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Exploration of virtual incubators and development of incubator services for digital entrepreneurship

Receiving Entrepreneurial support from anywhere in the world?

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Abstract

Exploration of virtual incubators and development of incubator services for digital entrepreneurship

Oscar Alexander Mörke and Karl-Philip Michael Swensson

Entrepreneurship is frequently linked together with aspects of economic growth and development. In the last 40 years, an increasing number of incubators and service providers have been created to stimulate entrepreneurship and innovation. However, in the increasingly globalized and digitalized world, few virtual and digital initiatives have successfully been studied to encourage and facilitate entrepreneurship. This study aims to understand further how digital and virtual products and services can aid entrepreneurs in venture creation and potentially add to an updated and broader understanding of the potential in a virtual incubator program. By looking at three categories of entrepreneurial support actors, traditional public incubators, private incubators, and digital service providers. 14 semi-structured interviews were conducted to gain more in-depth knowledge of how they operate. More specifically, this study is conducted with actors that share the vision to assist startup in their initial phase and create a deeper understanding of what the incubator offers to startups and the possibility to adapt and improve their process using digital tools and external partnerships. Results indicate that the use of digital tools is varied. Incubators are leaning towards relying more on social media for reaching potential entrepreneurs and ideas, and further that a factor of validating every aspect of the startup is essential to promote success. The incubator mainly acts as a mediator of network, funding, coaching, and finding talents has during the COVID-19 pandemic moved most of their activities from physical to online. The issue of trust-building is, however, still prominent, and the incubators are looking for ways and tools to improve on this issue. Implications of this study have the potential to lower barriers to entrepreneurship, where entrepreneurial support becomes less dependent on their local ecosystem and geographical factors. Future research is encouraged to classify virtual incubators and a further look at specific cases and pursuit more longitudinal studies to fully understand the potential effects and implications. This study contributes to the field of incubators and entrepreneurial support and the ongoing digital paradigm shift.

Key words: Business Incubator, Virtual Incubator, Entrepreneurial Support, Digital Entrepreneurship, Startup

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Popular scientific summary

Starting your own business, the new Spotify, Klarna, or the electric scooters that are cruising along the streets have never been this popular. It can also create new jobs and further develop the country's economy. Entrepreneurship, and being an entrepreneur or people recognizing opportunities and acting on them, has undergone a paradigm shift. The rise of smartphones, social media, and being able to educate yourselves through YouTube videos is currently shaping and changing the landscape of how business is conducted. When launching a business or startup, there are several barriers and obstacles one must overcome. In extension, there are several actors with the purpose to support these entrepreneurs on their pursuit. The incubator is a phrase associated with the medical device used to care for prematurely born babies, and in similar nature, the incubator care for new-born businesses, nurturing their needs. The business incubator commonly offers a program where several startups develop alongside, in a community traditionally sharing office space. The business incubator assigns coaches and mentors to the startup. It introduces them to a network and people that have the potential to help them develop their business idea. With the presented shift to online, this research aims to gain a further understanding of how the incubator can improve on their services and efforts of helping entrepreneurs and startups and explore the possibility of having the incubator program online, through a virtual incubator process. The findings of the research conclude that the new digital context that entrepreneurs act within makes everything move faster, and further makes it easier for people to become entrepreneurs. The incubator has potential by moving online, to support more people independent of location.

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The subject of entrepreneurship and innovation is close at heart, and this thesis further has collaborated with a number of incubators and digital service providers where all share the same goal: To help entrepreneurs succeed and to further assist them during a very difficult process of risking everything to pursue one's dream. Therefore, we want to thank every respondent for taking their precious time to assist this research specifically during these unusual circumstances of a global pandemic. A special thanks to Cubimo, and Joakim Fohlman for supervising the thesis and Entreprenörskolan and our subject reader Dr. Serdar Temiz. Lastly, we want to thank family and friends who have taken time to discuss this research and provided valuable insights.

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Abbreviations

SISP - Swedish Incubators and Science Parks

VC - Venture Capital

E-incubator - Electronic incubator

1. Introduction

The introduction of this study provides the reader with a description and aims to provide background information about the fundamental problematization. It will further describe the different topics that will be presented to support the choice of the research questions of the research. Entrepreneurship, entrepreneurial support, and specifically, the incubator will be introduced. Thereafter, a presentation of problematization will be presented, followed by the purpose of the research. Additionally, the delimitations of the research are presented. Lastly, the disposition of the research is summarized.

1.1 Background

The topic and the definition of entrepreneurship are highly researched and debated, according to Filion (2008). There are, therefore, many different definitions, and Filion (2008) refers to research from Casson (1982) addressing the issue with an accurate description of entrepreneurship and the associated entrepreneur, which can be the most challenging part of the research. Katila, Chen and Piezunka (2012) use a broad definition of entrepreneurship as a process, to be more specific, of either launching or designing a new form of business, where the people that take part in this process are referred to as entrepreneurs.

Entrepreneurship and innovation play an essential role and are positively linked with economic growth and prosperity (Aaboen, Laage-Hellman, Lind, Öberg and Shih, 2016). An essential aspect of a country's wealth and productivity is the creation of new companies, as argued in research by Audretsch, Keilbach and Lehmann (2007). Furthermore, the benefits of entrepreneurs have been reviewed by Van Praag and Versloot (2007), where they argue that entrepreneurs facilitate employment and innovativeness. Entrepreneurship is increasingly growing in popularity, and many people are interested in pursuing an active career as an entrepreneur or startup founder. It has, therefore, been argued that promoting entrepreneurship and facilitating an active support structure surrounding the entrepreneur can be beneficial for both a country's growth and development. Audretsch (2018) further describe a paradigm shift driven by globalization, technology, and politics, where the entrepreneur plays a crucial role in economic development and growth.

This shift is recognized by Nambisan, Wright and Feldman(2019) and Nambisan (2017) to understand the digital transformation of the economy. Nambisan et al., (2019) discuss the change of innovation and entrepreneurship when digital technology, platforms, and infrastructure have created digital entrepreneurship. This paradigm creates new types of business models, new products, and services but also a new kind of customer experience. Moreover, this transformation also accelerates the growth and scaling of new ventures and startups, according to Huang, Henfridsson, Liu and Newell (2017).

The journey of a startup can be seen as a complicated path with many barriers and challenges and has been researched by Lougui and Nyström (2014) they refer to Sweden as a country where people perceive that they have an excellent opportunity to become an entrepreneur. However, as one of the main obstacles listed by Xavier, Kelley, Herrington and Vorderwulbecke (2014), the aspect of entrepreneurial ability is brought up, meaning that people do not see that they have the necessary skills to pursue entrepreneurship. Furthermore, entrepreneurs in Sweden face several other barriers based on research from Shane (2009), referring specifically to the initial phase of creating a business. Mainly to be in terms of capital, both human, social, and physical. Lougui and Nyström (2014) also argue that entrepreneurs in this phase usually seek external guidance, explicitly wanting to receive answers within taxes, regulations, and laws. Nevertheless, the primary concern is general questions regarding how to launch a business. These can further be translated into entrepreneurial barriers, in the respective fields such as knowledge and capital. As a concluding remark, the new digital context, as also developed by Sussan and Acs (2017), makes both opportunities and challenges evolve faster than before.

Derived from these obstacles, the research of entrepreneurial support tried to understand and find the best ways to support entrepreneurs and startups. There are many different organizations and service providers that act as a supporter to lower these barriers and act as a guide. There is furthermore an increase in educating entrepreneurs that are acknowledged by Martin, McNally and Kay (2013). Furthermore, big corporations launching innovation and startup labs and a general pursue in trying to capitalize on the growing popularity of startups (Hausberg and Korreck, 2020). There is also an increase in actors attempting to map out the actors and different organizations that provide support and assistance in a kind off entrepreneurial ecosystem. A recent example is Keys-ecosystem (*Keys Ecosystem*, 2020) that provides a survey-based tool for entrepreneurs to find relevant supporting actors within the ecosystem.

The facilitators try to reduce the barriers associated with entrepreneurship through efforts of coaching, providing office space, knowledge, and funding by Ratinho, Amezcua, Honig and Zeng (2020). The concept of the business incubator is one of these initiatives, with the purpose to assist the entrepreneurs with their venture creation.

One definition of the incubator is by using the analogy of a service provider, as used by Aaboen (2009). In terms of services that incubators offer, the most common ones are; coaching; access to a network; consulting services; (Hackett and Dilts, 2004; Durão, Sarmento, Varela and Maltez, 2005; Bergek and Norrman, 2008). An incubator can, as stated, be defined in many ways, but according to the branch organization Swedish Incubators and Science Parks **(**SISP), an incubator is someone that offers a dynamical process to developing businesses, people, and companies. An incubator supports entrepreneurs with management, financial support, technical competence, and helps to connect them to new environments and a commercial network to grow in. They also help entrepreneurs to develop new technologies and ideas. (About Swedish Incubators & Science Parks, 2020).

The incubator development has also been concluded into three generations (Bruneel, Ratinho, Clarysse and Groen, 2012; Mian, Lamine and Fayolle, 2016). Before the 1980s, the first generation took place with the suggested value to stimulate job creation, specifically through providing entrepreneurs and startups with office space. The second generation, 1980, until the 1990s, had the purpose of adding value to entrepreneurs through coaching and training. Lastly, the third generation, after the 2000s wanted to enhance the access to external resources to entrepreneurs through networking. In an article from the magazine INC (Dahl, 2005) argues that the post-crisis era of 2000, incubators were increasingly going virtual, as the last generation of incubators had a more significant focus on technology than ever before.

The term virtual incubator was firstly initiated by Nowak and Grantham (2000) and further used as a theoretical lens by Mian et al., (2016) as an incubator that provides knowledge brokering to develop innovative startups. In Fadil, Persada and Baihaqi (2019) research, they further contributed to the virtual incubator framework, with a developed holistic approach to an online platform as the electronic incubator (E-incubator). Luik, Ng and Hook (2019) further develop on Nowak and Grantham (2000) research referring to the framework as virtual hubs. “That provide their participants with support such as mentorship, access to investors and investment, and networking, throughout fixed-duration and cohort-based programs” (Luik, Ng

and Hook, 2019 p.1). The virtual incubator further was included as a category by Grimaldi and Grandi (2005). Lewis, Anderson and Molnar (2011) define the virtual incubator as opposed to traditional physical incubators. They characterize them as incubators with walls, and without walls. The main concluding difference is, therefore, that virtual incubators do not provide a physical space for incubates.

1.2 Problematization

With research from Lorraine and Laferté (2006) noticed that face to face interactions was prioritized by entrepreneurs when receiving advice. The ongoing changes regarding digitization provide importance to continuously research the field of entrepreneurial support, and the associated barriers with entrepreneurship that the support tries to lower to increase further the development of the entrepreneurial support system and ecosystem. Richter, Kraus, Brem, Durst and Giselbrecht (2017) argue for the significant impact digitalization has had on entrepreneurship, how business models are changing but also the fundamental creation of entirely new businesses. In conclusion, Richter et al., (2017) argue that this shift creates an entirely new way of understanding the newly created opportunities as well as challenges associated with entrepreneurship.

In terms of the entrepreneurial ecosystem, more extensive research about the facilitators is further encouraged so that "entrepreneurs are not sold broken dreams" (Ratinho et al., 2020, p11). This is the extent that has the possibility to reduce the number of ineffective programs and prioritize the best methods of entrepreneurial support. With virtual applications and initiatives, there is a potential to provide the startups and incubates better services, a more extensive network, and further lowering their barriers to become a successful venture. An important aspect is that a lot has happened throughout the past 20 years, and startups now can easily create a crowdfunding campaign online, trying to receive capital. Furthermore, there are digital programs where entrepreneurs receive education and coaching, and many of the traditional incubators are looking at going digital to receive some of the benefits, such as being able to help more people and create scalable assistance. Lorrain and Laferté (2006) conclude this as a need for individual coaching in a physical setting and further expands upon the findings that the entrepreneurs were not interested in virtual coaching on the premise that many within the sample lacked a personal computer. In a virtual world where increased digitalization, the

argument presented by Lorrain and Laferté (2006) that entrepreneurs do not prefer face to face compared to virtual assistance needs to be reviewed.

Although the possibilities are endless, there remain current obstacles in how to navigate amongst the different applications and platforms, and the use of specific tools, i.e., the use of LinkedIn to increase network size and funding platforms (Song and Vinig, 2012; Bruton et al., 2015). Furthermore, there is a limited amount of application fully dedicated to assisting with specific services and resources needed for entrepreneurs.

Shih and Aaboen (2019) research argues for the potential in incubators network by explicitly looking at public incubators and their relationship with the incubated firms. They argue that it is crucial for incubators to expand their network horizon, specifically to involve interactions with potential customers for the startups. Furthermore, Shih and Aaboen (2019) argue for further research of different kind of incubators, primarily of for-profit characteristics, based on their remarks that publicly funded incubators potentially has a narrower network horizon and a lower amount of resources. The question of specialization of the incubator is another implication that Shih and Aaboen (2019) indicate has a higher probability of offering more support.

Incubators providing virtual support, and the framework of Nowak and Grantham (2000) and the development of E-incubator (Fadil Persada and Baihaqi, 2019) and virtual hubs (Luik, Ng and Hook, 2019) opens a new field of trying to understand which specific services being the most relevant to entrepreneurs and to see if these could be transformed in a digital context as either a virtual incubator or as individual services to assist the entrepreneurs. When looking at the evolution of the web and how the internet is changing almost every aspect of our lives Constantinides and Fountain (2008) focus mainly on how Web 2.0 and its applications have changed how humans interact, find out about products and services but also how businesses do marketing and the occurrence of users generating content.

1.3 Purpose of the research

Constructing the research question is Sandberg and Alvesson (2011) refer to as gap spotting as the most frequent way of constructing research questions. However, it is essential to recognize that within gap spotting, the researchers accept the undelaying theories and existing literature.

Traditionally speaking, the incubator has acted as a service provider and a community for the entrepreneur (Aaboen, 2009), but with the emerging change in the digital climate, the outline of the specific needs of the entrepreneur is changing (Sussan and Acs, 2017; Kraus et al., 2019). This is exemplified when an entrepreneur can receive consulting services through freelancers across the world, receiving seed funding through crowdfunding platforms, network with like-minded individuals, and find talent on social media platforms such as LinkedIn in accordance to research by Mack, Marie-Pierre and Redican (2017). Lougui and Nyström (2014) and Lorraine and Laferté (2006) also provide a useful gap to understand within the academic field of entrepreneurship, what assistance, services, and advice that are essential to become successful and to decrease the risk of entrepreneurial failure.

In terms of the virtual incubator, as proposed by Nowak and Grantham (2000), and developed upon by Fadil, Persada and, Baihaqi (2019) as the Electronic incubator and Luik, Ng and Hook (2019) of the virtual hubs. It is essential to investigate further the change in context derived from digitalization, specifically with the reason that all improvements in the incubator process have the potential to impact many entrepreneurial efforts, and in the extent create more job opportunities, innovation and economic development (Fadil Persada and Baihaqi, 2019). Mack et al., (2017) recommend future research in the field of understanding technology adaptation, social media and internet applications, how and why they can be used, and be consequently increased the use of smartphones and mobile applications could come to play for entrepreneurs and startups. Mian, Lamine and Fayolle (2016), in their overview of entrepreneurial facilitation, argue that accelerators and incubators are essential facilitators for entrepreneurs and complete their systematic review with encouragement for future research within the ever-changing context in digitization. Lastly, Shepard's (2013) offers an exciting possibility of virtual efforts acting as a complement to traditional incubators.

