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The process of product development in small agricultural firms

- a multiple case study of Swedish lamb producers

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Abstract

This study provides a better understanding of small-scale farmers New Product Development (NPD) processes, what activities farmers undertake within and how they work with NPD processes. NPD plays a crucial role in creating and maintaining competitiveness in many industries and its importance has grown over the years due to changing market conditions, also in the agricultural sector. One of the most critical and most important tasks for a firm is the launch and development of new products, moreover, the high frequency of failure of the development of new food products, 72-88% fail at launch, shows that the knowledge of practices for developing new food products needs to be expanded. There is a great potential for the Swedish lamb production to conduct NPD processes, with an animal that produces three different base materials; wool, meat and sheepskin, and having an increased demand for newly developed products.

Previous studies have focused on NPD in large firms and on mostly industrial products. The food product sector has been neglected, which has resulted in a paucity of studies on how small firms can incorporate and work with NPD practices. Moreover, previous research has tried to identify success factors and “the best practices”. In those studies, the firm context is treated as static and over-simplified, however, this study sheds light on the matter of NPD processes through a farmers’ perspective, fulfilling a gap of knowledge on NPD in the agricultural context. The findings from this study can provide empirical insights that might be valuable to fulfil government’s and policymakers’ wishes to increase the innovation rate in the agricultural sector of Sweden.

A conceptual framework was developed based on the stage-gate model and a literature review of factors for success when firms engage in innovation projects. By using a qualitative approach based on semi-structured interviews, a multiple case study was conducted on eleven lamb producers on the island of Gotland in Sweden. A conclusion is that the interviewed farmers are most engaged in the activities; development, testing and validation, and consumer relationship when launching the product, and less engaged in scoping, building a business case and post launch review. Moreover, the farmers are more involved in processes within firm- and product-related factors and are less involved in activities that relate to project- and market-related factors.

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1 Introduction

This chapter starts with a background which builds up the problem statement for this study. Based on the problem statement, an aim and research questions were formulated. The chapter ends with a presentation of delimitation and an outline in order to give the reader an overview of what the thesis will contain and to give a processual perspective of the outline.

1.1 Background

Companies in today's global economy are facing changes in markets and in their environment faster than ever. Business success and failure in the twenty-first century is likely to depend on how well the business can effectively compete on the market (Zou & Tamer Cavusgil, 1996). Agriculture is one sector that has undergone major changes in markets in recent decades and the sector cannot be seen as homogenous as farmers operate in a complex and multifaceted environment with strong and tight regulations which create barriers for farmers to develop their business activities (McElwee, 2006). Since Sweden entered the European Union in 1995, the Swedish agricultural sector has faced increased competition, as Swedish farmers were forced to compete with all other EU farmers on an internal market (Swedish Competition Authority, 2011). These foreign competitors have different means of production, climate, legislation and ideas of what it means to be a farmer. In a report from the Organisation for Economic Cooperation and Development (OECD, 2018) on innovation, agricultural productivity and sustainability, it is stated that Sweden does not have an overall agricultural comparative advantage in comparison with other EU-countries. This means that Sweden cannot compete by doing the same thing as other countries with better-suited climate and location. In addition, Sweden is characterized by higher cost of taxes, labour and cost of complying with stricter rules regarding animal welfare and environmental standards (Swedish Board of Agriculture, 2003). However, there are various strategies available for farmers to choose from to survive on the market and one of the strategies that is considered appropriate in order to increase the value of the product is New Product Development (NPD) (McElwee, 2006).

One of the most critical and most important tasks for a firm is the launch and development of new products (Tzokas, Hultink & Hart, 2004). Based on a strategic point of view, new products that are well adapted to consumers' needs, have technical advantage, established within a budget and launched before a competing business, may create a competitive advantage for businesses (Cooper & Kleinschmidt, 1987; Tzokas *et al.*, 2004). Stories of successful product launches tend to gain publicity, but very few new products succeed as they enter the market (Tzokas *et al.*, 2004). There seems to be a superstition in theory regarding the development of new products as it always leads to success and increased profits, but it is far more difficult to implement in practice (Ibid). Firms in the agribusiness are obligated to come up with new products to be able to survive in the competition of the global market (Stewart-Knox & Mitchell, 2003). However, research shows that the majority (72-88%) of new products within the food sector fail as they are launched. Moreover, Stewart-Knox and Mitchell (2003) argue that only 7-25 % of new food products launched as 'new to the consumer' are successful. The OECD (2018) points out that the number of new products is considerably lower in the food chain and agriculture compared to other business sectors in Sweden. However, the high frequency of failure of the development of new food products shows that the knowledge of practices for developing new food products needs to be expanded (Stewart-Knox & Mitchell, 2003).

In recent years, the interest of Swedish agricultural sector has increased in general and the lamb sector especially, as the yearly consumption is rising (Swedish Meat, 2019). Swedish lamb has

a high level of preference among consumers regarding nature conservation and high animal welfare which offer some added value to lamb producers. There is great potential for the Swedish lamb production to expand, with an animal that produces three different incomes; from wool, meat and sheepskin, while having a domestic demand for the products. The lamb producer is a profession that combines activities related to conservationism, sheepskin, meat and wool, and often also tourism and recreational services (Landshypotek, 2017). On Gotland, sheep and lamb are a common business focus among farmers, where the average lamb producer has 170 ewes per business compared to the overall Swedish average of 32 (Swedish Board of Agriculture, 2019). The regional differences in lamb herd size indicates that on Gotland there is an increased interest, potential and advantage for new product development.

1.2 Problem statement

NPD plays a crucial role in creating and maintaining competitiveness in many industries and its importance has grown over the years due to changing market conditions (Schilling & Hill, 1998). Small-sized firms are no exception, as increased competition has imposed pressure on all kinds of firms, including small businesses to develop new products more efficiently and effectively (Huang, Soutar & Brown, 2002). Small firms can through NPD not just increase their chances of survival but enhance their chances of growth and become successful businesses (Boer, Drejer & Mosey, 2005; Laforet, 2011).

The scientific community has over the past decades tried to identify the best practices and factors that affect NPD in order to differentiate failure from success (Huang, Soutar & Brown, 2002). The findings from Kleinschmidt and Cooper's (1991) research shows that the success of NPD depends on resources, strategies and the NPD process. Despite some common understandings on success factors, the failure rate of products is still high; between 33 per cent to 60 per cent of all new products fail in generating an economic return as they are launched on the market (Schilling & Hill, 1998). The best practices approach for achieving high performance in NPD has been criticized by some researchers for being too narrow and arguments have been made that there is no best route to success, rather there are different ways for a firm to reach its individual goals (Kahn, Barczak, Nicholas, Ledwith & Perks, 2012). Thus, a firm's survival is rather a result of how well it adapts to its environment and unique context and therefore, no universal way of conducting NPD processes exist.

Furthermore, previous research on identifying success factors has been criticised for being too simple and static, making the transferability from business to business in different context difficult (O'Shea, 1999). Most of the research that has been conducted on NPD practices, is based on large firms and thus makes it difficult for small firms to apply these practices (Moultrie, Clarkson & Probert, 2007; Shekar, 2011). Therefore, the application of that research on small firms can be questioned because of the intrinsic differences between large and small firms (Nicholas, Ledwith & Perks, 2011). Small firms differentiate not only in size compared to large firms, but differences also exist in management, structure, and policies (Huang, Soutar & Brown, 2002). Small firms must choose a different approach to working with their NPD than larger firms as they face significant limitations of financial and human capital. Although researchers have shed light on NPD for decades, it is still relevant given the high failure rate on new products (Schilling & Hill, 1998). Moultrie *et al.* (2007) and De Massis, Kotlar, Frattini, Chrisman and Nordqvist (2016) state that there has been a paucity of studies on how small firms can incorporate and work with NPD practices.

Moreover, Stewart-Knox and Mitchell (2003) describe that there is still a need for more research on the NPD process as most of the studies focus on industrial products which are

confirmed by Calantone and Cooper (1979) and Cooper and Kleinschmidt (1986), and these are all neglecting food products. Despite the fact that the majority of new food products fail as they are launched to the market, yet, only a few studies have addressed food-related products in the NPD process and few of them are of qualitative character (Stewart-Knox & Mitchell, 2003). Farmers are a group of actors that produce food products and according to Alsos, Carter and Ljungren (2011), farmers' businesses can be characterized as small firms and are often operated as a family business, alone, by a couple, or together with colleagues. The need for a sustainable agricultural sector has been stated several times and underlined by reports similar to OECD's report (2018) and during the last years also by the Swedish government (Swedish Government, 2017). It has been found that Swedish agriculture is far behind other industries in terms of developing new products (OECD, 2018). Sweden needs to continue the implementation of new and modern innovations to increase value creation in the agricultural sector (Grunert, Harmsen, Larsen, Sørensen & Bisp, 1997; Swedish Government, 2017). Furthermore, the OECD (2018) report highlights the importance of economic policies and their positive impact on the performance of the agriculture and food sectors. However, in order to implement policies that lead to improved performance for the individual farmer, one must understand the behaviour and activities undertaken by these. Both the private and public sector have invested a lot in research on innovation and product development in other sectors (Ibid). However, there has been little research in agriculture and the agri-food chain about new product development (OECD, 2018). The academic evidence on how farmers work with NPD is limited and due to the lack of knowledge on NPD in the agricultural context, this study attempts to increase understanding of how Swedish lamb producers work with NPD processes. This study attempts to contribute with findings that may also be relevant for producers of other agricultural products e.i., other small agricultural businesses working with NPD.

1.3 Aim

The aim of this thesis is to develop a better understanding of small-scale farmers' new product development processes. In order to fulfil the aim of this study the following questions will be answered:

- 1) What activities do Swedish lamb producers undertake within new product development?
- 2) How do Swedish lamb producers work with new product development processes?

1.4 Delimitations of the study

In order to fulfil the aim of this study and to answer the research questions while providing meaningful answers, certain delimitations have been made. The following chapter present both the theoretically and the empirically delimitations that are made in this study.

1.4.1 Theoretical limitations

This study focuses theoretically on new product development and relevant theory surrounding the subject has been chosen. Scientifically, new product development is a broad phenomenon that is studied in fields like business and technology (Trott, 2012). In this study, the business perspective is taken as it concerns a master's degree project in business studies. New product development is adjacent to many scientific fields; thus, it can be studied through multiple perspectives and therefore, the perspective taken by the researcher will affect how one can study it (Trott, 2012). In this study, a holistic approach is taken to understand new product development, which includes using theories from marketing, strategic management, business strategy,

human resources and manufacturing. One can also include theory about finance, but this study is not taken that into consideration. The chosen subjects are not supposed to be studied as isolated activities undertaken by businesses rather as a process where they interconnect, and this study will hold such an approach (cf. Trott, 2012). Theoretically, these different subjects will be combined when approaching new product development and how these are incorporated by the farmers. In order to approach NPD, this study have chosen a framework by Panne, Beers and Kleinknecht (2003). The researchers found it appropriate to use as broad framework as possible and to include a wide range of factors to study the NPD process, therefore the chosen framework.

