

Finnish circular economy SMEs' growth: the role of networks

Case: Naava Group Oy

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Bachelor's thesis
November 2020
School of Business
Degree Programme in International Business

Author(s) Yli-Suvanto, Siina	Type of publication Bachelor's thesis	13.11.2020 November 2020 Language of publication: English
	Number of pages 63	Permission for web publication: x
Title of publication Finnish CE SME's growth: the role of networks Case: Naava Group Oy		
Degree programme International Business		
Supervisor(s) Akpinar, Murat		
Assigned by JAMK Centre for Competitiveness		
Abstract <p>The current linear form of economy is unsustainable which is why the world is shifting to a circular economy (CE). The transition is slow, but cooperation between companies is one of the factors that build and enable the CE. Small and medium-sized enterprises (SMEs) are at the core of this, as they benefit from networking and have a big impact on economies of the world. However, they face many difficulties due to their basic features such as size among other things. Growth is important particularly for SMEs because constantly growing companies are less likely to fail than companies that are not growing. The growth of a company is a well-studied concept, but there is still a lack of knowledge about which factors enable and hinder growth.</p> <p>The purpose of the research was to explore how different network actors impact the growth of SME and what actors are needed. The research approach was qualitative, and the type was exploratory because of the aim to provide deeper insights into the topic. A theoretical framework was adapted to guide the research. The research strategy was a case study of Finnish CE SME that had grown successfully both domestically and internationally. The primary data was collected through a semi-structured interview with one of the founders of the case company and secondary data were from different websites.</p> <p>The results of the research showed that all the different network actors have a positive contribution to the growth of CE SME. Particularly network actors contributed to the growth in the early stages of growth. However, the results were limited by the scarcity of data and not being able to be generalized. The topic would benefit from more extensive research in the future that could be carried out by comparing the impacts of network actors in the growth of CE companies with different business models.</p>		
Keywords/tags (subjects) Circular economy, sustainability, SMEs, networking, network actors, firm growth		
Miscellaneous (Confidential information)		

Tekijä(t) Yli-Suvanto, Siina	Julkaisun laji Opinnäytetyö, AMK	13.11.2020 Marraskuu 2020
	Sivumäärä 63	Julkaisun kieli Englanti
		Verkkojulkaisulupa myönnetty: X
Työn nimi Suomalaisten kiertotalous PK-yritysten kasvu: verkostojen rooli Tutkimustapa: Naava Group Oy		
Tutkinto-ohjelma Kansainvälinen liiketalous		
Työn ohjaaja(t) Murat Akpinar		
Toimeksiantaja(t) JAMK Centre for Competitiveness		
Tiivistelmä <p>Nykyinen lineaarinen talouden muoto on kestävä, minkä vuoksi maailma on siirtymässä kiertotalouteen. Muutos on hidasta, mutta yritysten välinen yhteistyö on muun muassa yksi kiertotaloutta rakentava ja mahdollistava tekijä. Pienet ja keskisuuret yritykset (PK) ovat tässä keskiössä sillä ne hyötyvät verkostoitumisesta, ja niillä on iso vaikutus kansallisiin talouksiin ympäri maailmaa. Ne kuitenkin kohtaavat paljon vaikeuksia muun muassa niiden perusominaisuuksien vuoksi kuten koon takia. Kasvu on PK-yrityksille erityisen tärkeää sillä jatkuvasti kasvavat yritykset epätodennäköisemmin epäonnistuvat kuin yritykset, jotka eivät kasva. Yrityksen kasvu on paljon tutkittu konsepti, mutta silti puuttuu tietoa siitä mitkä tekijät mahdollistavat ja estävät kasvua.</p> <p>Tutkimuksen tarkoituksena oli tutkia miten eri verkosto toimijat vaikuttavat PK-yrityksen kasvuun ja millaisia tekijöitä tarvitaan. Tutkimus oli laadullinen ja tyypiltään tutkiva, koska päämääränä oli tarjota syvällisempiä oivalluksia aiheesta. Tutkimusta ohjaamaan johdettiin teoreettinen viitekehys. Tutkimuksen strategia oli tapaustutkimus, joka keskittyi onnistuneesti sekä kotimaassa että kansainvälisesti kasvaneeseen suomalaiseen kiertotalous PK-yritykseen. Tutkimusaineisto kerättiin haastattelemalla yhtä tapausyrityksen perustajista sekä erilaisista verkkosivustoista.</p> <p>Tutkimustulokset näyttivät, että kaikista eri verkosto toimijat vaikuttavat hyödyllisesti kiertotalous PK-yrityksen kasvuun. Erityisesti eri toimijat edistivät kasvua ensimmäisissä kasvuvaiheissa. Tuloksia kuitenkin rajasi tutkimusaineiston niukkuus sekä se ettei niitä pystytty yleistämään. Aihe hyötyisi laajemmista tutkimuksista tulevaisuudessa, jotka voitaisiin suorittaa vertailemalla verkosto toimijoiden vaikutuksia kiertotalousyritysten kasvuun, joilla on erilaiset liiketoimintasuunnitelmat.</p>		
Avainsanat (asiasanat) Kiertotalous, kestävä kehitys, pienet ja keskisuuret yritykset, verkostoituminen, verkostotoimijat, yrityksen kasvu, kasvuyritys		
Muut tiedot		

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1 Introduction

1.1 Background

Sustainability is currently a global megatrend and has been for a decade already. There are many reasons behind it such as the anxiety of global warming and planetary boundaries among other things. The future of the world is threatened because of these same factors which should make sustainability a priority to everybody. For example, because the raw materials of the world are limited and at the same time it is estimated that the number of people who need these resources, is increasing significantly in the next decades (Szaky 2015).

There are numerous studies made of sustainability from different perspectives, but the basis of the concept of sustainability is the triple bottom line of economic, environmental, and social, which is also known as profit, planet, and people (Grant 2020). For a long time, only the environmental aspect of sustainability was acknowledged but, in the end, all three aspects need to be a priority and in balance.

Sustainability has become a more important topic also for businesses and it has been integrated into businesses with a sustainability strategy. There are still challenges. For example, one study by BCG/MIT revealed that even though 90 % of executives acknowledged sustainability to be important, only 60 % of the companies had it integrated into the strategy and only 25% into the business models. (Haanaes 2016.) Even though there is a demand from customers since another study discloses that 47 % of internet users abandon brands that do not share the same values especially in terms of environmental aspects (Rosmarin 2020).

Making a world sustainable is definitely a slow process and needs to be done holistically from the roots. A circular economy (CE) is one option to apply sustainability, as it builds economic, natural, and social capital (Concept 2017). It has emerged as an alternative to the current and traditional linear economy.

The traditional linear economic system, which is based on the model of extract-produce-use-dump materials and energy, is unsustainable (Korhonen, Honkasalo, &

Seppälä 2018, 37). CE on the other hand is regenerative and restorative by design because it is based on three following principles: 1. Designing out waste and pollution, 2. Keeping products and materials in use, and 3. Regenerating natural systems (The circular economy in detail 2017). The following Figure 1 presents these principles of linear and circular economic models.



Figure 1. Linear vs circular economy (Legge & Klett 2018.)

A circular economy is a rather new topic with great potential. It is estimated that through CE global economy would annually gain 1000 billion US dollars and the national economy of Finland even 2,5 billion euros (Korhonen et.al 2018, 37). Finland is one of the countries that have taken CE into practice with different projects after it gained new momentum in scientific circles. Other Scandinavian countries have done the same along with Germany, France, UK, China, and the Netherlands. (Valavanidis 2018, 7.) Besides different countries, CE is implemented inside companies too into business strategies and processes. Businesses are at the core of building a new global-wide economic system (Business 2017).

Business-based collaboration among novel innovation is the key to building a circular economy. Business collaboration should be cross-sector, but collaboration with sup-

pliers, customers, and infrastructure enables society-wide benefits. (ibid.) The transition towards CE needs a new kind of collaboration from businesses. Current value chain partnerships need to be renewed. That can be achieved by building networks for value co-creation. (Aminoff, Valkokari, & Kettunen 2016, 627.) This topic is correlating with the concept of business networking which makes it interesting to study. Another topic besides business networking that is the basis of this research is the growth theories.

A growing firm is often seen as a synonym for a successful company. Firm growth has been a topic of many pieces of research for decades, focused especially on principles of growth in different firm stages. The theoretical approach towards firm growth is called growth theories and it is about exploring how varied factors are impacting companies' growth in an increase in size while considering qualitative factors (Lisowska 2015, 116). Despite all the researches, there is still a limitation in the knowledge of what factors enhance and prevents growth (Davidsson & Wiklund 2006).

Small and medium enterprises (SMEs) are a relevant target group for any study as they have a significant impact on the economies of the world. For example, SMEs (especially high-growth ones) are creating new jobs, maintaining survival, and easing the pressures of an economic downturn (Bamiatzi & Kirchmaier 2012, 1). According to OECD (2018) in emerging and developing economies they contribute more than one-third of GDP. Also, in the OECD area, 70% of total employment is accounted for them. (6.) Many of the CE companies are in fact SMEs because the concept is new, so the small and medium companies are faster to adapt it to the business, and also all the new companies/businesses include this segment.

1.2 Motivation for the research

Inspiration for this research came from the conference track Nordic Academy of Management 2019 by the University of Vaasa. The introduction to sustainability, responsibility, and ethics topic, introduced the themes of growth, internationalization, and value creation of Nordic companies, specifically SMEs, related to a circular economy. There were examples of possible research questions related to the topic of

those aspects that have not been explored previously. (9.1 The circular economy and Nordic entrepreneurship: Multiple aspects of growth, internationalization, and value creation 2018.)

In the year 2019 SMEs accounted for a total of 99.7% of the number of businesses in Finland (SBA Fact Sheet – Finland 2019, 2). Which makes it an important segment for the economy of Finland. What needs to be taken into account that SMEs are very delicate due to its' basic characteristics and failure of SMEs is related to lack of resources and not being part of a network among other factors (William 2014). This present research would benefit SMEs in Finland in a way that the most important network actors could be noticed, and relationships created.

As this research is focusing on the growth case of Naava Group Oy, it is desirable that the case company finds the research beneficial with analysis of impacts of their current networks to the growth. The results of this research could advise Naava Group Oy and other Finnish SMEs in their actions while acquiring future networks and managing the current ones.

Also, the researcher herself had personal interests in the topic of sustainability and particularly circular economy. These topics are offering promising career alternatives. Also studying local SME that is successful is empowering for a young researcher at the beginning of a business career.

Based on the above-mentioned article and the researcher's own interests the research question and objective were created, which are presented in the following sub-chapter.

1.3 Research question and approach

The purpose of this research is to discover what is the role of networks in terms of the growth of CE SMEs. The previous sub-chapters briefly introduced the topics and as seen these topics benefit from further research. All SMEs are facing many obstacles while growing and all the extra information on how to avoid failure is beneficial. The objectives of this research are to provide a better understanding of how different network actors impact the growth of SMEs and to find out which of the network actors are needed for growth. The main research question is:

“What network actors do Finnish circular economy SMEs need to grow?”,

and the sub-question is:

“How do different network actors impact on Finnish circular economy SMEs’ domestic and international growth?”

To be able to answer the research questions a research design was created to guide the research. This research is qualitative by its’ nature and with a purpose to provide a deeper understanding of the role of networks in firm growth, the research type is exploratory. The research is produced by a longitudinal time horizon and with a strategy called a case study. To reach an answer to the research question a decision was made to focus on one specific Finnish CE SME that has grown steadily from the beginning both domestically and internationally. The company agreed to an interview from which the main (primary) data was collected for the research, and secondary data was collected from various websites. All the data were analysed with a coding technique. Also, a theoretical framework was adapted to guide the research and structure of the report. The following Figure 2 presents the chosen methodology for this research and chapter three provides more in-depth information about it and also justification for it.