An ever-changing digital landscape is currently shaping services and guidance to entrepreneurs. This study aims to further develop on the proposed concept of the virtual incubator and the increased efforts within the entrepreneurial ecosystem and its associated actors providing entrepreneurial support to increase their efforts to facilitate using digital products. To further develop on the incubators value proposition and extent their network as described by Roig-Tierno, Alcazár and Ribeiro-Navarette (2015), through virtual efforts. This study aims to contribute to and expand the knowledge of incubators and entrepreneurial support

and digital entrepreneurship. The research problem can, therefore, be concluded to how the entrepreneurial support actor, the incubator can further digitize its process and services. The research problem is sought out to be understood and explored by the following research questions:

1. How are incubators using and incorporating digital tools to develop their current product and service efforts?
2. What are the perceived challenges and opportunities of a virtual incubator process from the business incubators point of view?

As concluding remarks of the purpose of this research, the objective is further to provide knowledge to researchers and practitioners in the field of industrial engineering and management, entrepreneurial support, and digital entrepreneurship and the field of innovation. In the extension, the research hopes to provide practical implications for incubators, entrepreneurs, and policymakers. The two research questions will be addressed through multiple case analysis and qualitative data collection. The data will thereafter be analyzed, discussed, and compared with the literature review and the theoretical framework.

1.4 Delimitations

In this segment, the chosen boundaries are present for the research, and they should be considered intentional choices. The scope of the research is to further understand incubators and entrepreneurial support within Sweden. As argued by Rasmussen and Sørheim (2006), Sweden is concluded to be a fruitful country to investigate based on the high amount of academic literature regarding entrepreneurship is written by Swedish researchers and further Sweden is ranked the second most innovative country in the world (WIPO, 2019). However, an important aspect is that every ecosystem has specific characteristics and have different technology and industry niches. The recaches were limited to looking at the entrepreneurial support and, expressly, the incubator's point of view. An important aspect is that this research primarily is analyzing the incubator's perspective on their services and purpose as opposed to the people enrolled in the programs. Lastly, there is an emerging trend of corporate incubators and their potential within the field of corporate innovation, and as evident in research by Köttig (2019), however, this research will not specifically look at the specific category of corporate incubators.

1.5 Disposition

The structure of the study will give the reader a short background of the field of entrepreneurship and the associated digital shift, further the entrepreneurial supporter the business incubator is introduced, with the introduction of the virtual incubator framework. These areas are further problematized to give an understanding of why this field is necessary to research. The purpose and aim of the research are provided in the next chapter to introduce the questions that will be answered by the gathered data but also to respond to what delimitations are and the research unit of analysis, i.e., incubators and the category of digital tools which has the purpose of acting as entrepreneurial support. The second chapter goes deeper into the literature and reviews the current state of knowledge. In the third chapter, the reader will be presented with the chosen methodology to gain further insights into how the study has been conducted. This is followed by the findings chapter, where the collected empirical data is presented. The fifth chapter will present the findings and analyze them with relevant theories. The sixth chapter aims to conclude the research and provide the readers with a recommendation for future research in the seventh chapter.

2. Literature review

This chapter of the study will review the field of entrepreneurship and entrepreneurial support systematically. Further, this chapter aims to present the current development in terms of digitization and digital entrepreneurship but also the field of social entrepreneurship. The entrepreneur is also shaped by its entrepreneurial ecosystem, where the entrepreneurial journey takes place. Looking at the specific entrepreneurial supporter, the incubator, this chapter also aims to present the current procedures and definition of an incubator as well as understanding the virtual incubator. The traditional services provided by the incubator are evolving, and therefore it is necessary to bridge the gap and contribute to the field of entrepreneurial support and the possibility of further incorporating digital tools and online assistance within the incubator.

2.1 Entrepreneurship, social entrepreneurship and digital entrepreneurship

Henrekson and Stenkula (2010) argue that both entrepreneurs and entrepreneurship as a concept lack a standardized definition, and that is established and inappropriate. Entrepreneurs, as defined by recognizing opportunities and executing ideas, are changing regarding digitization. Giones and Ferran (2017) highlight the difference between Technology, Digital Technology, and Digital Entrepreneurship. The main difference is if the entrepreneurs are focused on the service they are provided or the technology behind it. Three examples of the difference are between the material graphene, Smartphones, and Snapchat. Graphene, as an example, is a cutting-edge technology based on research, whereas smartphones are based on already established technology. Lastly, Snapchat, who is a messaging application, is more focused on the service rather than technology. One crucial aspect is within the broader definition of entrepreneurship as self-employment, where Mcquaid (2002) argues for the difficulties in this broad definition arguing for the importance of seeing the rapid growth or pursue of an as important differentiator when discussing entrepreneurship. Bjuggren, Johansson and Stenkula (2012) also oppose the use of self-employed and entrepreneurs as interchangeable. Lastly, Henrekson and Stenkula (2010) further introduce the entrepreneurial concept of imitative entrepreneurship and innovative entrepreneurship. The new type of entrepreneurship where techniques and products undergo development and imitate already established businesses.

Social entrepreneurship is researched by Defourny and Nyssen (2017) and described as the intention to solve social challenges or having a social mission through an entrepreneurial process. Defourny and Nyssen (2017) differentiate the type of social entrepreneurship where non-profit and for-profit models is a significant differentiation. Social entrepreneurship can, therefore, be a non-profit social business model but also a mission-driven business with a profit objective. Kraus, Niemand, Halberstadt, Shaw and Syrjä (2017), in their attempt to find a measurement scale within social entrepreneurship also argues for a similar but yet different type of entrepreneurship as opposed to social. The green entrepreneurship or sustainable entrepreneurship as used as an umbrella term within Fellnhofers, Kraus and Bounckens (2014). This type of entrepreneurship is more targeted to reduce carbon emissions or to attempt to reduce the waste of resources.

Entrepreneurship is promoted from universities both in specific aspects such as entrepreneurial education programs but also in general terms Rasmussen and Sørheim (2006) state in their research of action-based entrepreneurship that most of the academic entrepreneurship programs are becoming popular and is relatively new to the other programs. Their study analyzed five universities in Sweden and how they emphasize theoretical learnings compared to action-oriented learning by doing style. The increase in new courses, training programs signals an increase in popularity, which is further emphasized by Martin et al., (2013), who researched entrepreneurship education and training and argued for the inconsistency in whether it has a positive impact on if this creates more or better entrepreneurs.

In more practical terms, the entrepreneur endures several phases presented by Baron and Shane (2004), which divides the startup process into 5 phases:

- Recognizing an opportunity and idea phase for a product or a service
- Decision to proceed
- Gathering resources, i.e., information, capital, and people to join
- Creating and launching the actual business and venture
- Growth and building of the business

All these steps are affected by a combination of individual factors, group factors, and factors derived from society. Some of these factors are the entrepreneur's own motivation and skill, the input from joining team members, venture capitals and potential customers, and lastly, governmental and general economic situation. According to Baron and Shane (2004), an

incubator can play a significant role once the entrepreneur decides to act upon the opportunity and idea throughout all the steps in the proposed phases. Lastly, Baron and Shane (2004) propose the development of the incubator from being a business center that offers office space to an actor that provides entrepreneurs with network and consulting, which in extension created a possibility to incorporate for-profit characteristics into incubators.

The difference between digital ventures, as opposed to traditional, is researched by König et al., (2019) that indicates a shift in the process. Digital ventures seem to be more successful in early validation, to test the product or service on the market, and thereafter, seek investment. Non-digital ventures, on the other hand, initialize their process to seek funding to be able to create the first product. As explored by Song (2015), society and businesses are undergoing immense changes based on the digital context, and the information age and now provides new opportunities and challenges for entrepreneurs.

Sussan and Acs (2017) describe the new shift as digital entrepreneurship, exemplified by startups like Uber, Snapchat and Amazon. The shift to digital also is highlighted by Nambisan et al., (2019) and Nambisan (2017). Sussan and Acs (2017) integrates the digital ecosystem with the entrepreneurial ecosystem as a combined conceptual framework, the digital entrepreneurial ecosystem. The ecosystem is defined as a system of organizations that interact and collaborate to achieve a purpose. Furthermore, Sussan and Acs (2017) argue that digital technology, on the one hand, is global, but on the other hand, the creation of digital startups remains local. Sussan and Acs (2017) therefore, argue to investigate the digital entrepreneurial ecosystem and regional clusters further.

2.2 Entrepreneurial barriers and obstacles

Concerning entrepreneurial needs when launching a startup, aspects of funding, network, stress levels, and knowledge are brought up by (Shane, 2009). Three aspects are the primary concern, time management, financial issues, and managing costs. A frequently neglected aspect is presented by Lorrain and Laferté (2006) is the entrepreneur's characteristics, such as stress levels. Lorrain and Laferté (2006) report findings that their sample of young entrepreneurs wishes for products, services, and access to specialists within areas such as marketing, management, and accounting.

Giones and Ferran (2017) defines different types of entrepreneurship and characteristics associated with them. Giones and Ferran (2017) propose several potential threats within what they refer to as Digital Entrepreneurship. It is associated with a higher risk of failure, based on uncertainty in technology. A clear example of this is within the field of the Internet of Things (IoT), where there is an unclear structure, standardization, and ecosystem. Furthermore, in general terms, there is a high failure rate amongst startups, and specifically, in the industry of technology (Aaboen et al., 2016).

Giones and Brem (2017) argue that the entrepreneurship-supported model becomes more and more unified, and universities adopt classic acceleration models as described by (Pauwels et al., 2016). This is contradictory to findings from Morrison and Bergin-Seers (2002), who argue for the exact opposite, concluding that the training need for entrepreneurs is not considered in the support programs and that many entrepreneurs notice a lack in customization and tailoring to their actual needs.

Three aspects are of primary concern, time management, financial issues, and managing costs. However, the uniqueness in this study is the aspect of personal problems such as stress levels for young entrepreneurs. Lastly, the authors Lorrain and Laferté (2006) report findings that their sample of young entrepreneurs wish for products, services, and access to specialists within areas such as marketing, management, and accounting.

Looking at why startups fail, Rubin, Aas and Stead (2015) argue that lacking experience in management and raising capital are the most significant factors. They continue their conclusion by arguing that the incubator's purpose is to help the entrepreneurs and startups to overcome these obstacles through monitoring and providing knowledge and network to access capital. Their main conclusion is that startups in incubators, incubator management, and startups that have graduated play an essential role in their knowledge transfer. Further making the post-incubator process better through encouraging alumni to help other incubatees actively.

2.3 Entrepreneurial ecosystems

An ecosystem can be defined as an interaction between different components, which in this specific case has been researched by Mack and Mayer (2016) the purpose of increasing and support the entrepreneurial activities and the creation of startups. Mack and Mayer (2016)

further provide a framework of the entrepreneurial ecosystem, how the components interact and develop. It can also act as an explanatory model to understand regional differences and compare different ecosystems with each other and can provide valuable insights to stakeholders on how to develop the ecosystem and its associated actors.

Isenberg (2011) further developed on the different components in the ecosystem. Human capital and the entrepreneur itself and associated education, general degrees, and specific entrepreneurship training. Markets and the entrepreneur's own network as well as early customers, where the entrepreneur can receive first reviews of their product or service. Policy, and the governmental institutions, both regarding ease of creating and running a business but further tax benefits. Finance, angel investors, family and friends, and venture capital funds. Culture and associated success stories and norms of society. Supports, as a profession with lawyers and accountants, business plan contests, incubators, and entrepreneur-friendly associations. These are all domains of the entrepreneurship ecosystem and the different domains that impact on the individual entrepreneur.

By looking at a specific ecosystem of Phoenix, USA Mack and Mayer (2016) argued for the primary importance of the entrepreneur's network, highlighting the troublesome process of finding mentors to the startup. Furthermore, regarding the network, Mack and Mayer (2016) highlighted the importance of the more invisible network, events, and efforts where entrepreneurs can meet industry experts. The aspect of finance is mainly measured on the number of active investors and how easy it is to receive funding in an ecosystem. The last aspect highlighted specifically to the ecosystem of Phoenix was the lack of success stories on the cultural side of the framework of Isenberg (Isenberg, 2011). An essential aspect, as argued by Mack and Mayers (2016), is the specificities of every regional entrepreneurship ecosystem and their concluding remarks regarding policy implications on the governmental level in how to improve on cost advantages and actively working with lowering regulatory hurdles to influence entrepreneurs positively.

2.4 Entrepreneurial support

Entrepreneurial support is a term used to describe the efforts to develop and increase the rate of survival in new and young companies. The definition of entrepreneurial support is described as "Provision of valuable resources to entrepreneurs by individuals or organizations, which

carry structured activities to facilitate the imminent establishment of a new independent firm, increase survival chances, or promote long-term growth." Hanlon and Saunders (2007, p. 620).

This definition is further used by Ratinho et al., (2020) in their systematic review. They categorize the support into different categories, what they provide, and their implications. The sources are widespread from government, entrepreneurship programs, investors, business incubators, and the environment. However, Ratinho et al., (2020) also make a differentiation to universities and Science parks but identify the profit or non-profit as a primary differentiator. The main mission with Entrepreneurial support is to increase survival rates and infuse the startups with development from a different set of specific services, i.e., funding or more intangible assets such as advice and coaching. On the topic of advice and coaching, St-Jean and Audet (2012) add upon this topic that, in all stages of the entrepreneurial process, there is a need for effective support mechanisms and facilitators to further successfully continue growing a startup.

St-Jean and Audet (2012) have looked into the case of what role a mentor can have on entrepreneurs, benefited in terms of knowledge, skill, and identifying new opportunities and idea generations where listed. In terms of mental abilities and confidence described as self-image. The authors indicate the possibility of an increase in entrepreneurial resilience. St-jean and Audet (2012) further take a fundamental standpoint in the question of why startups fail and refer to a study conducted by Gaskill et al., (1988) where the conclusion was that failure often derives of lack of experience and competence. An important aspect of mentoring is, however, that the mentor focuses and prioritizes coaching and not undermining their self-interest and incentives in the process (Gibson, 2005).

An important conclusion from the systematic review (Ratinho et al., 2020) is the current limitation of Entrepreneurial support to deliver on its promise to increase the support and nurturing of entrepreneurs with a lack of capability to inform practitioners, policymakers and academia of the best principles to adapt. Ratinho et al., (2020), however, argue for some specific learnings and conclusions based on their review. The government should work with policies specific to regional aspects and the specificities of the local population of startups. Investors and specifically venture capital financed startups have a higher rate of surviving, cooperation, and performance. Entrepreneurs should look for non-specific support and understand the potential constraints in their specific ecosystem. The conclusion presented in

the field of Entrepreneurial support is the many different types of programs, institutions, and methods that are currently working on finding the best solution to assist startups and entrepreneurs.