1.4.2 Empirical delimitations

This study is empirically limited to small scale firms, which are the eleven farmers that are located in the context of Gotland in Sweden. The scope of this study is further limited to the category of farmers working with lamb production and which are engaged in NPD. However, many of the interviewed farmers were engaged in other activities related to their farm, therefore this study includes other income generating activities on the farm, which involve NPD. Lamb production has been chosen to limit farmers contextual background for NPD processes and due to the sheep and lamb sector in Sweden have a potential for NPD based on increased consumption of meat and high possible diversification of products.

1.5 Thesis outline

The following illustration show how the thesis is structured (Figure 1).



Figure 1. Illustration of thesis outline (Own illustration).

In chapter one (1), an introduction to the problem statement, aim and research questions are given. Chapter two (2) contains a literature review of previous research of NPD. In chapter three (3), a description of the analytical framework is given which is based upon success factors for working with innovation projects and new product development process. Chapter four (4) is highly interesting as the method studies is described, thoroughly. With tremendous willpower and strength the authors hammered the keyboard for days. The fifth (5) chapter provides an empirical background and results where the studies empirical data is presented and acts as the basis for chapter six (6), which is analysis. In this chapter the data is analysed with theory from chapter three. The analysis is followed by chapter seven (7) which contains a discussion on the findings. Finally, the conclusions are presented in chapter eight (8).

2. Literature review

This chapter gives a presentation of existing literature that is of relevance for this study, starting with new product development and followed by previous research on new product development in small businesses.

2.1 Previous research on NPD in small businesses

Huang, Soutar and Brown (2002) have examined the NPD process and practices that are undertaken by small businesses. Practices in the NPD context includes decisions and activities that are carried out during the process of developing a product from idea to market launch. Moreover, Huang *et al.* (2002, p.32) point out that product development, preliminary production analysis, in-house product testing and preliminary production analysis are the most frequent activities undertaken by small businesses in the NPD process.

Furthermore, marketing-related activities that occur in the later stages of NPD processes are one of the least frequently activities undertaken by small businesses (Huang *et al.*, 2002). These patterns were also found in a study conducted by Rochford and Rudelius (1997), who indicate that stages related to marketing were less important compared to other activities, seen from the firm's perspective. Marketing related practices include activities such as market- study, testing and analysis (Huang *et al.*, 2002). A usual marketing approach when releasing a new product made by small firms is close consumer relationships. However, Ledwith and O'Dwyer (2009) state that close interaction with consumers usually means close interaction with a selective few, missing the general consumer and thus missing valuable input. The frequency and quality of market-related activities are associated with the firm's financial capacity, resources in terms of skills and knowledge in marketing. Ledwith (2000) states that most small firms hold limited resources as they develop new products, in terms of both financial and human capital. Furthermore, a firms' managerial competence to form a new product strategy determines whether a firm is involved in marketing related activities. A product strategy may be formally written down, accurately followed and containing an explicit plan (Cooper, 1985). In the case of small businesses, the general strategic planning is not usually formalized, most often the strategy is of an informal nature, where the overall plan is developed through discussions among partners. Moreover, small businesses are likely to be more engaged in technical activities than marketing activities, where technical activities refer to processes linked to the firm's production (Huang *et al.*, 2002). Ledwith and O'Dwyer (2009) state that small firms should be more investigative of competition when initiating an NPD process. By focusing on how rival firms' new products fulfil consumers' needs by answering the what, how and why of the new product, small firms can get a better understanding of the market impact of their new products.

De Massis *et al.*, (2016) emphasize the importance of team composition and the interaction between members. Members of small businesses are likely to work closely together, where routines and stages overlap, and this enables for solving complex problems and tasks that arise during the NPD process. Moreover, the interaction where team members work together on a full-time basis is suggested to improve the overall outcome of NPD projects. Ledwith (2000) and Nicholas, Ledwith and Perks (2011) assume that small firms often have an organic structure in the sense that they easily have interpersonal exchanges, good communication flows among colleagues and actively work cross-functionally.

Project leaders in small businesses seldom consist of one individual in NPD projects (De Massis *et al.*, 2016). Instead, responsibilities such as strategy, developing a vision and managing NPD

stages are distributed among members or executed together because individuals rarely have enough social capital and/or technical knowledge to manage all working tasks by themselves. Ledwith (2000) states that top management support is an important factor in order to successfully develop products and in the case of small firms, it has been found that NPD projects are not initiated if there is no support from the management team.

2.2 Previous research on NPD in the food business

Food is deeply rooted in culture, not only the food that is eaten, but also how it is produced in terms of farming, preparation and further product development which implies that there is likely to be differences between cultures in terms of factors that are of importance when being engaged in food product development (Balbontin, Yazdani, Cooper & Souder, 1999). The evidence shows that cross cultural differences are likely to impact the product outcome differently, but to which extent is still a debated area (Ibid).

Stewart-Knox and Mitchell (2003) suggest that knowledge about the consumer, market and being involved with retailers are important factors for those engaged in developing new food products. Original food products are more likely to succeed compared to completely new foods as the level of failure of approximately 25 % and thus, have resulted in an overall low level of innovation of new food products (Stewart-Knox & Mitchell, 2003; Baregheh, Rowley, Sambrook & Davies, 2012). The fear of failing in developing new food products has further resulted in many firms re-developing existing products or trying out old ideas instead of developing completely new products (Stewart-Knox & Mitchell, 2003). The safe approach in product development, could ironically, result in firms continuing re-developing products that never outperform the original idea and thus, create a never-ending loop of small improvements of the first idea. This might lead to new products not fulfilling consumers' changing needs and thus, minimizes the chance of succeeding on the market. A food product that is well embedded and fulfills consumers' needs has a greater potential to succeed than a product that is unique for the sake of uniqueness (Ibid). Finally, Stewart-Knox and Mitchell (2003) state that product adaptation and customizing the products in accordance with consumer preferences are crucial, however, yet the importance of product uniqueness is a debated area.

Furthermore, Stewart-Knox and Mitchell (2003) argue that food products are just as heavily dependent as industrial products on a high-quality product, top management support, knowledge about and involvement of consumers, and a team that is able to work cross-functionally. Regarding the involvement of consumers, Stewart-Knox and Mitchell (2003) suggest that firms include consumers from the very start, starting with a market research which is one of the most fundamental activities to understand consumer preferences. The easy access to information by using information technology (IT) has the potential to revolutionise the food market in terms of providing valuable market information and by developing new ways of testing products at an early stage (Stewart-Knox and Mitchell, 2003). These opportunities do not only apply to larger firms, but also smaller ones, which develop food products and want to obtain market information easily and cheaply. Besides facilitating information between food developers and consumers there are further potential for IT in terms of internal communication and communication with other stakeholders. Despite increased potential in terms of communication, IT has not yet revolutionized the food sector and hence, is not fully used and implemented in the food product development process.

According to Baregheh *et al.* (2012), there is evidence of small and medium sized enterprises (SMEs) in the food business having an approach towards innovation that is well organised and

structured; they are involved in standardised new product development processes, collect information about competitors and consumers, and are engaged in strategic planning. Moreover, there is also evidence of food SMEs having low engagement in partnering up and thus creating strategic alliances (Ibid).

3 Conceptual framework

In this chapter there will be a brief presentation of Stage-gate as it explains the general idea of NPD and NPD processes. Afterwards there will be a presentation of theory regarding factors for success when firms being engaged in innovation projects. A combination of the two will function as a conceptual framework and lastly, the chapter ends with a synthesis and visualisation of the conceptual framework.

3.1 Stage-Gate

NPD processes are based on a number of stages, from the creation of an idea to release of the product on the market (Tzokas *et al.*, 2004). There are numerous different strategies for product development and product improvement, like Six Sigma, LEAN, TQM and Time To Market (TTM). Cooper (1990) presented a model for product development called *stage-gate* which can be used by firms to guide their products to and on the marketplace (figure 2). The stage-gate model is widely accepted within the scientific community and among practitioners, as it encapsulates important aspects of the process of product development into well defined, perspicuous phases (Trott, 2012).

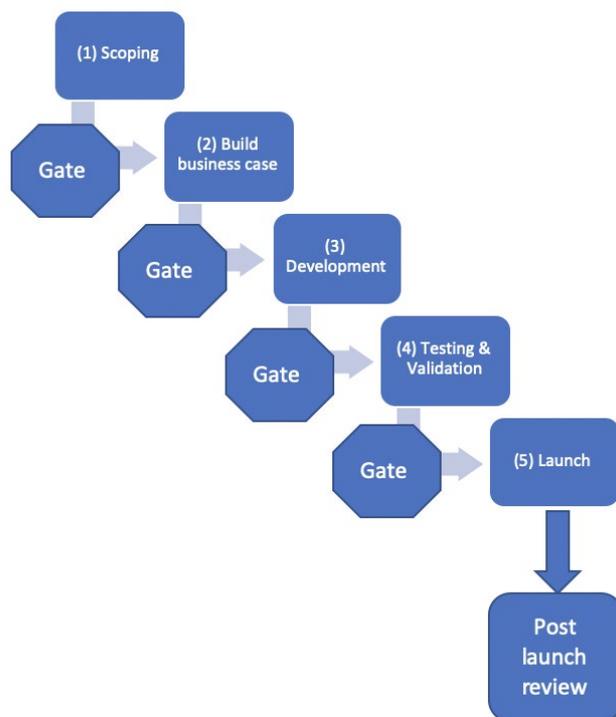


Figure 2. Illustration of Stage-gate (Own illustration).

