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Value creation through cluster network in the Swedish food sector

- case study of four food companies operating in a cluster network

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Value creation through cluster networks in the Swedish food sector
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Värdeskapande genom klusternätverk inom den svenska livsmedelssektorn
- en fallstudie av fyra livsmedelsföretag verksamma i ett klusternätverk

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Abstract

Globalization has drastically changed the global market in recent years, which has prompted businesses to adjust the way they operate. This evolutionary step has also affected the food sector, where new opportunities for production and transportation have challenged firms in the sector to utilize new methods for value creation. Further, many SMEs are lacking competencies, capital and resources needed to develop on their own. One method that is becoming more prominent, both within and outside the food sector, is to create corporate gains by cooperation with other firms. This process of value creation can occur when multiple companies within the same sector all operate in close geographical vicinity to each other, in what is defined as a cluster. The purpose of this study is to examine different factors that are determinant for a company when deciding to operate in a cluster network. Furthermore, this study will investigate how these factors are contributing to value creation for both an individual company and for the cluster it operates within.

In order to investigate this and collect empirical data, a case study has been done. The data were collected through semi-structured interviews with four actors that have established their business or a part of their business in a cluster located in the south of Sweden, namely *Foodhills AB, Sydgrönt, Glimåkra Åkeri AB and Air Liquide AB.* These firms are all prominent actors in the cluster with similar values, all operating in some part of the food sector. Foodhills AB is the owner of the facility that houses these companies, and the founder of the Bjuv business cluster.

The empirical material collected for the present study is supported by a theoretical framework consisting of different theories, that all can be tied to value creation through cluster networks. The theories presented are *location, cluster, shared resources and infrastructure, transaction costs and social capital* through which the framework constructs an understanding of networking, and further how it may contribute to value creation.

The factors that influence a company's decision to operate in a cluster network are many and differ based on the vision and intents of said company. However, the access to a sector-connected network is an essential factor for many, with firms wanting to utilize this access to both spawn new ideas and build partnerships with other cluster-based companies. Further, operating at a favorable location with existing infrastructure and resources, which can both be accessed and shared, can cut costs and minimize use of capital for cluster-based companies. Finally, these factors will work in optimally if the cluster has a shared vision with its occupant having similar values, as the network is strengthened by unity.

Sammanfattning

Till följd av globaliseringen har den globala marknaden förändrats vilket även har påverkat hur enskilda företag drivs och verkar. Denna utveckling har bland annat haft inverkan på livsmedelssektorn där nya möjligheter och tillvägagångssätt för produktion och optimering efterfrågas. Dessutom saknar många små- och medelstora företag (SMEs) resurser för att utvecklas och hitta innovativa lösningar på egen hand. En metod som blir mer prominent, både inom och utanför livsmedelssektorn, är att skapa värde genom samverkan med andra företag. Den värdeskapande processen kan ske när flertalet företag inom en viss sektor väljer att verka på samma plats, i vad som kan definieras som ett kluster.

Syftet med förevarande studie är att undersöka vilka faktorer som spelar in när ett företag väljer att ansluta sin verksamhet i ett klusternätverk. Vidare har studien undersökt hur dessa faktorer bidrar till att skapa värde, både inom ett individuellt företag samt för klustret som helhet.

För att kunna besvara syftet och forskningsfrågorna har ett livsmedelskluster i Skåne undersökts. Det empiriska materialet har samlats in via semistrukturerade intervjuer med fyra aktörer som etablerats i klustret, *Foodhills AB, Sydgrönt, Glimåkra Åkeri och Air Liquide AB.* Foodhills AB är ägaren av fastigheten och lokalerna som huserar klusterföretagen. Samtliga företag delar är aktiva inom livsmedelssektorn och delar visionen om klustrets framtid.

Det empiriska materialet stödjs av ett teoretiskt ramverk vilket består av flertalet teorier som alla kan kopplas till värdeskapande genom klusternärverk. De teorier som presenteras är *plats, kluster, resurser och infrastruktur*, *transaktionskostnader och socialt kapital*. Genom dessa framställs en förståelse för nätverk, och vidare hur detta kan bidra till värdeskapande.

De faktorer som påverkar ett företags beslut att verka inom ett klusternätverk är många och skiljer sig beroende på företagens enskilda verksamhet. Tillgången till ett nätverk med starka kopplingar till livsmedelssektorn är däremot en viktig faktor för samtliga företag som medverkat i fallstudien. Nätverket är ett verktyg för resursutbyte men också för att bygga relationer med andra företag inom samma sektor. Att kunna verka på en gynnsam plats med redan existerande infrastruktur och resurser, vilka både kan användas och delas, kan fungera som en kostminimerande aspekt för klusterbaserade företag. Avslutningsvis fungerar dessa faktorer optimalt om företagen i klustret har en delad vision och liknande intressen, då ett klusternätverk stärks av enighet.

Abbreviations

SME: Small Medium Enterprise

EU: European Union

AB: Limited Company (Aktiebolag)

SLU: Swedish University of Agricultural Science

HVO: Hydrogenated Vegetable Oil

RME: Rapeseed Methyl Ester

CEO: Chief Executive Officer

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1 Introduction

The introductory part presents the background of the study and the problem addressed. Further, the aim and the research questions will be introduced followed by delimitations and the outline of the study.

1.1 Background

In a world where globalization has grown exponentially, various market-related aspects have changed the way businesses operate (Enright, 2000). One aspect central to market evolution is competitiveness, which has become increasingly important as more companies are competing for the same customers on common markets (ibid). The food sector is facing the same issue, as more effective solutions for trading, transportation and production have opened new opportunities for companies to export and import commodities throughout the entire world (Phillips, 2006; Galati *et al*., 2016). Countries' market competitiveness can be determined by several factors, including their access to raw products as wells as their domestic regulations (Fischer *et al*., 2016). These factors differ, depending on the nation in question, prompting the necessity for some countries to make use of other methods to stay competitive at the domestic and international market (Omta *et al*., 2014).

For Sweden, the more competitive nature of the global market has taken its toll on the domestic production (Anell & Bonnedahl, 2004). With high costs for production, combined with strict regulations in the food sector, the country has faced difficulties in staying competitive towards other states on the international market (ibid). Sweden decided through a public referendum to enter the EU in 1995, which provided several new opportunities for Sweden while also imposing new regulations and replacing those already existing (Granell, 1995). The current state of the nation's competitiveness on the global market has therefore prompted Swedish businesses to make use of other strategies and methods to increase the value of their products (Anell & Bonnedahl, 2004; Konradsson & Rödin, 2014). These include a strong focus towards creating a strong value chain, from producer to consumer, a process that involves several different actors (Beckeman *et al.*, 2013).

A value chain with several different actors all focused on various aspects in the chain will include a wide range of competences (Zhang *et al*., 2002). These different competencies will be both internal in one company and external across the chain (ibid). To have a functioning and effective value chain, a form of vertical integration of complex information between the different actors is needed (Bijman *et al*., 2011). This information can be used to improve the competence of a value chains different firms and lead to new and ideas (ibid). In the food sector, firms are usually comprised of individuals with cutting edge expertise in a certain area. For the sector to evolve and for companies to stay competitive and gain market advantages, this competence needs to be exchanged between firms in order for new ideas to take form (Beckeman & Skjöldebrand, 2007).

By utilizing this approach, companies strive towards the creation of value in numerous different areas (Haksever *et al*., 2004). The process of creating value is the basis of many organizations, in order to satisfy the needs of consumers and stakeholders while also strengthening the business (ibid). Lichenstein & Dabe (2007) further explain the creation of value as the primary task of a business. Value creation can be described as a broadly defined concept, with it

happening in numerous different areas (Haksever *et al*., 2004). Porter & Kramer (2019) explain how social value can be utilized by companies to achieve their vision, while Fricshmann (2012) advocates the use of shared resources for a business to create value. Porter & Kramer (2019) further explain how social value can be created by utilizing local clusters. Beckeman & Skjöldebrand (2007) also note that value creation through transfer of knowledge between companies in the food sector can occur when a cluster of firms in a sector is formed.

A cluster can be defined as several different actors at a certain geographical location all working in a similar field or working with similar values (Porter, 1998). At this certain location, companies can exchange information and knowledge, motivate each other and form new relationships. The combination of having multiple productive companies in a cluster also boosts competitiveness, as each company also strives towards being the top of their field (ibid). The number of innovative ideas in the food sector have been lacking in recent years, especially those of Swedish origin (Beckeman & Skjöldebrand, 2007). For innovations to emerge, companies have to stay competitive using knowledge and technology from both within and from outside the company. Being part of a cluster can therefore push a company in the food sector to be more innovative and competitive, which would strengthen the entire market (ibid).

1.2 Problem

As a result of a more competitive global market in the food sector, Swedish food companies do find it harder to stay competitive (Anell & Bonnedahl, 2004). With high costs for production, combined with strict regulation in the food sector, companies are facing difficulties with their competitive advantages on the international market (ibid). Many SMEs do not have the competencies, nor the capital or resources needed to develop and innovate on their own, ergo they need to find partners to collaborate with (Omta *et al*., 2014).

Networks, such as cluster networks may be advantageous for companies operating in the same industry that want to reduce their costs and get access to common infrastructure and resources (Pouder & John, 1996). Moreover, non-clustered companies do not have the same availability as clustered companied to imitate the activities integrated in the infrastructure and will find it more difficult to take part of information, resources and innovation opportunities (ibid). Additionally, an established regional infrastructure of suppliers and labour in a cluster network that enables entries and spin-offs is more complex to attain outside a cluster (Saxenian, 1994). Moreover, from a resource-based perspective, companies outside the cluster network will face higher fixed costs when doing business with suppliers and when relocating and enlisting exceptionally specialized employees (Grant, 1991; Porter, 1990). Networks and more meeting places could be an opportunity for the actors in the food chain to meet and exchange knowledge between different parts in the sector (Kühne *et al*., 2013). This is supported by Beckeman (2011) who asserts that improved collaboration between companies in the food sector in line with a solution-oriented mind-set focusing on opportunities, the competitive advantage in the Swedish food sector could be improved (ibid).

Additionally, existing research in the food innovation area does not always meet the needs of the business (OECD, 2019). A limited amount of academic research within the food industry and value creation has been published (Beckeman *et al*., 2013; Fensterseifer & Rastoin, 2013). This is supported by Olsen (2015) claiming that the collaboration between the food industry and research must be improved. The food industry in more industrialized countries has recently seen a low degree of growth, even though the number of people is constantly increasing which is related to an increasing demand (Lagnevik, 2003). Lagnevik (2003) explains that the low

growth rate is partially caused by small investments in the research and development field, something that is true for both the European and Swedish market.

A wide range of different studies regarding cluster-based companies have been conducted throughout the years, since the term was coined by Porter in 1990 (Porter, 1990; Beckeman & Skjöldebrand, 2007; Tallman *et al*., 2004; Ho *et al*., 2007; Porter, 2003). These studies have ranged from looking at how a cluster can be boost innovation, competence and competitiveness (Tallman *et al*., 2004; Ho *et al*., 2007) to how it can strengthen a region (Ho *et al*., 2007; Porter, 2003; Wrobel, 2015). Clusters exist in the food sector as well, but few studies have been conducted to determine how this food industry is affect by value creation out of cluster-based companies in the food industry (Fensterseifer & Rastoin, 2013; Lagnevik, 2003).