Figure 2. Presentation of a methodology of this research

The next chapter two is providing information on existing literature on the main topics and from which the theoretical framework was derived to guide the rest of the research work. As mentioned above the chapter three is presenting the methodology used in this research. After the literature review and information on research design, chapter four includes the results of the research. In chapter five researcher provides an answer to the research question and analyses the findings in light of practical and managerial implications and literature. At the very end of the report, there is a conclusion chapter and the lists of references and appendices.

2 Literature review

This chapter is considering the main topics of this research: circular economy, firm growth, and network theory from the existing literature point of view. The literature was reviewed in order to provide a holistic understanding of the topics for the researcher and the readers. Based on the existing literature an appropriate theoretical framework was created to be able to answer the research question and the framework is presented at the end of this chapter.

2.1 Circular economy

Traditionally, the economy has been linear, but now through global trends more and more countries, industries and companies are moving towards circular models and shifting the economy altogether to a circular form. The term circular economy (CE) is familiar to many, but it is difficult to define or explain. Kirchherr, Reike, and Hekkert (2017), overviewed even 114 definitions from different sources in their review, from which 95 were different. CE can be referred to as a term, a concept, a system, a model, and/ or a framework. Many challenges in the world enhance the transition towards CE, such as the fact that the world is running out of natural resources and is in desperate need of renewable resources. Nor is the CE completely free of challenges but it can be greatly beneficial too, as it is focusing on the importance of economies working sustainably and effectively at all scales.

The concept

The concept of CE is old, but it has not been applied to the economies of the world until recently (Valavanidis 2018, 3). Its origins are debatable as it is comprised of several aspects which makes it multidimensional, and it cannot be traced back to a single author or date (Schools of Thought 2017). Murray, Skene, and Haynes (2017) described in their article the complicated history of the term CE. They also found out that there is no certainty what the real origins of the term are as everyone claims it differently. For example, some of the sources are sure it is from Asia, specifically from China, then others that are from Europe either from Germany or Sweden. (9-10.) Still many studies emphasize one report over others which was made for the European Commission in 1976 as the introducer of the concept, as Banaitė and Tamošiūnienė (2016, 317) did in their article.

There is a lot of literature where the idea or the term is used by different authors and thus it is linked with a wide range of descriptions and associations. The first recorded statements related to the idea behind CE are already from the 1800s. In the end, all these different sources of literature have one thing in common: *“the concept of the cyclical closed-loop system”*. (Murray et.al 2017, 9-10.) Although CE has gained more attention and more and more researches is done, still today there are many different perspectives for CE as a concept. For example, Negrei and Istudor (2018, 499), disputed in their article the possibility to conceptualize the CE based on the fact that an economy is an open system that exchanges material and energy, and if the material flows would be circular, then the energy flows would be unidirectional due to the entropy law. Many literature sources as well as Kirchherr, Reike, and Hekkert (2017, 226), agree that commonly the most employed definition for CE is provided by Ellen MacArthur Foundation: *“[CE] is an industrial system that is restorative or regenerative by intention and design.”*

The concept of CE has been influencing governments at the local, regional, national, and international levels in many countries such as China and Germany, as well as business. It is also widely promoted by public and private contributors such as European Union and The Ellen MacArthur Foundation. (Geissdoerfer et.al 2017, 761-762.)

The core of CE

As mentioned above generally CE is stated as a self-sufficient system in a cyclical form with closed loops. These loops can be referred to and thought of as processes. Historically these processes inside CE were said to be based on principles of 3Rs that are: reduce, reuse, and recycle. In this perspective, CE utilizes these principles with the aim of optimal production while exploiting natural resources and minimizing pollutions, emissions, and waste. (Jawahir & Bradley 2016, 104.) There are newer perspectives such as one offered by Behren, Rizos, and Tuokko (2017) as in their research there were identified eight different CE processes that can be categorized into three categories of less usage of primary resources, maintenance of the highest of materials and products, and alteration of the utilization patterns. Although these processes are categorized differently, they are not excluding each other, and they can be intertwined together in one strategy. Also, all processes can be applied to different sectors of the economy. (8.)

Despite the different theories of origins, and ways to define and categorise the principles of CE, the core aim of it, is to improve resource productivity. This would mean that waste wouldn't be considered as waste but a resource. The improvement is achieved by recovery, reuse, repair, remanufacture, and recycle resources and products. So, both resources and end-products would be kept in use as long as possible. (Esposito & Tse 2015.)

Practical Application

The transition from a linear economy to CE needs adaptation from the world. Things need to be changed, some more radically than others but the transition does not happen automatically or quickly, and it will take time. Lewandowski (2016, 1) stated that the switch needs four necessary elements that are resources and product design, modified business models, global reverse networks, and favourable conditions. Fundamentally changing the economy is in the hands of policymakers and their decisions, but also about how circularity is applied to business models by business entities. Ellen MacArthur Foundation has created a framework called ReSOLVE, for governments and companies, which offers six actions propositions for promoting the transition towards a CE, these are: 1. Regenerate, 2. Share, 3. Optimise, 4. Loop, 5. Virtualise, and 6. Exchange (Manninen, Koskela, Antikainen, Bocken, Dahlbo, & Aminoff 2018).

The application of CE can be categorized into two approaches: 1. Economy-wide execution and 2. Execution with a focus on a specific group. The first approach can be done on different levels, such as local, regional, national, and multinational, and on different scales. As an example of this approach, China has envisioned a systemic application on three levels in macro-, meso-, and microscales which included different actors. Another example is the Netherlands, which has been applying this approach in its aim to become a “circular hotspot”. The focus groups for the second approach are sectors, products, materials, or substances. Legislative proposals related to for example waste management and promotion of economic incentives by the European Commission are examples of the second approach. (Kalmykova, Sadagopan, & Rosado 2018, 197.)

Even though existing business models are still relevant, they should be updated for businesses to operate in a CE as efficiently as possible. Also, the concept of a circular business model has been developed to help businesses to do so. These differ from traditional models by supporting the development of the production systems in which the strategies are essentially conserving the embedded value of the utilization at the highest potential level. (Nußholz 2017, 1-4.) The circular business models can be categorized in various ways, but the majority of the different types can be found in the ReSOLVE framework that was mentioned above (Manninen et.al 2018). The Finnish Innovation Fund Sitra divides CE business models into five categories: 1. Product as a service, 2. Renewability, 3. Sharing platforms, 4. Product-life extension, and 5. Resource efficiency and recycling, that are all based on the maximization of the products’ performance and customer value (The most interesting companies in the circular economy in Finland n.d.). According to several literature sources, the circular business models are seen as the enabling power for transferring to CE (Kirchherr, Reike, & Hekkert 2017, 228).

Sauvé, Bernard, and Sloan (2016) also introduced two possible tools for implementing CE which are eco-design and life cycle analysis. If these tools are applied simultaneously when deciding on different CE strategies, processes, and/or actions, will the chosen approach be environmentally sound at all stages of the lifecycle. (55.)

In the end, it is not enough that one company or one industry is implementing CE, but there is a need for a network of companies to make the change (Dedicoat 2016).

There are solutions for improving resource productivity that is successful such as the concept of sharing economy, but these individual solutions by individual companies are not enough. Because these singular solutions have a risk of a rebound effect, which means that focused solutions in one area can lead to more resource consumption in another and the gains are zero. CE itself includes a holistic and collaborative approach that would solve this problem. (Esposito & Tse 2015.)

According to the report “Towards the Circular Economy” by Ellen MacArthur Foundation (2013) there are certain elements that are needed while implementing CE in all different industries. Some of them are mentioned by others such as new business models, education, and collaboration across different cycles and sectors. Also, a set of different skills are needed for example in product design and production and building the cyclical infrastructure which would close the loops. There also needs to be an enabling climate for investing and clear regulations.

Impacts and challenges

Benefits that CE offers are both operational and strategic (World Economic Forum 2014, 13). They can be also categorized into economic, environmental, and social impacts. The impacts of the CE can be seen at the same levels as in which it can be applied, even globally. Examples of possible economic benefits would be the creation of new jobs and GDP growth through increased resource productivity and reshaped waste management policies among other strategies. At the same time when it is estimated CE to provide greater financial benefits than the current economic system, it also needs additional investment. Awhile some sectors are prospering from the shift to CE some sectors are undergoing negative outcomes in the same dimensions. Some studies are criticizing the possibility of new job creation. Besides the economic impacts of CE, also the environmental benefits are highlighted. Examples of these benefits are material savings and reduction of waste, emissions, and water usage. These benefits can be acquired in different industries such as textile and hospitality and food services, through different actions which for example are improved resource efficiency and recycling, and enhanced material re-usage. The social benefits are studied at the least of the three impact categories. Basically, the above-mentioned creation of the new job aspect is solely in the focus of the literature on social impacts.

However, all the changes towards CE have also indirect impacts on all three categories for example change of consumption spending and usage patterns in addition to these direct ones. (Behren, Rizos, & Tuokko 2017, 20-27.)

There are still many challenges for CE, both practical and conceptual. One significant challenge is the fact that there is no clear commonly agreed definition for the concept of CE which leads to different comprehensions of people. This core challenge leads to further challenges.

For example, the CE concept is that it is often related solely to being an approach for waste management. Waste management is indeed a wide area inside of it, but it is not the exclusive aspect. This kind of the limited point of view could be fatal for CE. (Ghisellini, Cialani, & Ulgiati 2016, 12.) Another one is that concept of CE is often related to the concept of sustainable development and sustainability. Even though these concepts have similarities, they are fundamentally different according to literature sources and have different goals, as Geissdoerfer et al. (2016) pointed out in their article. They stated that traditionally sustainability is focusing equally on three pillars of wellbeing, but CE on other hand prioritize the economic and environmental aspects and only indirectly focus on social. (757-768.) In addition to lack of reliable information and awareness, other identified barriers for implementing CE properly are not having needed technology, insufficient legislation, economic incentives, and management (Su, Heshmati, Geng, & Yu 2012, 223).

Also as mentioned above, implementation of CE requires further investments, as well as transition to CE costs to nations and businesses and increased costs, continue in some sectors when the shift is already made. For example, producing durable long-lasting products is one action of CE and it is generally more expensive than producing the quick and less or non-durable ones (Sauvé, Bernard, & Sloan 2016, 54). It is easier to focus on the practical numbers of additional costs than the estimation of possible economic benefits, this is a challenge and reason to further research, educate, and conceptualize CE.

2.2 Firm Growth

Firm growth is a well-studied concept and yet there is a lack of relevant knowledge on what enhances and deducts growth. In order to fully understand and research the concept, it is essential to define what is a firm, especially if the research is focusing on the establishment of the business. A firm is easy to define at a certain point in time, but the same definition might not apply over time, as the firm's different attributes for example assets and ownership can change. It is a paradox that firm growth is a process that happens over time, and when a firm grows it is no longer the same entity as the defined original form of it. Therefore, the firm growth should be studied overtime and the studies are often longitudinal, but they can be also cross-sectional. (Davidsson & Wiklund 2006, 39-47.)

Classically, firm growth studies have two approaches that one is about identifying different factors that enable firms to grow where the growth is a dependent variable, and another one is about the changes inside a firm that are resulted from the growth, where the growth is the cause. These two approaches can be divided into more detailed categories by different perspectives which are resources-based, motivation, strategic adaptation, and configuration. Analysis of firm growth can be focused on three different units: individual or groups of individual, activity, or governance structure, in which these four categories of theoretical perspectives correspond. Configuration perspective is linked to the growth process study approach and the other three perspectives are linked to the factor approach. (ibid., 39-47.) Since there is not one clear concept of firm growth there have emerged also combinations of different theoretical perspectives into integrated and/ or holistic models. For example, the following theoretical perspectives: entrepreneurs' profile, firm resources, and market characteristics are combined into an integrated model of venture growth. This approach offers a holistic view of firm growth because it does not focus on a specific variable or set of variables leaving others out. (Federico, Rabetino, & Kantis 2012, 576.)