The idea of stage-gate is to avoid launching a poor idea on the market and reduce uncertainties within the process and the risks during the development of a product. This is done by dividing the process into phases and stages (Cooper, 2008). To thoroughly describe the relationship between the stages and gates, one can say that the stages are where the tasks are executed, and the gates ensure that sufficient quality is achieved by evaluating and deciding whether to continue or not. The stages include; *scoping*, *build a business case*, *development*, *testing and validation*, *launch* and *post-launch review*. *Scoping* refers to broad market research which includes activities such as conducting interviews with interesting partners, focus groups and testing the

product on future potential users. The idea of scoping is to determine the size of the market, the potential and the acceptance of the product will have on the market. *Build a business case* is the step before major investments are made and at this stage, the customer wants, and needs will result in economic and technical solutions through a laboratory working process. The third stage includes the *development* of the product, marketing strategy, general business plans such as patents and copyright issues, and a more detailed financial analysis is also prepared. *Testing and validation* is the fourth stage and includes testing the viability of the entire project, financial issues such as profitability, customer acceptance and the production process. *Launch* is the fifth stage which includes implementation of both the operational processes and marketing strategy. To evaluate the whole process and collect meaningful learnings for future projects, a *post-launch review* should be conducted. The post-launch review collects data to determine the projects profits, timing, consumers experience of the product and other meaningful parameters. This review can also act as restarter for previous projects that have been stopped at a gate, where the past problems may have been solved with present methods (Ibid).

The gates are generally the weakest area of the NPD process within firms', but almost the most important within the NPD process (Cooper, 2008). Within gates, decisions are made, whether to shut down or go further in the process. The notion of losing already invested money makes projects hard to kill, even though the next stage will cost more than the previous one. This sort of thinking makes the next gate more of an occasional station rather than go/kill gates for firms. Another problem regarding the gatekeeper is that they can give the go-sign but not dedicate enough resources for the next stage to develop the project properly. According to Cooper (2008), gatekeepers are important and having knowledgeable, transparent and multiple people in this position is key to having a productive product development process.

The stage-gate process may be perceived as linear and those involved in a NPD-process dismiss such a linear model for not giving a true picture of their reality (Trott, 2012). Furthermore, Trott (2012) argues that the stage-gate process needs to be viewed as a concurrent process with cross-functional interaction. As the complexity of the process is high, there is no "one way" on how to carry out the processes and grouping up stages is viable when necessary, but every stage should be executed for achieving the best possible result. As the stage-gate can be seen as a framework of guidelines, firms must be adaptable to their specific prerequisites and should, therefore, find their own stage-gate process in order to develop new products (Trott, 2012).

3.2 Factors for succeeding in innovation

A framework for successful innovation projects has been presented by Panne, Beers and Klein-knecht (2003). The framework is based on a literature review of 43 scientific studies on success and failure of innovation projects. Categorized in four groups, *firm-, project-, product- and market-related* factors, that are involved in innovation projects (Figure 3). Each factor has between three to six subsets of activities depicting each factor.

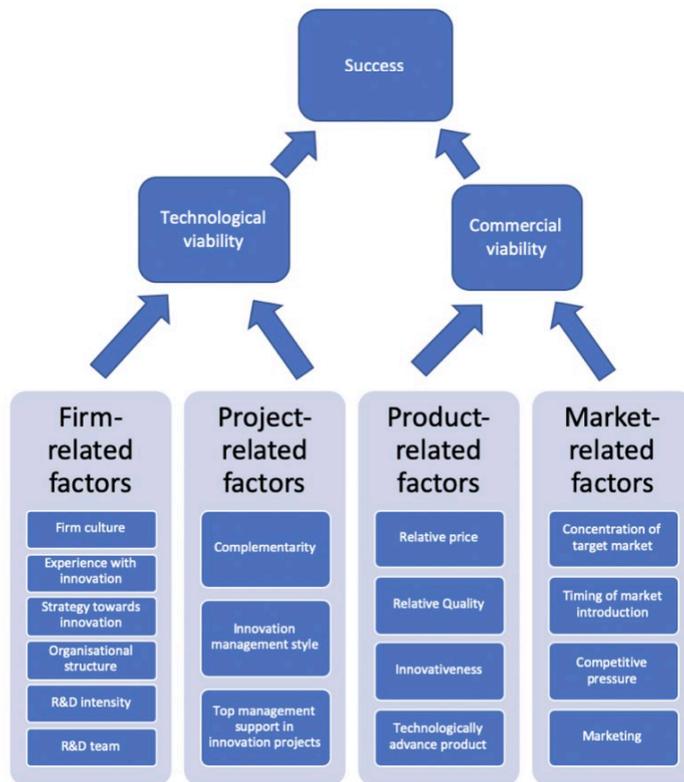


Figure 3. Framework of success factors (Own illustration).

3.2.1 Firm-related factors

Firm-related factors include four subsets of factors that explain how internal entities cooperate in order to develop new products and how organisational structure and strategy impacts the final product.

Firm culture

Firm culture has long been established as one of the most crucial factors for the innovative process (Naranjo-Valencia, Jiménez-Jiménez & Sanz-Valle, 2011). Creating an innovative culture is not easily done and many firms never succeed with this establishment. Some of the problems are cultural resistance to innovation that may arise as a consequence of everyday routines, the composition of knowledge, and communicative barriers between internal entities within the firm affect the rate of innovation within a firm (Panne *et al.*, 2003). Routines may have evolved by being either well organised, structured or spontaneously generated from the firm structure and/or activities. The consequence of routines on employees is that they tend to focus solely on their own tasks and as a result, problems arise when looking for multidimensional solutions that exceed the responsibility of the individual. This demonstrates the obvious assertion that all participants must be collectively engaged in order to reach a common goal and creating a more susceptible innovative culture (Ibid).

Experience with innovation

Previous engagement and learning from innovation projects often carry over to the next project (Panne *et al.*, 2003). An easy way to draw use of previous experience is to continue to develop new products by using the same toolbox (i.e. knowledge and know-how), these sets of skills reduce the time-to-market and can decrease risk during the process. Individuals obtain new experiences often by learning-by-doing. This shows both the strengths and weaknesses of product development, either continuing with stagnating product development and staying within the

pre-set lines given by existing products or trying something new and accepting the risk of uncertain outcomes (Panne *et al.*, 2003). How the firm handles failures and learning experiences is a crucial aspect for future projects and success.

Strategy towards innovation

As uncertain and easily derailed as innovation projects are, an explicit strategic guideline is an important procedure (Panne *et al.*, 2003). Strategies act as compasses whenever the firm is at a crossroad and makes it easier to come back to basics if the project derails. Having a strategy for innovation also leads to important questions get answered early in the process and makes expectations of the project more realistic. The innovation strategies can be either proactive or reactive where proactive innovation strategies aim to obtain product leadership by targeting consumers' implicit needs and creating new segments at the same time. Reactive innovation strategies aim to develop products in already established segments and the objective is to steal market shares from competitors (Panne *et al.*, 2003). One specific proactive innovation strategy is the portfolio strategy (Panne *et al.*, 2003). The goal is to focus on several products in one segment which creates synergy effects in R&D, production, marketing and market development. A further benefit that is associated with the portfolio strategy is risk management where risk is drastically reduced as a result of several innovations being developed simultaneously. However, this strategy can make the firm produce several suboptimal products that do not have the same growth rate or contribute to firms' profits (Panne *et al.*, 2003).

Organisational structure

There is no one superior structure for innovation projects when it comes to organisational structure (Panne *et al.*, 2003). However, a less structured structure enhances the important trial-and-error of the innovation project, giving the innovative individuals space, time and freedom to elaborate ideas. Less structured and organically organised firms leave space also for individuals' differences and expressions due to the lack of hierarchies. This may lead to different ideas surviving the first gut-feeling decision whether something is possible or not (Panne *et al.*, 2003). There is an academic debate on whether an organic structure may not be as efficient as a formalized structure were deadlines and demands push the group to perform (Panne *et al.*, 2003).

R&D intensity

R&D-intensity is measured as a percentage of sales. If the firm invests more in R&D, more innovative products will be created, but whether the law of diminishing returns is always present cannot be stated (Panne *et al.*, 2003). There are more factors explaining the effects of R&D output than just R&D intensity e.g., knowledge spillover, regional contexts, demand-pull effects and technological opportunities, but how much it is not known (Ibid.).

R&D team

A diversity of characteristics among members in a R&D team affect the capabilities in technology (Panne *et al.*, 2003). Even if technological capabilities are of importance a balance between skills in marketing and technology is to prefer. A further important characteristic of a successful R&D team is the presence of a product champion which is characterised by a dedicated individual and can be seen as the internal entrepreneur who supports the R&D team (Ibid.).

3.2.2 Project-related factors

Project-related factors include three subsets of factors that affect and determine the success of the completion and thereby to the contribution of the liveability of innovation projects.

Complementarity

Complementarity refers to a firm's capability of combining resources and collaborations in ways that enhance or emphasize the qualities of products and using fewer resources (Panne *et al.*, 2003). These resources could be of general characteristics such as production facilities, research and development, distribution, sales, management and market research skills. Synergies are carried throughout product development and let the firm create products in line with already existing ones, making the consumer feel familiar with the new products. The complementary synergy effects are built by experience that comes from learning-by-doing and cooperation amongst peers. According to Harrison, Hitt, Hoskisson and Ireland (2001), resource complementarity has the potential of creating synergies from acquisitions and alliances, with a higher long-term economic performance as a result.

Innovation management style

The style and the degree of management are considered to be a key factor in order to affect process viability (Panne *et al.*, 2003). To make innovation projects more manageable, most innovators divide the projects into different phases. These phases usually start with an idea-phase which is followed by planning-phase, prototype testing-phase, evaluation-phase and finally a phase of production, market launch and review (Bagno, Salerno & Da Silva, 2017). Research shows that skipping any of the phases is the main reason for failure (Panne *et al.*, 2003). The phases are similar to the stage-gate model made by Cooper (1990) presented in chapter 3.1.

If the innovation project is divided into a detailed and accurate trajectory the greater is the likelihood that the new product will succeed (Panne *et al.*, 2003). It is of extra importance to follow the trajectory when developing radical innovations due to the uncertainty connected with this kind of products. When the process is divided, key factors can be found and easily be influenced once the idea of a new product has appeared. Creating milestones throughout the project clarifies time estimation and resource usage, elements that may be considered uncertain in terms of responsibility and tasks. Furthermore, the evaluation phase is important for sufficient evaluation to distinguish viable and non-viable projects, and to minimize the associated uncertainties with each and future project.

Top management support in innovation project

There is a strong need for long term commitment in innovation projects and this requires a tolerant and persistent manager that not only prevents viable projects to be aborted in advance but also enables the firm to take advantage of learning-by-doing (Panne *et al.*, 2003). During an innovation project, important decisions have to be made and supporting the operational decision-maker leads to better judgements. Supporting the managers empowers the project, both in faster and more decisive decisions and the support does not necessarily need to come from individuals ranked at a similar or higher level. Top management support has been stated to contribute as much to failure as it has to success in terms of innovation projects.

3.2.3 Product-related factors

Product-related factors are divided into four subsets that explain the innovation's external attributes and what signals the product sends to the consumer, which affects consumers expectations.