The Swedish food industry saw a spike in innovations following World War II, with a cluster forming in southern Sweden to produce frozen food (Beckeman & Skjöldebrand, 2007). The area still has a "cluster tendency", with a few clusters operating in the food industry in the region (Beckeman & Skjöldebrand, 2007; Henning *et al*., 2010). However, few studies exist regarding how these companies has utilized being cluster-based to their advantage (Lagnevik, 2003; Beckeman & Skjöldebrand, 2007; Henning *et al*., 2010). Hence, to study companies that operate in a cluster network and further how the companies can utilize their businesses and create value, will contribute to an increased knowledge within this field of studies.

1.3 Aim and research questions

The aim of this study is to examine determining factors for food companies to establish in a cluster network and further to investigate how these factors contribute to value creation for the company and within the cluster network.

Research questions:

1. What factors are determinant for a company to establish themselves in a cluster network?
2. How can these factors contribute to value creation for one company itself and within the cluster network?

1.4 Delimitations

The aim of this study is to investigate determinant factors for companies to establish themselves in a cluster network and how these factors contribute to value creation for one company itself and within the cluster network. The chosen cluster network is located in the south of Sweden in the city of Bjuv which is a geographical delimitation to take in consideration when conducting data for the study. Moreover, the study has been delimitated to focus on companies that operate in a cluster network. Since the main businesses in the cluster network are food production, the interviewed companies are food companies that operate in the cluster or companies that offer products or services to food production in the cluster. The companies chosen are those that have had the most active presence in the cluster since the start, as these companies would be able to provide the best understanding of the cluster.

1.5 Outline of the study

The intent of this study is to provide the reader with a clear and logic structure (see figure 1) The study will therefore present a problem and findings related to the problem which are

followed up by a result, before finally culminating into a conclusion. The first chapter provides an introductory part to the study, by detailing the background to the problem while also establishing the aim and research questions. The following two chapters give a deeper understanding regarding how the problem is meant to be solved, by presenting both the theoretical framework and the methods providing the foundation for the study. The empirical evidence conducted through interviews during the study will be presented in the fourth chapter, followed by analysis and discussion in chapter five. Finally, the conclusions of the study will be presented in chapter six.

Figure 1 Outline of the study (own processing)

2 Theory

The following chapter presents theories and concepts that are applicable in this study, which include *cluster, location, regional support, resources and infrastructure, transaction costs and social capital.* Moreover, the theoretical framework will present how these theories relate and contribute to network and value creation.

2.1 Cluster

While a network can include several actors spread across different regions, a *cluster network* within a cluster instead focuses on the connection made between companies at a certain location (Porter, 1990; Martin & Sunley, 2006). The exact definition of what a cluster is and what is comprised of can vary from author to author, but what can generally be agreed upon is that a cluster is defined as a number of companies' operation at a certain geographical location. The term "cluster" in relation to companies in the same sector working at a certain location was first coined by Porter (1990). Porter (1990) defines a cluster as a number of interconnected companies all working in the same field at a concentrated geographical position. He focuses on the importance of a company's location, stating that even though the world has become more globalized and therefore less dependent on the limit's communication and transportation, the location of a company is still an important factor. Porter (1998) states that several companies operating in a similar field can create a critical mass, where the number of actors together contribute to strengthen each other's businesses. This happens though an exchange of ideas and competence between the different actors along with a boost in competitiveness made possible through their close vicinity to each other (Porter, 1998).

To build on Porters (1998) definition of a cluster, Tallman *et al*. (2004) talk about the effect a cluster can have on the companies operating within it. The firms will have access to more information in their field than firms operating outside of the cluster, as conversations and information exchanges are constantly happening between the different companies. This exchange can happen at official gatherings but will according to Tallman *et al*. (2004) be more prominent at more unofficial meetings between members of the companies.

Bell (2005) delves further into the cluster effect, stating that the indirect exchange of information through members in the cluster-based companies are the foundation that leads to innovation. Paniccia (1998) and Saxenian (1994) explain the importance of cluster-based companies working in a similar field and sharing the same values. As information is exchanged between actors, both in a direct and indirect fashion, cluster-members with a similar expertise possess the ability to more easily grasp the full meaning of the information shared and will therefore gain more from the exchange than someone without this capability (Paniccia, 1998; Saxenian, 1994)

Ho *et al*. (2007) describe the advantages of entering a cluster for companies, especially for SMEs. With the market being affected by an increasing globalization effect, newly started businesses might encounter difficulties establishing themselves on their intended market (Fassoula, 2006). Taking advantage of a form of synergy effect created by several businesses operating in a cluster, SMEs can growth by being competitive towards other cluster-based SMEs while also entering corporate relations with each other (ibid).

2.1.1 Regional support

The region serving as the location of the cluster can also gain by companies operating in the areas, while also providing several advantages for the cluster-based companies (Ho *et al*., 2007). Companies, both larger companies and SMEs, may see an increased interest in a cluster because of the existing infrastructure, institutions or facilities available, which for them would

reduce costs and improve their operation. Existing infrastructure can also spawn new businesses with new ideas in the area (ibid). Regional growth can simultaneously occur, as new companies appear, which prompts other firms wanting to provide the cluster with resources set up their own business in the area (Porter, 2003; Ho *et al*., 2007).

Porter (2003) further states that a region with an active cluster will perform better economically than other regions. A cluster will more often support a higher wage for its employees, whilst also supporting the region by effectively improving the employment level and wages locally (Porter, 2003). This goes in line with Wrobel (2015), who describes studies performed on the employment trends in cluster-based firms. According to these findings, the employment trend is positive in a firm operating within a cluster, meaning that companies within a cluster are more open to expand their workforce (Wrobel, 2015). A region will gain economically by supporting the cluster and increasing its productivity, which in turn will improve the innovative capability of the cluster, attract new companies and favour the region (Porter, 2003).

2.2 Location

With better transportation and communication options, some argue that location is no longer as important as before (Porter, 1994). However, as Porter (1994) explains, the location of a business still has a huge impact on its performance, growth and future. According to Martin & Sunley (2006), these factors can be impacted using networks at a certain geographical location, with companies utilizing networks involving actors in their proximity to strengthen their own business. The existence of a strong network can itself be among the factors for where a company chose to locate the operation (Martin & Sunley, 2006). Still, the factors that influence a company to locate itself in a certain location are varied, and studies conducted throughout the years have sought to determine which factors are of most importance to a company regarding choice of location (Kimelberg & Williams, 2013). The choice can be based on which industry the company operates in, with a company working in a corporate or office setting usually opting for a location with higher standard. A company in retail, production of commodities or manufacturing is instead more open in the choice, going for a location that fits its individual needs (ibid).

To localize a business in connection to similar operations can be associated with many advantageous effects, such as cheaper production since the costs can be divided between businesses (Porter, 1990). Moreover, systems can be customized based on the needs of the local business community and industry, lower transport- and transaction costs and better conditions for information- and competence exchange between the companies (ibid).

2.3 Resources and infrastructure

Resources can be distinguished into natural resources, industrial resources and waste resources (Huysman *et al*., 2015). Huysman *et al*. (2015, p.69) explains natural resources as "objects of nature which are extracted by man from nature and taken as useful input to man-controlled processes, mostly economic processes" and Dewulf *et al*. (2007) divide the resources into different categories, including fossil fuels, water resources, land resources, minerals and metals. Industrial resources are explained by Huysman *et al*. (2015) as the result of extracting natural resources from the natural environment. Thus, the industrial resources enter the industrial system, which includes a production and a consumption section. The useful outputs or benefits of the production system consist of services and products delivered to the consumption system. Consequently, according to Huysman *et al*. (2015) the production and consumption system

result in waste minerals and emissions. Waste minerals can be moved to the waste treatment sector and further be supplied back to the production system as waste resources, or to be disposed.

Moreover, a shared recourse can be defined as an asset available to multiple different actors. The recourse can be utilized differently by actors, with its main advantageous being that it can create value for a company at a low cost while also being easily accessible (Frischmann, 2012; Pouder & St. John, 1996). Frischmann (2012) explains the advantages of utilizing shared resources and infrastructure for society, both for companies and private actors. The existence of a resource available to multiple actors creates social value for those involved. Frischmann (2012) goes into detail how different kinds of shared infrastructure can contribute to society, with assets such as facilities, roads and the internet all being utilized by many to create value. Further, Pouder & St. John (1996) explain the value of sharing resources between companies, and the economic benefits from using this approach. Companies who both are situated on the same location geographically and use similar resources in their business can gain economically based on these factors. These clustered firms will also be advantageous from a cost perspective, with lower payments related to transactions and acquisition of resources (ibid). Clustered firms using shared resources also create a competitive advantage (Barney, 1991). This advantage originates in the competitive ability of the clustered companies as a whole group, not every individual company. Therefore, the advantage is formed when companies are cooperating, which enables them to access and use a shared resource (ibid).

2.4 Transaction costs

One of the most fundamental parts of starting and operating a business is managing transactions costs in various ways (Brouthers & Nakos, 2004). Brouthers & Nakos (2004) define transaction costs as the cost of making an economic transaction with another company while operating at a market. North (1992) argues that the factors affecting the cost of a transaction can be broken down into different areas, these being the value of all the actions tied to the transactions, size of market, and enforcement. High transaction costs in several different areas combined with other operational costs can prove to be difficult to handle for companies, especially those wanting to either start-up a business or expand to a new market (North, 1992, Brouthers & Nakos, 2004).

Theory regarding how companies utilize transaction costs in different ways have been widely studied, both during their start-up process and during expansion, with researches especially focusing on larger companies (Brouthers & Nakos, 2004). For SMEs, the process of lowering transaction costs can be of paramount importance as smaller business often lack the stability, capital and resources possessed by larger firms (Zacharakis, 1997). When faced with high transaction costs, a larger firm can utilize its size and integrate in the value chain, effectively cutting costs (Lohrke *et al*., 2006). SMEs usually lack the opportunity to perform such actions due to lack of recourses, which forces these businesses to rely on external actors and pay high sums for transactions (ibid). The inability to utilize resources also affects the way a business is operated, with Coviello & McAuley (1999) describing that the management style of a SME is notably different from a larger firm.

In order for an actor to lower transaction costs, several different approaches can be utilized (Lohrke *et al*., 2006; Nilsson, 1996). The emergence of the internet as a factor has created new opportunities for firms to lower their costs (Lohrke *et al*., 2006). It is proposed by Lohrke *et al*. (2006) that being able to utilize technological advancements such as the internet can work as an effective way of minimizing transaction costs. Lohrke *et al*. (2006) assert that access to

a shared recourse gives companies faster access to information and enable direct contact with contractors and consumers without having to use intermediates. The approach enables a company, such as a SME, to utilize a shared resource without having to pay high transaction costs (ibid).

2.5 Social capital

The concept of social capital emerged in the study of social science (Bourdieu, 1983/1986; Putnam, 1993; Pretty, 2003) and has seized the attention of a wide range of researchers and professionals in different fields of studies (Lin, 2008). Social capital was mentioned in 1916 (Lollo, 2012), but first in the 1990s the concept appeared within the economic field and has since then been considered as a determining factor for economic growth and development (Hunecke *et al*., 2017). The concept of social capital can be defined in different ways (Lin, 2008; Feng *et al*., 2016) and can be applied to various levels of the social hierarchy (Feng *et al*., 2016). First, to improve and get a broader understanding of the term social capital it may be crucial for the present study to define "capital", which can be described as both a concept and a theory (Lin, 2008). From a classical theory point of view, capital as a concept represents investment in specific types of resources that are advantageous for a given community. Capital as a theory represents the surplus value as a result of the production process and its returns. Human and social capital theory differ from the classical capital theory arguing that surplus value is a result of investment in social relations as well as in human resources, including knowledges and skills (ibid).

