the industry 	<ul style="list-style-type: none"> • Internet bubble was the crisis. • VC funds and SUs close. • Yes. For example Interviewee B mentioned this.

Consolidation phase	<ul style="list-style-type: none"> • The VC industry restructures with the help of collective institutions • New institutions (formal and informal) emerge • New government policies are implemented 	<ul style="list-style-type: none"> • Some of the most successful Stockholm VC offices were founded after the bubble. • For example, Sting, but also certain ways of acting emerge (See Chapter 6.2) • No major policies implemented.
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Table 4. The conditions of Stockholm entrepreneurial ecosystem summarized.

6.2 Role of venture capital and startup co-evolution in the emergence of an entrepreneurial ecosystem

Previous chapter has provided insights on what does the Stockholm entrepreneurial ecosystem look like. It has also provided historical analysis on some of the factors that have molded and shaped the Stockholm entrepreneurial ecosystem. However, this picture is not enough, because it is not able to discuss how exactly the ecosystem have emerged and especially what has been the role of the SUs and VCs in the emergence of the ecosystem.

This chapter sharpens the focus to SUs and VCs and aims to understand what has the role of SUs and VCs been. By adding the primary data to the picture, the understanding of the causal relationships becomes clearer and the analytical power of this thesis is deepened.

The main focus of this study was to understand the role of venture capital and startup co-evolution in the emergence, evolution and persistency of an entrepreneurial ecosystem. The tool to understand this question was the theory of generational units. A generational unit was indeed found and the generational unit was especially strong in these two fields, financing (VC) and entrepreneurs (SUs). Next this thesis will use the theory of generational units to explain how things have evolved to the current state in Stockholm using the theory of generational units, collective memory and identities.

6.2.1 Triggering event and pioneers

The triggering event can be seen to be the de-monopolization of the telecommunications industry. The de-monopolization and technological development opened up new business opportunities for entrepreneurs.

According to both secondary and primary data Jan Stenbeck was one of the most important entrepreneurs to seize this opportunity. Jan Stenbeck is a Swedish entrepreneurial hero. Many of the interviewees talked about him as the person to kick start things in the Stockholm landscape. Stenbeck studied in Harvard business school and was based in US. After his graduation he worked for Morgan & Stanley and after that he founded Millicom (large telecom operator). After his father passed away 1977, he inherited Investment AB Kinnevik. He moved his sisters away from the business and re-changed the focus of the company from paper and pulp towards media and telecommunication (Svenskt biografiskt lexicon 2007-2011).

He didn't work alone. One of the interviewee said that during his time he invested to some 400-500 companies. According to another interviewee he had a specific way of running his companies. His companies had a specific trainee program to develop high capacity individuals. These individuals were called Luma. Luma is an old Swedish lamp manufacturer. The idea was that the trainee is the first one in the office to turn the light on and the last one to turn the light off. One of these trainees is now a partner in a VC firm one of the interviewees is working in. Many of the trainees went and started successful high-growth companies later on.

What one also needs to understand is the difficult situation of Sweden at the end of 80s and beginning of 90s. The times were extremely uncertain and people were genuinely afraid of the future. The people were longing for change. In this kind of uncertain environment people are susceptible. In the case of Stockholm, it meant that entrepreneurship started to become okay or even desired. Obviously not all the Swedes were thinking of high-growth ventures, but the uncertainty made it more probable that the kind of thinking that Jan Stenbeck and people close to him were driving, gained popularity.

6.2.2 Boundary objects

The individual entrepreneurs' coalescence into generational units around shared symbols, myths and creation stories (Lippmann & Aldrich 2015). One of the main boundary objects found from the data, was the notion of winning. The thinking of Jan Stenbeck was different. It was not normal at that time in Sweden. Sweden was heavily socialistic country in the 80s with a big government involvement. Entrepreneurial thinking and winning in business were not the normal things. Most of the successful big Swedish corporations had been established before 1950s. Since 1950s the notion of winning was not present. Jan Stenbeck with his people changed this. Interviewee A discusses this.

“Kinnevik owned everything but instead the entrepreneurs building this companies got very very good salaries. Very very good fringe benefits as long as they were successful. If they were less successful they were just thrown out with the head before out of the window.” Interviewee A

The mechanism of win or out is heavily present. Interviewee B mentions similar things.