The support structure of startups is highly varied in today's society, and there are many ways startups might receive facilitation, argued by Bruneel et al., (2012) argue that the incubator has an essential role. The main reasons found for entrepreneurs and startups to join an incubator were to receive a cheaper office, networking opportunities, access to capital, and is accompanied by other entrepreneurs (Mack et al., 2017).

2.5 Virtual business support infrastructure

Cakula, Jakobsone and Motejlek (2013) provide an example of software that could enhance innovation within small and medium-sized enterprises, where technology is changing the process of learning and working. More activities are slowly changing to be improved and replaced by technology. Cakula et al., (2013) also suggest the possibility for technology and software to further enable better knowledge transfer within small and medium-sized enterprises to enhance their innovation capabilities further. Lastly, Cakula et al., (2013) argue that physical working space becomes less important, whereas business clusters and virtual networks increase in importance in transferring support to startups in terms of business ideas and new challenges.

Mack et al., (2017) looked at the implementation of internet and social media applications for early-stage ventures (less than three years) and conducted a survey to entrepreneurs located on an incubator. They found that almost 80% of entrepreneurs use social media, and they use, on average, 6.1 applications, primarily to reach visibility for their business but also research purposes.

Kuhn, Galloway and Collin-Williams (2017) explored the type of advice and support that was preferred and what preferred way to communicate. The study was conducted with 528 survey respondents that were small business owners (less than 250 employees). The study showed that 14% exclusively online as compared to the more traditional methods of in-person or by phone. Relying on online methods was associated with less emotional support independent of the advisor. However, an interesting finding was that the founders highly valued advice and assistance from online forums compared to traditional outlets. Kuhn et al., (2017), therefore,

argue that as online communication continues to develop and become more normative, the limitations in terms of trust and dynamic might change. This field is, therefore, argued to be further researched.

Crowdfunding is described by Mollick (2014) as an effort carried out by entrepreneurs to receive funding for their ventures by a large number of small contributions online. Many times according to Mollick (2014), through digital platforms such as Kickstarter and without the more traditional funders such as venture capital or angel investors. Some characteristics of a successful crowdfunding campaign rely on the entrepreneur and the team's social capital and how well prepared they are. However, aspects such as geography may also play an essential role, as suggested by Mollick (2014). The process of crowdfunding can also be seen as a validation process as it offers new ways for entrepreneurs to receive feedback and develop a relationship with customers and or users. It can, therefore, be seen as an act of proving the idea or project. Crowdfunding can, therefore, help in the product development process and validation (Schwienbacher, 2018). This, to the extent, also can lead to project discontinuation and lead to a failed validated.

2.6 Incubators

The incubator concept has a long history being established during the 1950s, according to Shih and Aaboen (2019) historical description. However, incubators became popular during the 1980s with the purpose of stimulating innovation (Hackett and Dilts, 2004). White and Mclaughlin (2006) presented an analogy for the incubator as similar to an incubator being used for prematurely born babies to helping startups grow and become strong enough to survive. White and Mclaughlin (2006) further address the topic of the incubator’s mission statements. Contribution to the competitiveness of the local economy 78% and to promote entrepreneurship 76% is the most common. However, White and Mclaughlin (2006) further argue that this has historically not been the case. The aspects of creating jobs and regional economic developments are a higher priority, according to Hackett and Dilts (2004).

Aernoudt (2004) argues for underdevelopment in Europe for entrepreneurship and paints a picture of the incubator, incubators, and entrepreneurship to walk hand in hand. Grimaldi and Grandi (2005) describe four different kinds of incubators with the main differentiator of their ownership, where ideas come from, location, time of incubation, and when the time of

intervention occurs, i.e., which phase the company joins the incubator. Lastly, characteristics defining the type of incubator is researched by Grimaldi and Grandi (2005). The most important aspect is by looking at which services the incubator provides but also in terms of how the management team looks. It is concluded that the main purpose of the incubator can be divided into two models, either reducing the startup cost or accelerate the startup process.

The academia on incubators frequently categories incubators into three generations. As Bruneel, Ratinho, Clarysse and Groen (2012) describes the first generation incubators purpose to be job creation and establishing a physical location for entrepreneurs and startups to act as tenants. The second phase analyzed by Aerts, Matthyssens and Vandenbempt (2007) as focusing more on the business support services and networking opportunities. Lastly, the third-generation incubator is incorporating concepts as business coaching and accessibility to funding. Concluding remarks provided by Shih and Aaboen (2019) is the notion of the ongoing development and change of the incubator, as argued by Lai and Lin (2015). One of these changes are brought up by Soetanto and Jack (2016) as providing more high-value services, and providing startups and entrepreneurs within the incubator with tools and knowledge to further increase survival post-incubation, or after graduating from the incubator. Lastly, Bruneel et al., (2012) argue for a simple explanation that incubators are brokers, hubs, or connectors between various actors inside and outside the incubator. Looking at the Business incubator's outcome is mainly affected by their choice of selection criteria, how they work with funding, and how they implement specific business training and learnings (Ratinho et al., 2020).

Incubators selection and how incubators screen startups have been researched by Aerts, Matthyssen and Vandenbempt (2007). Business incubators many times analyzes startups in an unbalanced way, which many times leads to a biased selection as the initial decision becomes the profile of the founding team and match with the incubator itself. In terms of looking at who are the startups and entrepreneurs most benefited by joining the incubator programs, Albort-Morant and Oghazi (2016) looked at the benefits for young entrepreneurs to enroll in incubator programs and also looked at how useful they found advice from experts. An important finding is that the entrepreneur's profile impacts the usefulness and the potential benefits from advice and incubators. Young people with an academic degree, professional experience and has a family with a background as entrepreneurs rate the utility of support from business incubators as more useful. Another important finding from the study is that people tend to find incubators

on social media and websites, which may play in the role that the older generation experience more difficulties finding of entrepreneurial support and specifically, incubators. An important finding from Albort-Morant and Oghazi (2016) is, therefore, that social media plays an essential role for incubators to receive entrepreneurs interested in joining the program, contests, and workshops.

An essential aspect of incubators are how measuring and benchmarking success is carried out (Torun et al., 2018). Reviewed the state of knowledge of incubator assessment, arguing for the lack of definitions, assessment framework, and management strategies. How incubators benchmark and evaluates is challenging on the premise of the different types of incubators furthermore, goals, region, and stakeholders held a wide variety. The review proposes an aggregated benchmarking out of several key performance indicators (Torun et al., 2018):

- Average jobs created per tenant
- Survival rate
- Number of incubatees
- Client revenue or turnover
- Funds or capital attracted
- Sales growth
- Size of network

The development and change in Business incubators are further highlighted regarding the aspect of the crisis. Torun et al., (2018) noticed that 69% of respondents in the research argued for the negative influence of the economic crisis and the Dot-com bubble of 2000. A critical aspect brought up is that in uncertain times, investment to startups is reduced on the premise that investors seek safer harbors and more actively avoid risks. Seven years after the crisis, incubators still had a decrease in occupancy rate and were negatively affected. Torun et al., (2018) conclude that a bad economy severely impacts incubators.

2.6.1 Incubator services

A definition of the incubator is based on the services they provide, according to Carayannis and Von Zedtwitz (2005). The incubator as an organization that provides an entrepreneur with the following attributes.

- Physical resources
- Administrative service

- Financial resources or access to investors
- Startup procedure assistance
- Networking

Mian et al., (2016) incubators in Science parks are moving towards a service focus from office space or as a "networked commercialization enabler." Shih and Aaboen (2019) explain the scenario that the incubator, in general terms, usually provide the startups with a generic set of services and networking opportunities. A startup is, however, an organism that is continuously changed and will, therefore, need different types of services and guidance. The need for customization and a dynamic program is aligned with the research of McAdam and McAdam (2008). This type of flexibility and not seen as a general fit it all argumentation is further emphasized by Soetanto and Jack (2016).

There are further apparent limitations of the varieties of resources and services an incubator should and can provide. Roig-Tierno et al., (2015), therefore, argues that the incubator needs to actively engage in seeking and broadening their network to be able to provide the startup with the essential services to gain success and growth. Roig-Tierno et al., (2015) lastly emphasize on the networking aspect as a value-creating aspect for startups. However, research carried out by Rubin et al., (2015) downplays the importance of the incubator itself but highlights the types of interactions that entrepreneurs and the startup expose themselves with the incubator.

According to Phan et al., (2005), it is difficult for incubators to customize their service enough to provide the best results for every startup. Shih and Aaboen (2019) lastly see a potential pitfall with the public funding of incubators as a potential obstacle and something that creates an incentive for incubators to spend more time trying to receive a more significant portion of funding than actually helping the incubated companies. Giones and Brem (2017) argue that the entrepreneurship-supported model becomes more and more unified, and universities adopt classic acceleration models as described by (Pauwels et al., 2016). This is contradictory to findings from Morrison and Bergin-Seers (2002), who argue for the exact opposite, concluding that the training need for entrepreneurs is not considered in the support programs and that many entrepreneurs notice a lack in customization and tailoring to their actual needs. This is further aligned with Peters, Rice and Sundararajan (2004) who argues that the incubator process should be custom to the startups need and continuously needs to be evaluated and updated.

According to van Weele, van Rijnsoever and Nauta (2017), startups fail to use all the resources offered by incubators and infrequently take full advantage of the services. Van Weele, van Rijnsoever and Nauta (2017) further argue that this gap derives from that the entrepreneurs are comfortable, not stepping out of the comfort zone, and are more focused on short-term effects.

2.6.2 Incubator networking and ecosystem

Shih and Aaboen (2019) researched the premise of the incubator as a mediator and looked at the networking effects of three incubators in Sweden. In the initial phase, when a startup joins an incubator, they provide knowledge specific to the local innovation ecosystem and also hands-on knowledge of different grants, intellectual property analysis, and consulting services. Shih and Aaboen (2019) further describe the specific purpose is to get the startup ready to test their product or service and get it on the market. These findings are further aligned with the support infrastructure (McAdam and McAdam, 2008; Bruneel et al., 2012). However, Shih and Aaboen (2019) argue for a limitation in terms of the incubator's network. Terms of heterogeneity and argue for a potential benefit to broaden the network of different actors to provide a wider variety in terms of resources and support (Soetanto and Jack, 2016; Shih and Aaboen, 2019)

Shih and Aaboen (2019) argue that an incubator network is highly dependent on location, and their network will be a result of closely positioned actors, further limiting the startup's business relationship and network potential. Shih and Aaboen (2019) further argue that an incubator is mainly a place where startups receive knowledge, resources, and build networks an important aspect listed for startups is to look beyond the incubator and broaden their network. This is also a parameter listed by Cantù (2017) that argues a startup with a more significant and diverse network will have a higher potential for growth. The incubator needs to look beyond geography and proximity in building their relations and networks, according to Schwartz and Hornych (2010). The incubator should, therefore, be seen as more of an intermediary of services, networks, and potential partners. This also means in terms of customers and suppliers, but also more specific instates, i.e., research facilities, financial institutions, and more specialized services. Schwartz and Hornych (2010). McAdam and McAdam (2008) argue for a specific implication in the process of networking for newly joined startups and entrepreneurs in an incubator. That the startup receives a large number of networking opportunities and relationships, in the beginning, their motivation for future networking at later stages in the incubator process will be lowered. However, as an additional aspect, networking aspects seem

to be that these effects will lower the positive aspects of being physically present at the incubator.

The actions of the incubator, i.e., networking opportunity, are considered more important than the legitimatizing aspect that an incubator can have for a startups brand (Rubin et al., 2015). This as an objection to scholar's argument that incubators could be seen as a stamp of approval, and handing out resources. Another critical finding comes from Albort-Morant and Oghazi (2016), where the most beneficial entrepreneurs and the ones that rate their experience with incubators, the highest has specific characteristics. Frequently they seem to be educated and a type of professional or entrepreneurial experience. Albort-Morant and Oghazi (2016), argue that these people have a more significant chance to supplement the services provided by the incubator.

2.7 Virtual incubator

According to Zedtwitz (2003) categorization and definition of incubators, a virtual incubator is an online non-physical workspace but instead an incubator that offers the service of linking together the entrepreneur with investors and advisors. Compared to other incubators virtual incubator seems to be particularly good at aggregating services, i.e., helping the startups with legal advice, accounting or consulting within business plan development. Furthermore, in the sense of online matchmaking as referred to as Zedtwitz (2003), with the usual bigger network finding talent for the startup might be more comfortable in a virtual incubator. According to Zedtwitz (2002) categorization and definition of incubators, a virtual incubator is an online non-physical workspace but instead an incubator that offers the service of linking together the entrepreneur with investors and advisors. Compared to other incubators virtual incubator seems to be particularly good at aggregating services, i.e., helping the startups with legal advice, accounting or consulting within business plan development. Furthermore, in the sense of online matchmaking as referred to as Zedtwitz (2002), with the usual bigger network finding talent for the startup might be more comfortable in a virtual incubator.

Lewis et al., (2011) define the virtual incubator as an incubator that does not provide physical space for entrepreneurs and startups. This, however, does not stop them from having a central office or a physical outlet to coordinate the program. The incubator environment has, on the other hand, shown to play an essential role according to Bonacina Roldan, Hansen and Garcia-

Perez-de-Lema (2018), where the physical community plays an essential role in growth and performance. The virtual incubator does not necessarily have to be in the same geographic area as the program participants, and frequently provides a more cost-efficient program, with more significant flexibility. Specifically, in rural areas or larger cities where commuting is troublesome, the virtual incubator can act as a good substitute. The virtual incubator, according to Bonacina et al., (2018), comes with some challenges, however. It is more challenging to encourage networking amongst participants, which may lead to a lower amount of knowledge sharing, a lower amount of collaborations, and future partnerships. Lastly, the funding opportunities for virtual incubator participants are considered lower.

Nowak and Grantham (2000) presented a framework for a virtual incubator to assist startups and entrepreneurs to be successful. Nowak and Grantham (2000) list three specific things the virtual incubator can assist with, best practice in terms of business development, expertise within industry and management, and lastly, resources for marketing, distribution, and sales. Fadil, Persada and Baihaqi (2019) conclude of the Nowak and Grantham (2000) framework as an incubator without physical limitations that connect technical talents and business aspects to meet a business opportunity. Öberg, Klinton, Stockhult (2020) further cites Nowak and Grantham (2000) in their pursuit to understand how business relations are created among participants in an incubator program. A description of the framework of Nowak and Grantham (2000) as a structured program with a focus on creating business relationships as opposed to a laissez-faire approach. The virtual incubator's primary focus is, therefore, argued by Öberg et al., (2020) to be partnering and creation of business relations.

Fadil, Persada and Baihaqi (2019) more holistic approach to the virtual incubator, the E-incubator is described with five primary functions as providing entrepreneurs with electronic and digital: stakeholder management, learning, coaching, investment, and auction. These online services further have the possibility and indicate positive results according to Fadil, Persada and Baihaqi (2019) of small and medium-sized enterprises to receive help through online incubation relying on support from the government, academic institutions and big industries.