Relative price

Price is a dealbreaker and finding the accurate price level can be more than just difficult (Panne *et al.*, 2003). The Stimulus (S)-Organism (O)-Response (R) paradigm explains how price (S) signals a value to consumers that go through an (O) internal process within the consumer which

lead to (R) an action whether to buy or not to buy (Rödiger & Hamm, 2015). The (O) organism process is a combination of consumers' internal emotions, perceptions, beliefs, evaluations and intentions regarding the price of the product. This process assesses whether the product contains the individuals' preferred values that the price reflects. Rödiger and Hamm (2015) suggest that emotional arousal does not impact purchase decisions, rather a rising involvement does. Involvement increases enjoyment and a high enjoyment correlates strongly to a higher perceived quality which consumers are willing to pay for.

Relative quality

Quality is an undisputed critical factor to a successful product (Panne *et al.*, 2003). Good quality is not necessary but the relative quality that meets consumers' expectations is alpha and omega (Panne *et al.*, 2003). Quality is intertwined with pricing and both dictate outcomes of each other, as the price can be seen as an indicator of quality and vice-versa (Jacobson & Aaker, 1987). What quality is and how to assess it can be difficult for a consumer, but it can be and usually is taught to the consumer, either by the producers via commercials or other forms of dissemination of information (Heine & Petersen, 2015).

Innovativeness

Firms striving for profit must innovate in order to grow (Śledzik, 2013). Garcia and Calantone (2002) have separated the term innovation into a spectrum from incremental to radical innovations. *Incremental innovation* is defined as a product which is new characteristics, benefits, enhancements to existing technology in existing markets. Furthermore, incremental innovations may occur on all stages of the innovation process from planning to the launch of a product e.g., using existing technology to improve product design (Rothwell & Gardiner, 1988). Radical innovations are associated with a central change in the product which is described as game-changers, that affect the existing market structure and transform the fundamentals of the market. Innovations can be classified in a spectrum of *micro* and *macro* innovation. *Macro perspective* is related to whether the innovation is new to the market or the world whereas the *micro perspective* refers to whether the product innovation is new to a customer or a firm. There are not only variations in degrees of innovation, but there are also different types of categories (Baregheh *et al.*, 2012). Francis and Bessant (2005) describe four categories of innovation as *product* and *process* introduction or improvements, *positioning* and *paradigm* definition or re-definition. These four Ps have fuzzy boundaries meaning that one product can be more than one category at the same time and the four Ps provide insight to examine the space for innovation. *Product innovation* refers to changes in the services and products offered by the firm, by delivering superior functionality and/or price and signal this to the market, this includes making decisions with risks and unknown consequences. *Process innovation* refers to changes in the process of how services and products are delivered and created, which include activities to improve the operations horizontally throughout the organisation. Process innovation can be facilitated by including activities such as problem analysis, pilot experimentation and process management. These activities could result in raising awareness about the opportunities and problems, and thereby ease innovative initiatives to be undertaken. *Positioning innovation* refers to when products or services are introduced in a new context. This means that a product does not significantly change, and *paradigm innovations* are fundamental changes in structure that the organisation go through to innovate something completely new. Furthermore, this can be linked to the food sector where small firms develop more process innovations than product innovations and the majority of products are of an incremental kind and thus a low rate of radical innovations (Baregheh *et al.*, 2012).

Technologically advanced products

Whether a product benefits from being technologically advanced depends on consumers' understanding of how to use the "advance" to its advantage (Panne *et al.*, 2003). There are instances where the technology advanced part of the product is the sole focus for the company and thus consumers' needs becomes neglected due to this. However, the literature is inconclusive to what degree technologically advanced products has on the success rate of the products (Panne *et al.*, 2003).

3.2.4 Market-related factors

Market-related factors are divided into four subsets that influence the commercial viability of innovation projects.

Concentration of target market

A factor that is of great importance for the commercial viability of a product is the market structure (Panne *et al.*, 2003). If the market is concentrated on a single market it eases the communication between buyers and sellers.

Timing market introduction

Successful products may fail when entering the market at the wrong time which implies that time and maturity of consumer markets are important (Panne *et al.*, 2003). Yet, the time for introduction should be ahead of similar products on the market, since being first have a huge competitive advantage (Panne *et al.*, 2003). The type of innovation determines whether a quick introduction will be of advantage or not. Incremental innovations are favoured by a quick introduction whereas radical innovations are not.

Competitive pressure

The literature in economics and business is inconclusive whether a product needs competition or not (Panne *et al.*, 2003). Less competition creates fertile ground for expansion, whereas more competition is established in more developed markets and thus more consumers that are willing to buy in the context of food products. Braquinsky and Rose (2009) present the neighbouring farmer effect which refers to how farmers look upon their neighbours in terms of competitiveness and sharing knowledge. Farmers do not typically try to hide information from their neighbours even though they find themselves in the same competitive market, however, they do not see each other as true rivals. A further explanation is that farmers know that their output is small relative to the total market and that the actions of an individual farmer will not affect the market price and therefore, neighbours are inclined to share information and knowledge between each other (Braquinsky & Rose, 2009).

Market research and Marketing

The function of market research is to solve and/or identify problems before they become costly to find opportunities to invest further resources into (Panne *et al.*, 2003). When a firm does not conduct market research the risks increase as the firm already has invested R&D, production techniques, time and capital for personal, alternative costs and production costs without knowing the outcome of the NPD process. One way of conducting market research is to directly ask consumers what their needs are. Consumer involvement in the innovation process can be both useful and harmful. It may lead to avoiding obvious mistakes but may also be harmful as consumers need are limited to existing products and thus fooling firms to innovate less radical innovations. To create closer ties to consumers, Sheth and Parvatiyar (1995) suggest relationship marketing, where consumers and producers deal directly with each other. This type of

meeting can create stronger emotional bonds between the actors and create a better understanding of each other's' needs and wishes. The meeting does not emphasize the monetary transaction as much as the middleman usually does, but rather tries to create a long-lasting relationship between the producer and consumer. This kind of relationship lowers transaction costs and generates a higher perceived quality to the consumer.

3.3 Synthesis of conceptual framework

To answer the research questions of this study; what activities Swedish lamb producers undertake within their new product development process and how do Swedish lamb producers work with new product development, a conceptual framework was developed. The synthesis of the conceptual framework can be viewed below (Figure 4):

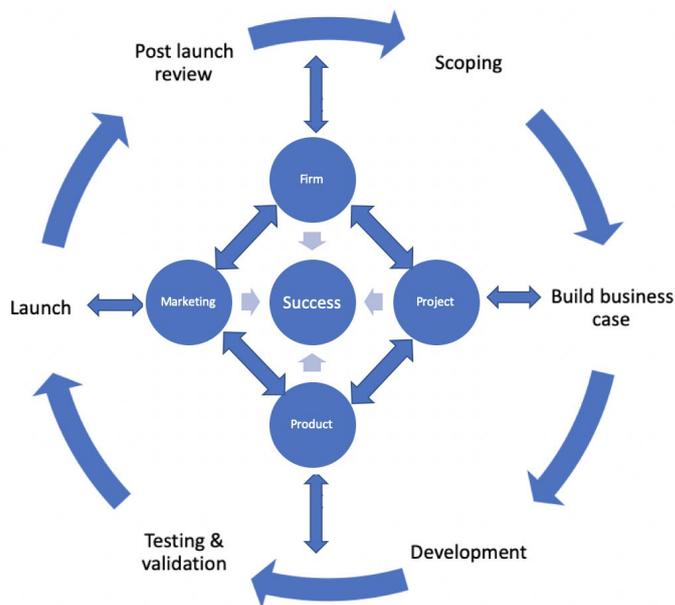


Figure 4. Conceptual framework (Own illustration).

To develop a better understanding of NPD processes for small firms, it is necessary to approach NPD from multiple perspectives as the literature on small firms is limited. In this study, the conceptual framework builds on theory about the stage-gate model presented by Cooper (1990) which describes the entire process from idea to product launch. The framework also builds on the literature review of Panne *et al.* (2003) about factors for success when being engaged in innovation projects. By complementing the literature review by Panne *et al.* (2003), which is more of a static model, the stage-gate model has been added in order to gain insight and a processual approach of NPD. The combination of the two will function as a basis for the analysis. The process of NPD and an innovation project as depicted by Panne *et al.* (2003) have significant similarities. Thus, this study approach the process of NPD as an innovation project. This approach will be applied in the analysis and discussion part of this study. To complement the innovation project framework provided by Panne *et al.* (2003), with supporting theory about price, quality, market research and marketing, innovativeness and competitive pressure.

Regarding the innovation project framework by Panne *et al.* (2003), the factors technology advanced products, R&D team and R&D intensity are not considered to be appropriate for this study as those are more suitable for companies that are of industrial size and character and these will, therefore, be excluded.

4 Methodology

In this chapter the research methodology of this study is presented and discussed. The methodology chapter is divided into seven subcategories starting with perspective and research approach, research design, literature review, data collection, data analysis, quality criteria and finally ethical considerations are discussed.

4.1 Perspective and research approach

The researchers' ontological and epistemological views establish a research philosophy, which dictates the chosen methodology (Guba & Lincoln 1994). The research philosophy explains the researchers' views on what can be understood and what assumptions explain the findings. The ontology describes the nature of reality, what is real and what can be known about this reality. Epistemology describes the view of knowledge and if knowledge is something objective or subjective. In this study, our epistemological and ontological perspective is positioned in the constructivist approach because it enables us to get a better understanding of experiences from those involved in the NPD process (cf. Bryman & Bell, 2015). By using the constructivist approach, the researchers can tap into the social reality of our interviewees and thereby, how they experience and understand the NPD process. Furthermore, constructivist researchers base their research on "*the participants' views of the situation being studied*" (Mackenzie & Knipe, 2006, p.3) and this approach is well suited for this study because it is based on the farmers' own individual perspectives and experiences of how they work with NPD processes. Having a positivistic and objectivistic standpoint in this thesis would be challenging as the positivist approach is according to Mackenzie and Knipe (2006) is value-free, and the social world can be studied through the same lens as the natural world. The farmers in this study have been engaged in NPD processes based on individual preferences, internal structures within the company and the context of their surroundings. A further argument of why a positivist approach is not considered suitable for this study is because the aim of this study is not to test hypothesis driven from theory, but rather explore how farmers work with NPD and build on existing theory. Moreover, constructivist is according to Mackenzie and Knipe (2006) likely to base the research on qualitative data collection methods and in this study semi-structured interviews were chosen as a data collection method (Chapter 4.4).