“Spreaded a mass movement of Internet businesses, let's dominate, let's rule the world etc etc.” Interviewee B

Another boundary object identified in the interviews was the notion of sharing. Interviewee B discusses how it's important that successful entrepreneurs are celebrated and that they interact with the new generation as much as possible. This idea has been reinforced, because both interviewee C and D discussed how it was easy for them to get connections and in general get help from the ecosystem when they needed help.

“For me the closeness to others who have done this is an important and I think that Stockholm has that, like all the way through the companies that were built really early in the 90s to what happened 15 years ago and the generation that is up and coming now. That's one key. I think the way of mentally lowering the threshold of what is

possible and I think that's it for me. I don't know how true that is for the success, but that's really important." Interviewee C

"I mean it's very generous community you share your competencies and skills. It really, I would say that it's one of factors that has provided valuable inputs to the journey that we have gone through." Interviewee D

One mechanism that comes up in interviews A and B are the trips to Silicon Valley. Interviewee A went to the Valley in the beginning of the 90s with his co-founder. They co-founded one of the first private VC companies in Sweden. Interviewee B went to the valley in 1999.

It could be that the Silicon Valley model and thinking were imported and re-configured for the Stockholm market. Interviewee C mentions that also their company has participated a program in Silicon Valley. Also, many of the top Stockholm startups received funding with a VC lead from Silicon Valley, not from Stockholm. It doesn't mean that Stockholm functions exactly like Silicon Valley, but for instance, it is normal to get funding from Silicon Valley.

Also, notions of win or out and sharing within the ecosystem are something that are happening in Silicon Valley as well. In many ways Silicon Valley is a place people take example of, so it does act as a boundary object. It is good to note that this process has been quite informal. The intention was never to copy-paste Silicon Valley to Stockholm, but people did take example and it was/is used as a boundary object, because it has given meaning to the actions of the actors in the ecosystem.

6.2.3 Imprinting

In this chapter the aim is to find, which characteristics from the pioneer generational unit have persisted and how the characteristics have persisted.

Interviewee B uses an analogy of aircraft carriers when he explains why the Stockholm ecosystem is so good today.

“If you look at the Stockholm ecosystem you have what we call aircraft carriers. Really large ships from where companies can take off and land. And the aircraft carrier is this large invincible big black dangerous thing that moves around the cross the world. Spotify is one. iZettle has become one even though it got acquired by Paypal it’s becoming Aircraft Carrier. Klarna is another one.” Interviewee B

“Captains of the aircraft carriers become role models. Daniel Ek at Spotify and I don’t know they probably have 3000-4000 thousand employees nowadays. A lot of people at Spotify, they will think that Daniel is a great guy, but they will also think, if he can do it, I can do it.” Interviewee B

The mechanism of role models can also be seen with interviewee C and D. Interviewee C mentions.

“founders of Spotify were classmates of one of my co-founders that was not a sidekick but people have gone before us. It didn’t feel impossible to quit and go for it we had never done it before but it didn’t feel impossible.” Interviewee C

It seems that the notion of sharing and the presence of leadership and legacy have imprinted characteristics from the early generational units and they still persist in the Stockholm ecosystem.

Another sign of imprinting are the stories and myths about entrepreneurship. When asked about the current state of the ecosystem the interviewees talk about similar kind of issues. One could argue that the stories about Jan Stenbeck are powerful stories and myths. They certainly are, but the less experienced interviewees did not mention him, only the more experienced interviewees talked about him and told stories around him. In a way it seems that he was really important myth and story for the older generation, but nowadays the stories are different.

When asked about the current state of the ecosystem the issues that came up were quite similar.

“what I think they could do is just create a good education system and have great safety nets in society and then leave it up to and lower the complexity and then you know then they leave it up to us.” Interviewee C

“I think a lot of the government involvement is not needed. It feels good for politicians to do a lot of stuff but it has very limited effect and its waste of money.” Interviewee B

It is not known, if the interviewees are familiar with the literature about entrepreneurship, but the factuality of their statements is not the point here. This is interesting, because in essence these are stories where the entrepreneur is the most important actor. Why the government involvement is being criticized might be sum of many parts. One reason can be that some of the most famous people in the ecosystem write about these things on newspapers (See i.e. [Helander 2008](#)).