Luik, Ng and Hook (2019) further adds to the framework of Nowak and Grantham (2000) and analyzed virtual hubs. They argue that these types of platforms are emerging to offer remotely located entrepreneurs and startups with support, many times with similar services to their

physical counterparts but with even greater importance of incorporating activities of online hackathons, virtual community sharing spaces, and social dimensions. However, as argued by Durão et al., (2005), these types of virtual assistance programs should not be seen as a substitute for traditional incubators but as a compliment, which is aligned with findings from Shepard (2013). Lastly, an argument presented by Aernoudt (2004) that the incubator cannot be defined by office space and shared building service, and Aaboen (2009) in her article using a firm analogy for the incubator list the business support as of primary concern compared to the secondary offering of shared space. On the contrary, Lai and Lin (2015) argue that it is essential that business incubators offer office facilities.

2.8 Theoretical framework

The framework aims to provide the reader with a connection to existing knowledge and the proposed research questions. The theoretical framework lays the foundation of the research and is commonly described in the analogy of the research being a house and the framework as the blueprint.

The starting point of the research is the change in the digital context, as argued by Nambisan et al., (2019) and Nambisan (2017). The development of digital entrepreneurship (Giones and Brem, 2017; Richter et al., 2017) and the more practical implications of digital usage by entrepreneurs as described by Mack et al., (2017). Furthermore, this ongoing change and lack of common definition of entrepreneurship (Henrekson and Stenkula, 2010) and the increase in popularity (Rasmussen and Sørheim, 2006). Lastly, the shift of social entrepreneurship (Defourny and Nyssens, 2017) and green entrepreneurship (Fellnhofer et al., 2014) is further applied in the first lens. The second lens is provided by the entrepreneurial ecosystem (Isenberg, 2011; Mack and Mayer, 2016) and the developing digital entrepreneurial ecosystem (Sussan and Acs, 2017). Furthermore, the associated entrepreneurial support actors as described by Hanlon and Saunders (2007) and Ratinho et al., (2020). The third lens is the field the business incubator (Mian, Lamine and Fayolle, 2016) and virtual incubators (Nowak and Grantham, 2000) are reviewed in-depth to understand the process, purpose and, development. Furthermore, how incubators work with their own network, in the entrepreneurial ecosystem, and how they collaborate between other incubators (Shih and Aaboen, 2019).

3. Methodology

The methodology chapter will describe how the research paradigm and the chosen research methodology is conducted to give an understanding of the research process. Furthermore, this chapter aims to explain how the data were selected, how it was analyzed, and lastly, the limitations of the research.

3.1 Research approach

This study explores the field of entrepreneurial support by explicitly looking at incubators and digital service providers with the mission to support and aid entrepreneurs. The aim is to identify and link together aspects of how incubators work with tools, partnerships, and how they try to improve on their service offerings; moreover, this study investigates the proposed concept of the virtual incubator. Furthermore, this study wants to contribute to the progress made in the field of digital entrepreneurship, entrepreneurial support and improve on the general knowledge within the field of incubation research to provide a change in the context that incubators act within.

The chosen paradigm for this research is interpretivism to explore the research questions. This is an essential aspect, according to Collis and Hussey (2014), because it shapes the whole research. Interpretivism derives from a type of objections to the set of principles that describes the other major scientific paradigm positivism. These principles deal with the questions of social reality, if it is objective or subjective, or multiple reality's ones. In the contemporary scientific community, these paradigms are sometimes according to Collis and Hussey (2014) simplified to distinguishing between quantitative and qualitative research (positivism versus interpretivism). This research relies on extracting knowledge from the participants by talking and interacting with them and using their experience and knowledge as a foundation for understanding. Therefore, it can be concluded that this research is using an epistemological assumption of what knowledge is.

The research methodology used in this research is of an exploratory character. An exploratory study is used to describe a classification of research with the purpose of finding patterns and as opposed to testing a hypothesis to develop one for future and further research. As explained by Collis and Hussey (2014), case studies are frequently used as a technique to gain insights and explore the subject. Some aspects of triangulation have been implemented, combining multiple

sources of data and research methods, as described by Bryman and Bell (2011). To further analyze and cross-reference the qualitative data collected in this research, data from incubators websites and printed material were used to verify and validate certain statements and information.

A common difficulty is choosing and investigating a far too wide area, and topic and Bryman and Bell (2011) argue for the importance of narrowing down the particular issue that is being researched. This should further be based on prior academic scholar's proposed issues that need further attention, i.e., fields that are presented as needing further research as presented as the gap analysis (Sandberg and Alvesson, 2011). The research questions could also be narrowed down, looking at a specific geographical region or a specific stakeholder as present in this research that focuses on incubators as entrepreneurial support actors and specifically in the region of Sweden.

The specific methodology used in this study can, therefore, be described as collecting data and analyzing multiple cases following Yin (2013). The case methodology is, according to Collis and Hussey (2014), a way to explore a phenomenon in a particular setting. The practical steps are the selection and choice of case or cases. Preliminary investigations, familiarizing with the context. Data collection, interviews, and observation. These data and findings are further limited to this specific time of the carried-out research, the spring of 2020, and should be carefully understood as the constant change and dynamic processes in the field of entrepreneurial support, digital entrepreneurship, and digital tools. Flyvbjerg (2006) argues for the use of case methodology, responding to frequent misconception of that a case studies many times are biased and is impossible to generalize.

Due to the time constraints and the time available, the grounded theory presented by Corbin and Strauss (1990) in its complete form and process was concluded to be too extensive. However, there are inspirational thoughts derived from Charmaz's (2006) view of grounded theory, specifically in terms of an ongoing analysis of the data. Even though the data was not finalized transcribed and coded until the end, summaries and field notes where taken simultaneously throughout the data collection and can be described as a type of initial coding. Charmaz (2006) further argues for a more pragmatic approach to familiarizing yourself with the subject before interviewing as to respect the subjects. Furthermore, Charmaz (2006) states the importance of where the researchers themselves come from regarding background and

standpoint. An essential aspect of this research is, therefore, to disclaim that the authors of this research are currently and have been part of multiple projects around technology and digital transformation.

3.2 Research framework

The research framework and outline used in this research is an ongoing process of iteration between empirics, literature, and theory and the interdependent research question as drawing inspiration from research frameworks of Bryman and Bell (2011) and the authors Collis and Hussey's (2014).

The initial choice of field and preliminary research question, and after that, familiarization with the subject and an iterative process is formulating the research questions. The third step was to define the unit of analysis and choosing the incubators, and digital service providers as further to create an understanding of the entrepreneurial support and ecosystem. After that, the data collection began by carrying out semi-structured interviews. The data was an iterative process of coding, summarizing field notes, and some aspects of observing and using digital tools. The final data analysis was conducted through a thematic analysis, which is presented in chapter 3.7. As a final step, the findings were analyzed, and the literature review narrowed down in order to find conclusive answers to the research question.

3.3 Sampling

50 different public and private incubators were chosen to fit our purpose and, after that, contacted to be part of a video interview that was recorded. We prioritized amongst the respondents to fit the research purpose. Furthermore, this research used two instances of snowball sampling, which is a technique and sampling style, where researchers ask the subject whom they collect data from for future or other interesting subjects to interview (Collis and Hussey 2014). The practical implications of snowball sampling can be described as the last question in the data collection that is stated as ”Do you have anyone you believe would be interesting to talk with concerning this research question?”. One respondent also suggested another respondent without being asked.

Many researchers prior have focused on the Vinnova Excellence program (Aaboen, 2009; Aaboen et al., 2016) and university incubators. However, the previous research failed to uncover is the thinning line of what an incubator can be and what they provide in a digital

context for entrepreneurs. The selected sample or a subset of the population, as described by Collis and Hussey (2014), are many times considered better if it is chosen randomly. However, in the paradigm of interpretivism, it is of less importance, as argued by Collis and Hussey's (2014).

This research used non-probability sampling and mainly adopted characteristics from purposive and judgmental sampling, where the selected sample is specifically chosen to provide valuable information regarding the purpose. However, the use of creating categories of respondents being public incubators, private incubators, and digital service providers acted in a similar fashion as quota sampling. The predetermined characteristics and the chosen sample in each quota shared similar characteristics. Non-random sampling is infected by bias and interpretation, and it is up to the researchers to highlight the possible occurrence of these. An example of this is the prominent selection bias in many researchers' convenience sample. It offers a quick way of selecting the sample, but it lacks representation and creates a selection bias. Therefore, aspects of selection bias and representativeness and generalization have been carefully analyzed in the sample.

The use of the resource gathering platform Thehub.io was analyzed to find incubators and entrepreneurial support actors. The Hub is a free community-based platform to help entrepreneurs grow their startups and list public and private incubators as well as venture capital firms and investors. The issue with our quotas is the potential limits in superficial characteristics such as ownership and public and private categorization. An important aspect is, however, to understand that the contacted respondents all registered on The Hub, which may indicate some preference or strategy to work with these kinds of digital initiatives and external partnerships.

3.4 Data collection

Two pilot study interviews were initially conducted before the empirical data collection began, with two experienced people that know about entrepreneurship and innovation. The interviews lasted between 30 to 40 minutes, to analyze the proposed interview questions to avoid misunderstandings and remove biases from the formulated questions. Furthermore, the pilot study acted as guidance in terms of if they were relevant to our research questions. The initial plan for this research was further to conduct a workshop with one of the incubators discussing the questions, using and working with digital tools, and collect data through this kind of

interaction. However, due to the COVID-19 pandemic, this was not possible when incubators are held closed, and social distancing has been enforced. Several discussions with digital service providers where used and discussed their tools were, however, carried out through video conference. During this more ethnographic type of data collection, however, focus on writing field notes and recorded the discussion.

The interview questions were based on literature from the review, exploring incubation, entrepreneurial support, and the context of digitalization and the future of incubators and their potential in incorporating digital tools. The structure of the interviews follows a semi-structured character with the focus on the developed themes instead of the importance of the actual questions and having them answered in a structured manner. This research collects data of six public incubators, three private incubators, three digital service providers, and two interviews with the governmental agency Vinnova. The interview was initialized by framing the questions and giving the subject a context. Therefore, the importance of the subject defining their chosen wording is vital as referenced by Collis and Hussey (2014) Easteby-Smith, Thorpe and Jackson (2012) argue for when semi-structured interviews are appropriate. The prominent pandemic of COVID-19 further influences the practicality of interviews, and a general avoidance of face-to-face communication has been used. Collis and Hussey (2014) further describe both phone and online as tools for interviews, which have mainly been used throughout this research. The respondents were initially contacted via email. Lastly, follow up questions is highly encouraged to increase clarity, depth, and avoidance of potential bias.

The specific research of entrepreneurship and the more general field of innovation associated research are many times semantical and based on the subject's understanding of, for example, ”virtual”, ”digitalization” and ”digital tools”. A critical aspect of this research is investigating the interviewed subjects' understanding and definition of these types of words and concepts to gain unity in the research vis a vi the same language is spoken. The context in the field of incubator and entrepreneurial facilitation is in some respects already given. A prominent issue is found in many newly launched projects, and that is the emerging desire to be innovative and original; therefore, similar projects are named and categorized differently by the founders to seem unique and new. Therefore, concepts in the field of entrepreneurial support and ecosystem are named and branded as many things making unity and language use a more complex aspect of the research.

3.5 Respondents

The common theme for all respondents is that they share the mission to support entrepreneurs in one way or another in their process of developing startups. They have been divided into four different subcategories based on characteristics of their ownership, mission, and vision and general-purpose, which are Public incubators, Private incubators, Digital Service providers, and the governmental agency of innovation, Vinnova. It is essential to understand these differences because of the differences in responses. All interviews were conducted using different types of video communication tools; the ones used were Skype, Google Hangout, and Microsoft Teams. All the interviewee's names have been anonymized, as well as the specific incubators. However, based on characteristic important, the digital service providers and Vinnova has been named to provide a better understanding of their responses.

3.5.1 Public incubators

Public incubators are characterized by their non-profit profile and are usually a collaboration of multiple actors. Our empirical data contains, for example, university incubators that work together with a holding company that invests in projects and entrepreneurs. Many times, university incubators, science parks, and public incubators are differentiated, but for this specific research question, the notion of non-profit aspects are weighted as the most significant characteristic. Other are owned or co-owned by municipalities and cities with the primary goal to stimulate regional growth and to create local job opportunities. All the public incubators offer physical office space or co-working spaces. The public incubator's niche and specialization were dependent on their region, but the incubators had no explicit niches. All the interviewed respondents in this category are visualized in Table 1.

Table 1. Public incubators

ID	Organization	Interviewee	Ownership	Time
1	Public incubator 1	Business coach	Public	37 minutes
2	Public incubator 2	Business coach	Public	35 minutes
3	Public incubator 3	Business coach	Public	37 minutes
4	Public incubator 4	CEO	Public	45 minutes
5	Public incubator 5	CEO	Public	26 minutes
6	Public incubator 6	CEO	Public	49 minutes

3.5.2 Private incubators

The private incubators have a for-profit aspect and are in the cases of our respondents driven mainly by investing in the companies and receiving equity. Therefore, a similar mechanic to venture capital is found. Furthermore, corporate incubators are very prominent in this category of incubators, where big corporations host incubator programs for startups or intrapreneurs, i.e., company employees that are creating a startup within an existing company, in this research was limit the research to looking at the private incubators with an investment and equity basis and are not looking at the corporate incubators. In terms of specialization, the private incubators were even more general as opposed to the public incubator and had no specific industry niches. All the respondents in the categories of private incubators are visualized in Table 2.

Table 2. Private incubators

ID	Organization	Interviewee	Ownership	Time
7	Private incubator 1	Partner	Private	26 minutes
8	Private incubator 2	CEO	Private	74 minutes
9	Private incubator 3	Business coach	Private	60 minutes

3.5.3 Digital service providers

These types of initiatives or companies have been cluster into a group called "*Digital service providers*". This group of entrepreneurial ecosystems supports and creates value for both incubators and entrepreneurs in the development process by providing tools to facilitate entrepreneurial work. Below, a comprehensive description will be presented for each digital service provider. All the respondents in these categories visualized in Table 3.

