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SCHOOL OF BUSINESS, ECONOMICS AND LAW

Master Degree Project in Management

The Mussel, the Hen, and the uninvited Duck:
How a diverse network of actors in SMEs are impacting sustainable practices in
the West Coast of Sweden

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Master Degree Project
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Abstract

This paper examines the diversity of a network of actors of small and medium-sized enterprises (SMEs) concerning the practices of a company to decrease the negative effects of eutrophication by improving coastal water quality. The study is based on actions of a company within the mussel business at the West Coast of Sweden. With the contribution of a diverse network of actors in SMEs, there was a possibility to make the ocean healthier by decreasing the amount of nutrients in the water within the coastal waters in Sweden. The research does not limit to examine only human actors; it also takes into consideration non-human actors, which are discussed through the actor-network theory. The study shows that when different actors are organized around a common interest, other actors become interested and enrolled and as a result, the actors become mobilized and stabilize the network. Consequently, the results show that a diverse network of actors contributed in creating actions regarding sustainable strategies, that are beneficial for everyone in the network and the environment.

Keywords

Networks, SMEs, actor-network theory, translation, sustainability, mussels

1. Introduction

The interest in researching how companies are integrating the concept of sustainability into their strategical plans, request to integrate more sustainable strategies in the organization (Egels-Zandén & Rosén, 2015). In the last decade, the debate around an environmentally sustainable thinking has become more diverse and controversial, because companies now use concepts within the green economy in order to establish and measure an activity to become environmentally sustainable (Jones et al., 2016). Hart et al. (2003) explain that for a company to be sustainable, it should deliver a sustainable development through three parameters or the triple bottom line strategy that incorporates the economic, social and environmental benefits simultaneously. While focusing on a company's efforts to engage in environmental sustainability, the attention has been mostly of the way on how to incorporate environmental issues into a corporate strategy (Jämsä et al., 2011). And while discussing environmental issues,

it is often discussed that more emphasis is often placed to large companies in terms of environmental efficiency and small and medium-sized enterprises (SMEs) tend to be overlooked (Johnson, 2015; Oliveira & Jabbour, 2015).

Although the environmental impacts of the SMEs are not precisely known, they are in general considered to have a great environmental impacts in both developing and developed countries (Oliveira & Jabbour, 2015). An SME is generally composed of 250 employees or less, although depending on the context, this may vary (Johnson, 2015). SMEs are often described as the support for a healthy economy, since they represent around 90% of the global business and around 60% of employment (Jamali et al., 2015). In fact, some studies suggest that around 70% of the global pollution originates from SMEs (Collins et al., 2007; Johnson, 2015). Oliveira and Jabbour (2015) discuss that SMEs could be responsible for a great amount of greenhouse gas (GHG) emissions. Furthermore, the SME as a singular actor in the industry can have a less negative environmental impact, but as network of SMEs, the influence is greater (Jämsä et al., 2011).

Networks and networking are important for SMEs because they provide the access to resources of other organizations (Naudé et al., 2014). Moreover, networking practices can be a relevant factor for an SME, because through a strategic network positioning, resource limitations can be defeated (Collins et al., 2007). A network of SMEs consists of an informal association, where an SME can learn and share resources and ideas within an open environment (Brink, 2014). Networking has shown to be able to relieve challenges that SMEs face because it offers a platform for growth (Jämsä et al., 2011). In comparison to larger companies, SMEs face bigger sustainability challenges, for example they lack expertise and capital resources (Collins et al., 2007).

Thus far, different studies have overlooked the importance of the diversity of actors in the network of an SME. These different studies such as Naudé et al. (2014) explain about the significant aspect of networks and SMEs, where networks and business relationships have an impact in the business competitive advantage, because their skills sustain or improve this advantage. Naudé et al. (2014) discuss the importance that a network can have in an SME, but it does not go deeper in explaining about the diversity of actors in the network nor how this diversity could help sustain a competitive advantage.

Other researches do not explain how different actors can contribute to overcome challenges, such as lack of resources. Brink (2014) explains that SMEs are committed to both, the development and innovation of the networking, despite limitations such as a lack of resource. The lack of resources or information limitations, can also mean absence of economies of scale, so SMEs have found the necessity to cooperate to complement internal resources (Iturrioz et al., 2015). However, it is not clearly stated if these associations include a diversity of actors in the network,

such as including objects and animals, which combined will make it possible to enhance the network. Jämsä et al. (2011) explain that not only at the economic level, but also at the social and ecologic levels, networks can be enhanced by sharing, teaching, learning their practices. All these authors contribute with important information but do not explain how different actors can share their practices in the network.

Some authors mention the diversity of a network in their studies, but only in theory and do not actually apply it in practice. Iturrioz et al. (2015) describe that networks in SMEs can be composed of a relationship between persons, objects or events. However, the authors use this heterogeneity to explain the necessary principles for a group of cooperatives that want to enter a network to offer benefits to SMEs. Other authors as Collins et al. (2007) discuss that SMEs often are struggling to continue in the market because in most of the cases it is one person that does different tasks. This single person can be an entrepreneur or an intermediary that manages a multi-partner network (Agostini et al., 2015). These studies disregard the composition of a diverse network of actors, such as including objects and animals.

The relationships of having different actors in the network are mostly ignored in the studies of SMEs. In theory, the heterogeneity of a network is preserved by objects, ideas, animals and people (Czarniawska, 2017). Therefore in practice, the heterogeneity should be treated as equal in the network, without dividing animals or humans. Naudé et al. (2014) discuss that entrepreneurs have a main position in a network structure and their influence can result in a higher performance of the SME by their ability to obtain resources. Additionally, Iturrioz et al. (2015) argues that an optimal network structure does not exist but it can depend on the objectives of the members that compose the network, finding the correct balance between trust and innovation. Moreover, these studies do not explain how the associations from different actors are reached, preventing the actors from leaving the network.

In addition, some studies may suggest that SMEs are not engaged that much in sustainability practices. Jämsä et al. (2011) discuss that there seems to be minimum research about how SMEs are facing environmental challenges. Indeed, previous studies about a network of SMEs lack to explain how a sustainable strategy can result from a network of diverse organized actors. Moreover, Collins et al. (2007) discuss that their research showed that large companies are more engaged in sustainability practices than SMEs.

Thus far, it seems that the different studies focus more on what a network of SMEs should look like rather than how a network of different actors is composed in practice. In this thesis, it will be discussed that when there is a mobilized network of diverse actors in SMEs, there can be positive environmental outcomes. In addition, I discuss the diversity of networks of actors in SMEs within the context of sustainability. By studying a company in the mussel business, this study shows an organized network of actors with common interests and how because of their network,

these actors are able to mobilize other actors. In short, the actions of a heterogeneous network in SMEs results in sustainable strategies that address sustainability issues. Therefore, the following question needs to be answered: *How can a diverse network of actors in SMEs influence sustainable practices?*

The thesis is divided into the following sections: First, the theoretical framework of the actor-network theory will be presented. Second, the setting and methodology of the study are provided. Third, the findings and analysis with the theoretical framework will be presented by examining a network of SMEs in the mussel business. Last, the discussion and conclusion will be reviewed.

2. Theoretical framework

Actor-network theory (ANT) has been chosen for the structure of the study due its approach in describing the diversity of actors in a network.

From an ANT perspective, there are different actors, humans and non-humans, which are present in a network that is composed by “heterogeneous bits and pieces... fitted together” (Law, 1992, p. 381). A society would not be possible if these “heterogeneous bits and pieces” did not compose the networks. The created networks in turn can interest other actors that can be persuaded in order to gain potential allies to create other heterogeneous networks that are connected (Callon, 1986). Moreover, Latour (1986) discusses that there is an ongoing process between the interactions of humans and non-humans and the relationships they form in the network. The network must be kept interested and enrolled in order to gain the support of other actors (Callon, 1986). Furthermore, Czarniawska (2017) discusses that ANT can be used as an approach or guide to discuss how people, animals, and things are connected and continued.