Feng, *et al*. (2016) explain the term social capital as a social link between people and within groups of individuals, including organizations and the society as whole. In addition, Pretty (2003) describes social capital as the value of social relations and norms between people and communities and Wolcook (1998, p.153) defines it as "the information, trust, and norms of reciprocity inherent in one's social networks". To develop a broader understanding of social capital and its wide range of application, Akcomak (2009) organizes the different definitions of the concept to four commonalities: (i) Social capital as a result from social networks; (ii) The social network is not social capital but utilizing the social network leads to social capital; (iii) Humans invest in social relations and its return to the investment; and (iv) Social capital can have advantageous and disadvantageous effects on the result. Hence, social capital is generally considered "social" through that it comprises social interactions and can be differentiated from human capital, such as skills and knowledge.

Despite the fact that there is no general agreement on social capital and its definition, it is mainly interpreted as being distinguished by norms, trust and networks in social integration that promote collaboration and coordination of people to accomplish goals and common benefit (Hunecke *et al*., 2017). A general conclusion that is agreed upon by all scholars who have contributed to the research within the field of the concept, is that social capital is network-based (Lin, 1982; Bourdieu, 1983/1986; Putnam, 1993; Putnam, 2000). In addition, research about social capital within the field of economics and management prove that social capital promotes networks (Wang & Chiang, 2009). This is supported by Pretty (2003) who argues that social capital lowers the transaction costs of working together which in turn promotes cooperation between companies. Individuals are more likely to invest in collaborating activities, knowing that others will also do so. They are also less prone to engage in private actions with negative consequences, such as resource degradation. In relation to this, social capital is characterized by relations of trust, interactions and reciprocity, common rules and norms and connection in networks and groups (Pretty, 2003).

Lollo (2012) presents four types of social capital that along with the three dimensions: frequency, homogeneity and hierarchy have been pointed out as vital for networks, i.e., (i)identifying, (ii) bridging (iii) linking, and (iv) bonding (see figure 2). In line with the dimension frequency, interaction between people or between an individual and a group, the social capital increases. Further, social capital can be determined by the level of homogeneity between different actors, including common values and interest shared within the group. The third dimension of social capital, hierarchy, appraises the amount of contacts around an individual and its social position inside a group (ibid). According to Lollo (2012, p.11) these dimensions; frequency, homogeneity, and hierarchy define four types of social capital:

(i) I*dentifying* social capital is characterized by the power of homogeneity and hierarchy and explains social relationships whose function and identity are connected to a common value or interest shared in a formal group of individuals (Lollo, 2012).

(ii) *Bridging* social capital is defined by frequency and homogeneity and refers to relationships within informal groups, including a group of friends or people sharing the same or similar interests (Lollo, 2012). According to Lin (2008), bridging describes the capacity of individuals in a group to make contacts with others who may have a different perspective.

(iii) *Linking* social capital is typified by hierarchy and frequency, whereby formal organizations are seen as hierarchical, and links within or between formal organizations are strengthened by frequency of interaction (Lollo, 2012). Linking social capital describes the capacity of persons or groups to cooperate and engage crosswise with people in another hierarchical position or with external actors (Pretty, 2003).

(iv) *Bonding* social capital is a combination of identifying, bridging and linking social capital (Lollo, 2012) and characterizes the connections between people with similar goals which are observed in local groups (Lin, 2008). As a result of a good strategy, interconnection and clear goals among individuals, the relationships are characterized by high frequency, strong homogeneity and clear hierarchy. These relationships are generally found in horizontal relationships between like-minded within a localized community or in networks of near relatives and friends (Beugelsdijk & Smulders, 2003).

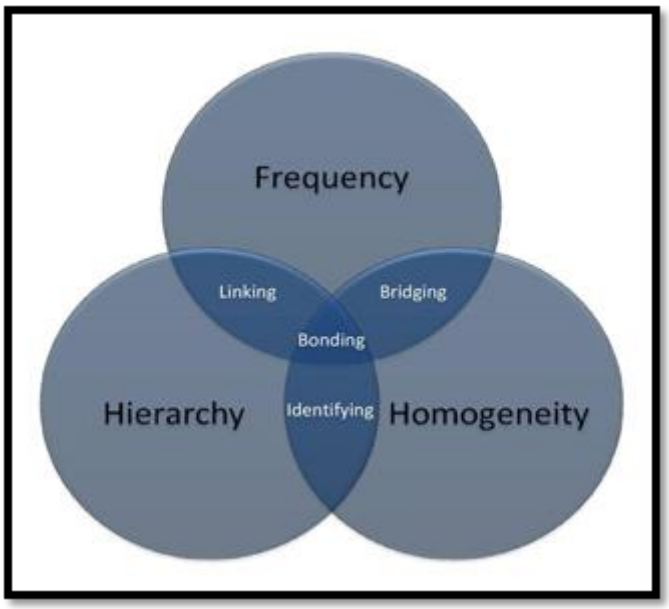

Figure 2 Social capital dimensions and resulting social capital types (Lollo, 2012, p.11)

As seen in the figure 2 identifying, bridging and bonding social capital are characterized by the homogeneity in a group of individuals which among other things is explained as a result of common values or interests shared in a group (Lollo, 2012).

Senge (1990) further points out that the directional effect of having shared values in a company works as a promotive action towards goal-orientated behaviour, and that this can be observed as a fundamental part of a learning organisation. An organisation can simultaneously build a strong cultural foundation using shared values (Schein, 1985). As the idea of shared value allows for the companies' members to actively be involved with various goal-oriented organizational aspects, they effectively play apart in shaping their own organization culture (ibid). Wang & Rafiq (2009) further points out cooperative advantages of utilizing shared values, stating that it supports companies in reaching organizational goals by optimizing use of limited organization resources. This approach enables an effective use of resources made possible by an integrated organization held together by shared values, working as a kind of bonding mechanism (Tsai & Ghoshal, 1998). Tsai & Ghoshal (1998) point out the effectiveness of this approach, emphasizing that organizational members with similar values are more likely to exchange resources and information with each other, thereby creating a more optimal use.

However, shared values can be applied to more than just internal aspects (Paniccia, 1998). If a company shares the values of another company, their ability to both cooperate and exchange knowledge between each other can significantly improve (Paniccia, 1998; Saxenian, 1994). Based on effect of shared vision throughout an organization, Chuluunbaatar *et al*. (2014) propose that shared vision can have the same effect in a cluster of companies.

2.6 Theoretical framework

The following section will establish a theoretical framework which will serve as the basis for the analytical and discussion part of the study. The multiple theories previously presented in this chapter will be utilized to form the framework, which will then be combined with the material collected during the case study. A figure illustrating how the different theories will be combined is presented in Figure 3. The framework is constructed by utilizing the theories of *cluster, regional development, location, resources and infrastructure, transaction costs and social capital*. These will be used together to compose an understanding of *networking,* with each presented theory serving a purpose to construct this understanding. Finally, the established *network theory* will be used to explain *value creation*, using all other theories as a foundation.

The location chosen as the point of operation for a firm has a huge impact on the performance, growth and future of their business (Porter, 1994). Firms wanting to position themselves in a favorable location base their choice on several different aspects, including costs, access to infrastructure and distance to other firms (Porter, 1994; Kimelberg & Williams, 2013). Porter (1990) details a solution which comprises all of the mentioned options: a collection of companies working in a similar field at a certain geographical location going under the term “cluster”. In a cluster, companies can gain multiple advantages by being active and utilizing the close vicinity to other firms (Porter, 1990; Bell, 2005; Ho *et al*., 2007; Tallman *et al*., 2004). The emergence of numerous firms in an area will eventually reach a point of critical mass, where the number of companies becomes the main draw for new companies to establish their business in the area. (Porter, 1998). This causes development in the area, leading to regional development that strengthens the cluster as a whole (ibid).

Being able to share resources among firms also gives active companies the upper hand in another paramount aspect: it gives them new opportunities to cut costs in various areas

(Frischmann, 2012; Pouder & St. John, 1996). As the market is comprised of firms of different sizes and access to capital, SMEs often lack the ability to minimize these costs (Zacharakis, 1997). Being active in a cluster gives companies the advantage of utilizing shared resources, infrastructure and networks, effectively helping to cut costs in several areas (Lohrke *et al*., 2006).

Social capital is explained as the value of social relations and norms between people and communities (Pretty, 2003), which consequently promote collaboration and coordination of people to accomplish goals and common benefit (Hunecke *et al*., 2017). Social capital can be strengthened by a common value or interest shared in the group (Lollo, 2012). Additionally, social capital is network-based (Lin, 1982; Putnam, 1993; Putnam, 2000) and can be seen as a result from social networks (Akcomak, 2009) or as a promoter to social network (Wang & Chiang, 2009).

Companies operating in a cluster gain by having a common vision, as this streamlines cooperation between the companies and boosts innovation (Tallman *et al*., 2004; Paniccia, 1998; Saxenian, 1994). Common vision and shared values between companies can both be utilized to strengthen individual firms by the emergence of new ideas and more effective solutions, while also creating opportunities for shared use by other companies in the cluster (ibid). These shared solutions created by firms operating in close proximity to each other and sharing similar values represents way for companies to take advantage of being in cluster, compared to operating individually outside of the cluster (Porter, 1998; Paniccia, 1998; Saxenian, 1994).

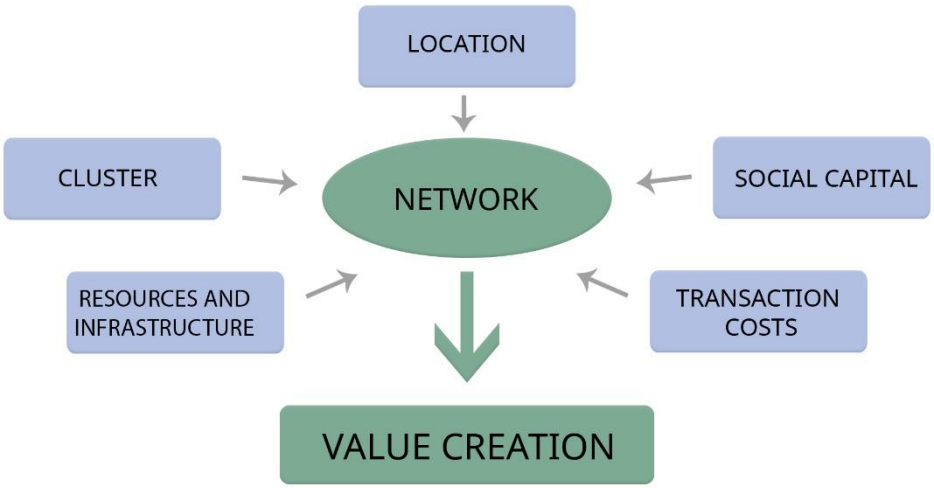

Figure 3 Theoretical framework (own processing)

3 Methodology

The following chapter presents the methods used to attain the aim an answer the research questions of this study. The study has taken a qualitative approach and semi structured interviews have been conducted to collect empirical data.