Table 3. Digital service providers

ID	Organization	Interviewee	Ownership	Time
10	Cubimo Advisor	Founder	Private	67 minutes
11	Keys Ecosystem	Founder	Private	60 minutes
12	Made in the Now - AVVA	Founder	Private	61 minutes

Cubimo Advisor

Cubimo Advisor is an online coaching platform that is a part of their virtual incubator. It connects entrepreneurs with experts through an app. The entrepreneur can select from several categories depending on their needs and then choose a specific business coach (Figure 2). The coach provides information about their professional expertise, and the coaching is formed as one or many video calls. The coach also decides the cost of their coaching, seen as price per hour in (Figure 1). (*Cubimo Advisor i App Store*, 2020)

Figure 2. Cubimo Advisor - Category

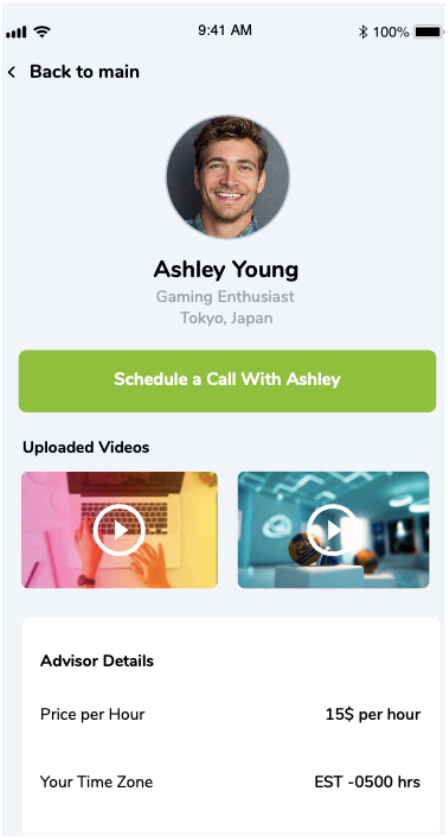

Figure 1. Cubimo Advisor - Coach

Made in The Now - AVVA

Made in The Now is a digital service provider that has developed a validation tool called AVVA. AVVA is an algorithmic validation tool that gathers humans' options to reveal hidden weaknesses and strengths in a team or individual. This is made through several questions that the respondent should answer on a scale from 1 to 10 (Figure 3). After the respondent has answered all the questions, a probability of the success rate is then illustrated in a circular diagram with a backdown description of the different classifications (Figure 4). (*AVVA - The smartest way to evaluate your next venture.*, 2020)

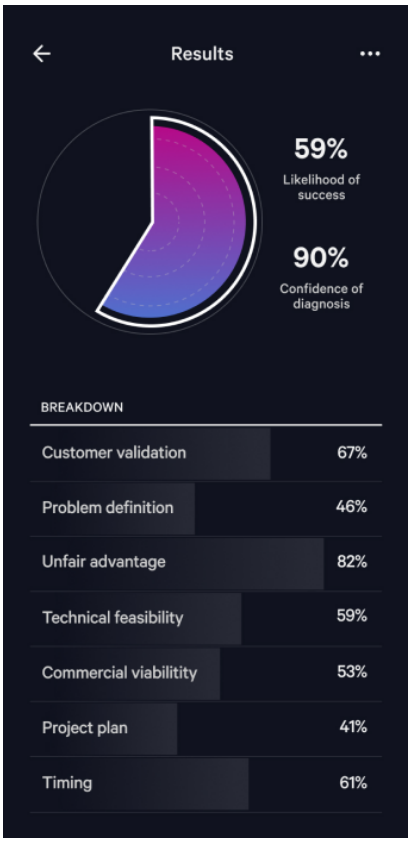

Figure 4. AVVA - Breakdown

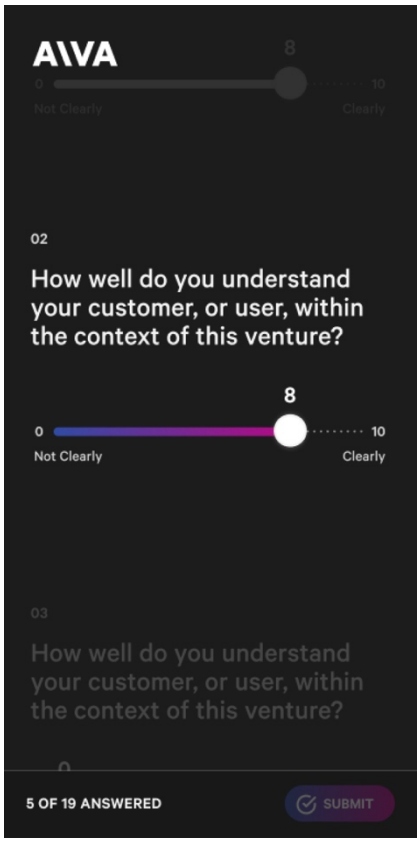

Figure 3. AVVA - Question example

Keys Ecosystem

Keys Ecosystem has the purpose to navigates and support knowledge to entrepreneurs in the entrepreneurial ecosystem. Through providing a free of charge survey-based matchmaking for entrepreneurs and different actors within the entrepreneurial ecosystem (Figure 5) and (Figure 6). The application presents various suggestions on resources that may be suitable for the entrepreneur's agenda after the survey-questions have been answered on the premise of which stage the entrepreneur is in, which industry and the niche they are pursuing and if they live in Stockholm or want to move there. The result is a tailored email with a list of resources available to contact for the entrepreneur. (*Keys Stockholm*, 2020)

Figure 5. Keys - Introduction

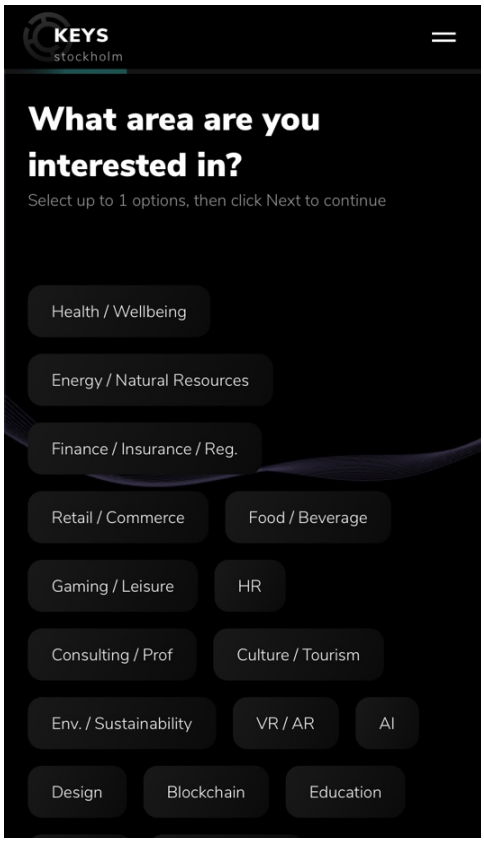

Figure 6. Keys - Question

Vinnova

Vinnova is an essential actor within the entrepreneurial ecosystem as they are the governmental agency of Innovation in Sweden (Vinnova, 2020). The purpose of Vinnova is to build and develop on Sweden's innovation capacity and contribute to sustainable growth. Vinnova further supports specific actors within the ecosystem i.e., public incubators with funding and resources. The two interviews had the purpose of gaining a better macro understanding of the whole region of Sweden and their further efforts to improve Sweden's capacity and entrepreneurial support. The respondents from Vinnova are visualized in Table 4.

Table 4. Vinnova

ID	Organization	Interviewee	Ownership	Time
13	Vinnova	Program manager	Governmental	46 minutes
14	Vinnova	Incubator program manager	Governmental	56 minutes

3.6 Literature review and connection to questions

Collis and Hussey (2014) refer to the literature review as critically evaluating the existing knowledge of a topic. This further acts as a guide for the research. The systematic literature

search was carried out through the Uppsala University Library search tool, where literature was found based on queries as a" Virtual incubator" and further synonyms. The research field is also highly influenced by the more general incubator literature, which has been reviewed by Hacket and Dilts (2004) and Milan (2016). The further contextualize the incubators, the more general concepts of entrepreneurial support, and entrepreneurial ecosystem have been reviewed. Moreover, much of the literature review is attempted to understand the ongoing change within the field and to understand further the increased digitization and use of social media and digital tools.

3.7 Operationalization and interview guide

The reviewed literature after that acted as inspiration and guidance to formulate relevant areas and questions (Appendix 1) to shape the collection of the empirical data. Each question in the interview is inspired by prior research and the specific study is highlighted with a factor. Question 1, 3 and 7 in the interview guide (Appendix 1) is motivated by studies from (Peters, et al. 2004; Cantù, 2017; Shih and Aaboen, 2019) with the incubator purpose as the factor, the motivation and factor for each question are highlighted in Table 5.

Table 5. Operationalization

Factor	**Research**	**Question(s)**
Incubator purpose	(Cantù, 2017) (Peters et al., 2004) (Shih and Aaboen, 2019)	1, 3, 7
Incubator process	(Schwartz and Hornych, 2010) (Bruneel et al., 2012) (Bruneel et al., 2012)	2, 4, 6
Services	(Aaboen, 2009) (Hackett and Dilts, 2004) (Durão et al., 2005) (Bergek and Norrman, 2008) (Carayannis and Von Zedtwitz, 2005)	5
Change of entrepreneurs	(Giones and Brem, 2017) (Defourny and Nyssens, 2017) (Rasmussen and Sørheim, 2006) (Martin et al., 2013)	8
Ecosystem and partners	(Song, 2015) (Mack and Mayer, 2016)	9, 11
Tools and measurement	(Shih and Aaboen, 2019) (Soetanto and Jack, 2016)	10, 12

3.8 Data analysis

Analyzing the data, Collis and Hussey (2014) refer to an approach based on research from Morse (1994) through four key steps. Comprehending, or understanding the data. Synthesizing, or put the data in the context of literature and research. Then theorizing or developing patterns and link it with theory. Recontextualizing, and using the data to create a higher degree of generalization. The data is gathered through recordings audio and notes taken during the interview to initially receive an understanding of the coding and the potential themes that occur throughout the data collection.

This research follows the thematic analysis approach by Braun and Clarke (2006), which is based on the premise of creating themes derived from codes. The codes can be found in the transcript interview data, and patterns with repeated keywords and topics were extracted to a separate document of codes, in this process initialized headings for the similar codes as a way of understanding their context.

The coding process was done separately, resulting in 330 codes, after cross-referencing them and merging them, the initial codes were concluded to 200. Attride-Stirling (2001) provided a systematic and practical guide for how to analyze empirical data in a thematic network. This is further an attempt to ensure transparency and disclosure of the analysis. The process begins with extracting the so-called basic themes from the 200 codes, explained as the ”lowest-order premises evident in the text” (Attride-Stirling, 2001 p388). After that, the basic themes are clustered together into the next level of abstraction, in an organizing theme. These themes are finally capturing a combined global theme. In the process of abstracting the codes to basic themes, this was done separately by the researchers and then cross-referenced and merged, resulting in 60 basic themes. After that, the third round was further fitting the basic themes into organizing themes, which resulted in 17 organizing themes that were paired with illustrative quotations. The final round was concluded with five global themes.

The identification of the global themes has been an iterative process but mainly conducted and finalized after all the data were collected. The themes can be viewed as a result of patterns across the collected data, repeated topics, and keywords both regarding the individual interview itself but also compared to the entire set of data. The two last interviews were further conducted with the premise of presenting the initially found organizing themes to confirm their relevance

further and to validate the analysis further. The data analysis follows an inductive approach, and the coding and themes were attempted to be gathered from the data itself as opposed to using pre-existing concepts and themes from theory. An important aspect is, however, the subjective bias that always exists when conducting research and the notion that a researcher always is influenced by prior scholars.

3.9 Validity and reliability

We used a pilot interview testing the initial interview guide. Further, along the process of data collection, we conducted follow up interviews on some of the subjects to understand if we had understood their statements and opinions correctly. The preliminary basic themes were further validated by two interviews with a more concrete object of understanding their validity. The question of saturation of theoretical concepts is also a critical aspect brought up by Charmaz (2006), a practical example is that if you ask respondents the same questions you are going to hear the same concepts but if you pursue analytical questions there is potential for the interviews and data collection to evolve. Therefore, aspects of constant comparison have been used to reach a stop in the data collection once there are no new properties brought up by respondents. A concluding remark is that the goal was to reach a kind of exhaustion at this particular time. This is contrary to claiming reached saturation based on a few cases, which frequently is hard to either confirm or validate.

Reliability or the precision of the measurement, i.e., if this research were to be replicated, would the researchers receive similar results? By using a protocol and describing the process of iteration in the interview guide and methodological decisions, the purpose of this research in the aspect of reliability aims to be as high as possible in the context of interpretivism. This research used a protocol, according to Bryman and Bell (2011), to ensure the aspect of reliability.

- Being clear and concise with changes and updates in methodology and data collection.
- Describing the research process, step by step.
- Using the appropriate appendices for first to last interview guide and how the sample was chosen.

Validity is described by Collis and Hussey (2014) as to what extent the research measures and tests the said issue it is supposed to measure. The generalizability is the notion of how the results from a particular sample can be extended to other samples and populations (Collis and

Hussey 2014). Another important aspect, as described by Bryman and Bell (2011), is that this research in regard to empirics and analysis has been carried out to the researcher's best knowledge. This is important to recognize based on that coding, analyzing themes, and moving forwards in abstraction levels heavily relies on the researcher's interpretation. The coding and theme generation are, therefore, a subject for biased interpretation, which, of course, is occurring throughout the research and in the conducted interviews and data collection.

3.10 Ethical considerations

Ethical considerations are something all researchers should have in mind while carrying out their research. Aspects of harming the participants that are part of the research or breaching their privacy or lying to them are essential breaches of ethics. Bryman and Bell (2011) propose a list of aspects that are important to consider that were taken into consideration in this specific research. This research has, therefore, carefully considered aspects of providing interviewees with the opportunity to withdraw, the right to anonymity, and confidentiality. The initial step of the interview was, therefore, to inform participants of recording and how their responses would be used. This was later confirmed, and explicit consent was sought out to provide the organization name. Due to the possibility of harm to participants in terms of self-esteem and possible evaluation of a career aspect, this research chose to anonymize the names of the participants on the premise that it did not add anything to the research itself.

The practical guidelines used in this research derive from Bryman and Bell (2011) but furthermore from Uppsala University's ethical guidelines. Within business research, there are four core ethical principles according to Bryman and Bell (2011), this is divided into different areas: *Harm to participants, Lack of informed consent, Invasion of privacy, Deception involvement.* The author Collis and Hussey (2014) explicitly discusses the aspect of harming the participants and how the researches deal with the aspects of privacy aspects. Potential research subjects were contacted early in the process, to allow the participants to have permission from management to be part of the research. An important reason for this is an aspect within voluntary participation because people might have an issue with receiving consent from their management to participate in research and want to inspect our collected data so that everything is interpreted correctly.

Anonymity and confidentiality aspect can in quantitative surveys lead to more responses, whereas in interviews, the subject’s role and the company can, according to Collis and

Hussey (2014), be a significant appreciation in the context for the research. In this case, it is essential to receive a confirmation by participants. In cases this is not possible, companies can be referred to in more general terms as Collis and Hussey (2014 p.33) ”An engineering company” or ”company A, B, C and so on.”

3.11 Limitations

During the 2020 epidemic of COVID-19, some limitations regarding data collection have been an occurring limiting factor. The most significant impact in terms of methodology for this research is the reason for canceled events and a minimizing of physical interactions and meetings. Therefore, some choices in terms of methodology have been redirected into video conferences and online meetings as opposed to the prior mentioned workshops and more ethnographic and observational aspects of research. Furthermore, the pandemic has created an entirely new situation for many of the respondents, which has unimaginably colored their responses.