Another reason might be that the times in Sweden in the 80s and in the beginning of 90s were tough. Many people see that government involvement was too much and in fact making harm to the country. For example, in 1984 there was a strike of 100 000 people against an attempt from the government and employee unions to heavily tax corporations (See [Sanandaji 2016](#)).

The main point however is that there are stories and beliefs in the ecosystem and these stories and beliefs direct the actions. For example, when actors see that the entrepreneur is the main actor with responsibility to drive the success of the venture it gives meaning to the actions.

6.2.4 Resource acquisition of VCs and SUs

Resource acquisition of the relevant actors is one of the key mechanisms of a functioning entrepreneurial ecosystem (Spigel & Harrison 2018). Some mechanisms of resource acquisition process were observed from the primary data. This chapter illustrates how pioneering generational units, not only emerge through triggering events, but how their development can be very informal. This is important to understand, because it highlights the fact just how difficult it is to intentionally start and engineer entrepreneurial ecosystems.

In general, what the data revealed from these processes was that in the emergence of the ecosystem the ability to draw in resources is important. Interviewee A discussed how in the times of the emergence the route to acquire financing was really informal.

“we were recommended from actually a relative from one of our partners to meet one of the most absolutely well-known as we say in Sweden heavy financial profiles in the Swedish market, corporate finance market and he immediately understood the power in our idea.” Interviewee A

When interviewee A moved on to become VC himself, he still explained how his firm mainly found the investment targets through word of mouth and informal channels. So at least according to this data sample, this study leans towards stating that when things are evolving the resource acquisition and the ability to do that is really important.

However, in the current ecosystem of Stockholm the process is different. Obviously, the ability to gain resources is important, but it is much easier nowadays to find those resources. VC industry is set up, there are famous incubators like Sting and sharing is part of the culture. This doesn't mean that anyone can become entrepreneur and use the resources of the ecosystem. Win or out –mentality gives direction to the actions of the actors. For example, the selection criteria to Sting incubator/accelerator is strict. Only if you can become a winner you get an access. The criteria to get VC money is strict as well, because the VCs are experienced and know what it takes to build a winner.

6.3 Summary of the findings

In this chapter a summary of the findings is given. An attempt to put the evolvement process on a historical timeline is made.