Latour (2005) argues that a network can be seen as a black box, in other words, having inputs and outputs. As long as it is working it is seen as a simple input and output, but as soon as it breaks down, it becomes visible that there is chain of complex actions that build the black box, i.e. the network. Law (1992) explains that the networks of actors would not exist if there was no heterogeneity, but as each actor has its own interest, there is a constant struggle to break off from the network. Therefore, the actors that compose the networks are in constant negotiation, so they evolve from being interested to become enrolled (Callon, 1986) and avoid breaking off from the network. Latour (1986) explains that when several actors are enrolled, power can result as something consequent and awarded by others, then a translation model is useful to discuss the way power is used in action.

In this thesis, the analysis will be based on a translation model. A translation model according to Latour (1986) consists of a fundamental aspect where a network is made of actors and their relationships, which are shaped according to each actor’s projects. The thesis will focus more on the translation according to Callon (1986), which consists of four moments: problematization,

interessement, enrolment, and mobilisation of allies. The first is problematization, where actors and objectives are identified by the researcher. This first moment includes a double movement, one where the identities are defined, and the other where there is an obligatory passage point (OPP) in the network or simply said, where the actors and their relationships become essential in the network. Latour (2005) discusses the process of “assembling” new actors that have not been joined yet and because of their heterogeneity they are brought together into the network. They are brought together because the connections of heterogeneous actors is not closed, rather reassembling new kinds of actors (Latour, 2005).

After the problematization has been identified, the second moment is the interessement. This is where the actors engage in politics through an artifact (Latour, 2016) that Callon (1986) calls a device or mechanism of interessement that interests all the actors in the network. This device avoids other entities to come in between and results in a satisfactory balance of power. Lindberg and Walter (2013) explain in their research, that there are actions that need to be done before they can be connected to something else that is within the same context. This is important because it can explain what is being done and how things within the same context are connected to this action (Lindberg & Walter, 2013).

In the next moment of translation, the enrolment, roles are given to different actors where their interests are linked so that new actors can be persuaded and enrolled as well. In this moment of enrolment, it is important that the interests of the actors are met, otherwise there is betrayal and they would turn into dissidents. Just like in the translation model, Latour (1986) discusses an artefact in the form of a token, where this token can be in the hands of people and these people can modify the token, add to it or betray it. Callon (1986) explains that there are always obstacles that come across the goals proposed for every actor. The betrayal can threaten to destabilize the network. In order not to threaten the stability of the network, Bergstrom and Diedrich (2011) discuss the concept of re-problematization, where a new role is created and a new actor is interested in the ongoing network. In this re-problematization process, an actor has betrayed the network, so instead of destabilizing the network, the actors in the network will try to interest and enroll this new actor to keep the network ongoing.

In the final moment of translation, the mobilisation of allies, possible alliances are formed and they can act as a unit, a spokesperson speaking in the name of others (Callon, 1986). Due to the diversity of actors that will be described in the analysis, the actor-network theory makes it possible to discuss how human and non-humans are given power. The key focus of actor-network theory is that it pays attention to the relationships of the actors that are constructed in the network and nothing is already determined regarding around how they are related and how they influence each other (Latour, 2005). Moreover, the construction of nature and society, which is constantly changing and negotiating (Law, 1992), is brought together by a common interest (Callon, 1986). Therefore it proves relevant to treat all actors and their relationships

similarly. Law (1992) states that there is no special distinction between humans and objects that compose a social network; that is what makes the heterogeneity in a network and that most of the situations involving humans are possible because of the objects (materials, animals, machines, etc.) that allow them to occur.

While using ANT, the researcher understands that there is a critique against the theory, such as Whittle and Spicer (2008) discuss in their paper. These authors question the contribution of ANT to providing a critical theory of organization and that it weakly addresses key questions for this purpose, by being too descriptive. However, this may be understood differently, because Latour (2005, p. 43) explains that it is the analysis of the “dealing with a state of affairs” that is the crucial aspect, not the theory in such. This can mean that the strength of the actor-network theory consists in analyzing closely the empirical data of the relationships. Another significant aspect against the critique is what Bergström and Diedrich (2011, p. 4) explain about the structure of relationships, which can be seen by evaluating how “actors act, react, and interact” in the corresponding context. Therefore, in this thesis, ANT can help to describe the relationships and how the actors are constructing them. Furthermore, Law (1992) explains that the robustness of the network increases when there is a consequence of innovations set in the correct environment and the outcome can be seen as a result of the negotiation between materials of organization. In this sense, organization can be seen as an achievement, a consequence of overcoming resistance.

As ANT explores the result or effects of a network of different actors, it is necessary to understand how the different interests among a diversity of actors can be met in the network. And if this network is successful in the mussel business, the network of SMEs will be able to recruit more allies that will result in more networks. Moreover, these networks can be composed of humans or non-humans, which will continue to address environmentally sustainable measures.

3. Methodology

3.1 The setting

Since the 1960s in Sweden, there has been an increased abundance of phytoplankton in the coastal waters as a result of eutrophication (Diaz & Rosenberg, 2008). The coastal waters provide a variety of ecosystem services, such as recreation through tourism and food through the fishing in areas that are located in reefs or harbors (Hatton et al., 2015). Moreover, the authors discuss that the quality of the coastal waters has been decreased because they are affected by societal activities, such as urbanization and runoff from agriculture as well as overfishing.

3.1.1 Coastal water quality

Due to the increasing populated coastal zones, increased runoff of nutrients from agriculture and industries, to mention some of the main sources, a serious environmental problem worldwide within the coastal waters origins through the concept of eutrophication (Lindahl et al., 2005).

Eutrophication means that there is a great amount of nitrogen and phosphorus (Lindahl et al., 2005), or in simple language, there are too much nutrients in the water. Consequently, this problem threatens the health of marine biodiversity, as well as the fishing business by the abundance of too much organic material in the coastal waters and periodically also toxic phytoplankton. Lindahl et al. (2005) discuss that by reducing the amount of seston, which contains phytoplankton that is present in the coastal waters, the nutrients that cause eutrophication can through mussel farming and harvesting be recycled back to land and reused.

However, the phytoplankton, and thus nutrient intakes are not the only relevant characteristics of the mussels. The farming of these shellfish is an environmental sustainable practice because the mussels are organic and climate smart (MusselCompany, 2017). Mussel farming is present in other countries, such as Spain, Denmark, Holland, Italy, and France (Lindahl et al., 2005). Moreover, it may seem that these countries are more experienced than Sweden, because the mussel business has existed there since many years. For instance Smaal (2002) mentions that the harvest and culture of mussels dates back 2000 years for Italy and around 700 years for France.

As a way to treat the problem with eutrophication, the mussel farming in Sweden has been studied as a solution to compensate for the nutrient release in society, such as agriculture, sewage, and other activities (Shumway, 2011). The West Coast in Sweden is surrounded by coastal waters and SMEs have been engaging in mussel aquaculture practices to treat this problem (Carlsson et al., 2012). The company that has been studied is in the mussel business, therefore, the aquaculture activity focused on the mussel farming in Gothenburg will be the relevant source for this paper.

3.1.2 The Mussel Company

The company studied was the Mussel Company (real name was changed), which is based in Gothenburg, Sweden. The location of the company is important because the city has access to the West Coast, where the mussel farming business is located. The Mussel Company is a young startup with the purpose to commercialize products that are made from mussels, while at the same time engaging in environmentally sustainable practices. More specifically, the Mussel Company belongs to the category of small and medium-sized enterprises (SMEs) because it has less than 250 employees. The study also included the company's stakeholders, which are also considered as SMEs following the same principle as above, these are mussel farmers and customers.