4. Findings

This chapter aims to present the findings of the study, and the thematic analysis was deriving into five global themes. The codes were interpreted into underlying themes and then combined to organizing themes. These were then clustered to the final level of global themes. These were then clustered to the final level of global themes, with was the change of entrepreneurship, the process of a startup and incubator, partners collaboration and ecosystem, incubator services, and the digital tools and online assistance. The global themes and the findings from the interview are presented under each subchapter, and an overview of each is visualized in Table 6. The respondents were categorized following their mission and funding structure. In Appendix 3, an alternative way of visualizing thematic networks through a tree diagram, where one of the global themes are exemplified.

The thematic classification is derived from the coding process, and quotes should be considered a representation of several answers mainly divided into general agreements or contrary beliefs and disagreements. To understand how incubators are incorporating digital tools and how they develop their current product and service efforts. It is essential to understand each interviewed incubator's current strategy in terms of working with improvement but especially also how they interpret and present their current product and service efforts.

Understanding the challenges and opportunities to an online virtual incubator is very important to understand what exactly a virtual incubator is. Prior research has failed to unveil an exact and unified definition of what a virtual incubator is, and similar types of efforts are named Electronic incubator or Virtual hub. However, in this research, only two incubators name themselves as virtual incubators, which describes the phenomena as using digital tools in their incubator process. The fundamental aspect of the research question, therefore, turns to understand the use of digital tools within the incubator process to enhance further their efforts in delivering on their specific missions.

Thematic analysis – Basic to Global Themes

Table 6. Thematic analysis

Basic Themes	Organizing Themes	Global Themes
Inclusive values when starting a company	Value-based entrepreneurship *"4-5 years ago there was no talk about circular economy, about sustainability and now it's required to get money…"*	Change of entrepreneurship
Both genders represented		
Impact and sustainability		
Different backgrounds and ethnicities		
Available digital resources	Accessibility *"Platforms like Kickstarter etc. gives more opportunities to finance their companies and their innovations..."*	
More globalized world		
Increased ways of funding		
Hackathons and contests		
Imitative entrepreneurship		
Fast entrepreneurship		
Glorification of founders	Popularity *"Inflation in people turning to entrepreneurship because of success cases..."*	
Interest from Corporations		
Increased capital flow		
Finding the right team	Validation *"Ideas has to be validated as to what problem it solves and who's paying for it"*	The process of a Startup and Incubator
Idea solving a real problem		
Who should start the company		
Customer development		
Recruiting talents	Growth *"We work a lot with setting goals and finding ways to follow up and prepare them for growth"*	
Connect to investors		
Scalable business models		
Education and learning		
Development of service and products		
Technical consultant assistance		
Common core values	Selection "*You apply in competition with others who applied for the opportunity, so we only take in the sharpest ideas."*	
Portfolio fit to the incubator		
Individual characteristics		
Evaluating the scalability in the business models		
Degree of innovation		
Measuring and analyzing data in the incubation process	Change and future "Digital support could absolutely be a way forward, and make incubators more demanding a data driven"	
Increase interest from corporations		
Increase in new private initiatives to support entrepreneurs		
Public incubators selected by Vinnova as being excellent	Incubator networks and Governmental support *"Public incubators work quite tightly and we have regular meetups with other's in the Vinnova program and SISP."*	Partners collaboration and ecosystem
member-based industry association (SISP)		
Public sector incubator collaboration networks (Ignite)		
Generation deal flow for the incubators	Hackathon and competitions *"Hackathon is idea and team formation, and we get quite a lot of*	

	companies coming from these type of competitions"	
Incubators collaborate with University in the same region	Regional and local *"Regional differences, In the big cities, startups and taps come every 5 minutes, which they may not do in smaller cities."*	
Local initiatives, startup hubs and organizations		
Regional collaborations with banks and Almi for investment and company lending		
Technical partners	Network *"The limitations are primarily trust-building and serendipitous networking that occurs at physical events. For this reason, the best incubator would probably be the one that manages to successfully combine these elements."*	Incubator services
Community's interactions		
Connect to investors		
Coaching through digital meetings	Coaching *"So independent eyes and, coaching and customer validation is very important."*	
Assigned mentors for the startups and entrepreneurs		
Angel investors networks	Funding *"So, Sweden should invest in value creation in Sweden, where jobs are created, so it is a question of state funding or private venture capital."*	
Hosting of demo days (Pitch for investors)		
Grants and public funding		
Venture capital and equity funding		
Survey-based validation models (Made in the now)	Validation *"In recent weeks, we have built up some digital tools to be able to make the right decision and validate to coach properly and save a lot of data about the founders."*	Digital tools and online assistance
Resource gathering different actors in the ecosystem.		
Measuring degree of innovativeness		
Finding the right team members	Matchmaking *"It's about matchmaking these fundamentals with entrepreneurs and startups. With serious and longitudinal actors, it's like a dating process to find the best fit."*	
Connecting startups with relevant advisors		
Getting connected with investors		
Finding all the actors	Resources ecosystem *"It took me months to understand all the actors and what they do and where entrepreneurs should turn"*	
Finding relevant partnerships		
Receiving the right help		
Video conference tools	Communication *"Now with the Corona crisis, everything is at its peak and incubators have to run their business completely digitally and that is what we have done."*	
Online workshops and seminars		
Virtual demo days		
Planning and distributing tools (Trello, Asana and Slack)		

4.1 Change of entrepreneurship

All the respondents agreed that the entrepreneur is always developing, changing, and finding a standard definition is troublesome. Entrepreneurs and startups that are aware of sustainability have a strategy to incorporate a diverse team and want to make an impact is a crucial aspect from the incubator's point of view. A majority of the respondents also argued for the increase in speed, based on the premise of digitalization and societal acceptance, phrasing it as entrepreneurship has never been this accessible or accepted. *"Then we have also added categories for sustainability and gender equality, which are two categories that we also consider necessary for you to be able to enter for admission, where you must at least have a plan on how you intend to address these issues."* (Public incubator 1)

"The IMPACT aspect, 4-5 years ago there was no talk of the circular economy, about sustainability, and now it's just what you get money for almost. Sustainability, the impact is right in time, and It's a HUGE paradigm shift" (Public incubator 4)

A demand brought up by half of the interviews regarding the need to further expand on their marketing and targeted audience. Two incubators specifically mention the similar characteristics of entrepreneurs applying to them. One of the argued reasons is that there are a niche and specific industry focus in the incubator's geographical placement. The marketing and targeting of a particular type of people with similar backgrounds. *"Incubators become more industry and industry-specific, which can be dangerous in the diversity aspect if this becomes that everything will be the same, and there is no diversity."* (Public incubator 4)

Entrepreneurship and the creation of a startup have also become more accessible where the majority of respondents argue that it is easier to start a business today than before. One frequently mentioned aspect is the plethora of digital resources that are available for peoples interested in becoming an entrepreneur or launching a startup. *"There are tools to quickly build so you can quickly test and quickly validate. Wix.com, is one example where you can simulate your dream product to launch in less than an hour"* (Public incubator 2)

Another aspect of entrepreneurship that was criticized by some of the incubators was the notion of fast entrepreneurship and the increase in copying already established business ideas without really developing them. The respondents all came from a different understanding of these

phenomena, where some of the incubators actively engaged and believed this can be the future of entrepreneurship others were more concerned about the lack of innovativeness. *"This kind of rock and roll "landing page AB test, two weeks later, 2 million users"* (Public incubator 5)

Lastly, an essential ongoing trend and change within the field of entrepreneurship is the upwards trend in popularity and status, and this can be seen as a result of multiple factors brought up in our data collection. The most common explanation is the glorification of startup founders, where examples as Elon Musk, Klarna, and Spotify are brought up as success cases and acting as inspiration. Furthermore, it is the increased interest from corporations through sponsorships and even the increasing popularity in activities from corporations launching their incubators.

To summarize this section, the incubators are experiencing a change of entrepreneurship. Aspects of sustainability, diversity, and value-based entrepreneurship are becoming more important, and the entrepreneurs with these focuses are evaluated more positively. Furthermore, the aspect of accessibility is apparent; never before has it been easier to become an entrepreneur, and the barriers are lowered through digitization and globalization. However, the notion of faster and more accessible entrepreneurship differentiates the respondents into positive and negative attitudes amongst respondents. Entrepreneurship is becoming more popular, by the glorification of the startup life and founders. Furthermore, there seems to be an increase in social status and also in capital flow to startups.

4.2 The process of a startup and incubator

One reoccurring aspect of the startup and the incubator process has been the topic of validation. The word incubator process is used in a different context with different meanings. Incubators use validation as a process to confirm that the startup has understood an aspect such as customers correctly. The initial shape of a startup is the idea, and all the incubators emphasize the importance that the idea should solve a real problem. The process of validating the idea, therefore, begins as the first step in the process.

“It is a process, and it is well described, and incubators have worked with it in 20 years. It needs an idea that needs to be validated because someone has a problem that the idea will solve;

someone has to pay for it. Someone has to produce and execute the idea, some production." (Cubimo)

Validation is further an essential part of understanding who should run and be in charge of the startup and how the team should be built. As suggested previously, diversity and combining different perspectives and skills is argued by many of the respondents as a critical aspect of forming a good team. There is further a process in validating the team members and the founder. There is a difference between how the respondents prioritized and ranked the team and founders, and what the most valuable aspects are within a successful startup. Some incubators prioritize and focus on the idea, product, or service itself. "For you to understand the difference is about bringing in individuals who have a driving force and often ideas for building companies. But there is no company, they need to meet other people and connect with often technology meets business and then you build a team for around, and then you scale it up there and do validation of the business ideas" (Privat incubator 1)

The process of growth is listed as one fundamental aspect of what an incubator tries to infuse to the startup. There are many ways they do this; this research tries to separate these efforts connected to the specific services they offer versus the general process of the incubator and startup. One of the main processes is selecting, developing, and an overall effort to work with scalable business models that are prominent with a majority of respondents. However, some actors focus more on provides more general startup advice for small business owners and also actors looking at more significant business to business selling companies relying heavily on isolated partnerships with specific industry niches.

Recruitment, talents, and matchmaking could all be seen as services provided by the incubator but also an ongoing process to build the most suitable team to carry out the activities needed to become a successful startup. This process is many times carried out in an event type of setting, with a majority of respondents hosting matchmaking evenings, activities and invite potential talents and people interested in either joining a startup or the incubator itself as an entrepreneur.*" We usually host a team-up where our startups can meet people who are passionate about entrepreneurship and can get involved in a startup, and we try to do this at least once a year, so we try and match people with each other."* (Public incubator 1)

All the incubators further have the objective of educating the entrepreneurs to create a community of learning. Many of the respondents, therefore, host workshops, seminars, and weekly tasks for the incubated startups to prepare them for growing their business. A compelling differentiation was, however, that one respondent did not see this as the incubator's primary goal, but more of a result and consequence in the objective of growing the company.

"You will probably receive different answers depending on which incubator you ask about their purpose, and of course these kinds of the program leads to learning and general education of entrepreneurship, but in the same way as you learn something by walking through a park. This meaning that the main objective is not educating entrepreneurs, but it can be seen as a result of it" (Keys Ecosystem)

Furthermore, the exact process of how incubators host educational instances in their process follows similar trends across all respondents. By having an individual mentor or coach for the team. Through a general form of learning that is more standardized to all incubated startups in the incubator. One of the private incubator programs has what they call a "plug ‘n play" kind of process, with the purpose of efficiently transferring the process when opening new programs around the world. However, all the respondents have a structured program and process for startups and entrepreneurs joining. An important aspect is, however, brought up by one incubator, that there are examples of more community based and flexible incubator programs. *"There is a difference between companies coming from a clear incubated process and companies coming from a co-working space and community. Sometimes it can develop to a business you create for your friends."* (Vinnova)

When incubators screen potential entrepreneurs and startups to join their respective programs, there are many deciding factors and aspects they evaluate. A frequently brought up aspect is the regional specificities and the incubator's branding. A majority of the incubators discuss the different number of applicants, which varies heavily. The incubator program itself, as one respondent frames it, can be more or less popular amongst entrepreneurs and startups. The incubators selection is dependent on their specific niche, where some emphasize their industry focus, i.e., life science, deep tech, and capital-intensive projects, while a minority of respondents are more open to all applications. This could be summarized as that incubators are looking for suiting companies into their already established portfolio of startups.

In this process, every incubator has an online application as the first step, where a minority of incubators do an initial assessment and testing of founders and the ideas. Two of the respondents further intensively look for innovativeness and using specific models to measure the potential innovativeness in the startup's ideas.

Developing and improving on the incubator's process is frequently occurring, and all respondents touch on the subject of the future roadmap of incubators and its process. However, the findings regarding improvement are hard to unify, and opinions and statements have a great variety. A reoccurring theme is the aspect of data and digitization, and some argue as this being the main factor that will ensure success for incubators supporting entrepreneurs. In contrast, others believe it to be more of a complementing aspect that can be incorporated. *"incubators should gradually transition to digital tools, but without giving up the personalized angle, that is the most important attribute of incubation programs."* (Keys Ecosystem)

In terms of public and private initiatives, two respondents from public incubators argued for the possibility of a future of less governmental sponsoring because the public incubators are in an upwards trend in terms of creating revenue by themselves. A future possibility is, therefore, that public funding of incubators will lower, and more private initiative will occur.

"I think the government will soon realize that these (public incubators) are going so well so that we will stop sponsoring, so I think we will see more private initiatives. There is also a possibility, and if you look at the big companies, they realized that they do not create a single creative idea. And they often sponsor competitions and want to be in the startup environment. This leads to some difficulties, and some large companies that entrepreneurs do not want to be associated with will have difficulty for this." (Public incubator 2)

The last important aspect is how some incubators are working towards becoming more data-driven in their process, working more with measuring, gathering of data, and using it to improve. Specifically, one incubator stands out in this aspect, where they actively try to quantify every step of the process from selecting the startups and validating the team and idea. This to track improvements throughout the program. Meanwhile, the majority of incubators make efforts, tracking these kinds of parameters it is more dependent on the individual coaches, tracking their assigned startups in a less formally structured way.

To summarize, validation and understanding of the needs are crucial for the incubated companies. The validation process concerns the idea, the team, and understanding the customer. The question of growth is very prominent in the findings, and the incubators infuse growth mainly through matchmaking events and activities for startups to recruit. The incubator process of knowledge transfer and creating a community of learning as well as individual coaching, are two critical processes. The application process shares similarities across the spectrum of mainly being online, and in the same matter, the digitization and a more data-driven approach are further seen as a potential improvement and future way forward.

4.3 Partners collaboration and ecosystem

How incubators and entrepreneurial supporters work together happened to several different structured initiatives and formal settings but also in many informal settings. A noticeable common theme, however, is that many of the partnering attempts are based on regional aspects. Collaborations because of geographic proximity, this kind of partnership can, therefore, be concluded as a regional network, which should not be confused with the service of a network that incubators provide to the startups.

The type of formal and structured collaboration is somewhat specific to public incubators, where three of the public incubators are part of the Vinnova Excellence program. In this field of incubator networks, there are also important factors such as SISP, a membership-based organization for Science parks, and Incubators.