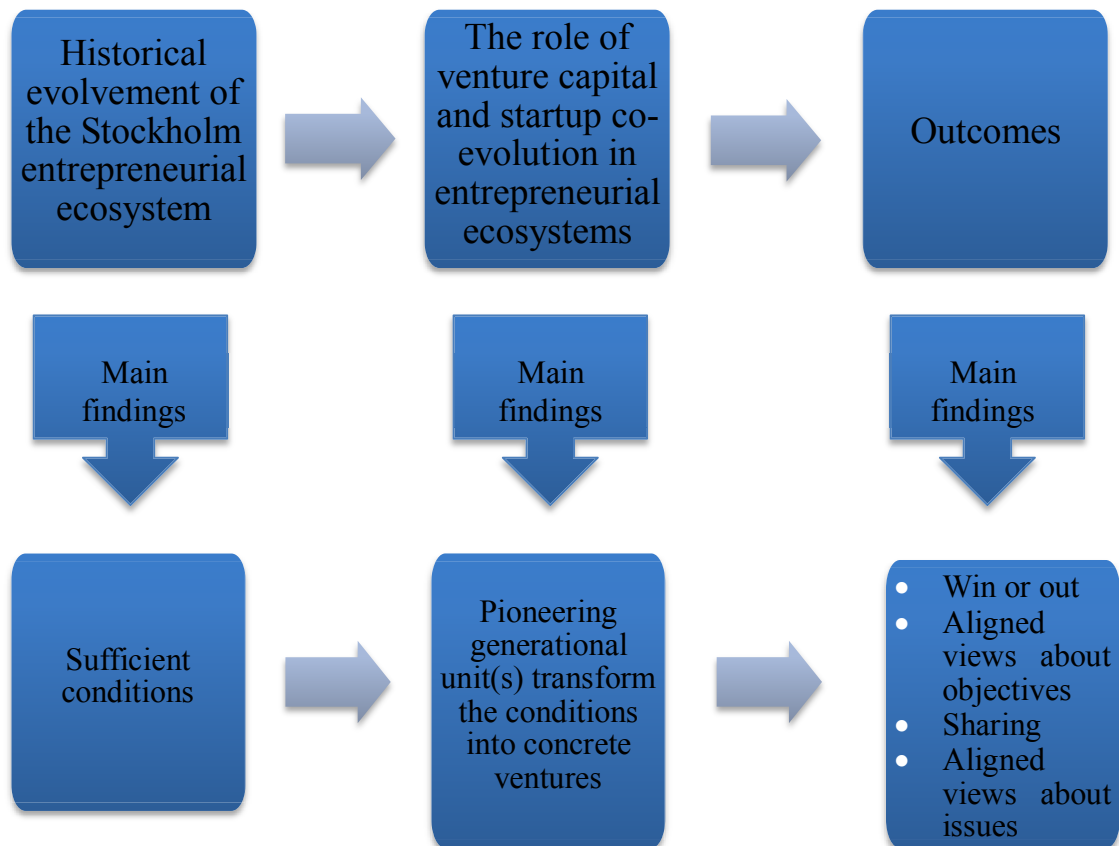


Figure 3. Summary of the findings.

The main question of the study was to understand the role of startup and VC co-evolution in the emergence and evolution of an entrepreneurial ecosystem. The study found that the pioneering entrepreneurs and VCs were the key agents in the development of the ecosystem. Some of their actions institutionalized and became key part of the ecosystem. This happened through the mechanism of imprinting.

The secondary research question was about the historical development of the Stockholm entrepreneurial ecosystem. This was done to understand the context in which the generational unit emerged and coalesced. The background, pre-emergence and emergence conditions were extracted and summarized based on historical and secondary sources. The conclusion of this part was that sufficient conditions existed in Stockholm. The generational unit was able to transform these conditions into success stories. Based on the research questions this study was able to contribute towards existing literature and bring light into questions such as, what is entrepreneurial ecosystem doing and why it generates the outcomes it does.

Finally, the findings of the study can be placed on a timeline. This timeline helps the reader to understand what was the process of ecosystem development concretely.