The mussel farmers supply the mussels to the Mussel Company, with whom the entrepreneurs have a constant business relationship. The company uses an industrial process to transform the raw material, i.e. the mussels from the sea, by separating the meat from the shell and turning it into a meal. The meal obtained is of high quality, because it does not contain the shells, and has a great value of omega-3 fatty acids. These omega-3 fatty acids are an important nutrient intake for

individuals (MayoClinic, 2017). But the meal not only contains omega-3 fatty acids, it also is a high protein source.

3.2 Design of the study

A qualitative method was applied in order to follow how the actors in the mussel business are building the relationships. Silverman (2013) explains that engaging in a qualitative study can examine deeper a specific phenomenon as well as the meanings and practices of the actors around it.

In order to examine the phenomena of how different actors in network of SMEs are organized in the mussel business, a case study research was performed. Flyvbjerg (2006) explains that as a case study researcher, actual experiences and real-life settings can be achieved, starting as a beginner to become an expert in the way of testing hypotheses. Czarniawska and Sevón (2005) discuss that when researchers are in the field, they can try to understand the changes that are happening as the actors narrate their practices. Moreover, a case study can involve examining how a certain phenomenon in a group can vary across different situations among complexities and uncertainties (Flyvbjerg, 2006).

3.3 Data collection

The starting point of the data collection was by establishing contact with the company that was to be engaged in the study. This was important to begin with because it would help to create more connections with the relevant stakeholders around the mussel industry in the West Coast of Sweden. Additionally, by starting a contact with the company, for example, visiting the firm's offices, helped to create an understanding of how the mussel business work.

The data was collected in three phases. First, general information about the Mussel Company, which is an anonymous name used for this thesis, was gathered to obtain a sense of the how the culture is presented, which means the culture of an SME in the mussel business network. The Mussel Company is the main actor to be studied within the network of SMEs in the mussel business. The mussel business consists in the network of SMEs that work with the mussels in relation to their business purpose. The general information and culture about the company was achieved by visiting the company's office; observing and learning more about the different projects they manage. By engaging in conversation with the CEO of the company, this practice opened a dialogue between researcher and interviewee and more importantly, created a sense of trust. As Kvale (2006) explains, this dialogue can build a sense of trust between the interviewer and interviewee. In this case, it can create a more comfortable environment to obtain access to the company and to understand more about the practices of an SME in the mussel business. After the visiting the business a third time, an interview with the CEO of the company was possible.

After visiting the company and getting more familiar with the phenomenon of an SME in the mussel business, the next step was to begin interviewing more people. Qu and Dumay (2011) explain that the research interview is an important qualitative method to obtain information and it is widely used in field studies. So, the CEO of the Mussel Company offered to the researcher the contact information for the corresponding stakeholders of the company, meaning the entrepreneurs or managers of other SMEs. This worked as a snowballing method as described by Given (2008), where the first person contacted offers further reference people or more connections. This part was important in the research because it established the link with the other SMEs or stakeholders that have a business relationship with the Mussel Company; i.e. the mussel farmers and the customers. Kvale (2006) discusses that more information and contacts can be offered for the research when the connection has been established.

The interviews were done using a semi-structured method, which allowed new ideas to be introduced when the interview was performed. According to Silverman (2013) departures from the guidelines are encouraged and do not represent a problem during the interview. In this way, a structure was followed but at the same time it was encouraged that the interviewees presented fresh or new ideas. Kvale (2006) explains that the phenomenon of an interview gives voice to the person being interviewed and gives the chance to express their ideas with their own words. Moreover, it was important to obtain several points of view, from the Mussel Company and from other SMEs. This was important because people make sense of the business in their own way, and thus it may show different perspectives under the same context.

During the third phase, observations on the stakeholders, such as the mussel farmers were made. Van Maanen (2011) suggests that observations can help to encounter a different setting, one that is not familiar or comfortable for the researcher. When observing a different practice where one is not familiar with, such as a mussel farmer's business, it is important to see how everything is connected and why people are doing what they are doing. Van Maanen (2011) discusses that observations can be directed to translating what happens from one culture to another. Therefore, observing how the mussel farmer works and with whom they are interacting with was a useful tool for the data collection, because the practices of the mussel farmer were being translated to the researcher.

The mussel business in Sweden is composed of few actors; therefore, the many opportunities for interviews was limited. In total 12 interviews were performed plus the observation practice of four hours during the morning working schedule of a mussel farming company. The interviewees were chosen according to the Mussel Company's contacts. Taking into consideration that the mussel business network in Sweden is small, in addition international mussel farmers were contacted. Contacting international mussel farmers was done to examine if there existed a relationship between the network in Sweden and outside.

The following Table 1 shows the data collected and the type of stakeholder that was interviewed and observed.

Table 1: Data collection	Amount
Entrepreneurs	2 interviews
Swedish mussel farmers	2 interviews + 4 hours of observation
SSPO chairman	1 interview
Laying hens farm owner	1 interview
Sports nutrition owner	1 interview
Climate-friendly chefs	2 interview
Danish mussel farmers	2 interviews
Spanish mussel farmer	1 interview
Total	12 interviews + 4 hours of observation

The entrepreneurs are the managers or owners in charge of the Mussel Company. The Swedish mussel farmers are the ones that have a business relationship with the Mussel Company. The Swedish Shellfish Producers Organisation (SSPO) represents the organization that unites a small amount of around five or six mussel farmers in Sweden with the common interest of the Marine Stewardship Council (MSC) certification. This certification verifies that a company engages in sustainable seafood practices (MarineStewardshipCouncil, 2017). The laying hens’ owner, sports nutrition owner, and climate-friendly chefs have ongoing projects with the Mussel Company, which will be described later in the findings and analysis part. The Danish and Spanish mussel farmers represent the international mussel networks.

It was also relevant to collect data from other sources, such as scientific journals and earlier studies, from and not limited to management, SMEs, networks and environmental sustainability matters. Another valuable source was online research, to gain a holistic understanding of the industry, as well as to find new and more relevant information around this phenomenon. Collecting data through the Internet has become more common and it can also facilitate the analysis of the structure of the interview and how the relationships and social constructions are developed (Silverman, 2013).

Limitations are always relevant to consider in a study. As mentioned, Kvale (2006) explains that interviewers build trust with their interviewees and if the interviewee feels intimidated by the interviewer, the person could be willing to share less information and could therefore influence negatively the quality of data that was obtained. In addition, Van Maanen (2011) says that there is no certain way to find out about the real emotions of the people that are being studied. This

means that many assumptions can be made along the way and this could represent a limitation for the research project. This limitation can be related to the fact that many of the interviewees did not like to discuss about the negative aspects or challenges in their business. However, after discussing achievements, the interviewees were more open to discuss about challenges and how they had managed to surpass them.

As for the ethical implications, Kvale (2006) discusses that if an interviewer is too dominant, he or she can be invading a person's privacy. The author adds that interviews can create an uneven distribution of power, which can become a hierarchical relationship, where the interviewer sets the pace according to his or her research needs. In Sweden, there is a government agency, the Swedish Research Council that ensures that ethical matters on research-related matters are communicated between the researcher and the different academic areas (SwedishResearchCouncil, 2017). For the implications mentioned, it was important to keep an open mind about the interviewee's limitations and interests, and to set a pace and place, where the interviewee and interviewer felt comfortable.