Traditionally the firm growth can be categorized into two types of growth: organic and acquisition. Organic growth refers to a firm growing by expanding its' internal activities and acquisition growth refers to a firm growing by acquiring already existing

companies. (Coad & Hözl 2010, 3.) The classic theory of firm growth is based on the idea that businesses have a growth path. However later, there have been studies that seconded a new idea of firms growing to the point and size where the founders feel comfortable. (Harris, Rae, & Misner 2012, 337.) In general, firm growth is thought being as a one-time occasion or a random result of continuing processes especially in a discussion about high growth (Bamiatzi & Kirchmaier 2012, 2). Also, the nature of the firm growth is different in different stages and sizes of the firm, so even though SMEs become large firms through growth, not the same theories and models apply. SME's growth is generally more irregular and larger firms have positive and clearer growth patterns that can be cautiously correlated into the following years (Davidsson, Achtenhagen, & Naldi 2010, 5).

SME's growth

Growth is essential for small enterprises especially young ones as non-growing companies are more vulnerable to failure than growing firms (Gancarczyk & Zabala-Iturriagaitia 2015, 3).

Systematic categorization of growth patterns and problems is problematic in a relation to SMEs since they vary broadly in size and abilities to grow. Although there are common problems that SMEs come across similar phases of growth. Based on this fact there is developed a growth model that is suitable particularly for SMEs. The model (see Figure 3) includes five different growth phases: 1. Existence, 2. Survival, 3. Success, 4. Take-off, and 5. Resource maturity. (Churchill & Lewis 1987, 3.)

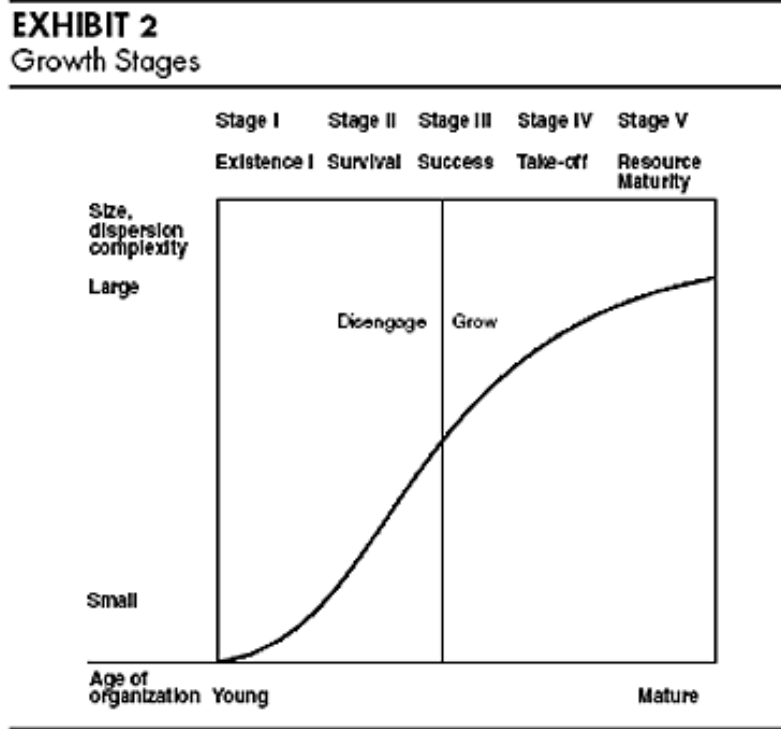


Figure 3. SME's growth stages model (Churchill & Lewis 1987, 3).

In the first stage of growth, a company is new and simple, and its' only goal is to stay alive. In the second stage, a company is still simple but already working and has a customer base. As the name of the stage, a company's only goal is to survive. In the third stage, a company can either expand by using the company's resources and enter the following stage or to stay stable at the current stage for indefinitely earning about average profits. The fourth stage is a crucial one when a company is usually decentralized and balancing with the challenges of a growing company. In this stage, a company can become a big company. In the fifth stage, a company is matured, and it has become a large company. The company has resources to operate strategically and successfully. As seen every stage has different characteristics and not every stage needs to be passed through in presented order to grow, or neither returning to the previous stage means failure. (ibid., 3-6.)

Also, many other researchers have made their own model of the evolution of firms which includes different stages. All models are alike, but each has different focus points, for example in Geiner's model the focus is on driving forces for innovation and growth, and in the model made by Quinn and Cameron the focus is on effectiveness. (Urban 2015, 9.) Related to growth stages models, in the study of the crisis in

SME's lifecycle Hill, Nancarrow, and Len Tiu (2002) found out that many companies had similar problems while growing that reoccurred every few years. Problems were related to the following aspects: existing premises, not being suitable for expansion, customers' unpredictable demands, obtaining financial resources, challenges brought by too rapid growth, management skills inside the firm, and sales. (365.)

Zahra, Sapienza, and Davidson (2006, 935), established in their article one earlier made a study that has found out that there is a correlation between internationalization at an early stage and greater growth both domestically and internationally for smaller companies.

Measurements

Measuring growth can be done by assessing growth processes or changes in the amount. While assessing the change in amount the choice of growth indicator is important. Generally, growth is measured by sales or employment, but the indicator can be more specialized for example within industry. The results of each indicator separately are not similar to each other, so the researcher should choose the best one or create a multiple indicator index. The summed result of three different indicators will often give a strong and valid result of growth. (Davidsson 2010, 17.) In other words, there are basically relative and absolute approaches to measure growth. The relative approach refers to growth rates and absolute to the actual difference in firm size. Both of these approaches can lead to different results so there is no single best way to measure growth. (Coad & Hözl 2010, 2.) According to Gupta et al. (2013) growth can be measured with the same factors that it can be defined, those terms are revenue generation, value addition, and business volume expansion. They also acknowledge that measuring can be done also in the form of qualitative features such as quality and market position. (2)

2.3 Network theories

Researches made on networking started around the '70s when the focus was on management and relationships. Since then more researches were made and the fo-

cus shifted first to networking as a career strategy and then to outcomes of networking and its' behaviors. (Gibson, Hardy III, & Buckley 2014, 147.) Today, there are existing various network theories and methods.

During years of researching the topic of networking, many have made their own definition of the term and tried to conceptualize the topic. Gibson et al. (2014) analyzed different definitions and they saw that there are common characteristics to many of them. Common themes are that networking can happen inside and outside the organization, networking relationships have different stages of development, and that networking is done to reach a certain goal. They formed their own definition from historical definitions: *"Networking is a form of goal-directed behavior, both inside and outside of an organization, focused on creating, cultivating, and utilizing interpersonal relationships"*. (149.) On other hand, Borgatti and Halgin (2011, 1169), defined a network to be a set of two or more actors (or nodes) that are connected through a set of specified types of links/ ties. According to Gipson et al. (2014, 151), that kind of definition of nodes related by specialized connections is actually a social network that is in their mind a totally different issue than networking even though they are similar topics. Seufert, von Krogh, and Bach (1999) established, perhaps with more neutral tone, the definition of the term network to be: *"A social relationship between actors. Actors in a social network can be persons, groups, but also collectives of organizations, communities or even societies."* In their opinion, networks can be divided into different categories by its' characteristics such as content, form, and intensity and it is not uncommon to define relationships with a mixture of the distinctive. (182.) This definition is applied in this research.

As mentioned above traditionally business network is described to be the outcome of two or more actors having a relationship with a purpose. Accard and Assens (2014, 995), argue that it can be also spontaneously build when actors are having an interaction that may or may not have a utilizable outcome. Article by Ogasavara, Boehe, and Cruz (2016, 874), support that idea as they rise related theory of strong and weak ties. The theory of strong and weak ties acknowledges that there are different levels of ties that have different functions. Network structures embed every firm and business relationships in which each business is in the center. Business networks do not have any market, industry, or geographical limitation. Although every business or

observer can set boundaries to networks to specify it with for example country or the field. (Forsgren, Holm, & Johanson 2005, 25.) There are existing different barriers related to networks and networking. According to a study made by Sowon Kim (2013, 127-129), the key barrier of making networks is the absence of interest and the key one of maintaining networks is no longer to have common interests.

Benefits

Earlier studies have proved that it is essential for companies to have networks. It is also beneficial to have multiple relationships than just one, as different resources can influence the possibilities of getting other resources both directly and indirectly (Aaboen, Dubois, & Lind 2011, 43). Basically, by networking the company creates new knowledge through interaction with other actors, when knowledge producer has a relationship with knowledge users (Johanson & Vahlne 2002, 4).

The basic idea behind networks is that networking firms can acquire resources that otherwise might not get. Networking enables also other development and growth in the firms, such as the development of credibility, accessibility to resources and funding, growth of customer base, and supplier contacts. (Harris, Rae, & Misner 2012, 337.) Firms can have multiple different network relationships and each of them can have multiple goals (Chetty & Stangl 2010, 1739). Networks increase the competitiveness of companies in many aspects (Codini 2015, 330).

Business networks include both successful and smart networks and unbeneficial networks. There is also another theory related to business networks: a smart business network (SBN) that includes only the successful ones that have efficient characteristics. SBNs capabilities are common understanding between actors, wise selection of partners, quick relationship endings, well co-operation between all the actors in the network resulting in information sharing and risk and reward management. (Pau 2012, 832-833.)

Multiple studies verify that networks have a notable role in the internationalization of firms. The network theory of internationalization by Johanson and Mattson (1986) is a famous model related to the topic. According to that theory, there is a link between the company's internationalization level and abroad connections' level. (249.)

Related to that, results in a study made by So Won, ByoungHo, and Sojin (2019), suggested that business networks have a bigger impact when the firm is at the early stages of internationalization than later.

Firms can benefit from their networks also related to their innovation by sharing risks, accessibility to new markets and technologies, speed of commercialization, collection of complementary assets, property rights protection, and available external knowledge (Chetty & Stangl 2010, 1729). Codini (2015, 338), confirmed in her research that networks create competitive advantage by innovative capability and networks have an impact on innovation in its' every life-cycle stage.

Building networks

The networks are made, maintained, and in some cases also ended over time. Usually, business networks are stable and evolving and the interaction between the parties. It is common to create a new transaction in already existing networks. Networks can be based on different aspects of connections, for example, legal, knowledge, social-economic, and technical planning. (Johanson & Mattson 2015, 2.) Networks are built strategically with purpose towards before thought specific actors or spontaneously by interacting with other actors (Accard & Assens 2014, 1001).

Networks can be one relationship with two actors, but it can be also a common network with multiple actors all having relationships with each other. Even competitors can be inside one network. (Håkansson & Snehota 2006, 261.) Different kind of networking requires a different kind of knowledge and expertise. Therefore, there have been established numerous network tools to help businesses along-side scientists and disciplines. (Bianconi 2015, 1.)

Interaction is essential while building and maintaining networks. Each relationship and network are different depending on its' nature and actors in it. Some networks for example relationship between customer and supplier can be more complex than others. Usually, the content of business networks is always developed and adapted as the outcomes are difficult to foresee especially when the relationship is undetermined. Maintaining networks can cost because of all the resources and time spend on them. (Snehota 2011, 5.)

2.4 Theoretical Framework

2.4.1 Background theories

GAP model

Lindqvist, Ketels, and Sölvell (2013) have created a GAP model based on their research on clusters (see Figure 4). In the GAP model, different clusters are shown as groups of actors. There are five different types of groups of actors that are firms, government, research and education institutions, and capital providers. All these different actors have mutually beneficial interaction with firms but there are barriers preventing collaboration. These barriers create five internal gaps inside the cluster between each actor and also two external gaps between the cluster and other clusters and the global market. (37.)