The constructivist approach is according to Mackenzie and Knipe (2006) the same as the interpretive approach although the literature presents some differences in the paradigm. Constructivist or social constructivism believe that individuals seek understanding of the world in which they live and work in (Creswell & Creswell, 2018). Seeing the world through the lens of a constructivist, individuals create and develop a subjective explanation of their own experience and hence reality is socially constructed, and all decisions are influenced by their context, which may lead to conflicting and contradicting actions depending on situational contexts (Creswell & Creswell, 2018). Having this in mind, tapping into an individual's reasoning provides rich insights of how NPD processes at a small scale evolve and that is why a conduct qualitative research method was chosen.

4.2 Research design

Since the number of studies on NPD processes in agribusiness through a farmer's perspective yet are relatively few, an empirical study is considered reasonable (Stewart-Knox & Mitchell, 2003). A qualitative approach is based on an abductive approach where observations are generating theory for the study (Bryman & Bell, 2013). In order to answer the research question, a deeper understanding of NPD processes within the Swedish agricultural sector is necessary.

Furthermore, the subjective perception of the individual farmers and the context that they operate in play a crucial role in obtaining an in-depth understanding of the phenomena of NPD (cf. Yin, 2009). A case study approach was selected for this study based on the argument that it is suitable for examining a phenomenon in its real-life context, especially when the phenomena implies important contextual conditions that are of interest for the study (Ibid). In this study, the NPD process represents the phenomena of analysis and where each lamb producer and its firm represent a case, to illustrate the phenomena. Through a case study, a specific phenomenon can be studied through one or many cases within a bounded system (Creswell, Hanson, Plano, Morales, 2007). A multiple case study approach was selected for this study and the advantage of this design allowed the researchers to choose a specific issue to study as well as to select a number of cases to illustrate this (Creswell *et al.*, 2007). In this study, the eleven farmers represent each a case, whereby the NPD process can be studied.

There are, however, some disadvantages with the multiple case study design (Baxter & Jack, 2008). First, it is considered very time consuming and secondly the more cases that are added the greater the likelihood of losing the in-depth and contextual understanding. Overall, the evidence from this type of design is considered reliable and robust, and a particular advantage is that it enables to show different perspectives on the issue and to contrast and compare the findings obtained from the cases (Bryman & Bell, 2015). Furthermore, this implies the encouragement of the researcher to consider what is common and what is unique to the various causes, and often foster the theoretical cogitations on the findings. To obtain the advantages mentioned with multiple case studies one must select the cases with care (Eisenhardt, 1989). In this study, the cases were chosen with care in accordance with Eisenhardt (1989) by contacting informants' who provided contacts with suitable farmers based on selection criteria of size, geographical location and experiences of NPD processes. Cases may be randomly chosen, however, in this study it was not preferable nor necessary, to select a case where the phenomena of interest NPD is observable in a transparent way (cf. Eisenhardt, 1989). In order to be able to study NPD processes as a phenomenon, the researchers had to find suitable cases and hence randomly chosen cases is not considered necessary.

4.3 Literature review

A literature review was carried out in order to get an overview of existing knowledge about NPD in small businesses and in the food business (Bryman & Bell, 2015). According to Rocco and Plankhotnik (2009, p.122), a literature review has five functions "*to build a foundation, to demonstrate how a study advances knowledge, to conceptualize the study, to assess research design and instrumentation, and to provide a reference point for the interpretation of findings.*" In this study, a narrative literature review was executed on the subject NPD in different settings because most of the literature does not consider NPD in the agricultural context. Through the literature review, the search engines Google Scholar and Scopus were used, and the literature consists of scientific articles and books. The conceptual framework defines the boundaries of relevance for the study, giving the reader a reasonable grasp of the knowledge in a particular subject (Bryman & Bell, 2015). A narrative literature review does not use quantified parameters to limit the search results and thus creates a more flexible method to a deeper understanding of the field of the particular researched subject (Bryman & Bell, 2015). By doing so, the researchers also find limitations and problematization that have been or have not yet been discussed. An important part of a narrative literature review is critical thinking and rate of relevance, what the study implies and how it fits the researched area are crucial to understanding (Bryman & Bell, 2015). This method can also lead to other relevant theories and studies not been discovered due to not being in the "narrative bubble" (Ibid). Following keywords have been combined with different constellations and variations to find relevant articles: New product development + Food product development + Innovation + Lamb + Process + Agriculture + SME + Farmers +

Food. From these searches, this study found relevant articles and continued reading others that either been cited or have cited the original findings.

4.4 Data Collection

In the following section, a presentation of selected sampling strategy and type of interview format is given.

4.4.1 Sampling strategy

Quantitative research sampling aims to provide a statistically significant conclusion, whereas qualitative research sampling aims to find a sufficient amount of data points to give an outcome (Bryman & Bell, 2015). To find farmers, snowball sampling method was used in this thesis. The method is often used in qualitative research, due to the method to its usefulness in finding hidden and hard to reach groups within a population (Bryman & Bell, 2015). This study has investigated 11 lamb producers with over 100 ewes each on Gotland. The aim of having a herd-size limitation was to interview farmers that have a professional approach towards farming and the geographical limitation aimed to control economic, market, institutional, practical and contextual conditions. Lamb production was chosen because this animal has three distinct product outcomes where product development can happen, wool, sheepskin and meat. This and the combination that demand for lamb products have increased over the years (Swedish Meat, 2019) should make lamb producers more likely to try to innovate and take risks to increase profits and expand the firm. First, a text was posted on two lamb groups on Facebook with 500 and 1500 members, hoping that some farmers would volunteer (APPENDIX 1). This resulted in no responses, however one agricultural organisation showed interest. After explaining the idea of the thesis and a short discussion, a list of contact information was received of farmers that may be of interest for the study and the received list was further developed through the researchers' personal contacts on Gotland. Using key-informants to get access to suitable farmers is also linked to risk. The study's outcome is greatly affected by guidance given to informant from us and the informants' idea of who are suitable interviewees, which should be and was considered when choosing this method (Bryman & Bell, 2015). The informants did not get a precise guidance of who the researchers wanted to interview, due to the fact that the study was relying on the vague definition of product innovation, "*products that are either new to consumers or to the firm*" (Rothwell & Gardiner, 1988, p.373), to find lamb producers that was of interest. The researchers tried to not limit the informants with too many academic boundaries, hence minimizing the number of possible lamb producing firms to interview for this study. Snowball sampling method via informants had to be used as the targeted group of lamb producers is hard to get in contact with, without any personal information or connections. The list from the informants of individuals within the aimed herd-size, the geographical limitation and the definition of product innovation was contacted and based upon the interest of being a part of the study and availability in terms of time, 11 sheep farmers was chosen.

4.4.2 Semi-structured interviews

Bryman and Bell (2015) present a variety of different strategies for conducting interviews (i.e., structured, unstructured and semi-structured interviews). Semi-structured interviews were chosen for this study and following Bryman and Bell (2015), this kind of combination of structural and unstructured approach to interviewing was carried out. Semi-structured interviews are characterized by a few prepared questions which enable the interviewer to ask follow-up questions to the respondent in order to clarify ambiguities and complexities but also to have the opportunity to guide the interview in the desired direction. A semi-structured interview was chosen for this project because it offers both structure and flexibility at the same time. A semi-structured interview has it made it possible to prepare an interview guide (Appendix 2) in advance

and flexibility as the interview questions could be adapted to what was of interest for each interview occasion. Furthermore, the aim of this study has a fairly clear focus area which according to Bryman and Bell (2015) makes semi-structured interviews preferable rather than unstructured interviews which usually are used when there is a general notion of wanting to know more about a topic. The reason why structured interviews are not considered appropriate for this study is because these interviews are based on predetermined and defined questions which are commonly used in questionnaires and does not allow for the researcher to explore answers further, ask questions that the interviewee find valuable and hence the structured interview does not allow for rich detailed answers (Bryman & Bell, 2015). Another method for conducting interviews is unstructured interviews which are characterized by an initiated single question asked by the interviewer which gives the respondent free choice to answer the question and the interviewer to respond only to the answers that seem to be of interest to follow up (Ibid). However, unstructured interviews are not considered appropriate either as the researchers wanted to find out how farmers work with NPD processes and therefore semi-structured interviews with guiding questions were preferable.

Stories told by the interviewees are based on the relationship between cause and effect, and time plays an important role when conducting interviews (Jacobsson, 1993). One must distinguish between what is happening during the interviews referred to as storytelling and what is history. It is therefore important to keep order on the chronology and thus the cause and effect relationship described above. As this study has taken into account both ongoing NPD processes and those that have been conducted in recent years, interviewees were asked to first give a brief summary of the firm, from the starting point to where they are now, followed by asking further questions from the interview guide. To get a rich picture from the interviewees, capturing the non-verbal expressions, capturing the context and ease up the interactions between us as an interviewer and the interviewees, the interviews were conducted face to face during a week in October 2019, when most of the farmers most stressful period was over. It was conducted in or near the farmers' homes, a location picked by the farmers themselves which also acted as an environment where the interviewees felt comfortable. The length of the interviews was between 1,5 to 3 hours long depending on follow up questions and interviewees length of answers. All interviews were recorded on consent to ensure capturing all information and later transcribed for respondent validation. Transcription of data is time-consuming and later sending it for a respondent validation increases the consumption of time (Bryman & Bell, 2015). A further benefit of using transcription in qualitative research is because the interesting is found in what the respondents say (Bryman & Bell, 2015), and in our study, it allowed us to go back and check specifically what the farmers said about their firm and NPD processes when writing up the results. Also, the process of transcription reduced the risks of misinterpretation and missing out of relevant information. The interviews were conducted with parties involved in the firm, meaning that if there were two persons involved, those two were interviewed and when only one was involved, only one was interviewed. This was the case except during two interviews where the other partner did not have the opportunity to participate due to work.

There are advantages of being more than one interviewer when conducting the interviews with each respondent and according to Bryman and Bell (2015) it implies for one of the interviewers to take a more active role focuses on asking questions and to make the conversation run smoothly whereas the one taking a passive role can make notes and intervene to a point when found necessary to guide the interview in a certain direction. During our interviews, one of the interviewers held the interview and asked to main questions and the other one took notes whereby the roles were switched after each interview. Furthermore, follow up questions were asked whenever answers needed more explanations, but also when the researchers found something particularly interesting which required longer and more in-depth questions. By doing so the researchers' also gained knowledge about the interview that otherwise would be lost via

memory selection. Being more than one interviewer created a more informal atmosphere which made the interview into a general discussion rather than an interchange between the interviewer and the interviewed (cf. Bryman & Bell, 2015). However, Bryman and Bell (2015) acknowledge that all respondents might not like the social setting of being interviewed by more than one person at a time. In this study, all the respondents were asked to participate voluntarily and the researchers did not notice any sign of the respondents feeling intimidated even though it's obviously difficult to determine the effect of being one versus two interviewers. How someone feels in a social group.