3.4 Data analysis

The data was analyzed as follows. First, since most interviews were performed during the working schedule of the owners or managers, notetaking played an important part when analyzing the data. Martin and Turner (1986) advise to take notes in the form of a story, which can be easier to read and review after the interviews have finished. Moreover, the authors suggest that the notetaking should be placed in a chronological way within a context, which should be fully described. Notetaking and interviews are important in a research in order to capture the concepts of the phenomena that are being studied (Martin & Turner, 1986). Furthermore, the interviews were recorded with the permission of the interviewee, which made the consequent transcription more exact. Thus, the performed interviews were transcribed completely. After the transcriptions were finalized, the information obtained was classified into relevant labels and the data was coded. Martin and Turner (1986) discuss that when the coding or analyzing the data, the researcher adds events from previous notes to concepts that were developed before.

Second, the grounded theory was used because it gives the researcher a methodology to apply the theoretical interpretations of a topic while at the same time supporting the empirical data or observations (Martin & Turner, 1986). Moreover, Martin and Turner (1986) suggest to use the grounded theory when large amounts of data are collected from an organizational culture, because it provides a framework to analyze it and relationships can be made about the social phenomena. After classifying all the information, it was possible to compare the concepts obtained and analyze possible relationships about sustainability, networks, human actors, non-human actors, similar interests, and challenges to support the research questions. Moreover, after the concepts and relationships were made, the information was analyzed using the chosen

theoretical framework, i.e. actor-network theory (ANT). The reason for choosing ANT as the theoretical framework was because the research around the network of the mussel business includes different actors, humans and non-humans, and by using this theory it is possible to approach these actors with an equal understanding.

4. Findings and analysis

This section will analyze the findings of the research done around the Mussel Company, combining them with the theoretical framework. First it will begin with a small introduction to the mussel farming practice in Sweden, specifically the West Coast. Then the analysis will follow by using a translation approach, through four moments: problematization, interessement, enrolment and mobilisation (Callon, 1986).

In this analysis there are different actors, humans and non-humans in society and nature, that construct the network and that are constantly negotiating their interests in order to be enrolled. This negotiation may result in a betrayal or in a successful mobilisation that will help understand the phenomena of a heterogeneous network in SMEs engaging in environmental practices.

While writing this research there was no relationship found between the network of SMEs in Sweden and the international SMEs within the mussel business, i.e. Denmark and Spain.

4.1 The mussels in Skagerrak

Mussels as a cuisine are not that common among the Swedish consumers. This is compared with other European countries, such as France and Belgium, where mussels are eaten more often.

The ordinary Swede is not eating so many mussels than the ordinary French or Belgium people (Mussel Farmer 1, 2017).

Moving on to consider another circumstance of the small market of mussels in Sweden, one mussel farmer explains the following:

Aquaculture does not really exist in Sweden, it is very little in comparison to other countries, such as Norway, France or Denmark. So, it is quite non-existent in Sweden and especially in the West Coast. This is very unfortunate because the best waters are found here, which means that they are clear waters and are not exploited yet. (Mussel Farmer 2, 2017)

The mussel farming was developed in Sweden in the 1980s, through the long-line approach (Lindahl et al., 2005). This means that mussels are grown when they attach themselves to suspenders that are hung in vertical lines in the ocean (Figure 1). In Sweden, this farming

happens most richly along the Skagerrak Coast (Figure 2) located between Norway, Sweden, and Denmark.

Farming along the Skagerrak Coast is important because for a mussel to grow there should be clear water with a clear reduced amount of a phytoplankton and other organic material. The phytoplankton is the main food for the mussels. If this was not the case, such as in the Baltic Sea then the mussels can become stressed and grow up to half their expected size, while taking double of the expected time:

In the Baltic Sea, there is blockage that has a low salinity, which means that the mussels are stressed and they get half the size and it takes double the time (Entrepreneur 1, 2017).

The specific factors mentioned above contribute to a mussel to be interested in the farming, which means that it should be somehow attracted in order to attach itself to a rope or a net.

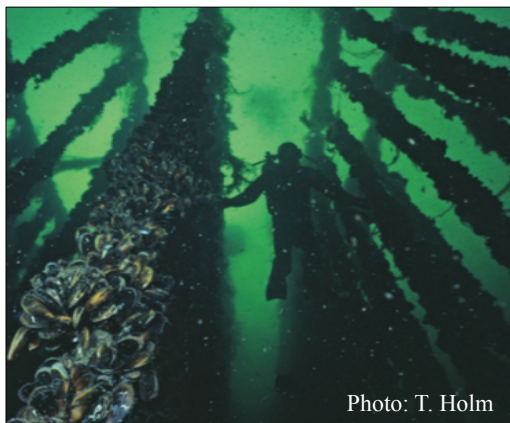


Photo: T. Holm



Figure 1: Long-line mussel farming Source: Lindahl et al. (2005) Figure 2: Skagerrak Coast Source: Lindahl et al. (2005)

The mussels that are grown in the West Coast are the blue mussels (*Mytilus edulis*), which are defined as filter feeders and marine mollusks that are used in open waters (Weldrick & Jelinski, 2016) to reduce the negative effects of eutrophication. As mentioned before, eutrophication means that there are too much nutrients in the water and (Lindahl et al., 2005) explains that these nutrients should be recycled from sea to land. The problem with too many nutrients is that it generates a bloom of algae and in turn it creates lack of oxygen in the sea (Diaz & Rosenberg, 2008).

The mussel farmers are constantly negotiating with nature and with this negotiation there comes many challenges. One example is to have the nets, where the mussels will settle, ready in time for the seeding process.

The mussel larvae are just floating around and after they are a month old they have this urge to settle down somewhere and then you have ropes and you have nets, which is a good substrate for them to settle on (Mussel Farmer 2, 2017).

The journey begins when the mussel is a larva and swims around for a month and by this time they will search for a place to settle down. And it is at this precise moment where the mussel farmers use their experience and technique to convince them to sit or settle down.

So, what the mussel farmer does is he takes out ropes or nets or what substance he uses and present them for the mussel larvae, “please come and sit here” (Entrepreneur 1, 2017).

In other words, if the mussel farmer is successful, the mussel seed or larvae will attach itself to a rope or a net. The decision to use a net or a rope depends on the strategy of the mussel farmer.

But not all is a fairytale, as it may seem. There are some characters also known as predators that can threaten to eliminate a mussel. This predator is seen as a resistance in the life’s journey of a mussel or as some kind of artifact that is opposed to the mussel’s growth. It can be seen as something that comes in between the connection of the mussel farmer and the mussel.

You can have problems with other organisms settling at the same time and that could be sea stars and also another type of organism...we had that problem last year, we had sea stars all over the nets. We panicked! (Mussel Farmer 2, 2017)

But despite the challenges and predators, mussels as the *Mytilus edulis* grow naturally in the oceans. It was just around 30 years ago that mussel farmers in Sweden started to convince the *Mytilus edulis* to grow more abundantly in their farms. But for what purpose are these mussels grown? And how are the different SMEs organized to contribute for making a healthier ocean?

4.2 The four moments of translation

As the story continues, now the analysis will be related to the four moments of translation. As mentioned in the theoretical background, these four moments are problematization, interessement, enrolment and mobilisation of allies, which are based on the research of Callon (1986). It is important to note that these moments function more of a structure to how the network of SMEs is constructed and stabilized, than as specific steps or chronological order.

4.2.1 The problematization

This is the first moment of the model and the starting point for the phenomena consists of identifying the actors and their interests. It can also be helpful to follow an actor in order to understand how nature and society are being constructed and deconstructed (Callon, 1986). The

actor is constructed in the form of two entrepreneurs that have the knowledge and motivation to see the mussels in the sea and imagine their transformation in society.