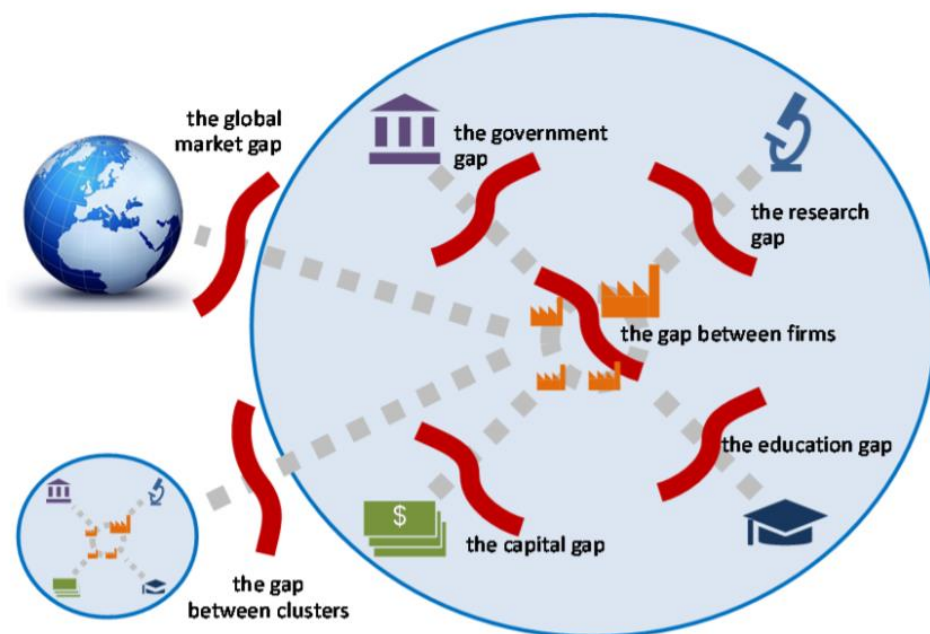


Figure 4. The Gap Model – the seven innovation gaps (Lindqvist et al. 2013, 38).

Although the Gap Model was made for cluster innovation, it can be applied while analyzing the networks of the companies. Like in the clusters and gap model firms are in the center of network structures too. The same five actors could be indicated to be the same ones as different partners in networks. To reach the goal of this research,

the gap model is embedded together with the Start-up Infrastructure Diagram (SID) which is introduced in the next sub-chapter.

Start-up Infrastructure Diagram

Halbe and Koenraads (2018) have created the Start-up Infrastructure Diagram (SID) for enhancing the understanding of supporting infrastructure of an entrepreneurship ecosystem (see Figure 5). The SID is focusing on an ecosystem in a specific geographical location that can be local, regional, or national and it is highlighting those actors that are most valuable in the ecosystem by the following criteria: 1. Supporting entities, 2. Proven and sustainable, and 3. Main entity and core business. The SID consists of a core which is the geographical location of the represented infrastructure and three circles. The most inner circle includes the five key pillars: network, talent, support, capital, and expertise which all together form the infrastructure of the start-up ecosystem. The middle circle includes main categories of those key pillars and the most outer circle includes entities which are consist of organizations and initiatives in the ecosystem. (1.)

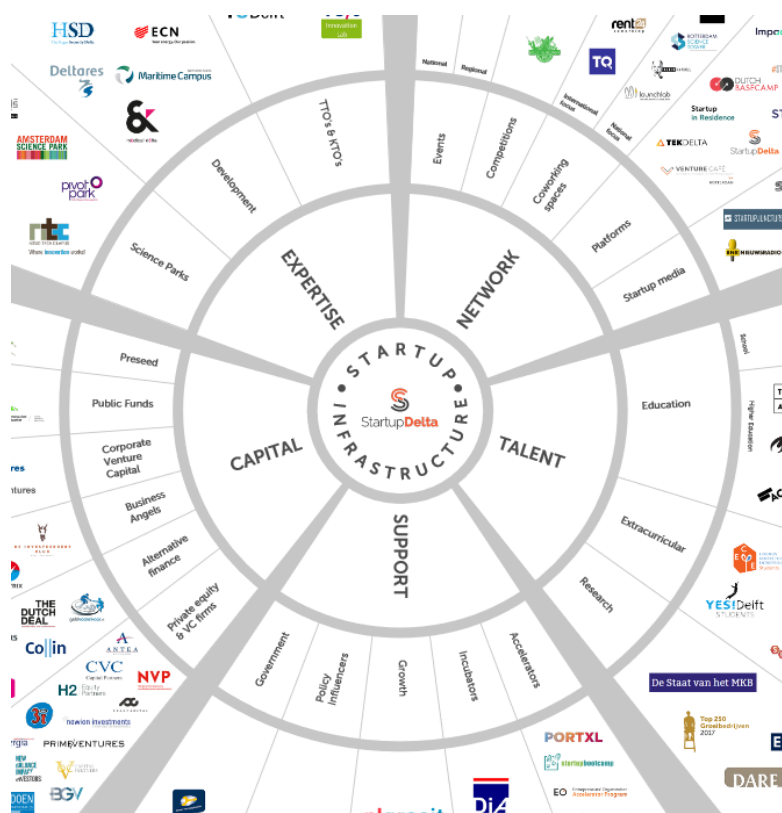


Figure 5. Start-up Infrastructure Diagram (Halbe, & Koenraads 2018).

2.4.2 Developed framework

For this research, a new theoretical framework was developed by combining information from secondary data and relevant factors from existing frameworks: GAP model and SID diagram that was presented earlier in this chapter.

In this framework CE SME is at the core and surrounded by different networking actors (see Figure 6). The framework includes six different sectors/ actor groups: public contributors, networking platforms, capital providers, supporting actors, knowledge actors, and value chain actors. Inside each sector are different actors that are a networking possibility to the core SME. The name of each networking actor group shows directly what the actors inside the group could provide for CE SME from the relationships.

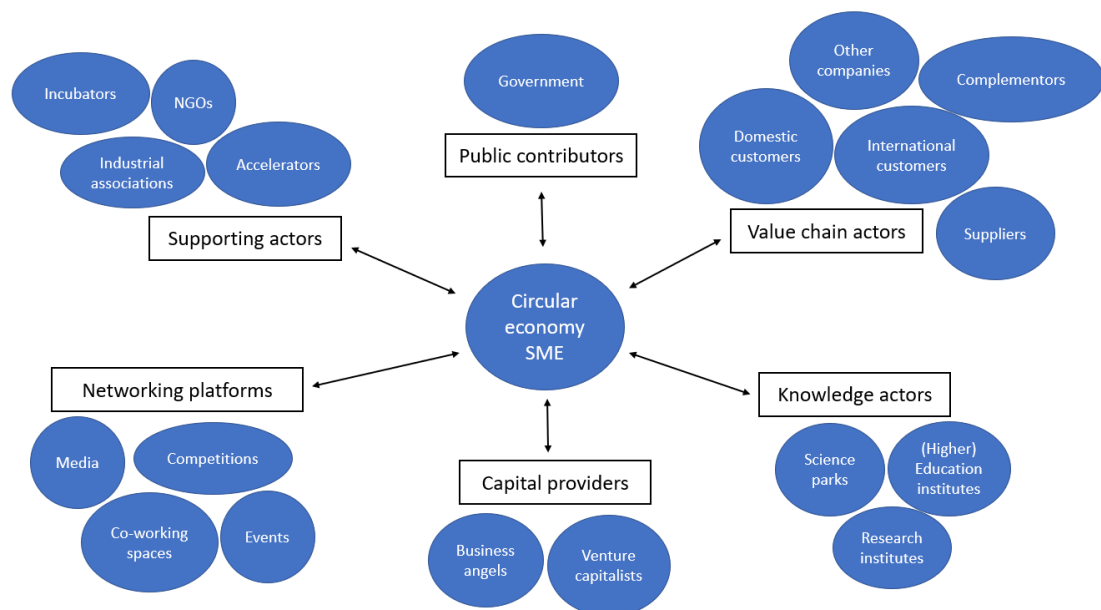


Figure 6. Developed theoretical framework, adapted from Lindqvist et al. (2013) and Halbe and Koenraads (2018).

This theoretical framework was created to guide the research. It could be applied to any national level as it is done in this research in Finland. With this model, it can be identified which network actor groups and specific network actors the CE SME is having a relationship. Also, the model shows what should and/or could be benefitted from different network actors. For example, by networking with research institutes

which are actors in the knowledge actors group, knowledge can be gained. In this research, this model is used to guide the interview and the process of research so the research questions can be answered.

3 Methodology

This chapter introduces the theory behind the execution of the research. The methodology explains how the research was conducted and which research methods were used (Saunders, Lewis, & Thornhill 2009, 3). Research methods are needed in different phases of research and they can be divided into two categories: methods of data collection and data analysis. Research methods are important because they affect the results of the research. (Kananen 2008, 18-25.) These all are presented in separate subchapters with a justification of the choices, and the concept of the credibility of this research is considered at the end of this chapter.

3.1 Research approach

Business research is divided into two main categories: qualitative and quantitative by basically which kind of data the research is focusing on (Wilson 2010, 13). The approach of this research is qualitative.

Research is qualitative when it is not based on statistics or any other quantitative methods. The goal of qualitative research is to understand the phenomenon behind the research, for which there are no existing theories, but not to generalise it. Qualitative research is focusing on one phenomenon, usually processes, and provides a deep understanding of it. (Kananen 2008, 24-25.) The research process in qualitative research is cyclical from the selection of the topic to the end of the report. Because all different phases affect one other and some of the phases happen simultaneously such as data collection and analysis, see the following Figure 7. (ibid., 50.)

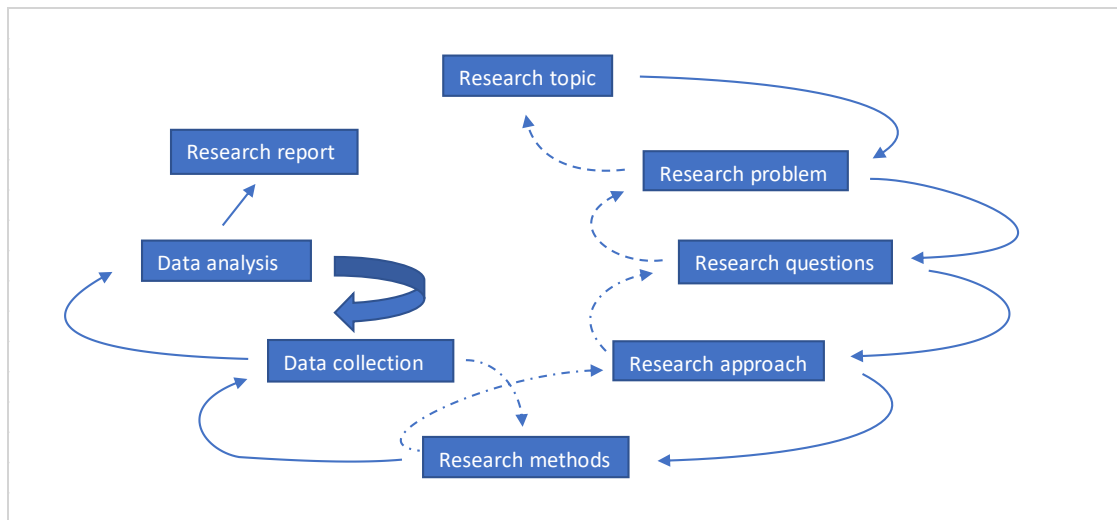


Figure 7. The model of cyclical progression of qualitative research, adapted from Kananen (2008, 50).

There are three main types of researches, which are determined by the purpose of the research: exploratory, descriptive, and causal research (Wilson 2010, 103). This research is exploratory. According to Wilson (2010) exploratory research is done on a topic that has limited knowledge and earlier studies published. This kind of research is providing a deeper understanding and often set of hypotheses for the future. (103.) This research aims to develop insights into how different network-actors impact SME's growth and what network actors are needed. Because of this aim, the qualitative research approach was selected as well as the exploratory research type.

There are also different research strategies which all have advantages and disadvantages, the decision should be made based on the specific research and its' goal. Some strategies are connected to quantitative or to qualitative approaches but basically, all of them can be justified to use in both kinds of researches. For this research, a case study strategy was chosen.