"I have the most contact with incubators who participate in Vinnova's exchange of experiences. We know of many initiatives, but mainly cooperate with those incubators that are financed in a similar way as we are, and they also mean that there is no competition because we receive funding in the same way, we do not have to fight for companies. "(Public incubator 1)

All the incubators work in some way with external competence and technical partners, as an increase in digital entrepreneurship is prominent. There are, therefore, many examples in our gathered data with incubators working together with technical partners and consultants that have expertise in software development, specific industries, and creating digital products. Another significant development is the increased activities from corporations, both in the aspect that corporations increasingly endorse incubators through helping already existing

programs with support in terms of consulting, network, and funding. However, the increase in separate corporate incubators also develop and change specifically the startup process but also how incubators could collaborate with big corporations.

There is also an increase in other kinds of events that stimulate entrepreneurship and specifically product development and idea validation in the shape of competitions. Two frequently mentioned types of events are hackathons, and more business idea focused competitions.

"Yes, we get quite a lot of ideas from hackathons and the like often at a hackathon maybe you do not have an idea, but you start from a challenge, and it is maybe when you have to go a little deeper and validate their idea that you can validate, e.g., with our pre-incubation program so that when you enter the business planning stage, there are truths and nothing based on guesses" (Public incubator 1).

To summarize incubator partnerships, occur through formal and informal character. Regional networks based on geographic proximity is most frequent, and the incubators act as part of a regional ecosystem. The formal partnerships are especially occurrent with public incubators, with membership-based network SISP, and governmental network, Vinnova. All incubators have collaboration with technical partners and industry partners to facilitate startups with technical competence. New types of collaborations and partnerships are further through both hackathons and types of business idea competitions, which can further help to validate businesses and for incubators to find new entrepreneurs and startups to incubate.

4.4 Incubator services

The most common topic discussed during the interviews, regarding incubator services, was the incubator being a broker and a matchmaker of different services. Specifically, by providing a reliable network and using their network for creating suitable coaching preparing and introducing the startup to funding and funders.

What all respondents had in common was that they tried to create a new and valuable network for the entrepreneur - introducing them to a new context with the right surroundings and opportunities. This could be through community interactions such as startup events and demo

days organized by the incubators or more concrete meetings with industry experts. The respondents also claimed that it is crucial to maintain the trust that can primarily be built through physical meetings.

"The digital context gives greater opportunity to access different resources, find talent through, e.g., LinkedIn finance the company through, e.g., Kickstarter or "Funded By Me" or similar platforms. This means that many people can get started with relatively simple means. But once they have started and need more specialized help and business development, for example. incubators, accelerators, etc. play a bigger role." (Private Incubator 3)

Technical partners are an essential part of incubator services. They can be seen as a part of the incubator network, but also a service in the shape of expert help and consultancy given by incubator to entrepreneur. Many times, this is decided upon the startup-teams technical competence, and support is given by the incubator developing the entrepreneur's product.

According to the respondents, it varies how they reach out and coach the entrepreneurs through individual meetings. Due to the COVID-19 pandemic, all coaching from incubators has resorted to using different virtual tools for coaching. All of the incubators highlighted that it was an essential part of their business, but how they achieve success and growth for the entrepreneur through coaching differs between them. Some of the incubators are providing tailormade solutions, depending on the specific industry, by establishing relationships between different actors within the network. Other possibilities can be through only coaching on different video communications platforms such as Skype or Google Hangouts. All of the respondents agreed that virtual coaching could never replace a physical meeting, but it is a necessary tool and supplement to reduce time, money, and being more sustainable. *"We have over 25 partners from industry and companies who can help the companies that are accepted to the incubator, many get free hours from these parties or special offers. We currently have two partners helping with both physical and digital prototypes. "*(Public incubator 1)

Capital and funding are usually the most pressing matter when it comes to starting a new business, a frequently brought up aspect by the respondents. The incubators coaching services are often crucial for guiding the entrepreneur to the right kind of investors that suits the entrepreneur's business model. A majority of the incubators also talked about supporting the local community and maintaining local innovativeness. Another finding was that a majority of

the incubators are focusing on creating value through support to the society." *So, Sweden should invest in value creation in Sweden, where jobs are created, so it is a question of state funding or private venture capital. "*(Public incubator 1)

Significant differentiation between public incubators and the private incubators is that the ownership differences. The private incubators in the collected data share a common trait of being or owning an investment or venture capital fund and enabling the private incubator themselves to invest in startups. On the contrary, two public incubators emphasize the notion that the coaches and public incubators should avoid investing and focus on coaching the incubated companies to become investable and further introduce them to investors.

The respondent also claimed that its harder for entrepreneurs at the beginning of their journey to raise funding this because they often have an idea and not a real product to show. Furthermore, it is at this very moment that the incubators come and teach the entrepreneurs how to sell their vision for a product or service to potential investors. An investor can be in forms of governmental funds, angel investors, venture capital, equity funding, or the incubator its selves. Funding seems highly dependent on where the incubators are geographically located, and many of the respondents state that the most significant part of startup capital, venture capital, is located in Stockholm.

To summarize, the incubators mainly act as matchmaking and mediator of services, connecting the startup to coaches, investors, consultants, and a community of other startups. Through events and demo days and organized meetings, the startups receive an introduction and opportunity to network. Startups frequently lack specific competence, where the incubator work to connect talent with the startup. Coaching is another essential service offered by the incubator guiding the startup to be successful. Lastly, the incubator prepares the startups to receive funding through the introduction of investors.

4.5 Digital tools and online assistance

All respondents agreed that digital tools and online assistants play a more prominent role now than before. Specifically, due to the present situation with the COVID-19 pandemic in the world. Most of the daily incubator operations have been moved to different, virtually platforms or online applications. One-quarter of the respondent has implemented digital tools such as

validation in their selection process, this to ensure both quality success rate.*" We offer in the initial idea phase, seminars, and workshops online through Zoom. So, we have a clear objective, but currently, it is hard to recruit companies elsewhere than regionally"* (Public incubator 6)

Many of the respondents limit the potential of digital tools and online assistance by referring to them as "only tools". They were arguing that the leading service of incubators is a business coaching, the trust-building, and the community feeling for entrepreneurs. However, selection and reaching out to new entrepreneurs through digital platforms, i.e., social media and through their websites, have been a growing parameter in the last years. A majority of the respondents also highlights the aspect of building trust between the team and creating a community of random or serendipitous interactions as one of the biggest challenges within a virtual framework.

As noted in the interviews, one of the primary causes of failure for newly started companies and ventures is due to unsuccessful validation. Incubators are trying to support entrepreneurs through a variety of digital tools, facilitating the validation process of the team, the coaches, the founders, and the ideas. One of the respondents in the category of digital services providers, *Made in the now*, has created a digital validating tool called AVVA that is trying to help incubators to streamline and make the incubators validation process less biased. AVVA is also identifying unexplored weaknesses and strengths. By bringing these characteristics to the surface helps incubators to make reliable and more valid decisions. By doing this in the initial phase, they are minimizing their failure rate, making it easier and more efficient to find a perfect match between these factors and then weighing these different aspects towards each other. Another interesting finding was that not all of the respondents are working with digital validation tools. One of the respondents said, "it is nothing new with investing in an individual rather than the idea." *70% of all newly started companies fail, maybe that is because failed customer validation"* (Vinnova)

Another tool used to help the entrepreneurs is to distribute knowledge about the entrepreneurial ecosystem, providing the entrepreneurs with information regarding which resources are at their disposal through digital platforms to improve the communication process. Another aspect that should be elucidated and reflected upon is that some actors do not actively work with quantifying validity." *Many incubators during these times have to go digital, and taking their*

Excel spins could be translated to web-based nice front-end, but is this the real important aspect? I believe more focus should be on the network and associated aspects." (Vinnova)

To summarize, validation and understanding of the needs are crucial for the incubated companies. The validation process concerns the idea, the team, and understanding the customer. The question of growth is very prominent in the findings, and the incubators infuse growth mainly through matchmaking events and activities for startups to recruit. The incubator process of knowledge transfer and creating a community of learning as well as individual coaching, are two critical processes. The application process shares similarities across the spectrum of mainly being online, and in the same matter, the digitization and a more data-driven approach are further seen as a potential improvement and future way forward.

5. Discussion

This chapter follows the same thematic order as the findings, and this chapter aims to relate the research findings with the theoretical framework from the literature study. The findings and existing literature will be compared, analyzed, and discussed to create an understanding of the chosen research questions.

5.1 Change of entrepreneurship

In terms of understanding the entrepreneur and the change, thereof, the lack of common definition and understanding as according to (Henrekson and Stenkula, 2010) is coherent throughout our findings. Many discussions surround the different types of entrepreneurs and the trouble with looking at a startup within in-deep and technical industries such as mining compared to an app developer or an even more significant difference by looking at someone selling vegan candy. This type of categorization also is brought up by (Giones and Brem, 2017), where they list three categories of entrepreneurship in the context of digitization: Technology, Digital technology, and digital entrepreneurship the incubators. The high risks associated with technology entrepreneurship as described accurately by one incubator as opposed to the type of fast entrepreneurship associated with digital entrepreneurship. These aspects differ widely in our findings on the premise that different incubators select and work with different types of startups.

A typical response from the incubators was also the type of fast, consumer-targeted products and service-based entrepreneurship that shares similarities (Henrekson and Stenkula, 2010) imitative entrepreneurship, were products, services, and business models are imitated or copied. One incubator was, however, very positive to this type of entrepreneurship, mentioning a type of open innovation, in bringing together multiple products and combining them. Another example is the E-scooters that flooded the streets of Sweden, where suddenly, ten different actors with similar business ideas battled the markets of the consumers. There seems to be a difference amongst incubators specifically to the process of selection, where some incubators solemnly focus on more innovative ideas and cherish and measure the innovation degree of every applying startup. On the contrary, some of the incubators are more open in their selection, seeing it more as a support effort in guiding as many as possible.

A significant differentiation is the question of interchangeably using entrepreneurship and self-employed, as argued by (Mcquaid, 2002; Bjuggren et al., 2012) but to understand the importance of the pursuit of growth within entrepreneurship. The increase in popularity differs throughout our respondents, but a commonality is an aspect of the glorification of startups and its associated founders. This increase in popularity could be associated with the increase of entrepreneurial education from university and training programs (Rasmussen and Sørheim, 2006). However, it is hard to know which aspect came first, the peaked interest, or the educational efforts.

A reoccurring aspect of the selection process is also that many incubators emphasize looking at parameters such as potential impact and diversity strategy when selecting entrepreneurs to join their program. Furthermore, this finding seems to be prominent across more steps of the incubator and startup process. One direct example is within how incubators support the startups in their branding and packaging, impact and diversity has become almost like a hygiene factor and something that must be part of a startup. The aspects of social entrepreneurship (Defourny and Nyssens, 2017) and green entrepreneurship (Fellnhofer et al., 2014) can, therefore, be seen as even more important aspects for startups to consider when pursuing their ideas. It is suggested that taking these aspects into consideration might receive more entrepreneurial support.

Lastly, the parameter of digital entrepreneurship and the associated new opportunities and challenges as researched by Richter et al., (2017), it is prominent that social media and online communication is creating a new landscape for entrepreneurial support. All the responding incubators believe that the main entry and reach of new incubate is through their website and through their social media channels. With 80% of entrepreneurs using social media as, according to Mack et al., (2017), the incubator, therefore, could benefit from being active in these outlets.

5.2 The process of a startup and incubator

The process for startups (Baron and Shane, 2004) share similarities with our proposed findings of the incubator process. A reoccurring theme is a validation, so incubators try to promote within their process ways to promote validation in terms of idea, team, and knowledge of customers. The two first steps, as argued by Baron and Shane (2004), the idea phase and

decision to process, are, however, outside of the incubator process. The incubator process, therefore, starts most frequently with an already validated business idea, whereas some incubators also have other programs named pre-incubators for the earlier phases present in Baron and Shane (2004). The process of the incubator, therefore, is to remove some of the obstacles and concerns that are brought up by Shane (2009) and Rubin et al., (2015) knowledge, funding, and networking.

The specific incubator process is different amongst the incubators, but the fundamentals share many similarities across them all. Aspects of monitoring the startups, providing them with knowledge and networking opportunities, and preparing them for funding are all prominent in this research's findings and are aligned with Rubin et al., (2015). The specificities of how these targets are reached are usually of a combination of activities. Mainly physical events and through a community building in each of the incubators. In regard to the customization of the process for each startup in the incubator process, Phan et al., (2005) research argue for the necessity to see every startup's specific need and tailor the process on a more individual premise. Morrison and Bergin-Seers (2002) further develop to the lack of tailored programs; however, research by Giones and Brem (2017) argues that entrepreneurship-supported models are becoming even more unified. The question regarding customization is in our findings non-conclusive. Every incubator state that they, in some way, customize their process.

When looking at the aspect of growth, in terms of revenue and recruitment, it is useful to look at Torun et al., (2018) research on benchmarking for incubators, average jobs created, survival, rate, and growth in sales is an example of essential measurements for benchmarking that incubators can be measured on. The aspect of selection of startups from the incubator's point of view that Aerts (2007) argue many times are biased has the potential of incubators selecting portfolio fitting startups with already established validation and growth potential. In terms of educating entrepreneurs, an essential factor is knowledge transfer and within the process and to, for example, use tools and methods as suggested by Cakula et al., (2013). Furthermore, like Rubin et al., (2015) agues, there is significant potential in using the incubator alumni's and creating a network of a learning culture that exchanges knowledge and experience.

The aspect of improving upon the process is two-folded, partly looking at a change in incentive and ownership; many of the interviewed incubators argued for the potential growth of private initiative within the entrepreneurial support. Research from Shih and Aaboen (2019) also

argues for a potential pitfall where public incubators might face an obstacle where dealing and understanding the public funding model is massively time-consuming and might remove some of the time and effort put into the startups. However, as argued in our findings, the public incubator models have upside in terms of that the incubator has the potential to act with little to no self-interest in their guidance to the startups. The second part of improvements is the data-driven approach in incorporating more measuring and data-driven insights. This finding is not coherent throughout our interviewees but is highlighted frequently by some of the incubators. It is noteworthy to understand that these incubators have already established a structure for measuring and using data in every step of their process. From selecting the startups, to validate them to invest in them lastly. The incubators incorporating a more data-driven approach argues that the potential insights make it easier to improve their process.

Regarding the generations of incubators (Bruneel et al., 2012; Mian, et al., 2016), and the notion of three generations of the incubator with a difference in purpose and primary process to achieve this, there is a possibility that the COVID-19 crisis is pushing the development further, through networking, coaching and office space moving to a virtual space where none of our respondents physically have met for the past months. However, it might be an overestimation to argue that there is an ongoing shift in their mission and process anything more than that the physical meetings are moved online.

5.3 Partners collaboration and ecosystem

The partnering and collaboration can be perceived from a two-sided view, from the incubator's point of view and the startups. If we focus on looking at the specificities of the incubator, and more precisely, its geographical aspects, our findings are aligned with research from Shih and Aaboen (2019). All of the incubators mentions their geographical tied network and emphasizes the importance of these more local aspects of their collaborations. These types of partnerships can be everything from more networking aspects to more hands-on consulting services from technical partners to incubatees. Shih and Aaboen (2019) further argue that the initial phase when joining an incubator is mainly about infusing the entrepreneurs about knowledge of the local innovation ecosystem, this seems to vary in our findings, and even though this might be true it is nothing highly emphasized in our findings. As highlighted in Schwartz and Hornych (2010), it is crucial for incubators not only to focus on geographical proximity and actively pursue new ways to collaborate and build external partnerships.