Having defined how the actor is composed, the two entrepreneurs will be presented. One is not more important than the other; in fact, both complement each other by their experience and knowledge in research and business. However, I will start by describing Entrepreneur 1, who is a marine biology expert and has studied for many years the coastal waters' quality. The research about coastal waters is a broad subject in biology, but the focus here is the problem about eutrophication, meaning that there are too many nutrients in the water. So, concerning this problem, this entrepreneur had been interviewed many times by the media. And he was tired of feeling part of the problem. But what could the solution to this problem be?

Many ideas came to mind of course, but the importance was to find a solution that could be friendly to the environment. Suddenly Entrepreneur 1 had a great idea and thought about farming more mussels than the ones already present, in order to recirculate nutrients from the water, which as a result decreases the eutrophication effect. Because he realized that:

When there were a lot of nutrients in the water, mussels seem to thrive in this good availability of food (Entrepreneur 2, 2017).

The idea was perfect, if more mussels could be farmed, then the mussels could recirculate the nutrients in the water. But just as everything seemed to be going in the right direction, something interrupted the vision. Farming more mussels results in having a large supply of mussels, and as mentioned at the beginning, Swedes are not big consumers of mussels. So, what can be done with all the mussels that result from the farming?

Since Swedes are not great consumers of mussels, then there was an idea to try to think of exporting the mussels to fellow European countries.

So, it was a big effort in the late 90s or early 2000 to try to export to European markets, the mussels from here (Sweden), but that has never been successful it's quite difficult (Entrepreneur 1, 2017).

Now it was becoming more complicated, there was still the problem of what to do with all the mussels that were resulting from the farming, plus there was no local market for mussel consumption and thinking about exporting the mussels represented a mayor challenge. How to proceed from here?

Instead of focusing on the challenge of exporting the mussels or convincing local consumers to eat more mussels, Entrepreneur 1 together with a science colleague discussed about other

solutions. They started to think about the seafood market and what could they learn from there. They reviewed how fish are not enough to fulfill the market's demand for fishmeal in a global scale. They also evaluated how fishmeal is not that environmental friendly when it is produced at a large scale. So, Entrepreneur 1 asked himself if he could produce a meal that was made from mussels. The meal means that the mussel would have to be transformed from its raw form as it lives in the sea into something that would become into a pulverized state.

Following this idea of a mussel meal, Entrepreneur 1 began to boil the farmed mussels with very low energy, since for him it is very important to do things in an environmental-friendly way. Before he could connect the idea of the mussel meal to something else, Entrepreneur 1 had to experiment with heat and boiling times. As a result, he experienced that the mussels started to transform from mussel meat into liquid. He quickly saw that this process could be used for something so he applied for a patent. After developing more the process, he saw that he could transform this liquid into a mussel meal. Now that he had obtained a mussel meal, what should be done next?

In order to continue with the mussel meal result, it is now time to introduce Entrepreneur 2. This entrepreneur is a business development expert and is in charge of the execution of the business, such as economics and finance. The business mentioned here is an SME that was formed with Entrepreneur 1 and as explained in the method section, in this study it will be called Mussel Company. Both entrepreneurs met because they were part of the same network of SMEs through a common contact. Moreover, Entrepreneur 2 has experience with start-ups and together with her knowledge in specific areas such as chemical engineering, she gave life to the business idea.

Now going back to the process of transforming the mussel meat, which can now be perceived as a black-boxed process: as an input, it has the sea mussels and as an output it results in a mussel meal. In order to open this black box, Entrepreneur 2 explains this process in five general steps (Figure 3).

The first step begins with the opening or cracking of the mussels. Since the mussels are made of three main parts, i.e. meat, shells, and water, the second step is taking away the water or called dewatering. Followed by a process that is called lysis. Bell (2012) defines lysis as the disintegrating of cells. When the mussels are in this step, lysis, they are being liquefied. The fourth step is to separate or take away the shell pieces. And the last step consists in dewatering again so the final product results in a meal.

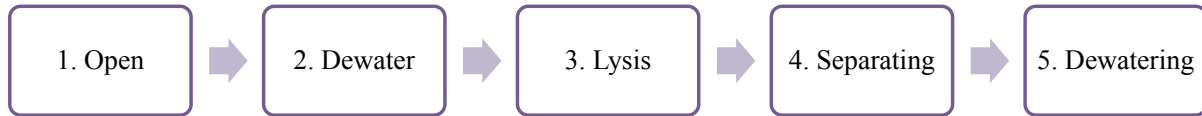


Figure 3: Five general steps for transforming the mussel meat in the Mussel Company

With the result of the mussel meal, there are new actors that need to be incorporated into the story, where their relationships become essential to the network or as Callon (1986) explains, these relationships become an obligatory passage point (OPP). An OPP is where the actors and their relationships become fundamental or obligatory in the network. In this OPP different actors have different interests that allow them to remain in the same network, (1) find what to do next with the mussel meal and (2) know that through a network of SMEs or alliance regarding the mussel meal can benefit all of them. The new actors (Figure 4) are: the mussel farmers, the mussels (*Mytilus edulis*), and the laying hens. These actors together with their identities will be further described in detail.

The mussel farmers: they are two SMEs that supply the mussels for the Swedish market, especially in the West Coast. They have a lot of experience with mussel farming, since they have been in the business for many years. They are competitive and have different strategies for growing the mussels; which can be by attracting the mussels either by ropes or nets placed in the sea. They are constantly investing in technology and innovation to find more environmental-friendly and efficient ways to run their business. Additionally, as it is common in a network of SMEs, they share some knowledge and skills within each other. In this case, they use the Swedish Shellfish Producers Organisation (SSPO) as an intermediary.

The mussel farmers may face some challenges in this specific industry of mussels. These challenges lie among the algae toxins that can be found in some areas in the coastal waters, toxins that may come temporarily. The mussel farmers are interested in informing and engaging the next actor in their own SME chain, which would be the individual to consume mussels. Engaging this actor successfully would mean that their business is economically sustainable and at the same time they are contributing to make a healthier ocean by increasing the production of mussels.

The mussels: the mussels that are grown in the West Coast of Sweden are the *Mytilus edulis*. These mussels decide if they want to sit or attach themselves to the ropes or nets that the mussel farmers use in the farming process. If the mussels are attracted to the ropes or nets, not only depends on the strategy of the mussel farmer, but also on the right conditions for them to survive. For example, the mussels will not be attached if there is ice in the sea or if there is a storm, which happens from time to time. The mussels will also fight for space with other organisms, such as sea stars or algae that can be already in the nets or ropes before the mussels settle.

It may happen that you have other organisms that can settle in the net before the mussels or even afterwards and decrease the mussel growth or fight for the area (Entrepreneur 1, 2017).

It may be then said, that the mussels are interested in having a net or rope clear of organisms so they can be attached. Also, they are interested in having clear water and a reduced amount of a phytoplankton for them to eat. In short, the mussels are interested in living, eating and growing.

The laying hens: when the Mussel Company began, Entrepreneur 1 had a trial project in cooperation with a laying hens (LH) farm owner, which means another SME in the network. The LH farm owner has a farm that began many years ago and currently hosts 2,500 hens that are laying eggs constantly. This SME's main business is to sell and deliver the eggs that the hens produce. As part of her small business or SME, the LH farm owner has also included a bakery in the recent years, which is known for the quality of its ingredients. So, in this trial project, the laying hens would taste the feeder made from the mussel meal.