3.1 Research approach

There are two strategic procedures to choose from in order to plan and fulfil a business study, namely a qualitative or a quantitative procedure (Bryman & Bell, 2017). Both approaches strengthen or generate theories through analysing empirics collected, however they are distinguished by different ways of exercising the approach. Robson & McCartan (2016) describe these approaches as *flexible* or *fixed* constructions which are measured by how the data collection is organized and accomplished. A *flexible* design is commonly used for case studies, ethnographic studies and grounded theory studies (ibid). Since this study is a case study, a qualitative approach with a flexible structure has been used. When using a qualitative approach, less objects are investigated, which result in a more flexible structure with a deeper understanding for the concerning objects (Robson & McCartan, 2016). When using a *fixed* design, it is difficult to capture the complexities of individual human behaviour (ibid). This study focuses on examining the determining factors for a company to establish in a cluster network and further to examine how these factors contribute to value creation for one company itself and within the cluster network. The empirical data has been collected from four businesses operating in the cluster network. Consequently, in order to obtain a deeper understanding of the respondents, their companies and the network that has been shaped, a qualitative method is preferred and has been considered as more applicable in the present study. This is supported by Yin (2007) asserting that a qualitative design stimulates interpretations in relation to a social context resulting in a more accurate and detailed picture of the situation being addressed in the research. Increasing the amount of interviewed companies could be an alternative but to strengthen the understanding of the companies, the amount of companies in this case study have been delimitated to four.

Further, inductive, deductive and abductive reasoning are different approaches that can be used in research, which explains how researchers are treating data and theories (Bryman & Bell, 2017). Thomas (2003) asserts that an inductive approach provides an easily used and systematic set of processes for analysing qualitative date that can generate valid and trustworthy finding. In this study, a qualitative method has been used, which consequently entails an inductive research process whereby observations of the empirical data contribute to the theories (Bryman & Bell, 2017).

3.2 Literature review

The study has used a narrative approach when conducting the literature review. Bryman & Bell (2017) describe this approach as a review of already existing knowledge in a certain area, for the conducting actor to receive a better understanding of the theme of the study. This kind of approach is more open than the more focused systematic approach, as it enables the authors to have a larger scope in their review (Bryman & Bell, 2017). The use of a narrative literature review come with many advantages, with this approach enabling the authors to discover new areas of impressed based on the information conducted form the review, which can be used to advance the study. Therefore, the authors have to be flexible while conduction the review, as the area of study can both be extended and shifted during the course of the study. A qualitative

approach of the study is thus more appropriate, as the study can refrain from having to generalize results in any way, something that otherwise would be needed with the quantitative approach. (Bryman & Bell, 2017). A systematic literature review more defined, with Bryman & Bell (2017, p.121) describing it as a "replicable, scientific and transparent process". This kind of approach is often more suitable for quantitative studies, where that authors have to get a clear picture of the work already conducted, in order lay a foundation for their own study. A systematic approach could be applicable in a qualitative study as well, but given the wide area of this study, the authors determined that a narrative approach was more in line with the aim of the study.

The use of a literature review has several advantages that strengthens the study (Bryman & Bell, 2017). Firstly, it works as a foundation in elevating the arguments proposed by the authors of the study. Secondly, it helps establishing a stronger sense of credibility in relations to the study (ibid). The research questions examined in this paper along this the aim of the study has been answered using the literature review as a starting point. The literature used to establish a basis for this study has originated from a number of different sources. These includes books, articles and internet-based sources. In order to find articles that are relevant to the study, the search engines Google Scholar and Primo have been used. Google has also worked as the search engine when finding both other internet-based sources along with books in digital form. In addition to this, information from books, in physical form, has been found at the library at SLU in Uppsala. In order to find reliable and topical literature, the selection of information during the conduction of article-based literature was based on the date of publication, along with the inclusion of relevant subject and keywords connected to the aim, research questions and theories presented in the study. Keywords such as *cluster, food sector, networks, infrastructure, social capital, resources, transaction costs* and *value creation* were used. Both literature of domestic and international origin has been used in this study. Keywords in Swedish were used to find domestic literature, as this information helped provide a better understanding of the local state of food sector in Sweden. In order to ensure that the literature used in this study is of a trustworthy nature, only articles that has been "peer-reviewed" has been used while conducting the literature review. A "peer-reviews" articles has examined by other researchers, in order to ensure that the information is authentic.

3.3 Case Study

In a qualitative procedure, several methods can be used to collect empirical data (Bryman & Bell, 2017). Since this study focuses on a profound examination of firms operating at the same place, a case study has been done. This kind of empirical collection is described as a more accurate investigation in one specific case, an investigation that can be used on an actor, a firm or an organization. The study can include more actors and does not necessarily have to include just one specific case (ibid). Further, Yin (1994) asserts that a case study is extensive since it aims to consider a real established phenomenon. In some degree this phenomenon can be associated to a context, which is an important aspect within case study research (ibid). Prevailing studies are affected by contexts and the individuals that perform the work which consequently generate different results relating to various time and environments. Hence, it is hard to generalize and results in a qualitative case study can be difficult to replicate (Bryman & Bell, 2017). In this study, a deeper study including four companies have been accomplished which shapes a wider understanding for the actors that consequently can be closer linked to the chosen theory.

3.3.1 Selection

The four companies that have been used in this study are delimited to be active in the Swedish food sector. Based on the authors' interest for the food sector, companies in relation to this industry were found interesting. Consequently, through research on the internet and through contact with the supervisor, a company called Foodhills was found. Their business model which is based on circular food production is unique whereon the researchers found Foodhills as an interesting company to study. In line with reading information about Foodhills, other companies operating at the facilities of Foodhills were found, namely Sydgrönt and Glimåkra Åkeri and Air Liquide. With multiple companies working at a certain location in a similar field, these companies can be explained as part of a cluster network. Thus, a study about the cluster network and the collaboration between these companies fell into an interesting topic. Since the cluster is located in the south of Sweden, in the city of Bjuv, the study has been delimited to investigate four companies operating in the cluster. Bryman & Bell (2017) state that the selection is largely depended on whether one want to generalize the result. A selection that is made on a random basis where each unit has a known possibility to be selected is called a *probability sample.* With *non-probability* sampling, some units are more likely to be chosen than others included in the population (ibid). Since the present study does not aim to generalize the result, a non-probability sampling has been used, whereby companies have been selected based on their activity in the cluster.

3.4 Empirical data collection

In a qualitative study, interviews can be used as a method when collecting the empirical data (Bryman & Bell, 2017). When the goal is to collect specific information and valuable insights, semi-structured interviews are recommended. In order to enable a flexible interview adapted to the respondents and their opinions and interests; semi-structured interviews have been used in the present study. Utilizing interviews is not a method restricted to qualitative research and can thus be used during quantitative studies as well. What separates the different ways of conduction is the approach used during the interviews themselves, with a qualitative study aiming to produce in-depth knowledge regarding a subject. As this study is conducted with the intent of establishing a deeper understanding of a problem by utilizing a case study of four companies operating in a cluster network, a qualitative approach has been chosen. For the interview process itself to be characterized as flexible and more suited to the interest of the responding subject, the interviews have been conducted in an unstructured way. This enables the interviewers to shape the process after the respondent (ibid). According to Bryman & Bell (2017), semi-structured interviews are advantageous when the authors want to ask questions in a more flexible manner, which also allows them to shape the aim of the questions throughout the interview. This approach produces a more relaxed dialog between the involved actors, from which the authors can extract the material used to answer their questions (ibid).

This study has used semi-structured interviews with four different companies all operating at the cluster in Bjuv(see appendix 1). The goal behind these interviews was to establish a deeper and more contextualized view of the companies. When the authors had identified the different companies, that were to be part of the study, these were contacted by telephone or email. The interviews were planned to be conducted on location directly with the subjects. However, due to the outbreak COVID-19 (World Health Organisation, 2020), which restricted the ability for travels and personal meetings, some of the planed interviews had to be conducted using telephone. Still, most interviews were held on location in Bjuv directly with the subjects. Despite the inability for the authors to conduct the interviews as originally planned, the interviews were still held using the same coherent method, all based on a prepared interview-

guide. However, due to the manner of the interviews, it is crucial to consider that the interviews may take different forms.

The previously prepared interview-guide is used as the starting point for the dialog between the subject and the interviewers and is meant to present the themes and questions relevant to the study. The questions are then conveyed to the respondent in the order deemed appropriate to further the dialog, meaning that the interviewers can stray from the original order of the questions. The interviewers can also construct new questions during the interview-process based on what the respondent has said (Bryman & Bell, 2017)

3.5 Data analysis

After having collected the empirical material needed for a study, authors of a paper, utilizing a quantitative approach, often can find themselves with an extensive amount of data. As the data will be the foundation for the analysis of the study, it is important for the authors to sort the empirical material by relevance, using the theoretical framework presented in chapter two. This includes the process of structuring and sorting the material, for the authors to identify the relevant material (Bryman & Bell, 2017). Because of the extensive nature of the material in this study, the already established research-questions were used as a tool in the selection of empirical information from the interviews. This method was utilized in order to ensure the relevance of material later used for the analysis, discussion and conclusion of the study.

After the interviews, the researchers summarized impressions and main findings from the respondents to prepare data compilation and analysis. Afterwards, when the interviews with the case firms were completed, the data was categorized, and a qualitative content analysis was applied. A qualitative content analysis is mostly used for analysing qualitative data and further to interpret its meaning (Elo *et al*., 2014). By using a content analysis, the researchers analyse the collected data in order to find themes and interpret the results from the interviews (Bryman & Bell, 2017). The content analysis in a qualitative study with an inductive approach includes three phases explained by Elo *et al*. (2014); preparation, organization and reporting of results. In the preparation part the researchers started to collect applicable data related to the aim and research questions based on the unit of analysis. Further, the data collection started after which categories were identified through mind maps that reflected the content. While the categories and themes were discussed the researchers ended up with the descriptive themes; “sharing the core values”, “collective use of resources and infrastructure”, “the importance of collaboration and networking”, and “value creation”. According to Morse (2008) themes are often quite abstract and thus hard to catch. Therefore, the researchers were trying to identify the messages from the empirical collection, such as “What are they trying to say?” and “What is this about?”. In the third phase, reporting, results are summarized by the content of the themes (Elo *et al*., 2014), which are presented in the result, analysis and discussion.

3.6 Trustworthiness and authenticity

In a quantitative study, researchers often apply the concepts validity and reliability (Bryman & Bell, 2017). Validity and reliability contain criteria that relate to measurement and since measurement is not the primary interest in a qualitative study, these concepts are not as important compared to quantitative study (ibid). Instead, Guba & Lincoln (1994) suggest two main criteria when evaluating a qualitative study, namely *trustworthiness* and *authenticity. Trustworthiness* contains four sub-criteria including c*reditability, transferability, dependability and confirmability* which are being used to appraise the quality of the study

(ibid). To create *creditability,* it is important that the researchers' observations correspond well with the theoretical concepts of the study (Bryman & Bell, 2017) In order to ensure that the observations in the study correspond well to the respondents' answers and reality, a respondent validation with a compilation of the empirical data has been sent through mail to each interviewed respondent. Triangulation is another useful technique, which means that researchers use several methods while studying social phenomena (Bryman & Bell, 2017). In this study, the empirical data were gathered through semi-structured interviews but also through articles, websites and e-mail with the respondents. *Transferability* relates to whether the results can be applied in another context or in the same context in the future (Bryman & Bell, 2017). In this study, a broad description of the results is provided which may be useful in another context or in the same context in the future. However, the aim in this study is not to generalize the result, rather to examine four case companies operating at the same place. *Dependability* is fulfilled through an examination of the material (Bryman & Bell, 2017), which in this study has been done by the classmates and the supervisors. *Confirmability* means that the researcher makes sure that he or she is acting in good faith without consciously letting personal values or theoretical focus affect the conclusions (Bryman & Bell, 2017). Through using the transcription of the data while applying an objective mind-set when summarizing the result, the researchers own values do not conscious affect the results in this study.