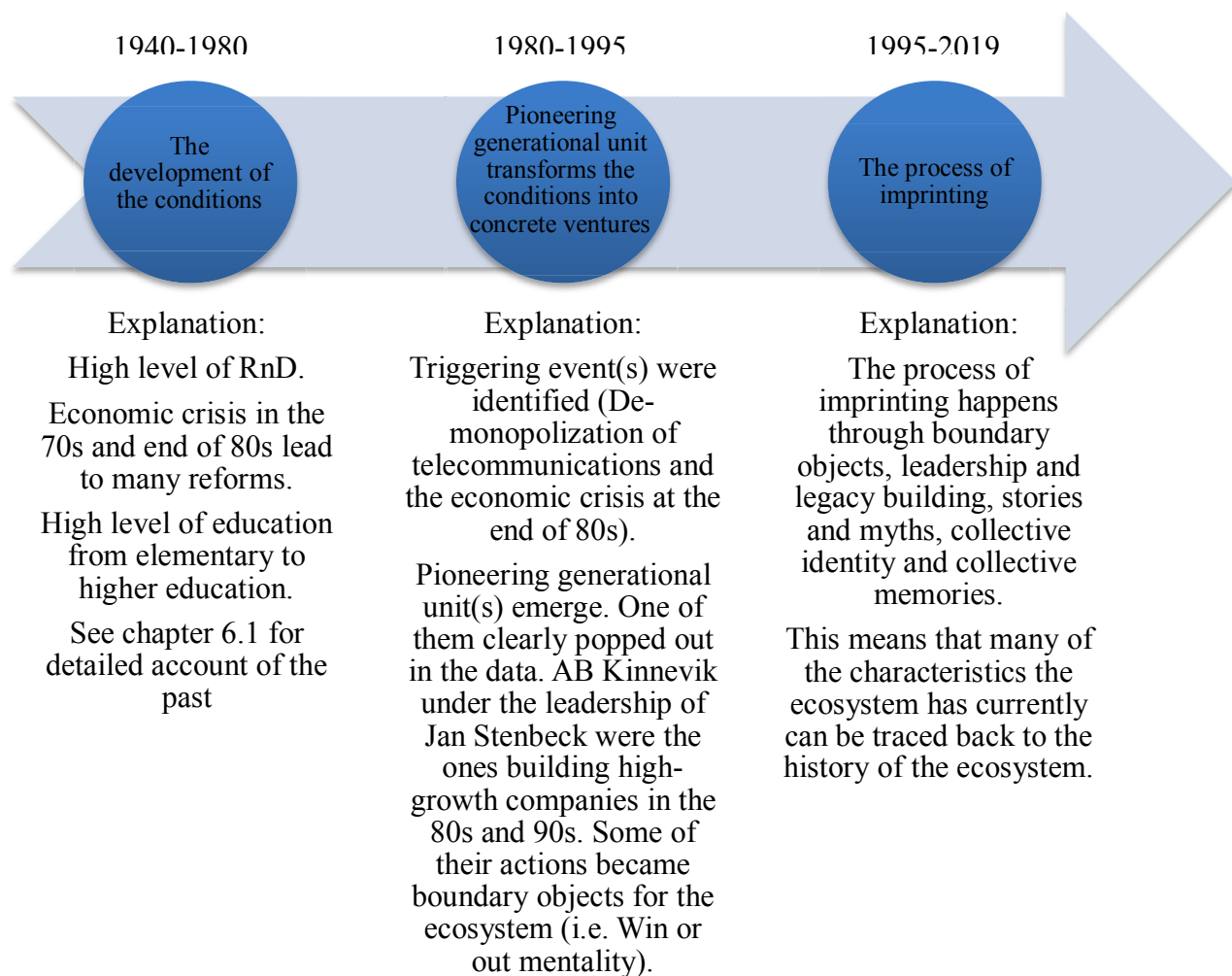


Figure 4. Timeline of the development of the entrepreneurial ecosystem of Stockholm.

7. SUMMARY AND CONCLUSIONS

7.1 Summary of the study

This study has aimed to contribute towards understanding how entrepreneurial ecosystems emerge and evolve as a process of startup and venture capital co-evolution. As a consequence, scholars and practitioners would better understand what are the conditions under which entrepreneurial ecosystems function. The primary research question of the study was:

What is the role of venture capital and startup co-evolution in entrepreneurial ecosystem?

The question was asked, because an assumption is that entrepreneurs and VCs are the most important players in the emergence of an entrepreneurial ecosystem. By understanding the evolution of startups and the VCs in the ecosystem the study is able to bring light to the process of how ecosystems emerge and evolve.

The secondary research question was about the historical evolution of the Stockholm entrepreneurial ecosystem. This question was asked to understand the context and how the different elements of the ecosystem have come about. By understanding the context, the study is able to understand the interplay between actors (startups and VCs) and context.

In chapter 2, this study focused on EOE and competence bloc theories. This selection was made to understand the general mechanisms of entrepreneurial ecosystems. However, the theories of EOE and competence bloc do not explain how ecosystems emerge and evolve, hence it lacks holistic understanding.

To bring about holistic understanding and understanding about the elements of the ecosystem, the chapter 3 focuses on entrepreneurial ecosystems, entrepreneurial activity, VC activity and to the conditions under which the former emerge. However, it was found out that the current literature tends to be tautological. A processual and historical approach was called out in the literature.

In chapter 4 the focus was to understand how entrepreneurial ecosystems emerge as an outcome of generational units, collective memories and collective identity. The theory enabled to bring agency into the picture. Ecosystems do not appear out of a vacuum. Behind ecosystems are people who take actions. The theories above were chosen on the basis of answering to the research questions and contributing towards the gaps in the existing literature.

Chapter 5 explains the methodological choices. The methodological choices were made based on the theoretical framework and the research questions. It was concluded that qualitative research is the most suitable for the needs of the study. Qualitative research enabled to construct a case and analyze it as a historical and human-oriented process.

The empirical analysis of the case was made in chapter 6. First historical review of the development of Stockholm entrepreneurial ecosystem was conducted. After this the review was summarized in order to understand the background, pre-emergence and emergence conditions. The final part was an attempt to understand the emergence and evolution as a human-oriented process. In chapter 7, the study is summarized, theoretical and policy implications are explained and lastly the limitations of the study and future research avenue are being assessed.