The most mentioned aspect of collaboration and network is primarily a finding from the public incubators relying on both their network of other incubators within the Vinnova program, but also in the member-based industry association SISP. However, another notable finding is through new collaborations from one of the private incubators who released an incubator program together with a big corporation. This kind of partnership highlights the significant emerging trend of a new type of partnerships and Soetanto and Jack (2016) argues for these broadening efforts to find different actors to collaborate with, mainly in regards to that the startups taking part of the incubator receive a more significant span of resources and support this way.

The innovation competitions, hackathons, and business idea competitions can be seen as this kind of effort, and our findings support that incubators can benefit specifically in aspects of generating deal flow and finding talented people for the incubators. However, an argument presented by the majority of incubators is the complementing aspects of these competitions. The competitions should not be seen as a substitute to incubators, but a complement to the entrepreneurial journey while the startup is part of the incubator program. Specifically, in regard to that this will further validate their idea, and also have an impact on creating a more significant and more diverse network for the startups, this is further aligned with findings from Cantù (2017) that argues that the more diverse and more extensive network a startup has, the more significant potential for growth.

Regarding the entrepreneurial ecosystem, Mack and Mayer (2016) also argue for the importance of an invisible network, the more informal meetings and partnerships that are provided to entrepreneurs and startups. Many interviewed incubators work with these kinds of events and promote themselves. A practical example of this is the open invitation and after-hour drinks at the incubator office or tech and startup related industry events. Many of these are, however, hosted in Stockholm and tied by geographical proximity. Which is something our respondents argue is a static phenomenon and something hard to develop or improve. However, an aspect brought up by Lewis et al., (2011) which argue for virtual possibilities in regard to rural areas and the possibility for virtual substitute.

An overall problem that both companies and incubators are trying to solve is how to collect correct and necessary information about actors within the entrepreneurial ecosystem and then distribute it to different entrepreneurs that need their help. After a definition has been

done, the matchmaking can proceed to understand the ecosystem's different entrepreneurial possibilities and support. Some actors in the entrepreneurial ecosystem want to reinvent the wheel or call it something according to their own definition, this to create a high degree of innovations. Everything is about branding and packaging of different products, so it is reasonably cognitive and simple.

5.4 Incubator services

The services of incubators are extensively studied (Hackett and Dilts, 2004; Durão et al., 2005; Bergek and Norrman, 2008), where the most common ones described are coaching, network, and consulting services. These wide descriptions are well aligned with the broad terms described by our respondents too. An important finding, however, is the description of a connector, a hub, and a matchmaker as opposed to an actual service provider and the analogy used by Aaboen (2009). The shift to higher-value services, as described by Soetanto and Jack (2016), is prominent and makes it harder to understand the precise services that incubators provide to startups. The general description of tools and knowledge by the authors is, therefore, still useful in the context. With the descriptive attributes of an incubator, Carayannis and Von Zedtwitz (2005) highlighted physical resources, admin service, financial resources or access to investors, startup procedure assistance, and networking. This also fits with the description of services provided by the incubators in this study's data collection and further with the description of a "networked commercialization enabler" as argued by Mian et al., (2016).

According to McAdam and McAdam (2008) description of the initiation of the startup within the incubator, they argue that the networking efforts will set the tone for the complete incubator program. The authors describe a situation where the incubator process should not focus too much on networking opportunities with the argument that this will create a feeling of further networking along with the complete program. Entrepreneurs and startups can, therefore, be unmotivated to further network if there is too much networking in the initial phase. Therefore it is essential to work with engaging the startups in a different type of networking event and evaluate the motivation amongst the startups. This further aligned with Roig-Tierno et al., (2015) argument of the importance of engaging and actively broaden the network to provide a more dynamic and always evolving services and activities.

The topic of customization versus standardized programs for the incubator is also frequently brought up in research on incubators and entrepreneurial support (Phan et al.,, 2005; McAdam and McAdam, 2008; Soetanto and Jack, 2016). Our findings suggest that this mainly managed through individualized coaching and mentoring that are explicitly assigned to each startup, with similar characteristics described by St-jean and Audet (2012).

5.5 Digital tools and online assistance

The new type of digital tools and virtual infrastructure has the potential to develop the entrepreneurial ecosystem further as described by Isenberg (2011) by enabling entrepreneurial support actors as stated by Hanlon and Saunders to enable new digital tools better and adapting to the ever-changing context of entrepreneurship, the digital entrepreneurship Sussan and Acs (2017). The rise of new types of products and software with the purpose of supporting startups and entrepreneurs is increasing at an exponential rate, which according to Cakula et al., (2013), has the potential to enhance innovation within small and medium-sized enterprises and further increase their knowledge transfer processes. According to our findings, usage of these tools heavily relies on the entrepreneurs themselves or the individual business coach to make use of these. It further increases the speed of the process as aligned with findings from Huang et al., (2017).

The specific type of faster entrepreneurship that delivers less complicated products and services targeted to consumers. There are many new ways to validate business ideas and interact with potential users and customers. One example of this is through crowdfunding campaigns, as described by Mollick (2014), as an effort carried out by entrepreneurs to receive funding for their ventures by a large number of small contributions online. The use of crowdfunding is minimal and only mentioned as a possibility amongst the incubators, not something they actively pursue. Crowdfunding seems not to have reached acceptance.

The more general tools as resource gathering and matchmaking as Keys-ecosystem further assist entrepreneurs and incubators to receive a better understanding of its actors and further lowers the barriers to making use of the resources of each ecosystem. A common theme amongst our respondents was that the ecosystem takes time to understand, and many times many entrepreneurial support efforts and tools are inaccessible.

The coaching aspect of the incubator services is frequently brought up as the essential service, and analyzing it from the point of view, of the entrepreneurs preferred way to receive advice and coaching Lorrain and Laferté (2006) and Kuhn et al., (2017) argue for that face to face interactions are the preferred way. The notion of trust-building and emotional support highlighted by Kuhn et al., (2017) is aligned with our findings where the building of trust seems to be one of the more problematic areas in concern to online and virtual efforts of the incubator. However, the authors noticed an increased use of online communication, something that has been further infused by the COVID-19 pandemic, and the respondents of our data collection frequently mentioned that they are, in fact, progressing completely online during these past two months.

There are several benefits provided by a physical community and interaction, as argued by Bonacina et al., (2018). On the contrary, Jakobsone and Cakula (2012) argue that these aspects are of lesser importance, and the complementing virtual networks have the potential to bridge this gap even further. The virtual incubator is a service matchmaking of investors and advisors to startups, according to Zedtwitz (2002), and is also coherent with the framework of Nowak and Grantham (2000) and the developed framework of E-incubator (Fadil Persada and Baihaqi, 2019) and Virtual hubs (Luik et al., 2019). Our findings are, however, more aligned with the research from Durão et al., (2005) and Shepard (2013) with a virtual incubator as a compliment and not a substitute to traditional incubators. Looking at the incubators from our findings, all of them have virtual efforts making the virtual incubator description redundant. This further makes the use of the digital tools and external network the most important aspect when looking at potential improvements.

6. Conclusion

The increasing digitization is changing entrepreneurship and, therefore, the associated barriers and obstacles that entrepreneurs face. Therefore, entrepreneurial support actors need to stay relevant and continuously work with improving their efforts. The digital context has made entrepreneurship more accessible, faster processes, and new types of receiving support. To further be successful, entrepreneurs need to know which resources are available and where to turn for the right type of help.

The incubators play an essential role in the entrepreneurial ecosystem, acting as a broker and matchmaker of services to the startups. A community for entrepreneurs that they receive coaching, consultant help and are introduced to the incubator`s networks to receive funding and expertise. The incubators endure a wide variety in their usage of tools and methodology, and this is mainly promoted and incorporated by individual coaches and entrepreneurs rather than a structured and systematic strategy to develop their current product and services. One concluding remark is, therefore, that incubators would benefit from progressively adopting a more digital process, incentivized by government policy to create a more open and collaborative environment. Without data-driven insights, there is a potential for gut-feeling decisions and advice from incubators and coaches, which has the potential to hinder entrepreneurs. Incubators should, therefore, gradually transition to incorporating more digital tools and processes without sacrificing the personalized angle.

The entrepreneurial ecosystem has limitations and boundaries and is heavily relied on regional partnerships and is frequently measured on regional success factors, i.e., job creation. The potential opportunities of a virtual incubator process should, therefore, act as a complement to an already established incubator. This can assist more people to join the incubator and reach a wider variety of entrepreneurs. The challenges of a virtual incubator are primarily the issue of building trust and the serendipitous networking that occurs through physical interaction. The digital tools further have the potential to act as microservices used by the incubator to develop their services further making each step of their process more efficient and relevant to the ongoing trends in the entrepreneurial ecosystem and for the digital entrepreneurs.

7. Implications

This chapter aims to present the potential implications of the generated knowledge in terms of societal, ethical, and policy implications regarding entrepreneurial support, business incubators, and a virtual incubator process. The knowledge generated is presented in the order of policy implications, managerial implications, and lastly, practical implications.

The digital context makes entrepreneurship more accessible, faster and changes the need for support. This creates a need for policymakers and specifically the government agency of innovation to continuously evaluate what type of initiatives should receive funding and strategic decisions within their own project portfolio. Therefore, it could be useful to further assess a national digitization strategy for the whole entrepreneurial ecosystem with its associated entrepreneurial support actors. By the knowledge of this research, it is possible to investigate further the opportunity to fund virtual incubators and digital service providers with the mission to support entrepreneurs. Additionally, it is seen as valuable to further promote incubators to further invest in digitizing their process and to incentivize digital efforts by possibly making it a criterion of measurement when funding public incubators. Frequently brought up motivations to promote entrepreneurship and startup is based on regional development and job creation aspects. With increasing support efforts without limited geographical factors and more cost-efficient instances, rural regions without established local entrepreneurial ecosystems have the potential to develop and to create useful collaborations to develop the whole Swedish entrepreneurial ecosystem.

With Incubators utilizing online tools and implementing aspects of a virtual incubator process, they have the potential to increase the number of applicants and create awareness around business incubators and entrepreneurial support. By letting more people from different places in Sweden go through a pre-incubator phase, applicants to the incubator program can be further validated and become more ready to grow. Virtual efforts further have the possibility to increase the number of collaborations between entrepreneurial support actors, further maturing the entrepreneurial ecosystem. Consequently, incubator coaches face the potential threat of no longer being able to make gut-feeling decisions when tools are used to measure the validity and progress of the startups. The knowledge generated by this research has, however, limited implications in terms of disrupting the individual business coaches within individual incubators. There is, however, the potential to further aid the coaches with new types of tools

and a digital process to guide the coaches and enable them to help more startups more efficiently and to make more informed assessments and decisions.

The implications on the individual level, to entrepreneurs, are to lower the barriers to entrepreneurship further. Entrepreneurs located in rural areas, or where the local entrepreneurial ecosystem is less matured have the potential through the virtual program or if business incubators initiate the online process. This, however, leads us into the potential threat of lowering the barriers to much. Entrepreneurship is still associated with job insecurity, and it is essential to remember that many startups will fail and create a financial strain on the founders. Furthermore, as stated by most of the incubators, the entrepreneurial lifestyle is not for everyone.

The entrepreneur themselves would benefit from understanding and being aware of the different actors within the entrepreneurial ecosystem and continue, on an ongoing basis to iterate and analyze their specific needs to become successful. By not depending solemnly on the advice from a single source, i.e. an incubator or a business coach but instead utilize a larger network for advice, potentially from virtual instances, the startups have the potential to receive better support. To further investigate the digital tools available, i.e. receiving online coaching, being part of virtual hackathons and competitions, and utilizing already established digital tools that support entrepreneurs can serve as vital support to startups with smaller budgets and restricted resources to further enable success for the startup.

8. Limitations and Further research

The field of entrepreneurship and the associated entrepreneurial support is argued to develop and change at an increasing speed. An important aspect is, therefore, to frequently revise common knowledge and investigate associated phenomena. Furthermore, the realization of that there is no single definition in terms of the virtual incubator and that research unveils new phenomena and names, i.e., Electronic incubator and Virtual hubs. Various actors, therefore, claim to work virtual and digital and have their definitions. A more extensive classification of the new type of entrepreneurs and entrepreneurial support is therefore necessary. Furthermore, there is a need for a more in-depth analysis of specific programs, specifically if incubators would launch a type of virtual pre-incubator to understand its true benefits and challenges.

These type of entrepreneurial support efforts demands further longitudinal studies to investigate their true nature, character, and benefits. This research, therefore, provides limited implications from a relatively small sample in a specific period and should be considered an initial explorative study in the field. The ongoing COVID-19 pandemic has also had an enormous impact on this research and further the future of incubators digitization, in the initial process of this research as opposed to the end, many of the respondents have entirely changed their process to a virtual one during the time of the conducted research. Therefore, it is crucial to understand what kind of effects this change in process and strategy has caused and the future impacts that it has.

Lastly, it is always relevant to review the topic of entrepreneurial support from the entrepreneur’s point of view. How are the entrepreneurs evaluating the potential within a virtual incubator process, and how they consider virtual support and the potential benefits and challenges with the incubator's usage of digital tools.

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Appendix 1: Interview guide – Incubator

1. What is your vision and mission?
2. Tell us about your process, how do you reach your mission?
3. Are there any differences amongst incubators?
4. How do you select startups and what criteria do you use?
5. How would you describe the kind of services you provide?
6. Do you see a change in incubator environments throughout the past decade, has the value proposition and business model changed?
7. Would you say that you work in a different digital context and has it changed how you work?
8. Are there any differences in entrepreneurship due to the changing digital context?
9. What are your thoughts on the entrepreneurial ecosystem and digital ecosystem?
10. Are there any new initiatives that you believe help entrepreneurs?
11. How do you work with network and external partnerships?
12. How much individual versus standardized assistance do you provide?
13. What are your thoughts on the physical environment, compared to a virtual environment?

This question was added when the interview process had begun.

14. How is the COVID-19 crisis affecting your process and thoughts of working in the future?

Appendix 2: Interview guide - Digital service providers

1. What is your purpose and mission?
2. Tell us about your process, how do you reach your mission?
3. How would you say that you differ yourself from an incubator?
4. How would you describe the kind of services you provide?
5. Do you see a change in incubator environments throughout the past decade, has the value proposition and business model changed?
6. Would you say that you work in a different digital context and has it changed how you work?
7. Are there any differences in entrepreneurship due to the changing digital context?
8. What are your thoughts on the entrepreneurial ecosystem and digital ecosystem?
9. Are there any new initiatives that you believe help entrepreneurs?
10. How do you work with network and external partnerships?
11. How much individual versus standardized assistance do you provide?
12. What are your thoughts on the physical environment, compared to a virtual environment?

This question was added when the interview process had begun.

13. How is the COVID-19 crisis affecting your process and thoughts of working in the future?

Appendix 3: Thematic network alternative visualization