Moreover, *authenticity* relates to a fair illustration of opinions and perceptions that occurs among the people participating in the interviews (Bryman & Bell, 2017). The interviews in this study have mainly been done with managers which may be a weakness. However, the researchers spend almost a week at the cluster which contributed to a broader picture of the cluster and the companies operating there. Additionally, to make sure that the transcriptions reflect the respondent's answers and expectations, respondent validations have been sent to interviewed respondents.

3.7 Ethical aspects

The research has included several ethical aspects in order to guarantee that the respondents feel comfortable with the research and the empirical material. Methods in qualitative studies are investigating respondents and their organization in a deeper level, thus it is vital for the respondents to feel that the interview processes are optional and pleasant (Bryman & Bell, 2017). The informed consent and approval to participate in a research is from several aspects a debated area when it comes to ethical questions within business research. Informed consent includes the respondents being well-aware about the observation technics and if any recording occurs when interviewing them (Bryman & Bell, 2017). The interviews in this study have been recorded in order to ensure the uptake of the information, and all respondents have been requested before the interviews to guarantee that they are comfortable with it.

3.8 Critical reflection

In a qualitative case study, a deeper understanding of the respondents and the context they operate in is necessary, which in turn generates a deeper picture of the organizations (Bryman & Bell, 2017). Simultaneously, researchers have their own interpretation and perception about truth and knowledge which affect their way of thinking during a research process (Bryman & Bell, 2017; Alvesson, 2003). Consequently, the use of this approach can result in a subjective investigation whereby earlier experiences, interests and contextual aspects may affect the empirical data (Bryman & Bell, 2017; Alvesson, 2003). Therefore, for the study to maintain an objective character, it is important for the researchers to be critical and aware of their personal

values and how these may affect the study (ibid). At the same time, qualitative research, is to some extent about the researchers own interpretations, which means that the material rarely becomes completely free from subjectivism (Bryman & Bell, 2017). In this study, the researchers have been aware of individual perspectives and interests in relation to the food sector and therefore the study has been completed with a reflexive approach, by examining the empirical data from an objective point of view (ibid).

4 Empirical data

In this chapter, the empirical data and results that have been conducted through interviews are presented. The chapter aims to cover a description of the company Foodhills AB and three other companies that operate in the cluster, namely: Sydgrönt, Glimåkra Åkeri AB and Air Liquide Gas AB. In the end of this chapter a table is provided (see table 1) with a selection of some questions and valuable answers that have contributed to the empirical data.

4.1 Foodhills AB

The company Foodhills AB is situated in the small town of Bjuv in southern Sweden. From here, the company is working towards several different goals, with their main vision being to become the leading European actor in circular food production systems that are innovative, sustainable and resource efficient. Followed by a growing population, the demand for food is increasing and today's way of producing food will not feed humanity over time. Therefore, more climate efficient production systems that minimize waste and are efficient in resource use are needed. Thus, Foodhills' vision is to develop these circular food production systems in order to close the food cycle and minimize rest products.

Their intention is to collaborate with partners and build a global reference test- and pilot facility for circular food production. For this to be accomplished, Foodhills relies on working with partners in the food sector. Their acquisition of the large facility in Bjuv has given Foodhills the opportunity to also provide infrastructure and resources for other companies, such as SMEs. To establish a cluster of companies with different areas of expertise in the food sector is a part of Foodhills plan to build a hub which drives innovation in the sector. Foodhill's owners are Backahill, Lantmännen and Magnihill which are companies that stands for a long experience and a great knowledge in food production and property development (Foodhills, 2019a).

4.1.1 Background

The company was founded in the wake of a major development in the Swedish food industry, as Findus decided to terminate their business at their main production facility in Bjuv. This facility housed Findus production of different food products, such as peas, frozen ready-meals and vegetables. Findus decision to leave the facility prompted a number of different discussions in the industry; including what were to be done with the infrastructure at the facility in Bjuv. Thus, *Region Skåne* decided to appoint a regional manager to oversee the process and this action lead to the formation of a work group, which together with regional actors and representatives of Backahill commenced the development of an idea to start a new business at the facility in Bjuv. From this, Foodhills AB was founded at the end of 2016.

During 2017, work was centred on establishing a deal with the current owners of the Findus and the facility. A signed letter-of-intent to open the possibility for a long due diligence process, which ultimately culminated in a signed deal for Foodhills AB to buy the facility in Bjuv. The company moved into the facility on March 1st, 2018, and immediately started work on two critical factors: to commence production and to lower costs for possessing and operating the entire facility.

When the company was founded, Foodhills had conceptualized a grand venture comprised of multiple types of circular production. Due to the lack of capital and resources available during the time Foodhills moved their business to Bjuv, the decision was made to only commence

production of peas. The necessary machinery was quickly acquired which made a production start for the 2018 season possible.

For the company to both minimize costs for the facility and work towards their goal of establishing a food cluster at the facility in Bjuv, Foodhills also founded Foodhills Fastigheter AB, which is a company responsible for real estate development. This company was, among other things, tasked with finding suitable companies that were willing to move their business to the facility in Bjuv. For companies to be suitable in the cluster, they need to share Foodhills' vision about circular food systems and operate in some part of the food sector.

Since Foodhills started their operation at the facility in Bjuv, the business has expanded. The production of peas saw a rise of over 100 % during 2019, with the 2020 season looking to continue this trend with a contracted production of 10 000 tons of peas. The production facility for peas in Bjuv is also being upgraded to accommodate for the increase in production. Foodhills also envisioned multiple branches of circular production when the company was founded, an idea which is now coming into fruition with multiple projects being in the work regarding production of fish, insects and greenhouse-grown commodities.

The premises are composed of several different facilities previously operated by Findus. The different locales are optimized for various kinds of production, with laboratories, workshops, testing facilities and office spaces all existing on location in Bjuv. In total, the entire facility is composed of over 2500 rooms measuring 100 000 square meters. The various options for companies to have easy access to facilities for freezing and packaging is further meant to increase the attractiveness for companies. With this endeavour, Foodhills wants to provide companies with the infrastructure necessary to properly establish a production and operate from Bjuv.

The facility is also swiftly being filled with new tenants who are setting up their own operation in the locals previously run by Findus. In the two years since Foodhills and their real estate branch arrived in Bjuv, almost 25 new companies have taken up residence at the facility. With over 500 people now being employed at different companies at the facility, Foodhills has effectively brought back the amount of people who previously worked at Findus before they terminated their business.

4.1.2 Location

Even before Foodhills was founded, the project of establishing a future plan with the infrastructure and the facility in Bjuv involved several actors in the food sector and relied on communication and networking between these. The process culminated into the birth of Foodhills AB, with the different companies working together proving to be essential for the company to establish a base of operation in Bjuv. From the perspective of the actors involved, this was both an essential action for the future of the facility as well as an opportunity to strengthen the Swedish food sector. For regional actors such as Region Skåne and the municipality of Bjuv, Foodhills was a chance for regional development in the area surrounding Bjuv along with the region as a whole.

The number of involved actors with different goals would go on to shape the vision of Foodhills to be both broad and extensive. Foodhills would operate several different types of food production while also serving as a landlord in Bjuv and supervising the formation of a cluster at the facility. The access to networks would therefore partially be the centrepiece of Foodhills, with many different networking connections having to be utilized to get the right companies to

relocate their business or a part of their business to Bjuv. Because of this, the location itself would serve as one of the most important factors in relation to the establishment of Foodhills.

The location of the facility comes with both advantages and disadvantages. One factor is the existence of important infrastructure in relatively proximity to Bjuv. The highways E4 and E20 can be accessed within ten minutes from departing Bjuv, enabling companies to quickly and effectively transport various goods from the facility. Bjuv is also strategically located near several large shipping port, such as Helsingborg, Landskrona and Malmö. The proximity to these important locations connects Bjuv and the facility to the wider world by allowing access to Denmark and the European continent in a couple of hours. Despite the optimal location, Bjuv still suffers from being a small community situated on the countryside. If a company chooses to relocate their business to the facility in Bjuv, their employees are faced with the option of either moving to Bjuv our commuting from the larger cities in Skåne.

4.1.3 Cluster and network

To utilize networks is a crucial part in Foodhills work, both for the company itself to grow and evolve, as well as for their vision to be uphold. The company has therefore integrated several different kinds of networks activities into the daily life at the facility in Bjuv, in order to enable individuals from different parts of the food sector to interact, share knowledge and experience, and build new ideas. This interaction is meant to happen between both facility-based individuals as well as people visiting the cluster.

Various activities have consequently been arranged to facilitate these interactions. Foodhills occasionally arranges different workshops and seminars at the facility, composed of individuals who work both inside and outside the premises. These events can be a part of the numerus projects worked on by Foodhills and can include discussions and seminars regarding various topics. In order to both allow individuals at the facility to interact while also having a location for events and activities, a restaurant was set up in the building. This building also housed Foodhills main office-space, was easy to access for every individual at the facility and would therefore severe as a suitable location for interactions and networking. The restaurant would also serve as the location for activities arranged by Foodhills.

Foodhills chairman, Bengt Person, explains the importance of both working in and utilizing networks. With the Swedish food sector being composed of many skilled individuals and companies, having these actors working together and exchanging knowledge are the key factors for innovation to happen in the industry. For the lead-time of different processes and activities conducted throughout the sector to become shorter, cooperation and a more heavily reliance on partnerships between actors is important.

4.1.3 Projects

A central part of Foodhills established vision and business model includes the creation of several different projects in the food sector. The idea is the have various projects with different actors in the pipeline simultaneously, to create a constant flow of new ideas while also working towards different markets. The concept of working on multiple projects at once also comes with other kinds of benefits. Foodhills estimates that only a few of their projects would culminate into something that is commercially sustainable, which therefore allows the company to examine multiple areas at the same time and see which ideas that work and which ideas that does not.

This allows Foodhills to, in accordance with their vision, set up more productions in multiple areas all connected to circular production, an action with will generated revenue from multiple sources and work towards the companies' long-time goal of lowering their fixed costs at the facility.

The Food Valley of Bjuv represented one of the first and larger projects undertaken by Foodhills. The project lasted for almost two years and was meant to strengthen regional development in the area while also laying the foundation for Foodhills future operation in Bjuv. By focusing on cooperation based on sustainable production in the food sector, the project aimed to connect companies in the area who together could contribute to a circular production. This would create a continuous dialog between the companies, which could continue after the end of the project and work to further develop the region in the future. At the same time, it would also market the cluster and emphasizing the advantages of working in a circular system.