According to Simons Helen (2009, 3), the purpose of a case study is to explore the characteristics of an individual case. A case can be for example a person, an organization, a field, or an event that forms a certain phenomenon (Kananen 2013, 75). A case study can be focusing on single or multiple cases (Yin 2014, 51). This research is using a single-case study design. The biggest disadvantage of a single-case study is the fact that focusing on a single case makes the research vulnerable (ibid, 64). However, it also allows the researcher to go deeper into the one phenomenon that the case is about.

There is a few common reasoning for using a single-case study strategy which one of them is to research a unique case (Saunders et.al 2009, 146). The case of this study is unique in the sense that the company is successfully grown domestically and internationally even though it is a CE SME. The approach for this research was to study a good example of Finnish CE SME that has grown so the role of networks could be explored from it. As this research is focusing on the growth of the whole company the approach can be also defined as a holistic case (ibid., 147).

All three main concepts (CE, firm growth, and network theory) of this research are multidimensional and that's why the case study was a suitable choice as a research strategy because it is often used when multi-methods are needed and the problem in question is multidimensional. Also, a case study is a particularly good research strategy for questions on how and what, which too applies to this research. Another problem or disadvantage of the case study strategy is to define the case if it is a company. As the company itself can't be interviewed or observed, and the people represent the company, does it make the owner or the staff the case instead of the company then? (Kananen 2013, 54-56.) This needed to be considered as the case of this research a company and one of the owners is interviewed but the problem of defining the case was solved by focusing on the phenomenon of the growth of the company.

Time horizons of the researches are either longitudinal or cross-sectional, in which longitudinal researches are focusing on a specific case or group of cases for a long period of time, and cross-sectional on the other hand is focusing on data collected at a single point in time. Both of them have their own limitations. (Wilson 2010, 111-112.) The time horizon of this research is longitudinal because this research is focusing on the overall growth of the case company and how different network actors have been impacting it at different times. This choice is justified by the fact that longitudinal case studies are commonly recognized to be well suitable for growth studies. (Davidsson, & Wiklund 2006, 40).

3.2 Research context

This chapter presents the research context that is based on the objective and research question. The main purpose of this research was to explore the role of networks on the growth of the Finnish CE SMEs, using a case study strategy.

As already mentioned in chapters one and two, the topic of CE is getting more awareness and more research is needed for further development in the field. This research focuses on Finnish CE companies, particularly SMEs. SMEs are a key player in the current economies and also in a path towards CE (Rizos et al. 2016).

Finland created the world's first national plan for implementing a circular economy in 2016 for the following 10 years to become a global pioneer. So there is a national ambition towards implementing CE but also many CE companies have emerged in Finland. (The world's first national road map set out the starting point for Finland to a circular economy 2019.) One of them is the case company for this research: Naava Group Oy (referred to as Naava on some occasion throughout the rest of the report).

The company Naava Group Oy is acknowledged by Sitra (The Finnish Innovation Fund) as an interesting CE company in Finland. Sitra is selecting companies to this list by their business models and criteria of interest level from the CE perspective. Their purpose is to encourage companies for CE solutions. (The most interesting companies in the circular economy in Finland n.d.) Out of the five different CE business models (which were introduced in chapter two) Naava Group Oy has "product as a service". The share of the CE solution in the business is 100% with Naava. (Smart green wall and healthy indoor air as a service 2017.)

Naava Group Oy was founded in 2012 by Aki Soudunsaari, Mika Tyrväinen, and Niko Järvinen (NAAVA 2019). Naava is providing smart green walls to bring people closer to nature indoors and cleaning the air at the same time (NAAVA 2019).

In the beginning, the company located in Jyväskylä, but after domestic and international growth they now have offices also in Helsinki and Stockholm (Sweden) in addition to a production office in Jyväskylä. In addition to their own offices, they also have distributors world widely: Norway, Denmark, Germany, Belgium, Spain, United Kingdom, Canada, USA, Israel, and Korea. (Tyrväinen 2019.)

Naava was founded with the intention to grow internationally, they didn't want to remain a Jyväskylä-based or even a Finland-based company. Also, to quote one of the founders: "we had such absolutely insanely big growth goals and still is" (Tyrväinen 2019). The founders did not have any numerical metrics for the growth goals of Naava at the beginning, but it can be said that they have grown according to their plans. Naava has internationalized, since they are on almost all continents: America (USA), Asia, and Europe. However, the actual growth rate speed and expansion speed of Naava was probably slower than how the founders were planning/dreaming at the beginning. Naava has not been focusing on domestic growth hence the 20 % yearly growth which is not near any saturation point. (ibid.) Naava has been acknowledged as one of the fastest-growing companies in Europe by the Inc. 5000 list with an average 70 % annual growth (Naava – Reconnecting humanity with nature 2020).

Naava has not had any acquisitions so their growth has been organic. Concerning the growth of Naava, their most important partners were both sales and service partners in different countries. Although this varies in time, and as a consequence of the change of business strategy. (Tyrväinen 2019.)

3.3 Data collection

There are multiple ways for data collection and different kinds of data available from different sources. Data sources, specifically literature sources, are commonly divided into three types: primary, secondary, and tertiary (search tools), based on the origins of the information. (Saunders et al. 2009, 68). In a case study, multiple different data collection methods are often used to get a deep and general view of the phenomenon. All the different methods have pros and cons and the methods are chosen based on the phenomenon that is researched. (Kananen 2013, 77.)

For this research, the primary data was collected through interviews. The interview was conducted face-to-face with one interviewee. It lasted around 40 minutes and it was recorded. There are three different types of interviews: structured, semi-structured, and unstructured interviews which differ by the amount of preparedness and

structure by the interviewer (Saunders et al. 2009, 320). The interview, that was conducted during this research, was semi-structured. This means that there were predetermined questions, but the interview was conducted through conversation, where the interviewer had certain flexibility with the order of the questions among other things (ibid., 320). Following Figure 8 shows all the types and forms of interviews and the chosen path of this research is highlighted.

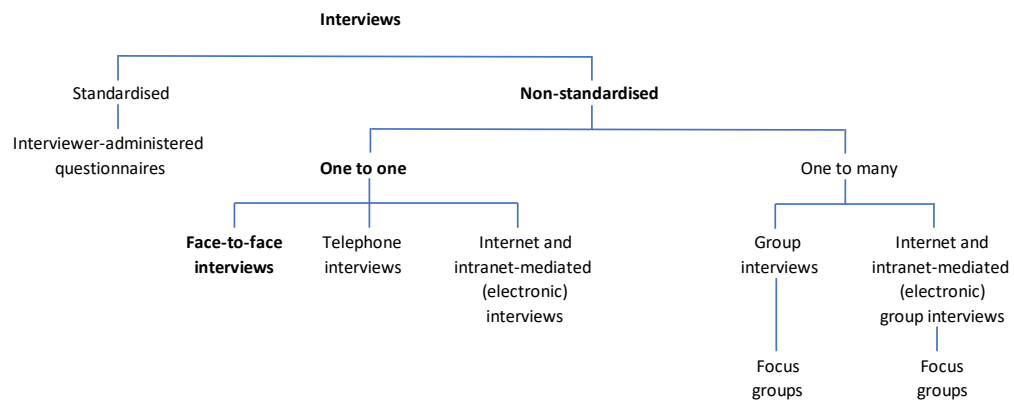


Figure 8. Forms of the interview adapted from Saunders et al. (2009, 320).

The interview questions were derived from the theoretical framework, each different network actors were included in separated questions. The interview questions can be found at the end of the research in Finnish Appendix 1 and translated into English Appendix 2. The context of the research was explained to the interviewee at the beginning of the interview.

In qualitative research is important to select an interviewee who knows the researched phenomenon the best (Kananen 2008, 37). In this case, the interviewee was one of the founders of Naava Group Oy, who has been involved the whole time which meant he was a relevant choice. He has been in his words “doing everything that nobody else does” (Tyrväinen 2019). Although as a disadvantage of the choice of the interviewee, he also mentioned in terms of certain topics, that he did not know everything about. Another disadvantage of this method is that the transcription and analysis of the data are time-consuming. Also, the data is subjective due to having one interviewee providing the data and one researcher doing the analysing.

The main data collection method was the interview from which was gained primary data about the case. Other data used in this research was secondary data. All the secondary data in terms of Naava's growth and networks were from the following websites:

<https://news.cision.com/fi>, <https://www.epressi.com/>, <https://www.naava.io/en/>, <https://paaomasijoittajat.fi/en/finnish-venture-capital-association/>, and <https://www.invesdor.com/en-gb/>.

The importance in terms of using secondary data is to make sure that the information is true and the source is trustworthy. Another disadvantage of secondary data besides possible unreliableness is that the data could be outdated. (Wilson 2010, 178.) Because of the characteristics of the information and the age of the case company, a little to none of the information was outdated and the selection of the websites as a source was done critically. Although secondary data was problematic because of the scarcity of it as well as for the primary data. However, data from the majority of the secondary sources were also based on interviews from significant persons such as other founders.

3.4 Data analysis

In qualitative research data analysis is a continuous process through the whole research and not the last phase (Kananen 2008, 24).

Qualitative data can be analysed in different ways and it is at the same time pro with being flexible with methods but also a con since it is difficult to find the answers from the entirety. The case study does not have its own specific data analysis methods, so all the qualitative data analysis methods are applicable. (Kananen 2013, 58-103.) However, Yin (2014), proposes four general data analysis strategies for case studies, from which in this research is used the "relying on theoretical propositions". This means that the theoretical framework of this research was working as a guideline for the data analysis process too. Next Figure 9 shows different phases of how qualitative data was processed.

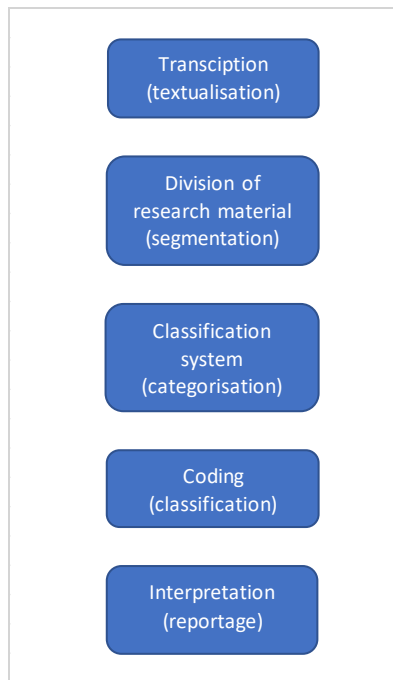


Figure 9. Phases of processing research material adapted from Kananen (2013, 104).

The interview was transcribed to have an interview in a form that can be analysed. The transcript of the interview was done in a common way. That means that text was modified to standard language and sound et cetera were left out (Kananen 2013, 100). The data that is examined in qualitative research is narrative (Wilson 2010, 13). In the following phase, the research material (both primary and secondary data) was divided into segments and categorised by the network actor groups of the theoretical framework. The data analysis technique, that was chosen based on the nature of the research and its' content, was coding. Coding is a technique in which data is to condenses the data to easily understandable and handleable forms (Kananen 2008, 89). The codes were derived from the theoretical framework (network actors) and the growth stages model by Churchill & Lewis (1987, 3). The data of this research was processed in Microsoft excel and word.

3.5 Verification of the results

Basically, the quality of qualitative research is determined by the correct choices during the research process (Kananen 2008, 123). By good research design, researchers can minimize the chance to have a wrong outcome of the research, especially focusing on validity and reliability (Saunders et al. 2009, 156).

According to Yin (2014, 45), there are four tests available for researchers who use the case study method to ensure the quality of the research, those tests are construct validity, internal validity, external validity, and reliability. These tests are using a different tactic to test the design of the research at the different phases of the research.