7.2 Theoretical contributions

This chapter is built to discuss with the theories used in this thesis. The findings of this study are reflected against the main notions found in the literature review. The starting point is the literature about generational units. After this moving on to reflect the findings against the notions found in the entrepreneurial ecosystems literature. Finally, the findings are reflected against the literature about EOE and competence block theory. The idea of this chapter is that the main notions of the literature review are discussed against the findings of the thesis.

Lippman and Aldrich (2015) have put forward propositions about generational units, collective memories and identities. This thesis is able to contribute for some of those propositions through the findings of the study. Firstly, Lippman and Aldrich (2015)

made a proposal where it was stated that pioneering entrepreneurs are likely to coalesce into generational unit. This notion is supported by this thesis. The reason is that the new industry of telecommunications was starting to build up and the pioneering entrepreneurs took on the opportunity to seize it. According to the interviews meaning and interpretations were provided about salient boundary objects such as what it means to win in business and what is the end-game of a successful firm, go big or go home kind of thinking.

Secondly, Lippman and Aldrich (2015) put forward a notion where it was stated that the members of the pioneering generational unit, who stay in the ecosystem are more likely to leave an imprint to the ecosystem through their actions. This notion is supported. According to the interviews the entrepreneurs who have been successful have continued in the ecosystem as serial entrepreneurs, VCs and mentors. Indeed, also the more experienced interviewees of the study had continued to work in the ecosystem, hence have left an imprint to the ecosystem.

Thirdly, Lippman and Aldrich (2015) propose that institutions help to maintain the collective identities and memories. Institutions were not the main focus of this study, so it is hard to assess this notion. It is also good to note that institutions in the context of Lippman and Aldrich (2015) really mean concrete institutions and organizations. What can be said is that in Stockholm there are lots of different kind of institutions and organizations that have something to do with startups. In the interviews organizations like Sting and Almi do come out as being helpful for the startups, however as said the focus was not in the institutions, so this notion cannot be assessed in this thesis. This is also one of the limitations of the study. The scope of the study leaves out many actors, which might be relevant for the ecosystem.

Fourthly, Lippman and Aldrich (2015) propose that myths and stories about entrepreneurship and entrepreneurs advance the entrepreneurial activity of the region. This notion is supported to some extent. The primary data shows that successful entrepreneurs are present and visible. Interviewee B called successful entrepreneurs “captains of the aircraft carriers”. In some cases, there is even good and bad involved in the stories, the entrepreneur being the hero and for example government being the villain.

However, it is hard to assess how much this advances the entrepreneurial activity. It is also good to note that according to Sanandaji T and Sanandaji N (2014) the most successful entrepreneurs are PHD students. This indicates that a general celebration of entrepreneurship might not be effective, if the goal is to generate success stories. A mechanism, which also was observed in the interviews was the “lulma” –program, where young entrepreneurial individuals gain experience of high-growth ventures by being the right hand of the CEO. To conclude the scope of this study doesn’t allow to answer to this proposal with a lot of certainty. This was not the aim of the study either. This notion is a topic for future research avenue.

There are interesting propositions in the research agenda about entrepreneurial ecosystems. The first set of propositions are about resource acquisition and flow, meaning the ability of an entrepreneur to draw resources from the ecosystem in a successful manner (Harrison & Spigel 2018.)

The propositions are supported by this study with a note that the ability and the process of drawing in resources is different based on the maturity of the ecosystem. The question of who is perceived as a legitimate high-growth entrepreneur, hence is able to draw in resources is interesting. This is definitely something that future research could examine, because the question is very relevant for the field. This would help the scholars and practioners to understand better who can and especially how one can become a legitimate high-growth entrepreneur.

The next set of propositions discusses the creation and recycling of the resources of the ecosystem. Harrison and Spigel (2018) states that the creation of resources happens through entrepreneurial activity and public investment. This study found out that pioneering generational units do in fact generate resources to the ecosystem through their entrepreneurial activities. This happens through the imprinting process explained in chapter 6.2. However, it is important to understand that this process is not this simple. The question of what creates a pioneering generational unit is complex and needs more research. This study states that the role of pioneering generational unit is so important that more research about the emergence process of it is needed. The creation of resources through public investment was not in the scope of this study.