4.2 Sydgrönt

Sydgrönt is Sweden's biggest supplier of fruits and vegetables located in the south of Sweden with their head office in Helsingborg. They develop, produce, sell and distribute a modern range of Swedish produced fruits and vegetables to Swedish retailers, which are produced outdoor or in greenhouses. Sydgrönt offers both conventional and organic products and is entitled as a KRAV-certified company. The company is a co-operative business and producer organization owned by about 90 farmers located in the south of Sweden; Skåne, Halland and Blekinge. The idea behind co-operative business is that several economic actors own another economic actor, in the purpose to manage advantageous trading (Nilsson, 2011). The cornerstone in Sydgrönt's business model is to be the producers "extended arm", explained as everything they do should gain the Swedish food production and the collaboration is vital in order to strengthen the business and take part of a bigger platform. The farmers cooperate for their products to reach the market with the mission to strengthen the members' organizations and to contribute to profitability for the producers.

Sydgrönt's words of value are *Business-oriented, Effective, Innovative and Sustainable*, where *Business-oriented* means that they are proactive and work close to the organization and *Effective* stands for flexibility and engagement (Sydgrönt, 2020). Further, *Innovative* indicate that they invest in the future and work with a new thinking. *Sustainable* embodies the focus on the environment and quality with a green attention (ibid).

4.2.1 Background

Sydgrönt was established in 1992 following the bankruptcy of another co-operative society called Mäster Grön. Consequently, the farmers were divided into two constellations whereof one of them turned out to be Sydgrönt with outdoor and greenhouses producers. In 1997, Sydgrönt was confirmed as a producer organization by the EU. Thus, they became authorized to receive funding from an EU operation fund, which enabled the company to act in terms of environmental improvements and sustainable actions.

The organization consists of four limited companies, whence one of them is located in Bjuv with 11 employees. Today, Sydgrönt is a tenant at Foodhills and during 2019, Sydgrönt established a cold storage for vegetables and a digester for beetroots at Foodhills facilities with the main goal to increase the supply of Swedish vegetables along with reduced environment and climate impact. Further, they want to develop the categories within fruits and vegetables in order to attract a broader market segment.

4.2.2 Location

To move a part of their production to Bjuv was not a coincidence, rather a good opportunity to take part of an already existing infrastructure and a water treatment plant that enables utilization of wastewater and shell left-overs that can be collected and used to biogas. Sygrönt shares Foodhills' vision regarding circular food production, which enabled them to be part of the cluster in Bjuv. At Foodhills, there is an established operation for food production and treating, such as food steam which is something Sydgrönt sees as an important part of their production since this among other things relates to high costs for one company itself. There is an established work area for food production at Foodhills which allows companies to operate there, particularly businesses that appears in a small scale and are vulnerable for extensive investments.

4.2.3 Cluster and network

At present, Foodhills' facility offers the fundamental needs, in terms of infrastructure and resources with good conditions for food production and innovation. There is a great potential and good prospects for network development at Foodhills and one of Sydgrönt's incitement to establish at Foodhills' facility was to take part in the network and collaborate with other actors operating at the same place. However, the network thinking requires a "critical mass", with several companies to stimulate the way of thinking in relation to network and competence exchange. The infrastructure and conditions are existing, yet, if more big companies chose to establish their organization or a part of their organization at Foodhills facilities there would be a greater potential for common projects, innovation centres and competence exchange.

Today, Sydgrönt can take part of fundamental needs in terms of infrastructure there are, along with greater knowledge exchange, good conditions to share more resources in the future and develop an effective use of natural resources. Thus, the conditions are good, but it also requires that the cluster can attract good competence which can be a challenge.

4.3. Glimåkra Åkeri AB

Glimåkra Åkeri AB is a logistic company specialized on temperate and time optimized transportation of food commodities. The origin of the company dates back to 1956, when the operation was started in the small down of Glimåkra in north-eastern Skåne. When Foodhills established in Bjuv, Glimåkra saw an opportunity to move in. From here, Glimåkra Åkeri and their 120 employees today operates over 70 transports, which carries goods throughout the entirety of Sweden. The company is operating on the business idea of performing, developing and selling sustainable transportation services to their customers with the main focus being optimized transports of food products. An essential part of this idea is to emphasize that Glimåkra Åkeri is more than just a transportation company: they are a logistic partner focused on tailored transportation of food commodities. They also want to be seen as an attractive and innovate collaboration partner in both developing projects and in the daily operation with focus on sustainability in the whole chain. Their main vision is to be an attractive collaboration partner with focus on sustainability at all levels and to evolve into the future along with developing smart and profitable food logistics in Bjuv.

Their recent move to Foodhills' facilities in Bjuv has also created new demand for logistic solutions, which prompted Glimåkra Åkeri to start a subsidiary. With Glimåkra Food Logistics AB, a logistic partner was formed which would satisfy the transportation needs of the other companies located at the business cluster in Bjuv. Apart from working with the cluster-based

companies, Glimåkra Food logistics also wants to serve as logistic partner to the entire region of Bjuv.

4.3.1 Background

The company was first founded by two brothers in 1956, operating out of Glimåkra in the northeast of Skåne. The company would then serve as a logistic partner in the surrounding area. After serving as a transportation service for smaller customers in the first years after their conception, Glimåkra Åkeri signed a deal with Skånemejerier in 1965 to carry their products in the southern parts of the country. Skånemejerier, a large Swedish producer of dairy products, would go on to be Glimåkras most pivotal partner, with transports for the dairy company equaling 98 % of Glimåkras business in 2014. An important aspect of Glimåkras core business idea is to adapt to the needs of their customers. This has prompted the logistic partner to only use fuel based on renewable diesel, HVO in transports for Skånemejerier (Foodhills, 2019b).

In 2014, a change in leadership for Glimåkra Åkeri was made, as the founding brothers stepped down and allowed Christian Blide to take the position of CEO. This action would mark the start of an expansion face for the Glimåkra Åkeri, beginning with the signing of a distribution contract with Arla. The contract would allow Glimåkra Åkeri to distribute Arla's product thought the entirety of Skåne, using only bio diesel, RME, as fuel for their transports (Foodhills, 2019b). The Glimåkra Åkeri would, at this point, also be 100% fossil free, only utilizing renewable sources for fuel for their 70 transports.

4.3.2 Location

When word of Foodhills acquisition of Findus facility in Bjuv reached the general public, Glimåkra Åkeri was quick to establish contact and show an active interest in wanting to be part of the cluster of companies which Foodhills was aiming to create. Glimåkra Åkeri shared Foodhills' core values regarding sustainability, which made for a fast process that allowed Glimåkra Åkeri to relocate their entire business to Bjuv in 2018. At this point, Glimåkra had effectively doubled their business since the change in leadership in 2014, with a turnover that now measured around 100 million Swedish SEK.

4.3.3 Cluster and Network

For Glimåkra Åkeri, Foodhills was a great opportunity for future development. Thus, they saw a good potential in establishing a part of their organization there. The idea of moving to Foodhills was to grow into Bjuv and act as a logistic partner in the municipality, and not only in the cluster whereupon the subsidiary Glimåkra Food Logistics AB was established. Presently, they have ongoing projects intended to plan and appraise the logistic collaboration with companies in Bjuv. Hence, their vision is to establish a good collaboration with approximately a third of the actors in Bjuv. The vision behind Food Logistics is to offer qualitative and efficient community services to companies in a simple and professional way. Food Logistics is a company that enables logistics for an attractive price to food companies supplying actors' needs and desires.

The relocation opened new opportunities for Glimåkra Åkeri, as a supplier of logistic solutions were in demand at the cluster. As the company was never intended to work with more than two larger companies simultaneously, the decision was made to set up a subsidiary which would satisfy the logistic demand. The newly established Glimåkra Food Logistics AB would work

of the vision of slowly growing into Bjuv, serving as the main provider of logistic solutions to companies both within and outside of the cluster. This goal is to become the main logistical partner in the municipality, built on a strong collaboration with the different actors in order for Glimåkra Food Logistics AB to able to facilitate different logistical needs with a tailored solution.

4.4 Air Liquide Gas AB

Air Liquide was founded in 1902 and is the world's leading supplier of gases, technology and services for industry and healthcare (Air Liquide, 2020a). The business is represented in 80 countries with about 66,000 employees and over 3.7 million customers. The cornerstones of Air Liquide's scientific work are the gases: oxygen, nitrogen and hydrogen which contains small molecules that are fundamental for life, matter and energy (ibid). Among many other things, Air Liquide offers safe and effective gas solutions to the food sector. They deliver gases, equipment, and services for the whole food supply chain, from producer to end consumer. Their solutions comprise food processes and distribution of food, including freezing, cooling, carbonation of beverages and modified atmospheric packaging. For food products they mainly offer cooling with gases, gas packaging for different food categories and carbonic acid to beverages. Their product programme of gases that are being used for food and beverages is called ALIGAL-gases, which are specially adapted to today's requirements within food production (Air Liquide, 2020b).

4.4.1 Background

Air Liquide had a previous collaboration with Findus which was one of their biggest customers within food production. When Foodhills established at Findus old facilities, they saw a good opportunity to collaborate with Foodhills as well as with other companies in the area. Air Liquide is not the same type of producing business as the other companies in the cluster. Instead they produce gases, but they do not have a production in Bjuv. Yet they use the facility as a combined pilot- and test facility for their department Food & Pharma. Their vision in the cluster is to offer food companies sustainable gas solutions for their products.

4.4.2 Location

The location itself is important for Air Liquide considering the existing infrastructure and resources as the can use it for their combined pilot- and test facility. Additionally, as a result of an increasing amount of companies that are operating in the cluster, Air Liquide can find new partners to collaborate with and further develop solutions that are suitable for the needs of the company. Air Liquide chose to stay even after Findus had to close their facility since they saw a good opportunity to future collaboration with other companies in the area.

4.4.3 Cluster and network

Their main vision in the cluster is to offer sustainable gas solutions for food companies in the cluster including different methods to extend and promote the shelf life of food. At present, they have frequent discussion regarding new solutions with companies in the cluster. For instance, they have been in contact with a brewery, recently established in the cluster and two other companies, including Foodhills. Moreover, they see good opportunities to future collaboration with other companies in the area and are willingly to contact those who

established themselves in the cluster. In order to evolve the cluster and establish a good collaboration it is important to get in contact with all companies that are moving in. One part of Air Liquide's vision is to collaborate with more companies in the cluster and further to offer them a visit at Air Liquide's producing facilities in order to share information and demonstrations in relation to use of gases in the food sector. Additionally, the networking in the cluster is crucial since it enables contact with both internal and external parts. An example of good networking is to arrange events and seminars. Air Liquide and Foodhills have together with experts within circular food production and sustainable preservation and storage of food arranged a seminar at the cluster. During the seminar, experts from Air Liquide informed about the latest applications in relation to food production and Foodhills talked about the company's future visions.

For companies to benefit from each other, it is important that the companies moving into the area are suitable in relation to the business and the vision in the cluster. Otherwise, there is a risk that other companies that do not have a connection to the food production need to move in in order to cover the costs. However, the cluster has a good potential to evolve and the conditions for it to be successful are good.