Validity

According to Kananen (2008, 123), Maxwell (1987) defines validity as reliability and accuracy of descriptions, conclusions, explanations, and interpretations. Validity has several subtypes, but it can be divided simply into internal and external validity, in which external validity is referred to as generalizability and internal validity as the accuracy of concepts and interpretation of the research (ibid., 123). This chapter focuses on internal validity. There are threats to validity that need to be taken into account while conducting the research. The most known threats are history affecting the results, distortion in testing, participants dropping out, and vagueness of causal direction. (Saunders et al. 2009, 157-158.) All of these threats are valid in this research too and different plan to avoid them was created, for example, the researcher had other possible companies listed for the case if Naava Group Oy didn't want to participate or would drop out. As important as acknowledging the threats is to take action to improve validity. According to Wilson (2010, 122-123), Mays and Pope (2000) suggest multiple research methods (triangulation), validation of different viewpoints and respondents, objectivity from the researcher, transparency concerning data, and acknowledging the contradict elements in data, to improve validity.

Reliability

Reliability can be seen as the consistency of the theory between different researchers so there are no contradictions between interpretations (Kananen 2008, 124). Research cannot be reliable without being valid (Wilson 2010, 116). As validity and reliability are topics that are intertwined, there are threats to reliability too as well as to validity. Errors in time and subject are examples of threats to reliability which can lead research being unreliable (ibid., 117). According to Wilson (2010, 118-119), Yin (2003) suggests three different ways to improve the reliability of a case study which are to use multiple sources of evidence (triangulation), maintain a chain of evidence,

and to create a database. For this research different actions were taken to ensure the reliability, for example, to record the interview to have the voice document as well, using electronic sources about the case alongside the interview, and made a database of the information from the interview while analysing the data.

Generalizability

As mentioned above the generalizability can be referred also as external validity. Generalizability means that the results are applicable in other circumstances too, in other words, can the results be generalized. It is extremely difficult for researchers to use single-case strategies, especially in critical cases. (Saunders et al. 2009, 159.) One advantage of this research in this term is that the case is successful in growth and it could be achieved by other Finnish CE SMEs, but still the results, conclusions, or theory can't be generalized.

4 Results

This chapter presents the results of this research. The presentation of results is following the themes of the adapted theoretical framework that was created for this research. The framework included six different network actor groups and Naava has had some sort of relationship with actors of four out of six groups.

The following subchapters cover each network actor group separately and to which actors Naava have had relationships and with this information can be concluded which network actors are needed for growth. Also, information on how different network actors have been impacting Naava's growth and at which growth stage of the model by Churchill & Lewis (1987, 3), is presented. All the information provided in this chapter is from the interview with one of the founders of Naava Group Oy unless it is from secondary sources.

The interviewee stated: "the current world is networked, and it is buzzing" (Tyrväinen 2019).

Naava's growth has been organic through whole existence. Naava has had big growth goals from the beginning and aimed to internationalize. They have been moving steadily from the growth stage to the next and now they are currently on the fourth

growth stage. Their operations are decentralized both domestically and internationally. Naava's current growth plan is to focus on major cities in the USA and Asia (Clean air for big city offices - Naava's recipe combines artificial intelligence and Finnish nature).

4.1 Knowledge actors

The knowledge actors group included science parks, higher-education institutes, and research institutes. In the following Table 1, can be seen that Naava has had a relationship only with higher-education institutes.

Table 1. Naava's relationship status with knowledge actors

Network actor		Relationship	
Knowledge actors		Yes	No
	Science parks		x
	Higher-education institutes	x	
	Research institutes		x

The nature of the relationship between Naava and higher-education institutes has been research-collaborations. For Naava it has been significant and absolutely necessary to obtain information based on researches for product development but also to convince various stakeholders that the alleged processes behind Naava are really working as claimed according to the interviewee. The significance of this relationship and its' outcomes are different in different markets. All the higher-education institutions are Finnish which have collaborated with Naava. The interviewee stated that "without the university cooperation we would not be here" when asked about the relation between the growth of Naava and the relationship with higher-education institutes.

The interview also showed that even though Naava itself doesn't have a relationship with any research institutes they have benefitted from them. One external individual assigned an international research institution (based in London) to research the product of Naava. Naava itself didn't have direct contact but they got the results from that research and that assigner of the research became an investor of Naava.

So, indirect networking with the knowledge provider actor is as beneficial as the direct one.

The networking with higher-education institutes has provided knowledge to Naava. It has helped Naava to develop its products and to validate and certify its technology which has impacted (only) positively on their growth by being an enhancing power in value chain acquisition and gains of resources. This was especially at the beginning, during the first three growth stages. Because of networking with knowledge actors, Naava was able to reach the fourth growth stage.

4.2 Capital providers

The capital providers group included network actors: business angels and venture capitalists. In the following Table 2, can be seen that Naava has had a relationship with both of them.

Table 2. Naava's relationship status with capital providers

Network actor		Relationship	
Capital providers		Yes	No
	Business angels	x	
	Venture capitalists	x	

The interview revealed that Naava has had a different kind of capital providers. Besides business angels and venture capitalists that are mentioned in the framework, they have had also crowdfunding campaigns and private equity investors.

For Naava the share of the business angel is small in terms of networking with actors of capital providers group, but according to an interview made by Finnish venture capital association (n.d.), they have had a connection with a big group of them. A relationship with capital providers and in this case business angels also means financial negotiations and discussion in addition to getting actual funding. According to the interviewee without venture capitalists, they "would have never achieved the growth we had now" and that their "turnover would be at a completely different level than what is it now".

According to the interviewee a growing company needs finances to grow constantly and networking with capital providers has provided them the needed funds. In terms

of Naava's growth, the most important ones were the venture capitalists, but all network actors of capital providers group matter equally as long as they provide capital. With the funds got from capital providers Naava has been able to grow its operations, invest in researches, and get more resources including for example employees. Also, capital providers provided knowledge to Naava. For example, the case mentioned above when one investor ordered research of Naava's products and this data helped Naava to validate their procedures, and therefore Naava was able to get new investors which was a contribution to their growth. Also, capital providers have given guidance on how to notice and avoid pitfalls (Clean air for big city offices - Naava's recipe combines artificial intelligence and Finnish nature). Networking with capital providers has impacted positively the growth of Naava at all the growth stages and been enabling the power to move to the following stages.

4.3 Networking platforms

The networking platforms group included competitions, events, co-working spaces, and media. In the following Table 3, can be seen that Naava has had a relationship with a third of them: competitions, events, and media.

Table 3. Naava's relationship status with networking platforms

Network actor	Relationship	
	Yes	No
Networking platforms		
Competitions	x	
Events	x	
Co-working spaces		x
Media	x	

Naava has participated in a few different kinds of competitions such as design competition. The most significant competition was the first KasvuOpen, the Finnish nationwide competition at the end of the sparring program. The attending was beneficial to the growth of Naava especially because they won the competition and got an honourable mention. The attendance resulted in a little bit of publicity and the winning acted as an assurance for the first small bank loan.

Naava has participated also in different events, mostly by Aki Soudunsaari who is one of the founders of Naava. There have been different kinds of events: seminars and business networking events, mostly based in the Helsinki area. According to the interviewee, the attendance at these events has not been goal-oriented to get new networks and there can't be seen a direct link between the results of these events and the growth of Naava. Still, there has been knowledge and experience exchanging and even some sort of trading but all informally.

Media has been acknowledging Naava very well and Naava has a good relationship with different parties in a way that they have got their message well to media. Naava has a systematic plan and they invest quite a lot in communication and PR. That is because Naava thinks this is relevant for them also in terms of growth. They have gain publicity in Finnish media particularly, they have been on main tv news, got interviewed, and been written in papers such as Helsingin Sanomat and Kauppalehti. However, the interviewee remarked that even if this has been significant in Finland, there is not any connection between it and its international growth. However, Naava has been featured also in international media such as Business insider and Wall Street Journal, even though there has not been direct contact with those media channels and Naava (Naava – Reconnecting humanity with nature 2020).

Having a relationship with the actor of networking platforms group has been somewhat positively impacting the growth of Naava. The results of these relationships in terms of growth are clearer with one actor than another. For example, by attending the KasvuOpen competition Naava got both finances and publicity which directly can be linked to impacting the growth positively in the first growth stage. On the other hand, networking in different kinds of events has not impacted their growth positively nor negatively. By getting noted by media and getting to deliver Naava's vision through it has impacted positively the growth of Naava because the publicity they gained provided them a new connection to capital providers and customers for example.

Relationships with actors of networking platforms group have impacted the growth of Naava only positively. The most significant gain from these actors has been publicity which has helped to grow in every growth stage because Naava has been able to reach new value chain actors when being acknowledged for example in the media.

4.4 Supporting actors

Supporting actors group included incubators, accelerators, industrial associations, and NGOs. In the following Table 4, can be seen that Naava has not had a relationship with any of them. This was another one of two groups that Naava did not have a connection to.

Table 4. Naava's relationship status with supporting actors

Network actor		Relationship	
Supporting actors		Yes	No
	Incubators		x
	Accelerators		x
	Industrial associations		x
	NGOs		x

But which makes this group vaguer than the public contributors group is that the interviewee was not certain if there has been any relationship with any of the actors in the group.

The interviewee was not certain if the Naava has had any relationship between incubators but if there has been the collaboration has been very separated and random. Naava's activities have not started that way at least.

Naava has had some random meetings with NGOs but there has not been any other kind of relationship between them. This has not hindered the growth of Naava but neither helped the progress of it.

Also, in terms of collaboration with the industrial association the interviewee couldn't recollect anything related to it, so in his words "if it doesn't come to mind then it has not been very significant".

According to the interview it can be stated that Naava has not been networking with any of the actors in the supporting actors group, therefore they have not impacted the growth of Naava either positively or negatively. There has been only very minimal connection with these actors if at all. In the end with this network actor group is that Naava has not needed external support for growth from these actors on any of the growth stages.

4.5 Public contributors

The public contributors group included only the government of Finland, and Naava has not had any kind of relationship with it (see Table 5). This group was the second group that Naava has not had any networking connection with.

Table 5. Naava's relationship status with public contributors

Network actor	Relationship	
	Yes	No
Public contributors		
Government of Finland		x

The interviewee stated that the government at the time of the interview has not made any actions that impacted Naava at any stage, but there is always a new government coming which can do something differently. Mostly the actions of the government of Finland are in the background of Naava's operations because of the slow movements among other things. Some actions might impact more towards Naava such as concerning local agreements or recruitment lowering but in general very little any kind of immediate effect that can be linked resulting in the growth of Naava.

Although the public contributor is a unique network actor group in a way that actions made by them could impact the growth of CE SME positively and negatively even though if there is not a direct relationship. However, this has not been the case with Naava.

4.6 Value chain actors

The value chain actors group included domestic customers, international customers, other companies, competitors, complementors, and suppliers. In the following Table 6, can be seen that Naava has had a relationship with every actor of this group except the complementors.

Table 6. Naava's relationship status with value chain actors

Network actor		Relationship	
Value chain actors		Yes	No
	Domestic customers	x	
	International customers	x	
	Other companies	x	
	Competitors	x	
	Complementors		x
	Suppliers	x	

Naava has a constant connection to its domestic customer because of the maintenance service for the products. From maintenance visits, they can get instant feedback from the customers. Besides this direct communication between customers and Naava, Naava has had also questionnaires made by students for their thesis and other projects. According to the interviewee, Naava also takes actions and develop their operations based on the feedback, they have their "hand on the pulse constantly". With international end customers, Naava itself doesn't have direct communication but their maintenance partners in other countries have some kind of relationships in every country such as Naava itself in Finland. With partner companies, Naava has a tight relationship to support them. At the time of the interview, there were two employees of Naava in Korea consulting their partner companies in plant procurement matters for example.

Naava has partner companies in every country they are operating. Their key partners in terms of growth are sales and maintenance partners in different countries. By having international partners, Naava has been able to modify and design their production model so that they are more agile and by doing so they have gained more customers (Naava Group is applying for financing with a convertible bond: the target is EUR 1.7 million 2020). Naava is currently focusing on networking and partnering with companies that have a similar mission as Naava, are industry influencers and/ or business decision-makers (Naava – Reconnecting humanity with nature 2020).