The recycling process of the resources happens through the mechanism of exit (Harrison & Spiegel 2018). The idea is that when entrepreneurs make a successful exit they continue in the ecosystem as investors, CEOs and mentors, hence their learnings are recycled. Unsuccessful exit can also be a good thing, because it is good for the ecosystem to close unsuccessful ventures and release the skills and talent back to the ecosystem. An assumption also is that something valuable can be learned from failures (ibid.) This study found that in the case of Stockholm many resources did get recycled through the mechanism of successful exits. See chapter 6 for more in depth analysis. The recycling of resources through unsuccessful exits was not in the scope of this study.

The next set of propositions are about the process of sustaining the resources in the ecosystem. The idea of sustaining the resources is similar as in the recycling of the resources. The idea is that successful entrepreneurs stay in their regions and while they continue to do different kind of activities (mentorship, investment) the effect is that certain structures and practices are imprinted to new ventures (ibid.) The findings are aligned with the proposals. According to the data, successful entrepreneurs, people with success and money have stayed in the ecosystem. There were found to be positive imprinting effects, which gave direction to the actors.

Sipola (2015) made a call that it would be valuable to understand what different contexts look like. This is an attempt to answer to that call by understanding the case of Stockholm. Sipola (2015) especially noted that it would be valuable to understand what the economic system is doing and how its organized. These are in general, the questions that EOE and competence bloc theory are trying to answer as well.

The scope of this study was not the whole economic system, hence the answer is not complete. However, this study was able to bring light to the question of what are the main actors in the Stockholm ecosystem doing. The main notion, which came through in all interviews was the win or out mentality. This mentality can be seen when asked about the end goal of the interviewees; all of them said in a way or another that going global and being the number one player in their category is the goal.

This study is able to contribute towards 1) Understanding how entrepreneurial ecosystems emerge. This study was able to shed light on the emergence process through understanding how entrepreneurial activity emerges based on the contextual changes (triggering events), which is then driven by the main actors (pioneers). This study is successful in understanding the importance of context and agency in the emergence process.

Secondly, the study is able to contribute towards the tautological issues found in the entrepreneurial ecosystems literature. The elements of ecosystems do not spur out of a vacuum, but are an outcome of a long historical process. This study does support the procedural approach in entrepreneurial ecosystems literature. An integration of generational units, collective memories and collective identities into entrepreneurial ecosystems literature is proposed in order to get concrete tools to understand what kind of forces affect to the development of the elements. Thirdly, the study is able to answer to the question of what is Stockholm ecosystem aiming to do. This was a gap in the literature, which is now filled, not completely, but at least partly.

7.3 Policy and community implications/recommendations

The first recommendation for policy makers is to consider entrepreneurial ecosystem as a separate (even though interconnected) part of the economic system. It is relatively clear that startups function differently than mice and elephant companies. The list of differences is long; business model, competence, financing, institutions, goals etc. In the light of this study the mechanisms and context of entrepreneurial ecosystems are different from economy 1, hence this study affirms what the existing literature states (See i.e. Sipola 2015, Kenney M & Von Burg 1999.)

The second recommendation is to understand where the entrepreneurial ecosystem stems from. The policy makers need to be aware of the background, pre-emergence and emergence conditions of an entrepreneurial ecosystem. If the conditions are not there, the policies need to take this into consideration. Secondly, even though suitable conditions are there, this study supports Johansson (2010), who states that truly successful entrepreneurial ecosystems cannot be planned, they form spontaneously. The emergence process in Stockholm was an outcome of many things and it is near to

impossible to say what would have happened if some elements wouldn't have been in place or would have been different. For example, the pioneering group of entrepreneurs and VCs was relatively small group of people, but their impact was relatively big. What would have happened without this group or if the group would have decided to take different actions?

In the light of this study, the recommendation is that policy makers focus on making sure that the conditions and framework are in place. Concretely speaking this means for example, policies which enable ease of investment, ease of recruiting, supply of talent (high quality education from elementary to university), Incentives for high-growth, avoiding monopolies, advancing free markets and fair competition, Advancing same rules of the game for all the countries. This recommendation is made, because this study found that the role of public policies has been the most influential in designing framework conditions and the least influential in direct interventions.