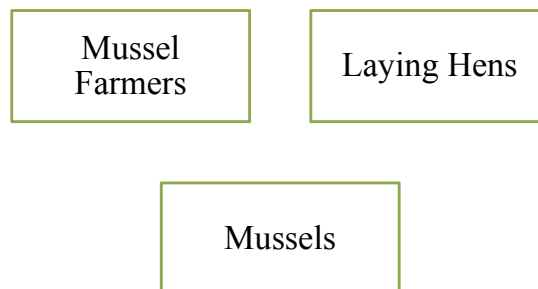


Figure 4: The new actors in the network

As it is common, each actor will have different goals and interests to pursue. In this case, it is relevant to find out what joins in common these actors involved: the entrepreneurs, the mussels, the mussel farmers, and the laying hens. Could this be answered with the question of why they should be together for the developed mussel meal? Or why are they in a network operating for environmental reasons?

If these questions can connect all the actors involved in the network, then it will be possible to join everyone by a common interest. Furthermore, what can make each actor become interested in the network is the diversity of everyone involved. It does not matter if there are non-human actors, such as the mussels and the hens, because each actor will contribute to the network with its own part. However, it is important to keep in mind that every actor has its own interest and therefore, they are in constant negotiation to avoid breaking off from the network.

4.2.2 The interressement

Callon (1986) explains that to be interested means to be in between the other actors that form the network and to construct something that will allow them all to be together, even if other actors would want to come between them. At this moment, the alliances are made in the form of a mechanism or device.

If these actors were to work alone without belonging to a network, they could not obtain their own goals (Figure 5). The entrepreneurs have the challenge to find their common interest in the network. The separate goal for the mussel farmer would be to sell the harvested mussels, maybe for the economic reasons, maybe to share their skills with other farmers, or maybe for environmental purposes, or perhaps for combined reasons. The mussels want to be attracted to some kind of settlement so they can live and grow and reproduce themselves. And for the hens it is to eat the mussel meal, because it means that they will be healthy and they will contribute to recirculate the waste they generate.

But in order to have a successful interressement that will lead to an enrolment, all of the actors must be interested and convinced in the connection that they will form and with the common purpose of harvesting the mussels and the reasons behind this. Also, a successful interressement would mean that a diverse network of SMEs in the mussel business joins forces to create a greater impact in the improvement of the coastal water quality. The devices of interressement that were identified for this study will be described in detail.

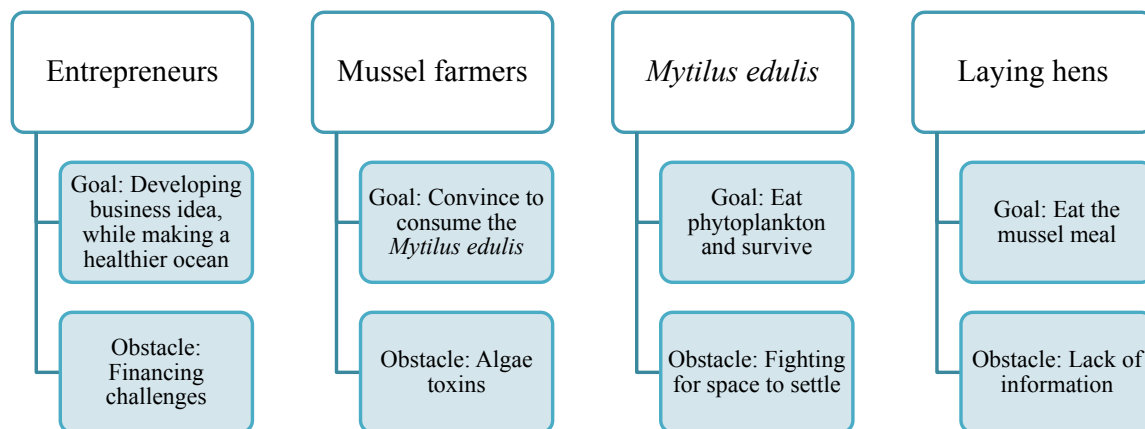


Figure 5: Interests and challenges of the actors in the network

(1) The most relevant device of interressement is the high-quality mussel meal. In order to obtain this high-quality product, it meant that the produced meal was not to include the shells. That is why the five-step process of the Mussel Company is very important in order to keep all actors

interested in the network. The entrepreneurs are interested in letting other individuals know about the mussel meal that results from this five-step process.

Furthermore, the laying hens will want to eat high quality mussel meal because it has the nutrition they need, explains the LH farm owner. The hens obtain this nutrition through the right amount of protein so they can produce good quality eggs. The mussel farmer helps the mussels to grow a normal size in the favorable conditions that mussels like to grow in. And the mussels would have fought for the space in order to settle down and begin their process of growing.

In addition, the mussel network of SMEs would have an impact in their competitive advantage, because through the high-quality produced mussel meal, the actors would be able to sustain this competitive advantage, since it can represent a significant aspect of a strength in the network.

(2) As a second device of interesement is the mindset that producing and consuming mussels is not only healthy but also climate smart. This concept of climate smart refers to the impact that the production of mussels has in the environment. For the entrepreneurs, being climate smart represents one of the core competences of their business.

So, what we know today is that one of our uniqueness is that we are a very climate smart alternative to the competitors. We are 160 times more climate smart than beef and 30 times more climate smart than pork (Entrepreneur 2, 2017).

It is very clear that the climate smart mindset for the mussels means eating the phytoplankton to reduce the climate change effects.

While the mussel farmers cultivate mussels, being interested in climate-smart practices means that they are helping to reduce the negative effects of eutrophication, because the mussels are able to survive through their skills and knowledge. As for the hens, it represents the nutrition that the hens need, but also, they provide a climate-smart practice. Because it is possible to recirculate the hens' waste back to the ocean, by providing the food that the mussels need.

The more mussel farming, the more you give back to the ecosystem, because you recirculate those nutrients...living carefully and living in harmony with the environment (Entrepreneur 2, 2017).

(3) A third device is sustainability through the organic market certification (KRAV)¹.

¹ KRAV certification is well known among Swedish consumers. In short it stands for environment, animals, health and social responsibility (KRAV, 2017)

Without sustainability I wouldn't be interested, I wouldn't do it. It is absolutely necessary to be sustainable; otherwise, it is not worth anything (Entrepreneur 1, 2017).

The mussels are interested in a good growing environment through the certification because it provides them the welfare and health that they need to grow the correct size. In the case of the mussel farmers the certification is interesting because it allows them to perform sustainable practices and show to other actors that they are being conscious.

It's not only product-efficiency but also environment and sustainability. It could be in how you use boats, for example. To not release so much, since we work with diesel boats...we try to minimize the time of the boat, because that is really the biggest environmental pollution. So, we usually use small boats to go back and forth to the farm. And then we have the big boat there (harbor) ready. We try to minimize all transportation (Mussel farmer 2, 2017).

Finally, the hens are interested in eating a product with the KRAV certification, which the LH farm owner provides for them by having the KRAV certification in her farm. This certification guarantees them that the product they are consuming is organic. When the hens eat the mussel meal, as a consequence will allow them to produce organic eggs. And as a result, the LH farm owner could use these eggs in her bakery.

Thus, it looks that for all the actors, the high-quality meal, the climate-smart mindset, and the certification are three artifacts that interest them all. These artifacts will avoid that other actors try to separate the created interests and give the interests another meaning. If there is something that interests all the actors, then it can be said that the actors are being enrolled.

So far it seems that the network of SMEs is being composed by a heterogeneity of actors which are the entrepreneurs, mussels, mussel farmers, and hens. Moreover, through the devices of interessement, each actor of the network is possible to share, learn and teach their abilities to other actors in the network. For instance, the climate smart practice that the mussels share in the network, motivates the hens to engage in climate smart practices, by recirculating the waste in the form of nutrients back to the ocean.

4.2.3 The Enrolment

As Callon (1986) explains, even though there are many things or devices that interest the actors in the network, it does not mean that it will be successful. So, in this moment, there are challenges and negotiations in progress to achieve the interessement so the actors are enrolled and it can result in a success.