There is not another company in the world that could be classified as a competitor in terms of offering a similar product, but other companies that provide for example green walls as interior design, are closest to that. With them and Naava, there is an existing relationship even though any real collaboration is not done. They are seeing

that “the whole market can grow if one of them is getting publicity, everyone is benefiting from it”. With other companies, Naava has had different kinds of relationships for example small-scale benchmarking and some kind of development work and learning from each other. These relationships are mostly based on personal relationships for example the former CEO of one company that succeeded in launching to the USA is now on Naava’s board. Also, especially in the beginning, there has been a collaboration between Naava and the marketing agency, but that has also been more like a normal relationship between customer and service provider.

The opinion of the interviewee was that in the end, the impact of these relationships has been pretty little because the networking has not been structured. These relationships are in the background of the operations and relation to the growth is difficult to determine according to the interviewee. Naava would probably have grown without these networks too but some mistakes could have been avoided if they had known to ask from some similar company years ago the right questions. However, the companies that are collaborating with Naava are impacting their growth too by for example forwarding their existing service network for Naava to use which helps Naava to grow their operation both domestically (Isku 2020) and internationally (NAAVA 2019).

Naava has several suppliers in different countries such as plants that are always produced locally. Some relationships with suppliers are tighter than others but all of them are smart and not irreplaceable in a way that plant supplier is Dutch because the world plant trade is concentrated in the Netherlands. Some of the suppliers are more difficult to replace for example because Naava needs a specific luminaire that can’t be bought in any store but Naava owns all the design and IPM related to the product so they are in charge of these network connections.

The complementors are the only group that Naava doesn’t have collaboration yet, but at the time of the interview, there were ongoing negotiations between different parties. However not before so it would have impacted the growth.

Networking with domestic end-customers Naava has gained feedback and knowledge of its operations on a practical level. Naava could have modified its operations and product based on that information and therefore been able to grow. These

impacts of the relationships are additional to the fact that they are impacting the growth of Naava already by being their customer. These same benefits are gained from the relationship with international partner companies that are in contact with international end-customers. Naava has gained knowledge by networking with other companies by for example benchmarking which is important for the growth of a CE company like Naava as mentioned earlier. Also, by networking with other companies and employees on a personal level, Naava has been able to hire the best suitable personnel which has had a positive impact on efficacy and productivity of Naava which is directly linked to the growth too. The impacts of relationship with suppliers are more straightforward as mostly it has been about providing those components that Naava has ordered and needed in their operations and therefore been able to grow.

Networking with different actors of value-chain actors is partly inevitable with some actors such as suppliers. However, there is room to network more than what is only necessary in order to get real benefits for example as Naava has done with its customers. Networking with value-chain actors has impacted the growth of Naava in every growth stage but especially in the first and second stages.

Next Figure 10 highlights the network actors that Naava is having a relationship in the model of a theoretical framework for this research.

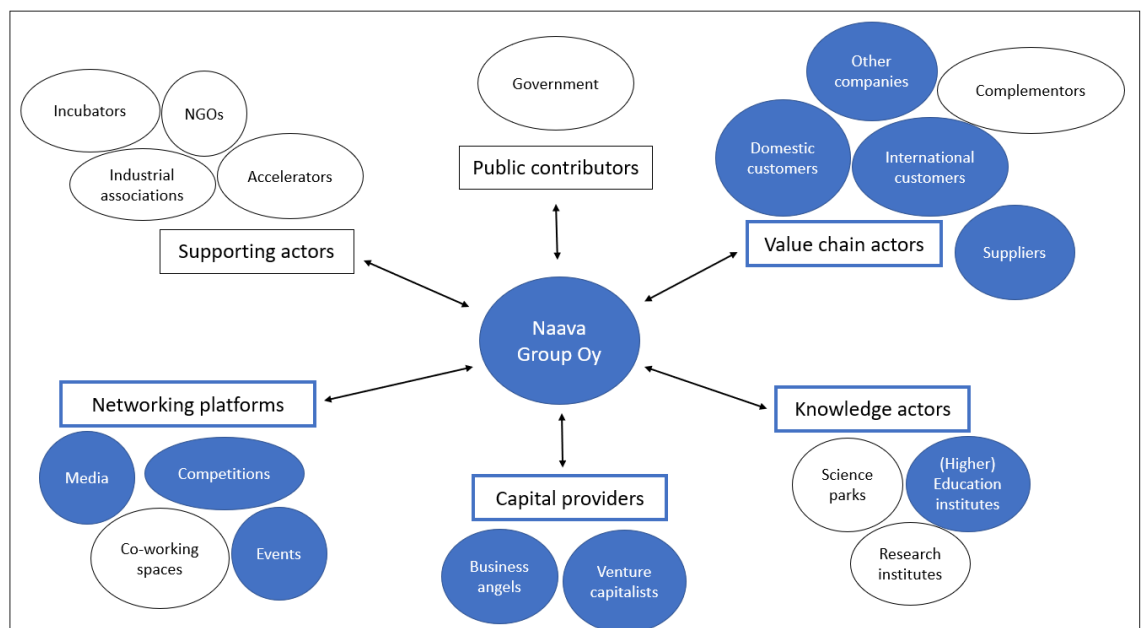


Figure 10. Relationship status with network actors of Naava in the theoretical framework

The interviewee chose the capital providers to be the most important network actor group for international growth. When asked about domestic growth the interviewee emphasized the strong footwork done by the company, the hard sales work that has been supported by successful marketing. The enabling factors that resulted in the growth of Naava can be fragmented into numerous little pieces.

The following Table 7 shows the nature of the impact on the growth of Naava of the relationship with each network actor they had. The public contributors and supporting actors groups are left out since Naava has not had a relationship with them, the same as those single actors of other groups. The table also shows that all together Naava has had network connection with eleven different network actors (inside those titles in real life can be more than one actor) of a total of twenty.

Table 7. Nature of the relationship's impact on the overall growth of Naava

Network actor		Nature of the relationship's impact to the overall growth of Naava		
		Positive	Negative	Neutral
Knowledge actors				
	Higher-education institutes	x		
Capital providers				
	Business angels	x		
	Venture capitalists	x		
Networking platforms				
	Competitions	x		
	Events			x
	Media	x		
Value chain actors				
	Domestic customers	x		
	International customers	x		
	Other companies	x		
	Competitors			x
	Suppliers	x		

All the relationships that Naava has had with any network actor have either being positively contributing to the growth or being neutral. So, in terms of growth, there aren't unbeneficial network actor groups. Next Table 8 shows how different network actor groups have been impacting the growth of Naava.

Table 8. How network actor groups impacted the growth of Naava

Network actor groups	How actors contributed to overall growth	How actors contributed to the domestic growth	How actors contributed to the international growth
Knowledge actors	By providing knowledge	By providing knowledge	By providing knowledge
Capital providers	By providing finances, knowledge, and guidance	By providing finances, knowledge, and guidance	By providing finances, knowledge, and guidance
Networking platforms	By providing publicity, places for networking and trading, and finances	By providing publicity, places for networking and trading, finances	By providing finances
Supporting actors	In no way	In no way	In no way
Public contributors	In no way	In no way	In no way
Value chain actors	By providing feedback, knowledge, staff and components, and existing network	By providing feedback, knowledge, staff and components, and existing network	By providing feedback, knowledge, staff and components, and existing network

Only the public contributors and the supporting actors groups have not impacted the growth of Naava in any way. Every other group has been contributing to the growth somehow and from the table can be seen that the impacts are following the names of the groups and are also pretty similar to each other. If some network actor group contributed to the overall growth of Naava it meant that it is growing domestically, but it didn't mean that it affected the internationalization of Naava. For example, the publicity that Naava gained from participating in the domestic competition did not affect directly the international growth of Naava. However, the general impacts of the network connections affected the same way the domestic and international growth of Naava. All the different network actors in the same group contributed to the growth with similar impacts.

5 Discussion

This chapter provides a short conclusion of the conducted research, a discussion about the findings, and the answers to the research questions. Results are reviewed in the light of practical and managerial implications and literature.

Firm growth is a process and conducts many different factors. It is a concept that is studied widely but there are still things that remain unknown such as which factors enable and hinder the growth. To provide more knowledge to this field, the main goal of this qualitative research was to provide deeper knowledge about the role of

networks in terms of the growth of CE SMEs. The objective was planned to achieve by creating the following main research question:

“What network actors do Finnish circular economy SMEs need to grow?” and the sub-research question:

“How do different network actors impact on Finnish circular economy SMEs’ domestic and international growth?”.

An empirical study was conducted to answer these research questions. After a literature review, a theoretical framework was adapted from Lindqvist et al. (2013) and Halbe and Koenraads (2018) to structure the research. The research was conducted with a case study strategy focusing on a successfully both domestically and internationally grown company: Naava Group Oy. Primary data was collected with a semi-structured interview method from one of the founders of the case company and secondary data from various websites. The data was analysed and reported by following the theoretical framework.

One a base finding of this research was that different network actors do have an impact on CE SMEs' growth. Based on the findings of this research it can be said that different network actor groups have a different kind of impact and the significance of the impacts differ. However, the results showed also that it is hard to determine the size of the impact without a proper criterion or a framework.

The major finding is the answer to the main research question based on the results of this research, the network actors that CE SMEs need to grow are actors in the following network actor groups: knowledge actors, capital providers, value chain actors, and networking platforms. Only networking with public contributors and supporting actors are not needed based on the findings of this research. Specifically following network actors from just mentioned network actor groups are needed for growing higher-education institutes, business angels, venture capitalists, competitions, events, media, domestic and international customers, other companies, competitors, and suppliers. Although the findings suggest that the single network actor does not matter as much as the network actor group and impacts of the network actors. This

means that as long as there is a networking relationship with for example capital providers and the company is getting the resources it is needing from them it does not matter whether the capital provider is a business angel or venture capitalist.

This study shows that different network actors impacted the growth of Naava by providing different resources that the company needed, which is simply put the answer to the sub-research question. With the resources that the network actors provided for Naava, it could modify and renew its operations and products, acquire more staff and customers, and avoid pitfalls among other things, which enabled the growth. In terms of SMEs' growth, the most impactful resources that the network actors provided were finances, knowledge, and publicity.

Another major finding was that the different network actors impacted the growth at the most in the first growth stages so those are the critical stages when network actors are needed. Also, the results of the present study richly describe that all the network actors that Naava had a relationship with were either impacting the growth positively or there was not any impact and networks aren't harmful in terms of growth.

However even though the results of this research suggest that networking with actors of public contributors and supporting actors groups is not needed in terms of growth, it might not be the case for every CE SMEs since the findings also suggest that every network is beneficial. This fact is discussed in the following limitations subchapter.

5.1 Practical and managerial implications

As discovered during reviewing the literature, earlier researches have proved that networking is beneficial in many different aspects to the companies. And the findings of this research indicate that it is also beneficial in terms of growth for CE SMEs and therefore has important implications for future practice.

One important implication from this research is that networks during the first three growth stages can be extremely significant in terms of moving on to the next growth stage if the company's goal is to grow. Also, the results of this research clearly show that all relationships SME is having with any of the network actor groups are only an

advantage. None of the relationships is a disadvantage in terms of growth. These findings from the present research encourage SMEs to make relationships and connections.

Another important practical implication is that the more benefitting the network relationship is the more structured it is. It seems that relationships with some network actors need more structure and investing than others. For example, when looking into the networking platform group, Naava's growth was impacted by attending the competition, but the impact is concerning the won of the competition. For the competition to impact the growth without winning it, there should have been more work towards from Naava itself too such as connecting with other participators. Another similar aspect could be also concluded from the findings that the closer connections with network actors from any network actor groups the more impactful the relationship is. As an example, the actors of networking platforms group, Naava had attended events but not with the intention to network and while they were investing in their relationship between media that were impactful towards the growth of Naava. From these findings, managers should take on assurance to invest in relationships and plan the networks.