Table 1: The answers regarding question 5,6,12,17,18 (own processing)

Company	**Foodhills AB**	**Sydgrönt**	**Glimåkra Åkeri AB**	**Air Liquide Gas AB**
Main Business	Circular food production	Fruit and vegetable production	Transport logistics for food companies	Supplier of gases
Q 5: *Background and vision* What is the company's main vision in the cluster?	To create the leading system for circular food production contributing to sustainable development	To increase the supply of Swedish grown vegetables along with reduced environment and climate impact	To develop and offer smart, sustainable and profitable food logistics for companies in the cluster	To offer companies in the cluster testing- and pilot facilities concerning sustainable food gases
Q 6: *Location* Why did the company decide to establish at the facility in Bjuv?	Good prerequisites to establish a centre for circular food production	Take part of an already existing infrastructure and the resources at the facility	To grow into Bjuv and act as a logistic partner in the cluster and in the municipal	Utilizing testing- and pilot facilities and take part of the network
Q 12: *Cluster and network* In which way is the cluster and network important for the company?	To integrate network activities that enables individuals and companies in the food sector to interact is important	The network is important since it enables companies to share resources and attain an effective use of them	To take part of the network and serve as the main provider of sustainable transport logistics for the food sector	To offer gas solutions to more food companies in the cluster and to share information and demonstrations concerning food gas solutions
Q 17: *Resources and infrastructure* In which way are the resources and the existing infrastructure important for the company?	Existing infrastructure and resources are vital to decrease waste and link the circular thinking	An already existing infrastructure for food production and food gases that Sydgrönt needed to integrate in their process.	It is important for a good transportation solution as well as establishing a strong strategic position to operate from	Can provide solutions easily instead of connecting with multiple suppliers, which in turn can reduce the transports

5 Analysis and discussion

This chapter will present the results from the previous empirical chapter by analysing the results using the conceptual framework (see figure 4) from the theory chapter. This study has examined how a cluster network can be utilized through different factors and further if these factors create value for one company itself and within the cluster network. Regional aspects related to the location will be analyzed and discussed in relation to the companies located at the cluster in Bjuv, along with how recourse use, transaction costs and social capital can be optimized between individuals and companies working with similar values.

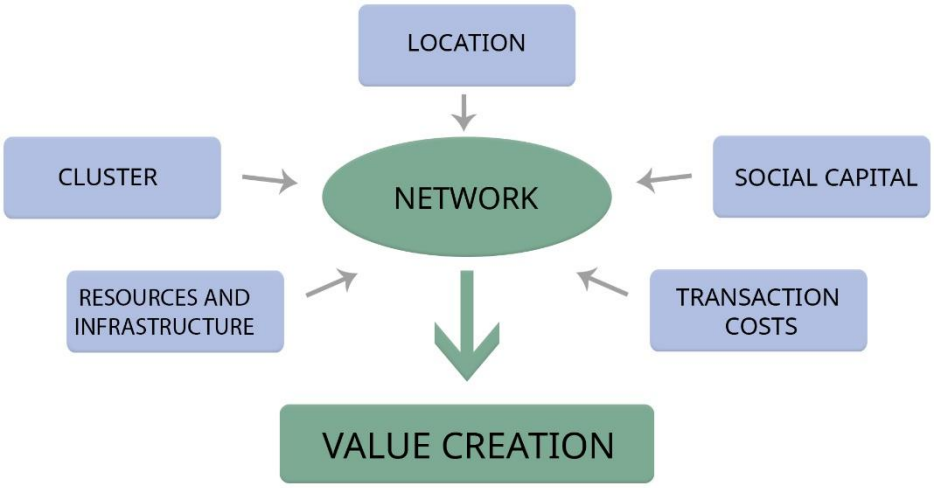

Figure 4 Theoretical framework (own processing)

5.1 Location

While some would argue that the location of a company serves less of an importance in a more digital world, Porter (1994) advocates that the location of a company still can be an important factor for the success of a business. The number of companies having settled in Bjuv since Foodhills acquisition in 2018 supports Porters (1994) theory, with the location of Bjuv being a pivotal factor in the different companies' choice. Further, Martin & Sunley (2006) describe how the existence of a strong network at a location can strengthen the businesses of companies operating there. Part of Foodhills intentions with the acquisition was to establish a strong network built on and around the companies operating at the location, a network from which the companies themselves would gain. This network would also work as a tool in marketing the location, with companies viewing a strong network as an advantageous reason to relocate their business. Further, in line with Martin & Sunley (2006), Sydgrönt, Glimåkra and Air Liquide all sought to be part of a strong network when locating their business to Bjuv. These companies also stated that their decision was heavily influenced by the existing infrastructure, which could be utilized in different ways by the actors. While the desire to be part of a strong network was present for all companies in their decision, other aspects which influenced the decision of relocation differed between the companies. Kimelberg & Williams (2013) explain that companies can be drawn to a certain location both to gain by being among similar companies but also to be the sole provider of a certain service or product. Still, companies that are more

production orientated usually values a location that is suitable for their business, rather than a locale of high standard (Kimelberg & Williams, 2013). The facility acquired by Foodhills in Bjuv has the infrastructure and locals to house multiple businesses in the sector, while also being easily accessible and close to major cities and roads. By bringing in multiple businesses in the food sector to one location, they strive towards strengthening both the location and the network build around it.

5.2 Cluster

Porter (1998) defines a cluster as several companies working in a similar field at a certain geographical location, a definition which can be applied to the collection of companies operating at Foodhills' facility in Bjuv. It's further pointed out by Porter (1998) that a cluster firstly grows by marketing actions by the actors operating there, until it reaches a critical mass. At this point, the collection of companies becomes the main draw which attracts new companies (Porter, 1998). The same technique is applied by Foodhills, by utilizing their subsidiary Foodhills fastigheter AB to develop the facility and find suitable candidates as tenants at the facility. The goal is to reach a point where enough companies, both SMEs and larger companies, have their operational center in Bjuv. At this point, Foodhills expects the mass itself to draw in new tenants. These firms can be new primary firms, but also supporting firms that want to support the businesses already operating there.

Once a company is part of a cluster, Tallman *et al*. (2004) state that the new business environment will gradually affect this firm, both through official and unofficial encounters with other actors. Foodhills means to facilitate both of these aspects through a number of actions, by arranging official gatherings for cluster members as well as providing natural meeting places through their common restaurant. Through their different projects, Foodhills has tried to engage their tenants by arranging various activities, from which Tallman *et al*. (2004) explains that networking and information exchange can occur between the different parties. The indirect exchange between actors at the restaurant, form where several official activities also are held, is according to Tallman *et al*. (2004) and Bell (2005) the encounters that often lead to new ideas and competence exchange between individuals.

One of the key criteria for a company joining the cluster in Bjuv involved the companies sharing a similar value to that of Foodhills, which meant a focus on sustainability and circular production. The information exchange detailed by Bell (2005) and Tallman *et al*. (2004) meant to happen between the companies can become more prominent and understandable to the involved actors if a similar core value exists among the participants (Paniccia, 1998 Saxenian, 1994). Sydgrönt, Glimåkra and Air Liquide are all frequent partakers in these activates, with Sydgrönt and Air Liquide even having hosted a few seminars. The seminars are usually part of projects arranged by Foodhills, with the intent of bringing together different actors mainly from the food sector. In accordance with Panniccia (1998) and Saxenian (1994), these activates involving several actors with similar values can more easily boost cooperation between the companies at the cluster, while also sparking new innovative ideas and solutions.

While the venture of the cluster at Bjuv can be regarded as large in size, its participants are mostly comprised of several SMEs. Ho *et al*. (2007) and Fassoula (2006) describe this as an advantage, as these companies can gain from synergy effects created by the cluster. As a SME often lack the recourses and capital held by larger companies to reach their growth potential, working with and staying competitive with other SMEs can aid in reaching this point (Ho *et al*., 2007; Fassoula, 2006). These effects can already be seen at the cluster in Bjuv, with

companies utilizing circular recourse use, using already existing infrastructure and sharing competence. This synergy effect is part of Foodhills core vision behind the creation of the cluster, as they intend for this effect to further evolve these companies in the future, along with the development of the cluster.

5.2.1 Regional support

As a cluster is location-based, its growth will be tied to the region it is operating in (Porter, 2003). A region therefore experience growth through the cluster in several different aspects, whilst also supporting the cluster. Porter (2003), Ho *et al*. (2007) and Wrobel (2015) detail how a cluster can experience growth through regional development by different means, trough different inputs. These can be broken down to *1. new primary firms, 2. new supporting firms, 3. labor and 4. capital* (see figure 5). Foodhills' endeavor to operate a cluster in Bjuv coincides with these aspects, with close to 30 *new primary firms* having set up operation at the facility. With only half of the existing facility occupied by tenants at the moment, Foodhills and their subsidiary Foodhills Fastigheter is working to fill theses space with new companies. While these companies are mainly primary firms, Foodhills is anticipating the arrival of more firms supporting the ones already existing there, in line with Porters (2003) theories. Glimåkra Åkeri is an example of both a primary and *supporting firm*, as their main business still focuses on their original vision of providing transportation for larger companies. Still, their move to Bjuv culminated into the birth of a daughter company which now acts as a supporting company to cluster-based firms as well as other businesses in the local area.

These new arriving firms have consequently also increased the *labor* force in the region, having brought in close to 500 new employees to the cluster since 2018. The labor force today working at the cluster is comprised of people brought in from both outside the region and from the local area. Wrobel (2015) describes this kind of fast growth through the fact that employment trends within a cluster often are more positive, as companies active there are more likely to expand their workforce. The endeavor is also backed by a substantial amount of capital, both from the region of Bjuv itself and from outside investors. Porter (2003) explains the gains that can positively affect a region by supporting a cluster with *capital*, with the arrival of new firms, additional labor and future economic growth. In addition to economic support, the region of Bjuv has also partaken in a number of projects, most notably "Food Valley of Bjuv". With all the inputs going into the cluster, both from onside and inside the region, an output will be produced in the form of regional growth.

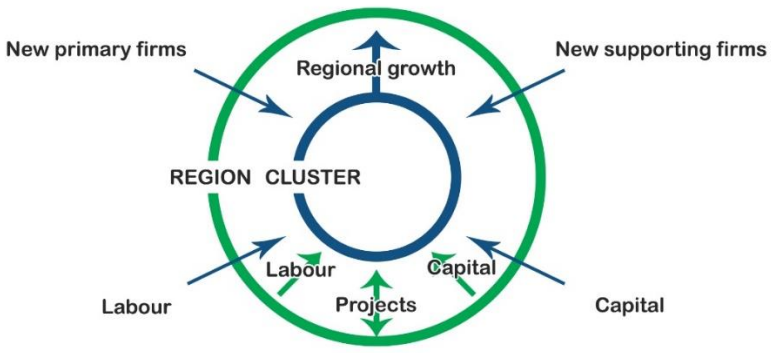

Figure 5 Regional support (own processing)

5.3 Resources and infrastructure

According to Huysman *et al*. (2015) resources can be divided into natural resources, industrial resources and waste resources. Natural resources include fossil fuels, water resources and land resources while industrial resources are the result of extracting natural resources from the nature which is used in the production and consumption section. By sharing these resources, such as industrial resources that can be used in the production, companies can decrease their costs while also utilizing these resources as assets in their production (Frischmann, 2012; Pouder & St. John, 1996).