4.5 Data analysis

Analysing the results from the interviews are one of the greater challenges when doing a qualitative research design (Bryman & Bell, 2015). The qualitative research design creates a large amount of data and making the right decisions to find a path through it can be hard. Through content analysis, codification and dividing the data into themes based upon the theoretical framework is a way to guide the researcher through all the data and to create a structure on how to analyse it. The process of coding qualitative data aims to transfer thoughts and ideas from the raw data into systematic categories, creating a path to find similarities, differences and just methods for product development (Given, 2008). In this study, the codification is placed in themes based upon Panne *et al.* (2003) framework, where the empirical data is divided into the subgroups firm, project, product and market-related factors. By codifying and dividing the data into these subgroups a base for the analysis was formed and allowing the researchers to get a better understanding of how the different farmers work with their NPD processes based on the themes presented by Panne *et al.* (2003). Bryman and Bell (2015) state that codification should be conducted as soon as possible so that important impressions and initial ideas are captured, then reading through transcripts to find more codes and read them one more time to find more codes. Reading and reviewing codes decreases the risk of losing the contextual setting of each interview and makes them more useful as some may have been written several times or mean similar things as others. The codification process was initiated immediately after the interviews with the farmers were completed which goes in line with the recommendations of Bryman and Bell (2015). After finding relevant codes and placing them into the themes derived from the theoretical framework the researchers were able to analyse how farmers conduct their NPD processes in different areas of the firm.

4.6 Quality Criteria

Qualitative research aims to investigate the participants' perspectives and to explain the subjective meaning, actions and the context in which participants operate in (Bryman & Bell, 2015). There are several ways of interpreting and describing the social reality of the studied phenomena and the challenge lies in finding a quality criterion suitable for a research method that is of such a complex nature. Hence, there is a need for a way to assess to what extent the claims are supported by convincing evidence. As this research study is embedded in the constructivist paradigm, well-suited criteria for evaluating and measuring the trustworthiness of qualitative research is credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985).

Credibility is described by Bradley (1993, p.436) as “*adequate representation of the constructions of the social world under study*”. One activity to improve the credibility is respondent validation by checking the subjective interpretations performed by the researcher with the raw data, which means that the researcher reports what has been explicitly stated during the interview and letting the interviewee confirm that the content is consistent. This study discusses

farmers experiences and reasoning of product development processes, a personal and contextualized experience. Researchers must ensure that the perception of their story is correct and accurately described and thus a need for respondent validation (Bryman & Bell, 2015). In order to strengthen the credibility of this study, the researchers did in accordance with Bryman and Bell (2015), send the response validation to the farmers two weeks after the interviews and some minor details, like farm sizes and years when events happened, were changed. Furthermore, Zhang and Wildemuth (2009) state the importance of being transparent in the process of designing the coding of raw data when using content analysis, but also when drawing conclusions from them. The researcher in this study, therefore, try to be as precise as possible when framing and defining the coding procedures in order to avoid misunderstanding and manipulation of the data. In the study, the codification procedure is based on the theoretical framework presented by Panne *et al.* (2003) where the researchers have fit the raw data in each of the subgroups firm, project, product and market-related factors.

Transferability refers to whether the research results can be transferred to other context or social environments (Zhang & Wildemuth, 2009). This study is interested in an in-depth understanding and have in accordance with Bryman and Bell (2015) captured a close description of the social reality of the farmers. According to Yin (2013), some might argue that there is a risk of losing the width with case studies and to generalize from these can be a challenge, particularly in those studies when the number of cases is relatively few. In the case of studies, generalisation means an effort to generalize from a small number of cases to a larger population. However, instead of achieving generalization to a population that is used in quantitative research, a conceptual generalisation of the results can be appropriate, meaning that the results of this study could conceptually be applied to other cases and to theory. Therefore, the researchers strive, in accordance with Yin (2013), that the results of this study could provide a better understanding of small-scale farmers' new product development processes and that these results may provide valuable insights on how other farmers work in similar contexts. Moreover, the researchers of this study also hope that the results can be of interest to other researchers that investigate NPD processes through farmers perspective.

Dependability is about whether the result of the study can be re-created if the study is done once again by interviewing the same participants in the exact same context (Bryman & Bell, 2015). In order to enhance dependability, researcher shall according to Bryman and Bell (2015, p.403) "*adopt an auditing role*", meaning that the whole research process throughout this thesis is presented in an accessible manner. This study provides information about the research process which includes the phases of sampling of farmers, interview guide, data analysis and the decisions taken along the way. However, according to Bryman and Bell (2015), auditing has not become a popular approach in qualitative research, partly because qualitative research results in a large dataset. The rich amount of data and the contextual aspect makes it difficult to carry out the study again in the exact same way and achieve the same results, which is one of the reasons why dependability is not a common approach for evaluating qualitative research. However, the researchers aim to give an as detailed method description as possible in order to facilitate for someone else to replicate this study and that is one reason why the methodology is explained in detail.

The fourth and final sub-criterion, *Confirmability* refers to whether the researcher behind the study has good intentions and to what extent the researcher is taking an objective role without affecting the findings and results of the study. Bryman and Bell (2015) argue that it is not entirely possible to act objectively, however, it is not desirable to be completely objectively oriented within the constructivist paradigm since subjectivity is a part of the epistemological and ontological perspective and the research process. One way to avoid or reduce the risk of the researcher becoming too subjective is to act reflexively (Bryman & Bell, 2015). Reflexivity

means that the researcher reflects on the consequences that her or his actions have, such as decisions, values and distortions when it comes to the knowledge created in the study. In this study, reflexivity is practiced throughout the thesis by questioning choices and actions and how these affect the outcome of the study.

4.7 Ethical considerations

A researcher might face several decisions that involve ethical issues when conducting research in the field of business studies (Bryman & Bell, 2015). A number of ethical aspects have been taken into consideration in this study. Firstly, all farmers that participate in this study were informed about the purpose of the study, who is part of the research team and that participation is voluntary in accordance with Ritchie, Lewis, Nicholls and Ormston (2013). Two more aspects that have been taken into account is anonymity and confidentiality. These refer to careful use of data and information to avoid unauthorized access to the persons participating in the study (Ritchie et al., 2013). All members of this study remain anonymous and not known or mentioned outside the research team conducting the research. However, there is no absolute guarantee of the participants to be anonymous since the number of lamb producers in Gotland is relatively few. Actors or individuals who have well-established contacts or are firmly rooted in the context where the farmers operate might identify the farmers. Lastly, all the data collected in the study is only to be used for research-related purposes.

5 Empirical background and results

This chapter starts with an empirical background to the farmers and their firms in order to give context background and a general understanding of the farmers and the agribusinesses they operate. Afterwards, the results are presented which are based on the interviews material from the case studies and analysed in the next chapter.

5.1 Empirical background

Gotland is Sweden's largest island where agriculture, food processing and tourism is the main source of income. Gotland has a long tradition of sheep herding which have resulted in, on average, larger sheep farms compared to the rest of Sweden (Swedish Meat, 2019). A combination of long tradition of breeding and farmers receiving agri-environmental payments for maintaining a varied agricultural landscape has led to sheep farmers on Gotland has higher earnings compared to the rest of Sweden (Ritz, 1999). On Gotland, sheep and lamb are a common business focus among farmers, where the average lamb producer has 170 ewes per farm business compared to the overall Swedish average of 50 ewes per farm (Swedish Board of Agriculture, 2019).

The empirical study consists of 11 farmers and a description of the farmers' background is summarized in Table 1. The table is divided into the subgroups of farmers code, production method, farm size and products which is further divided into subcategories. The farmers' have been given an identification code of A-K to remain anonymous.

The variable organisational structure describes whether the farmers managed the farm by themselves or together with their partner or colleagues. Farmers A-K own and are the main or only labour force on the farm and hence, are the ones conducting the tasks related to NPD. Each of the A-G farmers have managed their farms together with a partner or colleagues for over 10 years and have more than one full-time salaried individual working in the firm. Farmers A-G have developed their farm to a stage where they feel satisfied in terms of size and have no larger expansion in mind. These farmers have also started to talk about retirement as they all have been active for a long time. Farmers H started their farm a few years ago and have not yet made any dramatic changes in their firm due to both having full time jobs outside the farm. The time limitation and newness of the farm creates an environment where farmers H experiments and discusses about future opportunities regarding their firm. Currently, it is still unknown if farmers H can and will become full-time farmers. Farmers J have both a work outside the farm, but in contrast to farmers H, they have had the farm for more than 25 years and it is likely that farmers Js' children will take over the farm than them transition from their current jobs towards more farming. The farmer I is run by a single person full time, with help from the living partner when time exists. They have had the farm for more than 10 years and the single farmer have found a size and workflow which the person finds manageable. Farmer K has had the farm for 20 years and has managed to run the farm on his/her own until recently, however, last year the farmer's son became employed on the farm.

The variable production method is presented as the farmers either having a conventional or KRAV-certified production. KRAV is a well-known eco-label for food in Sweden which is built upon an ecological base with respect to animal health, care, social responsibility and climate (KRAV, 2013). Farmers A, C, F and I have KRAV-certified production and the remaining farmers have conventional production. The farmers' perception of KRAVs' benefits is discussed in chapter 5.2.3.

The sizes of land and animals vary among the farmers and have no influence on whether farmers engage in the NPD process. All the farmers have sheep production as main livestock, and the farmers C and E also combine sheep with cows.

Table 1. Background variables of the farmers firm

Farmers code	Organisational structure		Production method		Farm size			Products				
	Sole proprietor	Partners	KRAV-certified	Conventional	Hectar	Number of sheep	Number of cows	Meat	Artisan foods*	Sheepskins	Interior design**	Tourism***
A	Y		Y		50	200		S	N	F	N	N
B	Y			Y	200	700		FNS		F		
C	Y		Y		600	350	200	F	N	F	N	N
D	Y			Y	50	150		FN		F	N	
E	Y			Y	700	400	100	FN		F		N
F	Y		Y		50	200		S		F	N	
G	Y			Y	600	200		FN		F	N	
H	Y			Y	50	100		S		F	N	
I	Y		Y		150	300		S		F		
J	Y			Y	100	200		S		F		
K	Y			Y	300	500		S		F		

S=sells to slaughterhouse

F=sells in farmer shop

N=active in NPD processes

Y=Yes

*Includes sale of other foods than meat

**Further product development of sheepskin

***Gets paid to receive larger groups of tourists

The category products are divided into the subcategories of meat, fur, artisan food, interior design and tourism. The farmers either sell meat to the local slaughterhouse on Gotland, sell in farmers' shop or a combination of these. Farmers A, B, F, H, I, J and K sell directly to the slaughterhouse and farmers B, D, E and G sell their meat products through their own farm shop. These products include new variations of cuts such as lamb flint steak or variations flavoured sausages and hamburgers. The subcategory artisan foods include other foods that do not involve meat. Farmers A and C have developed locally produced flour and other products from their farm.