In this moment, the roles and identities are defined in the network. If the interestment is successful, then the enrolment is possible. However, there are three challenges that the entrepreneurs must face first. These will be described below.

(1) If the project is to succeed, then the mussels will have to survive and grow a normal size. To grow a normal size means that they must fight for the settlement space. (2) The second challenge means that for the mussels to be enrolled and fight for the settlement space, they need the mussel farmers' help. To have the farmers' help means the farmers' skills and strategy. These skills and strategies can also be learned from the mussel network, by how the mussels share their experience in settling. (3) And third, there is the challenge where the actors depend on other actors for their enrolment. By depending on other actors, the enrolment may not always be successful and could result in betrayal.

The story continues as the trial project with the laying hens was introduced. Commonly, the hens eat a meal that is made from fish, so this was going to be the first time that the hens would eat a meal made from mussel. The success of this project depended if the hens accepted to eat this meal. So, when the project of mussel feed began, then hens were one of the first "clients" to actually try the product and decide if they would accept it or reject it. So, the next question was will the hens eat the mussel meal?

No one was expecting what happened next. The hens had preferred to eat the meal made from the mussels than the normal one. One of the important actors had been engaged and joined into the network. However, as the LH farm owner narrates, the customers that buy the eggs had to be convinced that it was good for them also.

The customers were afraid that the eggs might taste like "fish" (LH farm owner, 2017).

Although the hens were eating mussels, not fish, the customers were imagining and already creating a bad taste of the eggs in their mind. In some way, they were skeptical and resisting to the idea of buying eggs "made" out of mussels. Would the customers still buy these eggs?

So, as the story continues, the LH owner narrates that the customers tried the eggs and the result was positive, they in fact did not taste as shellfish, or fish like they imagined, and the quality was better than the eggs that not included mussels.

The customers liked the quality of the eggs, there was a good taste on the eggs. The egg yolk was more yellow but they were also good for whipping eggs (for a cake) because the cake went higher (LH Farm Owner, 2017).

Now the network was becoming bigger as a result of several negotiations between the diverse actors that compose it. With the mussels being an innovative product for the hens and the hens being attracted to it, as a consequence they produced organic eggs. And as a result, the organic eggs involved the bakery's customers, which increased and sustained the network.

As a result of the negotiations, the distribution of roles was defined. The hens like to eat the mussel meal, and the mussel farmers provided their expertise so the mussels could settle to the nets or ropes. And as a consequence, the mussels were growing the proper size so they can be transformed into the mussel meal that will be produced so the hens can eat it.

4.2.4 The betrayal

Callon (1986) explains that a betrayal may happen if the actors become dissidents or if their roles are questioned.

Until now the enrolment had proved to be successful with the mussels growing the correct size and the mussel farmers applying their skills and knowledge. However, the betrayal happened and no one was prepared for it. The mussels did not fulfill their role of living and growing to be transformed into a mussel meal. It happened in one of the mussel farmer's property, mussels worth millions of Swedish crowns were eaten up by eider ducks.

The biggest threat for the mussel farmer are the eider ducks, because they can eat up a mussel farm in one afternoon more or less (Entrepreneur 1, 2017).

Being one of the mussel farmer's greatest fears, the entrepreneurs and the mussel farmers had to find a way to deal with the betrayal. Already the mussels were fighting for space with other organisms, such as the sea stars, to settle into the ropes or nets. But now the mussels also had to face a greater challenge, how could they fight the eider ducks so they could ensure their role?

So, in an effort to provide a solution for this challenge, a re-problematization was necessary. The eider ducks would have to be included in the network and therefore be interested to a common purpose. It is clear that one of the interests for the eider ducks is to search for food and eat. And in the process of looking for food, they have a particular preference for eating mussels.

If the ducks could be interested successfully, then they could be enrolled as another actor in the network. For the ducks, it is about eating mussels and for the mussel farmers it is about having the right number of mussels that the entrepreneurs need in order to produce the mussel meal that the hens will eat. There is a popular phrase: if you can't beat them, join them; and in this situation, it was applied literally. One of the mussel farmers realized that there should be enough mussels in the farm to feed the eider ducks:

You have to have enough mussel farms so it is enough for the eiders, too. It is a double environmental effort: a healthier ocean and feeding the ducks (Entrepreneur 1, 2017).

By having enough mussels to eat, the ducks were enrolled to the network. Rather than representing a danger to destroy what had been constructed, nature and society continued together. The mussels would not have to struggle with the ducks in order to settle in a rope or net and would maintain their role of living. However, a few of the mussels would have to be enrolled as food for the ducks to keep the network dynamic.

4.2.5 The mobilisation of allies

Callon (1986) explains that this moment happens when the enrolment has the support of the actors and through the common interests can organize more allies. “Who speaks in the name of whom? Who represents whom?” (Callon, 1986, p. 12).

As it was seen in the enrolment moment, many of the actors could have had their reasons to break away from the network. However, on the contrary, they were interested and enrolled in the mussel meal project. And therefore, a diverse network in the mussel business was kept together. It can be said that the entrepreneurs found a way to speak in the name of all the actors involved in the network. This mobilisation (Figure 6) was achieved by several ways.

(1) First, by engaging each of the laying hens: the laying hens silently eating the mussel meal represent the 2,500 hens that are living at the farm. The entrepreneurs had managed to successfully enroll the hens when they accepted to eat the mussel meal. This meant that the LH farm owner had also been enrolled, as she is interested in the wellbeing of the hens that are to produce premium organic eggs. And as a result, the bakery clients were also enrolled when they were buying these organic eggs or products made from these eggs.

(2) Second, through a sustainable market: the entrepreneurs have convinced the mussel farmers that producing more mussels is in fact a sustainable business. Through the farming of more mussels, the ocean can become healthier by reducing the eutrophication effect. And by engaging a non-human actor that likes to eat the mussel meat transformed into a meal, the entrepreneurs found a way to represent both the mussel farmers and the mussels. Since the mussel farmers want to grow healthy mussels that can be used for making the meal, they will use their skills and expertise to help the mussels settle into the ropes or nets.

(3) Third, by avoiding black headlines: knowledge about mussels and mussel farming can be frequently discussed with scientists and public in general. However, sometimes the media can exaggerate the information and it may produce black headlines. Therefore, the entrepreneurs have to be very careful with what they say about the mussel business and industry. For instance,

if an entrepreneur speaks about a study without taking into consideration how it could affect the mussel farmer, then the relationship is destroyed. And as a result, mutual interests can be lost and it can threaten the stability of the network.

This (the black headline) is one of the worst things that can happen to a mussel farmer (Entrepreneur 1, 2017).

(4) Fourth, through an innovative mussel paste: as the entrepreneurs continued developing the business for Mussel Company, they discovered that the mussel meat could be turned into a mussel paste. The mussel paste is different from the mussel meal, by its form, its use and the consumers that are interested in it. This represents another twist to the story, because the mussel paste would interest human actors, not only non-humans, as it was the case with the mussel meal.

To introduce a different type of product, such as the mussel paste meant that a new actor had to be interested and enrolled into the network. To interest a new actor means a re-problematization. The identity of the new actor is a human that consumes mussels through the transformed mussel paste: *mussel paste consumer*. This actor is interested in consuming a mussel paste while having a climate smart mindset.

The mussel paste can have two applications. One is to be used to make a protein bar that interests the healthy-living, climate smart, and organic thinking people, all of which match the interessement devices. The climate smart is accomplished by substituting the common ingredient used for protein bars: whey (Ha & Zemel, 2003).