Also, a very important aspect for managers was discovered in this research, also the undirect networks are important in terms of growth. For example, Naava had a network with one capital provider actor who had its' own networks and while using them also Naava benefitted from it. This suggests taking care of existing relationships. The results of this research suggest to network with the following actors: higher-education institutes, business angels, venture capitalists, competitions, events, media, domestic and international customers, other companies, competitors, and suppliers in order to grow.

5.2 Assessment of the results in the light of literature

A major barrier to the growth of SMEs is the lack of resources (Wao 2016, 174). This makes networking an important topic because the basic idea of it is to acquire resources (Harris, Rae, & Misner 2012, 337). The findings of this research that network actors impact beneficially to the growth of CE SMEs strengthen this knowledge. Also,

the findings answering the question of how different network actor impact on the growth of CE SME is in line with prior studies (Gulati 1998; Jarillo 1989) about providing needed resources for the company.

Similarly, the findings in the present research prior to research by Aaboen, Dubois, and Lind (2011) have discovered that it is beneficial to have multiple relationships. Also, in line with that prior research is a finding that indirect networks can impact the growth of the company. Although based on the results of this research all the networks that the case company had been beneficial or neutral, that contradicts the information of the study from Pau (2012, 832-833), which stated that there are unbeneficial networks too.

The findings of the present study suggest that most of the network actor relationships have a bigger impact on CE SMEs' growth during the first growth stages. This is consistent with findings by So Won, Byounggho, and Sojin (2019) that business networks have a bigger impact on the internationalization of the company at its' early stages.

From the results of the research, it can be said that the capital providers are the most important network actor group for SMEs in terms of growth. This finding supports the results of research done by Temelkov, Boshkov, and Zezova (2018) that limited access to finances is one of the key barriers to the growth of SMEs.

5.3 Limitations

There are limitations of the present research that need to be considered and those are discussed in this chapter.

One of the biggest limitations is the selected single-case research strategy. Already the case study strategy limits the generalizability (also known as external validity) of the results and focusing on a single case limits it even further as mentioned in chapter three. Therefore, the results of this research can't be generalized. Also, the choice of interviewing one founder from the case company is one significant limitation since the interviewee also mentioned a couple of questions that he might not be the right person to answer the question. Due to the choice of a single-case study with a single interview resulted in limited insights in terms of results.

As mentioned, collecting primary data from only one interview is a limitation also in terms of available data. Which was not desirable due to the limitations of accessibility of secondary sources. The secondary data was also limited due to the characteristics of the topics. From different electronic sources (mentioned in chapter three) data of Naava's network actors and growth of Naava could be gathered, but there was not much information available. However, the reliability of the used data is intact by interviewing one of the founders who has always been involved in Naava's operations. Also, many of the secondary sources were based on interviews of other founders and leaders of Naava.

Also, the researcher's lack of experience was a significant limitation. Even though the methodology of this research was justified and applied in a rigorous manner, there could have been different choices made which could have resulted in deeper research when analyzing the research process afterward. Also, Yin (2014, 133), acknowledged that more experienced researchers could be more successful with the case study strategy because the data analysis process of the case study is challenging.

External validity is affected by the chosen research strategy, but the internal validity, which is intertwined with reliability, has been ensured with various methods. For example, by carefully planning the methodology and applying it which included a thorough literature review, creation of the research questions, and the theoretical framework that was adapted from Lindqvist et al. (2013) and Halbe and Koenraads (2018). The results were analysed and reported by following the theoretical framework to ensure reliability so the results would be the same between different researches. Also, one focus point was the transparency of the data to ensure internal validity for which the record of the interview and its' transcription is saved. One factor to ensure internal validity is the objectivity of the researcher and it was applicable during the research since the researcher did not have contact with the case company previously and there was a genuine interest in finding trustworthy answers to the research questions.

5.4 Future recommendations

This research can be seen as a start of researches related to CE business networking. This research covered only the tip of the iceberg and opened the way for further research especially in order to get generalizable results. It would be important to study the relationship between growth and business networks from several other viewpoints in addition to the focus of the present study. For example, to study different size companies such as large companies or how different network groups impact the growth of the companies at different growth stages.

The topic could also benefit from more extensive research carried out by comparing different aspects such as the impacts of network actors in the growth of CE companies with different business models, as present research focused on one growth case. As well as one new kind of angle for future researchers could be to study CE companies that have other kinds of growth than organic growth such as Naava had.

Also, as the results of this research showed it is difficult to determine the size and importance of the impact without a proper criterion or a framework and it could be done in future research.

Further research in the field of CE companies should be done to encourage more companies to shift towards circular form. Naava has been a CE company since it was founded and networks did help it to grow, but in the future researches is left to explore whether networking would help companies that are changed or in the middle of changing to circular form to grow. To sum up, there are still important aspects left to resolve.

5.5 Conclusion

This research is a review of a good example of how Finnish CE SME can grow from a rather small city domestically and internationally and what is the role of networks in that.

From the research of Naava's growth journey, it can be said that network actors have positive impacts on the growth of CE SME. Also, some of the network actors have a bigger impact on the growth than others but the determination of its' size is difficult.

Based on this case study it can be stated that the most impactful network actors are the capital providers, but networks are needed from all the different network actor groups. The results of this research show that the following network actors are needed for growing higher-education institutes, business angels, venture capitalists, competitions, events, media, domestic and international customers, other companies, competitors, and suppliers. The network actors are impacting the growth of CE SMEs by providing a different kind of resources. The most meaningful resources to acquire from network actors in terms of growth are finance, knowledge, and publicity. The impact of the network actors is the most significant for CE SME during the first three growth stages.

Although the results are limited due because of the limitations of generalizability based on the chosen methodology the results cannot be generalized. Also, concerning limitations that affected the results is the scarcity of data. However, the results of this specific growth case are valuable in a sense of being a start for further studies. Results also provide assurance about the importance of network actors for managers and are providing an example in which network actors are needed and how they are impacting the growth.

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Appendices

Appendix 1. Interview questions in Finnish

Taustakysymykset haastateltavasta ja yrityksestä:

1. Millaisen kasvusuunnitelman teitte yritykselle, kun se perustettiin? Oletteko saavuttaneet alkuperäiset tavoitteet?
2. Kuinka olette kasvaneet kotimaassa ja kansainvälisesti?
3. Kuinka yrityksenne on kasvanut? Millaiseksi luonnehtisit kasvun: orgaaniseksi vai yrityskaupaksi?

Kysymykset tutkimusaineiston saamiseksi:

(Huomautus itselle: kerro tutkimuksen tavoitteet ja teoreettisen viitekehyksen eri verkostotoimijat haastateltavalle)

4. Ketkä ovat avain liikekumppanimme ja millainen suhde teillä on heihin?
5. Onko yritys sijainnut tiedepuistossa? Jos kyllä niin miten se on vaikuttanut yrityksen kasvuun?
6. Oletteko tehneet yhteistyötä korkeakoulujen kanssa? Jos kyllä niin miten se on vaikuttanut yrityksen kasvuun?
7. Oletteko tehneet yhteistyötä tutkimuskeskusten kanssa? Jos kyllä niin miten se on vaikuttanut yrityksen kasvuun?
8. Oletteko tehneet yhteistyötä bisnesenkeleiden kanssa? Jos kyllä niin miten se on vaikuttanut yrityksen kasvuun?
9. Oletteko tehneet yhteistyötä riskipääoma sijoittajien kanssa? Jos kyllä niin miten se on vaikuttanut yrityksen kasvuun?
10. Oletteko osallistuneet kilpailuihin? Jos kyllä niin miten se on vaikuttanut yrityksen kasvuun?
11. Oletteko osallistunut tapahtumiin? Jos kyllä niin miten se on vaikuttanut yrityksen kasvuun?
12. Onko yritys sijainnut yhteistyötiloissa? Jos kyllä niin miten se on vaikuttanut yrityksen kasvuun?
13. Oletteko tehneet yhteistyötä median kanssa? Oletteko saaneet medialta huomiota? Jos kyllä niin miten se on vaikuttanut yrityksen kasvuun?

14. Oletteko tehneet yhteistyötä yrityshautomoiden kanssa? Jos kyllä niin miten se on vaikuttanut yrityksen kasvuun?
15. Oletteko tehneet yhteistyötä yrityskiihdyttäjien kanssa? Jos kyllä niin miten se on vaikuttanut yrityksen kasvuun?
16. Oletteko tehneet yhteistyötä teollisuus yhdistysten kanssa? Jos kyllä niin miten se on vaikuttanut yrityksen kasvuun?
17. Oletteko tehneet yhteistyötä kansalaisjärjestöjen kanssa? Jos kyllä niin miten se on vaikuttanut yrityksen kasvuun?
18. Onko hallitus vaikuttanut yritystoimintaan? Jos kyllä niin miten se on vaikuttanut yrityksen kasvuun?
19. Onko teillä ollut millaisia suhteita kotimaisiin asiakkaisiin? Jos kyllä niin miten se on vaikuttanut yrityksen kasvuun?
20. Entä kansainvälisiin asiakkaisiin?
21. Oletteko tehneet yhteistyötä toisten yritysten kanssa? Jos kyllä niin miten se on vaikuttanut yrityksen kasvuun? Onko mikään näistä ollut teidän kilpailijanne?
22. Oletteko tehneet yhteistyötä "täydentäjien" kanssa? Jos kyllä niin miten se on vaikuttanut yrityksen kasvuun?
23. Onko teillä tavarantoimittajia? Jos kyllä niin miten se on vaikuttanut yrityksen kasvuun?
24. Mitkä näistä toimijoista on vaikuttaneet kansainväliseen kasvuunne? Mikä on ollut heidän vaikutus kasvuunne?
25. Kuinka olette saavuttaneet nämä aiemmin mainitsemani verkosto toimijat?
26. Käytättekö hyödyksi työntekijöidenne yhteyksiä?

Appendix 2. Interview questions translated to English

Background questions of the interviewee (and the company)

1. What kind of growth plan did the company have when it was founded? Have you met the original growth goals?
2. How have you grown domestically and internationally?
3. How did your company grow? (How would you characterize your growth by three types of growth?)

Questions for getting the primary data

(Note to self: Tell the objectives of this research and the different network actors of the theoretical framework to the interviewee)

4. Who are your key business partners and what is their relationship to you?
5. Have you been located in Science Park? If yes, how have that contributed in your growth?
6. Have you been collaborating with higher-education institutes? If yes, how have they contributed in your growth?
7. Have you been collaborating with research institutes? If yes, how have they contributed in your growth?
8. Have you been collaborating with business angels? If yes, how have they contributed in your growth?
9. Have you been collaborating with venture capitalists? If yes, how have they contributed in your growth?
10. Have you participated in competitions? If yes, how have those contributed in your growth?
11. Have you participated in events? If yes, how have those contributed in your growth?
12. Have you been located in co-working spaces? If yes, how have that contributed in your growth?
13. Have you been acknowledged by media? If yes, how have they contributed in your growth?
14. Have you been collaborating with incubators? If yes, how have they contributed in your growth?

15. Have you been collaborating with accelerators? If yes, how have they contributed in your growth?
16. Have you been collaborating with industrial associations? If yes, how have they contributed in your growth?
17. Have you been collaborating with non-governmental organizations? If yes, how have they contributed in your growth?
18. Have you been impacted by the government? If yes, how have they contributed in your growth?
19. Have you had relationship with domestic customers? If yes, how have they contributed in your growth?
20. How about international customers?
21. Have you been collaborating with other companies? If yes, how have they contributed in your growth? Have any of them been your competitors?
22. Have you been collaborating with complementors? If yes, how have they contributed in your growth?
23. Do you have you suppliers? If yes, have they contributed in your growth and how?
24. How did the company obtain these before mentioned network actors?
25. Do you utilize in your business all employees' contacts?
26. Which of these actors have been contributing to your internalization growth? And what have been their contribution?