Regarding the variable sheepskins, all farmers sell their products via farm shops that they themselves or close relatives own. When it comes to further product development of fur, it is a time-consuming work that some of the farmers engage in, partly because of the enjoyment of creativity and partly because of financial reasons. Those that do not engage in sheepskin product development often claim that the cost of labour when sewing or crafting new products is never paid by the consumer and thus not profitable. According to the farmers, their own wool production does not provide any meaningful income and none of the farmers develops any continuous products out of their own wool.

Farmers A, C, E have some income from tourist groups that are arranged by commercial entities, meaning that if travelling companies offers a stop at these farms as a selling point, farmers

make sure of getting paid for it. This is not a significant source of income, but an income nonetheless and something that these farmers may develop further.

5.2 Results

In this section, the empirical findings are presented and structured after the conceptual framework.

5.2.1 Firm-related factors

The interviewed farmers A-K have more than 100 sheep and these farmers have previous agricultural experience and/or education. Farmers A-H run their farms together with a partner or family member and I, J and K manage their farms individually. Besides having lamb production, farmers E, I and J also have a herd of cattle and the farmers E and I also have a business orientation that allows for study visits. Farmers A, B and K conduct plant cultivation and sells crops. Farmers, I, J and K did not consider themselves as involved in a NPD processes whereas farmers A-H are engaged in a NPD process. I, J and K have produced the same type of products the past 10-25 years, whereas A-H are in the process of developing new products and/or improving their existing ones. Farmer H recently started the firm and has only launched a few products.

Regarding the division of labour, farmers' A-H and J have a pronounced division of labour but also state that their working tasks overlap. A description that applies to the farmers A-H and J is that the duties regarding heavy work, machinery, the managing the animal can be divided between partners and colleagues, but in general farmers' A-H and J farmers share responsibilities and workload among each other. The shared responsibilities include daily duties, the overall planning of the firm and developing new products. A-H and J farmers describe that by sharing responsibilities, it feels safer to make decisions as it allows for reasoning with each other on a daily basis. According to Farmer A, both the good and bad ideas are reinforced by being two as one can discuss the opportunities and risks with different ideas. Even though farmers I and K are the ones that conduct their firms by themselves, they get some help on a few occasions by family members. A-H farmers describe themselves as adaptable to change in the process of developing their products as they work either in pairs or with colleagues which makes it easy to communicate with each other about deficiencies and make necessary changes regarding their products.

From the stage of an idea of a new product to start to develop a new product where quite similar among the farmers. Differences where farmers A-H got their idea varied and it varied depending on the different products. Farmers A-H either said that they got the idea from themselves, inspired by other farmers' and/or demand from producers and consumers. For example, farmer D, an artisan food creator, had some sausages created from trial and error, some recipes came from other artisan food creators and some sausages were created through demand from consumers and other producers. The production segment of sausages is a combination of internal and external idea generation as most of the NPD process for farmer A-H.

The motive of why the farmers A-H developed new products was that they wanted to increase the profitability on the farm by selling directly to consumers by cutting of wholesalers. They also found it fun to create something new and of these farmers, only B had clear pronounced sales-related goals with their products which were to sell all products that are produced to a premium price.

Farmers A, H and I have indirect sales targets which were, to not have growing stocks of products and to sell a certain amount of sheepskins each year. None of the farmers have pronounced

strategies for developing their products, however, farmer C used to have a strategy for its products, but this is now more of a vision. Even though there is no strategy for product development, farmers K and E say that they have an overall strategy for their firms which includes making continuous process improvements that add value to the products and use as much of the resources as effectively as possible instead of growing in size. No formal documentation is made by the farmers regarding developing new products, instead, all farmers say that the daily process and think about how to improve their products. However, all farmers write down general thoughts and ideas about daily activities regarding experience related to sheep production such as breeding and forage. None of the farmers expressed that they had a systematic way of handling learning by doing but everyone claims to have learned from their experiences which they have included in their upcoming projects. The knowledge the farmers have gained over the years derived from the sheep production and then further experience has been gained as they have developed new products. Farmers B, E and F have become more cautious and thoughtful over the years when they are about to develop new products. For instance, farmer B have learned through experience that trial and error is important when developing new products and says; *“We do not test large batches when developing new sorts of meat products to see which trends the consumer favour right now. If we would have done full scale at once, we risk too much if we are wrong. Furthermore, we always have an economic backup, to secure the income. if consumers do not buy the product restaurants will”*. Farmers G, K and H both indicate that their previous experience in animal husbandry respectively knowledge about charcuterie have been crucial in the process of developing existing meat and sausage products. The time span from idea to product launch varies among the A-H farmers, from a few weeks up to a year. Although farmers B, E and F describe that they have become more cautious and rethinking risk over the years, farmers A-H all say that their time frame from idea to product launch has been shortened as they have become better at understanding the process of development and knowing what needs to be done to finalize the product.

5.2.2 Project-related factors

A-K farmers sell their products in their own farm shop or in a local store and farmers A, B, C, F and H also sell other farmers' and craftsmen's products in their own shops. As pointed out by farmers A, B, C, F and H, the shops function well as a collaboration between friends in different craftsmen circuits and other farmers. Other craftsmen and farmers attract new consumers that may buy something that the consumers did not know they wanted. Another synergy that exists is the organisation Skinriket where farmers collectively try to raise the standards of the sheep-skin quality, by only using rams evaluated by certified assessors for breeding, breed-knowledge sharing amongst farmers and connecting farmers to a program for preventing diseases. Skinriket carries out collective marketing for farmers that are members, which A-K farmers are, through the tourist magazine Destination Gotland which everyone who takes the ferry and/or the flight to Gotland can get hold of. Besides Skinriket and collaborations within sales there are no further intensified collaborations at production level besides for farmer C that has a long-lasting collaboration with its neighbours running two farms together.

As the farmers mentioned in chapter 5.2.1 none of the farmers have a pronounced strategy for developing their products. According to farmers A-H, the usual process of developing new products is initiated with an idea sparks in their mind continuously processed in the mind while doing their daily routines. The farmers talk to close friends and/or family members about the idea and how it could be improved. Then they create small samples that are first evaluated by the producers themselves where they either keep it as it is, make changes or skip the whole product. After talking to friends and/or families the farmers decide whether to go for it or not. After passing the internal testing they start producing the product on a small scale, to test and see how consumers interact with it, reacts to it and see if the consumers buy it. Whether the last testing satisfies the farmer, the production process gets repeated and a new product is introduced

to the market. When farmers were asked about conducting post launch review the answer was that it occurs occasionally but in an unstructured way. The most typical review was recurring consumers, if the product was preferred by consumers they came back and bought more. When asked if there is any outspoken consumer feedback for new products, farmers A-H said that it occurs but it is more of a consumer initiative than an initiative from the farmers, as one of the farmers G stated *“Consumers usually feel the need to tell me how much they have appreciated the product which I am always happy to hear and motivates me further”*.

When asking farmers questions about how it is to work with their partner or colleague, A-H and J stated that there is a stability and support during the work. One of the farmers A said; *“We make decisions together, so we need to discuss everything and the beliefs for an idea becomes stronger, for better or worse”*. Furthermore, *“A good or a poor idea might be launched more rapidly because we support each other and feel comfortable when making the decision.”* Farmer I and K did not mention that being alone as something bad, everything is done in a way that they desire. When needing extra support, from banks, governmental agencies, farm organisations or other organisations around farming, farmers A-K feel that there is support available and comfortable getting help when needed.

The general attitude to temporary problems is optimistic, A-K farmers describe that they just have to persevere and make it work. For example, one of the farmers D said; *“I do not shut down projects when I develop products, I rather continue to develop them by changing or making an improvement so that they sell and in a worst-case scenario, I may have to pause them, but then I just develop another product”*. One of the farmers C stated that; *“If you want a certain project to work, you will try harder, but there comes a time, when nothing works, where you need to put the project on hold and see if future prerequisites changes and thus change the outcome of the project”*. Farmers A-G have long-term and persistent approaches to their firms as none stop developing existing and new products just because they encounter temporary problems. If the problems remain, they either shut down the non-functioning one, make improvements or pause current project and start a new project, and learn from their mistakes. Farmers E ran a charcuterie with other farmers and says that the cooperation did not work, they had trouble with staff and the assets were overvalued, which resulted in a withdrawal by the other farmers. Farmers E decided to be persistent and solve the problem, even if it did not work in the end but it resulted in a lower loss than for those who withdrew earlier. Farmers E is now in the process of developing their own charcuterie as they now know how to execute the project as they have learnt from their past mistakes. Farmers A, B, C, E and G emphasize that their overall time horizons are longer than their own professional careers and developing new products is a way to hand over an attractive firm to either their children or another successor.

5.2.3 Product-related factors

Out of the eleven farmers, I, J and K are not actively engaged in a NPD process and have been selling the same type of products the past 10-25 years e.g., meat directly to slaughterhouse and sheepskins either through their on-farm shop or through other farmers' shops. Farmers A-H are actively engaged in a NPD process and/or have recently developed a new product. These products include developing locally produced flour, artisan foods such as new pieces of cuts e.g., flint steak, hamburgers, flavoured sausages, and leasing of lambskin for special occasions, interior details, locally produced clothing and tourism.

When asked about the price, farmers A-K said that they let the quality of their products determine the pricing level. Farmers A-K are members of Skinnriket, an association whose purpose is to help farmers in sharing knowledge, become better breeders and guide farmers in the pricing of sheepskins. Farmers A-K have similar strategies in pricing as they make calculations and comparisons to what other farm shop charge and then they let their gut feelings decide first.

They then test different price levels to see what consumers are willing to pay for the product. One of the cases stands out from the rest, farmer B, who compares with what other farmers charge through their farm shop and then sets a supplement of 20% which makes him the most expensive of all and according to the farmer no consumer has ever complained about the price.