It (the protein bar) is a premium product, not the cheapest thing, and it is for people very cautious about the ingredients and that also have an interest around the sustainability (Sports Nutrition Owner, 2017).

Looking at the sports nutrition today, they use whey protein from milk and we are ten times more climate efficient than that (Entrepreneur 2, 2017).

Regarding the second application for the mussel paste it can be used as an ingredient for climate-friendly chefs. This paste represents an important part of their business because it is not only about serving the food and let the client eat, but to explain why this specific ingredient was chosen to make a specific meal. These chefs think about the environment when they integrate the ingredients in their individual meal.

A smart menu where every dish needs to be smartly composed. Everything is used...I buy products, like vegetables that do not look “beautiful” but that are in perfect conditions to be eaten or used for cooking (Chef 1, 2017).

Otherwise, these products would not be bought and would be thrown away, explains the chef. So, the chefs are enrolled into the network by organic thinking, climate smart practices and the high-quality product made from the mussels.

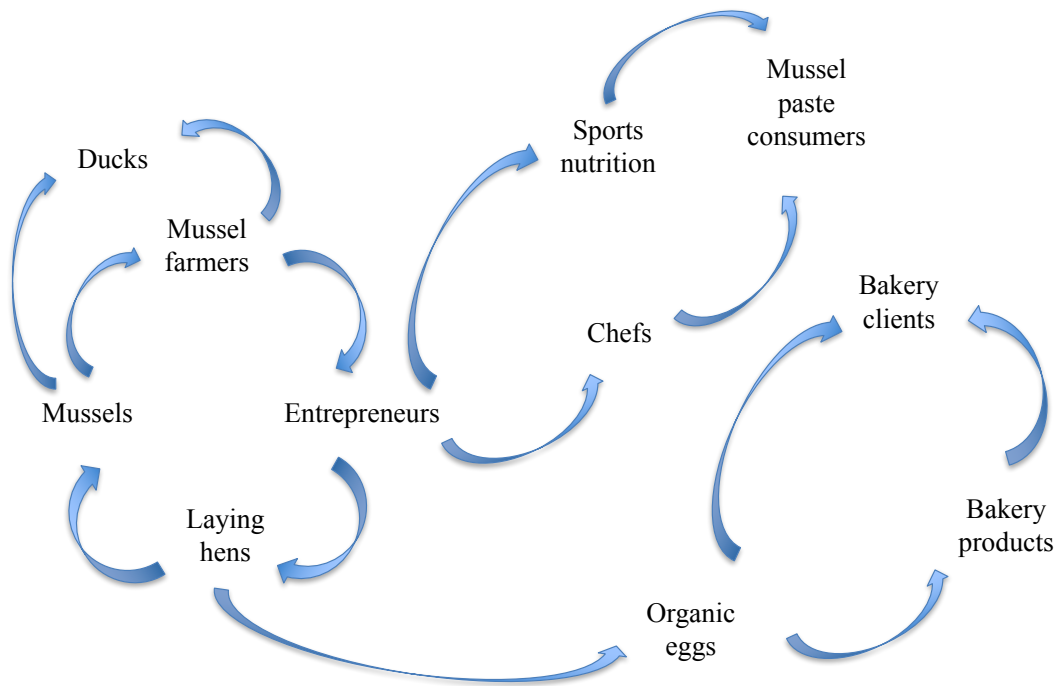


Figure 6: The mobilisation of allies

Hence, as a result of the negotiations between all actors, translation could be realized. With the correct skills and strategies from the mussel farmers, the mussels were able to survive and grow to a healthy size. Then the mussels enrolled for living were transformed into a certain number of mussels picked out from the ocean that were represented the raw material to be sold. With the knowledge of the entrepreneurs in the Mussel Company, the raw material, i.e. the mussels were transformed into the mussel meal (or paste as recently described). The mussel meal was transformed into the food or feeder for the laying hens. The laying hens accepted and ate the meal, which was then transformed into organic eggs. The organic eggs were either transformed into another type of product, such as a cake, or kept raw as organic eggs, which were transformed into food for human consumption that turned into an amount of sales and numbers that are possible to present to someone else.

5. Discussion and conclusion

This paper has examined the diversity of actors that build a network of SMEs, by joining their forces the network contributes to sustainable practices. This study has shown how a diverse network of actors that includes non-humans in SMEs contributes to the wellbeing of the network they belong to. This is the story of how a mussel, a hen and a duck were joined together with humans in a network that caused the survival and success of the network of SMEs, that in turn interested other actors to be enrolled. The enrolment of other actors resulted in the expansion of the network of SMEs. So, the question to this research has been answered: *How can a diverse network of actors in SMEs influence sustainable practices?* Thus, the study can contribute to the subject of the diversity of a network in several ways:

First, this study contributes to show the diversity of actors involved in the network of SMEs and how this diversity resulted in an expansion of the network among other non-human and human actors. The benefit for a diverse network of actors in SMEs is that it provides different mindsets for alternative solutions that were not considered before. If different actors would have not been considered, such as the non-humans, then the project of the mussel meal could have been threatened to fail. For example, by considering the hen as a customer of the mussel meal, it was possible to connect other actors to the network, such as the humans that consume the ecological eggs. Therefore, it is important to include other actors such as non-humans for the success of the network and its expansion.

Second, human and non-human actors can learn from each other in a network that helps to strengthen the SME's practices. In this research, the mussel farmers can learn from the mussel's silent way of communicating how they want to be attracted to the rope or net. Thus, mussel farmers can improve their skills and knowledge and share them among other SMEs. Also, by learning from each other, the different actors can avoid from becoming interested in an external actor that does not belong to the network. Thus, learning from diverse actors in the network contributes to the success of the network, while avoiding threats to the stability of the network.

Third, this study contributes to explain how SMEs are facing environmental challenges. In this research, a network of SMEs composed by diverse actors that include non-humans, such as the hens eating the mussel meal were able to mobilize the humans that accepted to consume the organic eggs. Additionally, while the hens consume the mussel meal, as a result, they are giving back to the ocean the food that the mussels need, i.e., the phytoplankton. Consequently, the diversity in the network of SMEs is contributing to make a healthier ocean, thus engaging in environmental practices, such as the climate smart or the organic certification, that help to face the environmental challenges.

Finally, the notion of power is a result of the negotiations and struggles that the heterogeneous actors are engaged in. For instance, the situation with the eider ducks, which can threaten to

destroy a stable network. In this research, power was not granted to the ducks; instead it resulted as a consequence of the relationships already established and also by seeking to re-problematize an actor that was not yet enrolled in the network. Thus, keeping each different actor interested is important because it contributes to the survival of the network. So, it can be said that environmental sustainability is rather a dynamic process than a set of principles already established.

However, it is always important to keep in mind that not all outcomes may be positive. In this case, the ducks as an actor was successfully enrolled, with the help of the skills and knowledge of another actor, the mussel farmers. Nonetheless, since there are constant negotiations that the different actors engage in, the result of these negotiations can be successful if the interests have been correctly identified and if the actors are enrolled. Therefore, negotiations do not have an ending and the network is constantly translating what interests them all.

5.1 Limitations and future research

It is important to mention that there are limitations to this study. Since this is a case study, the research is limited to one specific company in the mussel business and the stakeholders that influence this company. Therefore, other SMEs in different industries might find different associations to address the diversity of the actors in the network. Thus, the findings in this study are limited to specific situations, as well as to a specific context where the diversity of the actors influence the results of a company's actions to address sustainability issues. However, within the subject of environmental sustainability, there is opportunity for further research.

As future research, there is the need to study the process of handling the mussel "waste". Since it is considered an organic product, the waste is not necessarily a waste per se. Another topic for future research is the existence of the networks in other countries and the connections with the mussel business in Sweden.

6. References

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