In general, the recommendations are nothing unheard of, or something that the existing literature hasn't concluded already. If something, this research confirms and reaffirms the previous policy recommendations.

In this study community implications are also being discussed. The reason for this is the fact that startup communities (once emerged and persisted) do operate with some degree of self-awareness (Lippmann & Aldrich 2015). This means that the key actors (startups and VCs) have key roles with regards to the success and direction of the entrepreneurial ecosystem.

In the light of this study the main things to consider are; Firstly, where is the next generation of entrepreneurs and VCs coming from and how it is ensured that they have the key competences and tools to succeed? For example, the interviewee B discussed how Kinnevik hired certain kind of young people (mavericks was the term used) to its companies to be the right hand of the CEO. Later on these individuals started their own startups, became partners of VC companies etc. This mechanism had very little to do with the public policy, but as a mechanism it was very important. This kind of work is important for the evolvement and persistency of the ecosystem and it is the role of the startups and VCs to ensure that this learning happens.

Seemingly obvious recommendation is for the VCs to remain strict. Quality is way more important than quantity, hence a continuous revisit for the VCs about their success ratio and investment criteria is recommended. An international cooperation and learning is seen as a recommended activity as well. International cooperation, learning and competition for the startups is recommended as well. The world has become a very connected place, hence understanding what is happening globally is important for an entrepreneur and VC. These elements were also present in the data and analysis of this thesis.

It is worth noting that ecosystems, which have emerged, evolved and persisted have the ability of self-reflexivity (Lippmann & Aldrich 2015). This means that the main actors are defining the rules of the games on a constant basis. The rules of the game will define the outcomes/configuration of the ecosystem. The main narratives and actions become part of the ecosystem and its functioning. Hence, a recommendation is made to reflect on the kind of outcomes the current actors want to see and do the actions of the actors reflect on these outcomes. This recommendation is not naïve, but it understands the importance of the interplay between context, agency and high uncertainty of the process, but the ability of self-reflexivity does give some degree of consciousness of the direction the actors in the ecosystem are taking.

7.4 Limitations of the study and future research

Like all studies, this study has its limitations. Firstly, the sample size of the interviews was not very high. Even though the selection of the interviewees was made carefully, the low sample size limits the reliability of the study. Secondly, the focus of the study was startups and VCs. This limits the validity of the study, because some actors that might be relevant to understand the case were left out.

Thirdly, the study doesn't answer to micro-level issues, like what exactly inspires individuals to select high-growth entrepreneurship, who should become an entrepreneur and what makes a good entrepreneur. These questions are important, but not relevant for this study as the focus was in understanding the historical development and the relationship between agency and context rather than only agency.

Fourthly, the study essentially only discusses the case of Stockholm and the configuration of its ecosystem. There most definitely are many ecosystems, which have their original configurations, mapping out these configurations could be valuable in order to understand what different possibilities there are and understand what leads to what outcome.

For future research there are couple of things to consider. Firstly, the ecosystems evolve all the time. As new generations of actors enter they have a possibility to re-configure the ecosystem. There is not a lot of research about the process of re-configuration. However, that process of re-configuration could be what many ecosystems will go through and this might shape the outlook, mechanisms, processes and objectives of many entrepreneurial ecosystems.

Secondly, about the Stockholm case it would be interesting to expand the scope of the research to consider all the actors in the entrepreneurial ecosystem and study the co-evolution and interplay of all of the actors. This would enable even more in-depth understanding about the case and would possibly reveal more important mechanisms that were not visible in this study.

Thirdly, not enough is known about the micro-level determinants about how individuals select high-growth entrepreneurship, why they select it, is there an ideal profile and so on. It is known that highly successful entrepreneurs vary from their thinking from the rest of us, but we don't know what is the process of getting more of them. This study revealed one mechanism from the Stockholm case (the maverick individuals as right hand of the CEO), but we don't know enough of these individuals to draw conclusions.

Finally, more research on the emergence and development of generational units are needed. This thesis was able to understand some parts of this process, but more research is needed, because of their importance for entrepreneurial ecosystems. Empirically mapping out as many generational units as possible could be valuable thing to do. The more researchers are able to understand these groups the more tools it gives to understand entrepreneurial ecosystems as a whole.

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