Foodhills has an established infrastructure and resources at their facility that other companies within the food sector can take advantage of. In 2019, Sydgrönt established a cold storage for vegetables and a digester for beetroots at Foodhills facilities in Bjuv. This was a good opportunity for Sydgrönt to take part of the resources and an already existing infrastructure in place, such as a water treatment plant that enables utilization of wastewater and ability to use shell left-overs that can be collected and used to biogas. Thus, the company and other companies involved can decrease their costs while also increasing the social value, which is supported by Frischmann (2012) meaning that the existence of resources that are available to multiple actors results in a social value for those involved. Additionally, Pouder & St. John (1996) explain the economic benefits from sharing resources which relates to Sydgrönt who can take part of an already existing cold storage for their vegetables instead of investing in it on their own. Additionally, Glimåkra Åkeri AB is a company that takes part of the existing infrastructure at Foodhills since there was a good opportunity to develop a cold storage and hub for the goods and transports. Further, the infrastructure and resources at Foodhills are important for Air Liquide AB since they can use the facility as a combined pilot- and test facility in order to examine new gas solutions and developments within the food sector.

Thus, by sharing more resources and take part of an existing infrastructure, involved companies can gain more economically but also create competitive advantage, which is supported by Barney (1991). Foodhills is a facility that offers an established infrastructure and resources for food companies and there are good conditions to share more resources in the future but also to develop an even better use of resources and the existing infrastructure.

5.4 Transaction costs

Brouthers & Nakos (2004) define transaction costs management as a vital part of a business, as the way it is implemented directly and affects the future operation of the company. North (1994) further points out that a transaction cost affects every company differently, but nonetheless still has an impact of every firm active at a market. The food sector, in which the cluster-based companies in Bjuv mostly operate in, is described as vast with usually long value chains from primary producers to consumer. The cluster is also mostly comprised of SMEs, firms which Zacharakis (1997) describes often lack the necessary recourses and capital possessed by larger firms, therefore putting them at higher risk when transaction costs are high (Lohrke *et al*., 2006).

The three variables proposed by North (1992), *Value of all transaction related actions, size of market, and enforcement* can be tied to the cluster in Bjuv and represents different opportunities for the companies operating there to keep costs down. By utilizing a strong network, both within and with actors tied to Foodhills, cluster-based companies in Bjuv can effectively create

deals with strong transaction security without violation of contract. The size of the food market is also vast, as detailed by the companies operating in Bjuv, but strong connection with different parts of the value chain contributes to exchanges of a more personal nature, which in turn can positively affect the transaction costs for a company. This connection is created both through networking activates arranged at the cluster and unofficial meetings. It is also strengthened by the fact that the cluster includes companies from different parts of the value chain, from primary producers to processing and logistics.

Further, Lorkhe (2006) and Nilsson (1996) propose other ways to lower transactions costs, one being to utilize shared resources. This approach is in use at the cluster in Bjuv, with a circular use of recourses being part of Foodhills core vision for the facility, as detailed in chapter 5.3. Lohrke (2006) explain the usage of this method is particularly advantageous for SMEs, as it can cut costs and exclude intermediates from the process. These aspects, along with those described by North (1992), can together be utilized within a cluster in the food sector to lower transaction costs, an important action to become financially stable (Brouthers & Nakos, 2004).

5.5 Social capital

Social capital is explained as the social value of social relations and norms between people and communities (Pretty, 2003) and a general conclusion that is agreed upon by all scholars that have contributed to the research within the field of social capital, is that social capital is network-based. Additionally, Akcomak (2009) organizes social capital into four commonalities whereof two includes social networks *(i) social capital as a result of social networks and (ii) Utilizing the social network leads to social capital.* To operate in and to utilize the network are vital parts in the cluster vision that all interviewed companies agree upon. Thus, they have integrated network activities at the facility, including arrangements of seminars and events with internal and external actors which enables individuals to share knowledges and innovative ideas which contribute to a stronger network and an increased social capital. The restaurant at Foodhills allows individuals to interact while also serving as a location for seminars and activities, which is a good move towards a stronger social network.

According to Lollo (2012) there are four types of social capital that have been pointed out as vital for networks. The first one *(i)identifying* is defined by the power of homogeneity and hierarchy and describes social relationships that are formed in formal groups whose identity and function are connected to a common value or interest shared in a group. For companies to enter the cluster at Foodhills, they need to operate in some part of the food sector while they also need to share the core value. All the interviewed companies and individuals operating in the cluster have an interest in food production and share Foodhills' core values concerning circular food production which they also see as an important part for the cluster to evolve further. The second one is *(ii) bridging* characterized by frequency and homogeneity refers to relationships within informal groups, including people sharing the same or similar interests. Lin (2008) explains bridging as the capacity of individuals to get in contact with others who may have a different perspective. In this context and in relation to bridging social capital, the restaurant at Foodhills is important since it enables individuals from the cluster and outside the cluster to interact and get in contact with each other. The third one, *(iii) linking* social capital, typified by hierarchy and frequency, is by Pretty (2003) described as the capacity of individuals or groups to cooperate and get in contact crosswise with external actors. This is related to the arranged seminars at Foodhills where external and internal actors are welcome to join an informal group and take part of inventive ideas in order to increase their knowledge concerning a specific subject. These seminars are along with other network activities an opener for

individuals from different part of the food sector, to interact and share knowledge. The fourth one, *(iv) bonding* social capital is a combination between identifying, bridging and linking social capital (Lollo, 2012) and Lin (2008) asserts that bonding characterizes the connection between people with similar goals. Beugelsdijk & Smulders (2003) argue that these relationships are normally found between like-minded within a localized community. Since the cluster is relatively new it is difficult to state and measure if they have reached bonding and its content, but it can be characterized in the cluster by the companies sharing the same value concerning circular food production.

To support the importance of shared values in the cluster, Senge (1990) argues that shared values in a company is a vital part in order to attain a goal-oriented behavior and further a strong cultural foundation. Since shared values allow individuals to be involved in goal-oriented tasks, they play a vital role in forming their own organization culture. Additionally, organizational members with similar values are more likely to exchange resource and knowledge with each other (Tsai & Ghosal, 1998) and if a company shares the values of another company, their ability to collaborate and exchange knowledge can be improved (Panicccia, 1998; Saxenian, 1994). Chuluunbaatar *et al*. (2014) assert that a shared vision can have the same effect in a cluster network. Foodhill's main vision is to develop a circular food production that is innovative, sustainable and resource efficient while Sydgrönt's vision is to be business-oriented, effective, innovative and sustainable (Sydgrönt, 2020). Additionally, Glimåkra Åkeri's vision is to evolve into the future and to be an attractive collaboration partner with focus on sustainability at all levels. Air Liquide's vision in the cluster is to offer sustainable gas solutions for food companies in the cluster. Thus, Foodhills and Sydgrönt share the vision about innovation and sustainability while Glimåkra Åkeri and Air Liquide share the vision about offering sustainable solutions and logistics for companies in the cluster. Consequently, all companies have a focus on sustainability and they also share the interest about circular food production, which is advantageous in order to attain and develop a strong social capital.

6 Conclusions

This chapter presents the conclusions of the study by answering the research questions, followed by recommendations to future research and a critical reflection. The aim of this study is to examine determining factors for food companies to establish in a cluster network and further to investigate how these factors contribute to value creation for the company and within the cluster network. For the authors to produce an answer to the established research questions, a case study using qualitative interviews has been conducted at the business cluster in Bjuv, located in the southern part of Sweden. The case study included the owners of the facility, Foodhills, as well as prominent actors who have established their base of operation at the cluster. The resulting empiric evidence together with the theories presented in this study has produced the following conclusions.

6.1 Our conclusions

1. *What factors are determinant for a company to establish themselves in a cluster network?*
2. *How can these factors contribute to value creation for one company itself and within the cluster network?*

A company chooses to operate in a cluster based on several factors, some being applicable on most cluster-based companies while others differ based on individual company needs and intents. The access to a strong network with connections to the sector the cluster operates in has proven to be an essential part for cluster-based companies. Companies seek to utilize the network access in various way, which includes spawning new lucrative ideas for their own businesses while also forming partnerships with other firms within the cluster.

The ability to cut investment and operating cost is also a factor, which influences a company´s decision locate their operation at a cluster. Already existing infrastructure and resources can prove essential for companies, especially SMEs, as these can minimize the use of capital and attain a more efficient use of resources.

The location itself is also noted to be of importance. The factors of vicinity to cities, ports and highways, access to labor, regional support can give strength to a cluster, prompting it to more easily draw new members. The factors of location, network and infrastructure all work separately while also strengthening each other through synergy effects, as they together create a strong draw for companies wanting to establish themselves in a cluster.

Another determinant factor for a company to establish themselves in a cluster network is based on the company's values and interests. If the values in the cluster are in line with the company’s individual values, they are more likely to enter the cluster and be a part of the network.

The process of value creation though cluster network is complicated and work through numerous different channels by using multiple recourses and methods. By having a strong unified cluster consisting of companies with similar values, a cluster network which *can* contribute to value creation is created.

6.2 Future research

Since Foodhills moved into the facility in Bjuv during 2018, the cluster and its business model are still under development. Therefore, it would be interesting to study the development of their business model in relation to the circular food production systems in the future. Further, if it is possible to measure resource efficiency and waste utility from the production in the cluster in the future, it would be interesting to study how circular food production systems could meet

the growing demand of food and further increase the self-sufficiency of food in Sweden. Future research could also study other companies in the cluster in order to attain a broader knowledge of their business and activities in the cluster.

6.3 Critical reflection

The conducted study at the cluster in Bjuv have established a few factors that are determinant for companies when they decided to operate in a cluster network. Furthermore, the study has incorporated several theories tied to network and utilized these to understand the network within the Bjuv cluster. However, the cluster is still in the early stages of development, with many of the Foodhills ideas having yet to come into fruition.

Therefore, the study has been unable to properly answer the question how distinct value is created through this cluster network. The individual companies operating in Bjuv are still using the cluster as mean of creation individual value, but value created by the cluster companies working together will require future studies when the cluster has had the time to develop.

The empirical evidence provided the authors with material what could not be used to answer all the original research questions, which prompted the authors to partially change the aim of the study. This led to the inclusion of the theory of transactions cost, meaning that questions regarding this theory where not directly answered during the interviews. The collected material was instead only analysed using this theory.

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Appendix 1: Interview guide

Background and vision:

1. What is the founding idea behind the business?
2. What kind of business is it? (Co-operative society, AB etc.?)
3. How did the business start?
4. How has the business evolved since the start and what is your main business today?
5. What is the company's main vision in the cluster?

Location:

6. Why did the company decide to establish at the facility in Bjuv?
7. How importance is the location for the company?
8. What are the main advantages/disadvantages with being on place in Bjuv?
9. In which way does these advantages/disadvantages gain/ your company and business in the cluster?

Cluster and network

10. Which role plays the cluster formation for the company?
11. Which role plays the network for the company?
12. In which way are the cluster and network important for the company?
13. How does the existence of other actors within the cluster and the food sector contribute to your business?
14. Do you have any ongoing projects with other companies in the cluster or with external actors?

Resources and infrastructure:

15. Are the resources at the facility in Bjuv important for your company?
16. How important is the infrastructure at the facility?
17. In which way are the resources and the existing infrastructure important for your company?

Values

18. How important do you think it is for businesses in the cluster to share similar values and interests concerning food production?
19. Does the company gain by sharing the same values and interests as other companies in the cluster?

Future development:

20. What do you think about the future in the cluster?
21. How do you think the cluster and network will develop further?
22. What is important in order to evolve the company itself and the cluster network?