When talking about quality, all farmers emphasize the importance of knowledge sharing and letting the consumer understand the quality and labour behind the product. They describe that the process of sharing information includes spreading information transparency about the production, animal welfare and the history of the farm. Farmer B says that; *“Anyone should be able to review the entire production chain as I have nothing to hide, being completely transparent”*. Farmers A, C, F and I are KRAV certified, but the view of KRAV varies among the farmers, C and F are uncertain and sceptical whether how much value KRAV adds to their products. Farmer C sell meat directly to consumers and does not feel that being KRAV certified adds value to the products due to more and more consumers asking for locally produced foods, not specifically KRAV as it used to be. Farmer F means that the higher income of KRAV does not add up the increased costs and A and I farmers sell their meat to a slaughterhouse and KRAV gives an added value, both in the wallet and in the soul they say. No matter how they feel about KRAV, farmers have used KRAV as a marketing tool in order to facilitate communication of soft values, like increased animal health and welfare, to consumers.

Farmers A-H have recently been in the process of developing products that are perceived as new to the organisation. This includes improving existing products and developing brand new ones. When developing new products, farmers A-H base the product ideas' on already existing products that can be bought in the supermarket and then test multiple products at the same time on a small scale to see what kind of products sell and have a smooth production flow. Farmers I, J and K are happy with their current products and do not see investing in renewing or modifying these products as necessary. Even if all farmers are not engaged in developing new products, all farmers indicate that they made changes in how their services and products are delivered and created over the years and this also includes breeding and creating more efficient production.

5.2.4 Market-related factors

Gotland is a popular summer vacation island and during the summer months tourist flood to the island. This creates new consumers for the farmers and is an important time of the year. Farmers A-K point out that almost everything they sell during a year is sold during the summer and peak is in July. Farmer J estimated that around 60% of the farmers' revenue from sales comes during that month. Farmers A-K describe the buyers as almost exclusively consisting of tourists with strong purchasing power who visit the island during the summer season. The majority of products are sold during the summer months due to the strong tourism. Farmers B, C, D, E, I, J sell to other markets outside Gotland through their website and contacts. Farmers A-K have only relied on face-to-face dialogue with consumers for new products.

Regarding the timing of market introduction, farmers A-H argued that their timing was right, or at least not bad as the trend and demand for locally produced foods and products are higher now than in previous times. Farmers A-H have no pronounced strategy about the timing of market introduction regarding their products more than that the products should be introduced if possible before the upcoming summer season starts or at least at the beginning of the summer season.

Farmers A-H mostly rely on either their own instincts or talk to colleagues, relatives and/or friends when creating a new product. When asked about competition none of the interviewed

farmers A-K saw other farmers products as competitors, rather, farmers saw others as colleagues and advisors during and after the NPD process. Through the relationship, farmers share ideas, knowledge and thoughts if they feel that there is reciprocity, respect and a give-and-take approach towards trust amongst each other.

None of the farmers have done structured market research of consumer future needs and wishes. Farmer H stated that they would have benefited from doing market research before they started, since they initially thought that the demand for and the consumers' interest of their products was higher which have led to an increased inventory. Although none of the farmers says that they carry out any market research of consumers, B, D, E and G farmers note that they are somewhat observant of trends and follows different social media on food crafts. Viewing similar or same trends as the consumer, the B, D, E and G farmers develop new products influenced by social media and by that develop something that food craft interested consumers may desire. The occasional consumer feedback for a new product has occurred, but it has been of a more consumer initiative than an initiative from the farmers. A-J farmers also pointed out that they have learned what different types of individuals want and how to appeal to them. A-J farmers mentioned that they continuously learn by doing, as for when developing new products, it's important to test on a small scale to obtain knowledge which products consumers prefer. These farmers mean that even a failed product does not damage the firm's' liquidity in any meaningful way.

When it comes to marketing of the firm, A-K farmers had low to no continuous marketing to attract new consumers, describing that continuous marketing was too time and capital consuming. A mix of advertisements in the tourist magazine Destination Gotland, a website, an ad in the local newspaper and a page on Facebook's platforms was a usual marketing activity. Another reason why the farmers did not conduct any continuous marketing to attract new consumers was because farmers A-K (except H) have been active for over 10 years and have built up a reputation over the years. Farmer H is currently testing different types of advertisements to fit their budget and time limitations. Instead of focusing resources on advertisement farmers A-J focused mostly or solely on building relationships with their consumers and spreading the word that way. Farmers A-J indicated that it is not only the physical meeting with the consumer that is of importance, but also the possibility of developing a relationship where the consumers can ask questions and get meaningful answers about the production and where farmers can get new input and motivation. Farmers A-J pointed that consumer interaction not only meant increased sales to a higher price but also a way for the farmers to get appreciation.

6 Analysis

In this chapter, the results are analysed based on the conceptual framework by combining the results and theory that function as a base for discussion in the next chapter. The interpretation of innovation projects, referring to NPD process are applied as presented in chapter 3.3 synthesis of conceptual framework.

6.1 Firm-related factors

Firm culture

Routines may have evolved by being either well organised, structured, spontaneously or generated from information and processes (Panne *et al.*, 2003). The farmers engaged in the NPD process have started off as spontaneously initiated, and NPD processes have evolved as the farmers have gotten time for reflection. A structure on how to actively work with NPD have gradually developed through routines and division of labour for farmers A-G. Panne *et al.* (2003) describe the risk that routines may impact the possibility of solving multidimensional problems that exceed the responsibility of the individual. Farmers A-H, who are actively engaged in NPD processes, run the farm together with their partners or colleagues, share responsibility, and have both individual and collective tasks. According to the farmers themselves, they manage to minimize the negative impact that routines may have on solving multidimensional problems as shared responsibility makes it easier to get involved in each other's tasks and problems which goes in line with Panne *et al.* (2003). Farmer J also run the farm together with her/his partner but do not focus on NPD due to a lack of time. Panne *et al.* (2003) argue that employees must be collectively engaged to reach a common goal and create a more responsive culture for innovation and this goes in line with what farmers A-H do as they have a common goal of developing an attractive firm and sees the NPD process as the way to get there.

Experience of NPD

Panne *et al.* (2003) state that previous engagement and learnings from innovative projects often carries over to the next project. None of the farmers had an explicit system for handling learnings from previous experience, every learning experience was carried over to the next process through memories from the learning by doing experience. Neighbours and colleagues in the farming community were almost the only learning source outside the internal discussions. They helped the farmers with social aspects, exchanging ideas, delivered products to the farmers' shop, and collaborated with investments. One way to draw use of previous experience is to continue to innovate by using the same toolbox (i.e. knowledge and know-how), these sets of skills have been shown to reduce the time-to-market and can decrease risk during the process (Panne *et al.*, 2003). Regarding the use of the same toolbox, all farmers base their product development on their knowledge from sheep production which they have gained over the years. As the farmers have developed products, they have gradually added more tools into their toolboxes, i.e. customer knowledge and storytelling, which goes in line with how innovators adopt their learnings and previous experience to generate further tools of knowledge and these tools enabled them to develop additional products (Panne *et al.*, 2003). Farmers A-H has in common that they test the new product on a small scale to reduce the risk of lacking liquidity which is in accordance with Panne *et al.* (2003) argument about innovators relying on toolsets to reduce time-to-market and decreasing risk during the process. The timeframe from idea to product launch varies among the farmers, from a few weeks to a year and for every new product that has been developed the time-to-market for the next product have been shortened which ties in with Panne *et al.* (2003).

Strategy towards NPD

As uncertain and easily derailed as NPD processes are, an explicit strategic guideline is an important procedure (Panne *et al.*, 2003). According to the farmers themselves, none of them have developed a pronounced strategy for developing new products. Even though there is no pronounced strategy, it is possible to link farmers' product development to Panne *et al.* (2003) categorization of proactive and reactive innovation strategy. Farmer I, J and K strategy can be linked to the reactive strategy as they develop products such as meat in already established segments. Farmers A-H have gone from conducting a reactive strategy, for instance, selling meat directly to the slaughterhouse without further processing, to conducting a proactive strategy by satisfying the underlying needs of consumers through NPD and communicated via storytelling. A specific proactive strategy mentioned by Panne *et al.* (2003) is the portfolio strategy, which can be tied to the strategy applied by the farmers A-H and their product development. The farmers strategy can be tied to the portfolio strategy presented by Panne *et al.* (2003) as they have developed several products at the same time and utilized the synergy effects which includes using the same marketing, marketing channel and similar production methods. A further benefit of the portfolio strategy mentioned by Panne *et al.* (2003) is risk management. Farmers A-H mentioned that they have developed more than one product at a time and tests which ones they manage to produce and sell. Farmers B, D and G have a systematic back up whenever a new product does not sell to whom they then sell it to a pre-set buyer, which are usually restaurants. This strategy minimizes risk and give a stable income whenever these three farmers engage in a NPD process. The products that fails in either production or sales are shut down, to focus on those products that have been successful and hence the risk of critical liquidity damage to the firm is decreased.

Organisational structure

According to Panne *et al.* (2003), there is no superior organisational structure for NPD, however, a less structured organisation may have some benefits, such as an organic organisational structure. Farmers A-K, all have an organic organisational structure, as they run the firm by either themselves, with partners or with colleagues. Furthermore, they describe themselves as adaptable and flexible in terms of changes in the NPD process which confirms what Panne *et al.* (2003) states about organic structure. Farmers A-H conduct a trial-and-error method when trying new processes and they have been able to identify deficiencies in the process at an early stage which goes in line with Panne *et al.* (2003) who argue that less structured organisations enhance the important trial-and-error of the process development. Farmers A-H let their gut feelings decide whether they think it is possible to further develop a product or not, and this relates to Panne *et al.* (2003), who argues that less structured and organically organised firms leave space for individuals differences and expressions due to the lack of hierarchies.

6.2 Project-related factors

Complementarity

Complementarity refers to a firm's capability of combining resources and collaborations in ways that enhance or emphasize the qualities of products and using fewer resources (Panne *et al.*, 2003). These patterns can be seen in the case farms, as farmers A-H have developed new products, they have gained more experience on how to combine the resources differently and more efficiently, leading to new collaborations and thus even more synergies as they further develop products. Further evidence of complementarity can be seen when farmers A-K combine the farm as a resource with marketing activity by collectively conduct marketing through Skinnriket. By doing so, these farmers can advertise their entire farm and products they have

developed by using less resources and gaining a higher visibility in advertisement. A further synergy related to marketing activities that goes in line with Panne *et al.* (2003), is the adoption of the certification scheme KRAV, which enables A, C, F and H to market several of their products to convey the message about the animal health and welfare that is included in the KRAV-certification. According to Harrison *et al.*, (2001), resource complementarity has the potential of creating synergies from acquisitions and alliances, with a higher long-term economic performance as a result. This relates to the results, where the farmers A, B, C, F and H also sell other firms' products in their own farm shops', attracting more consumers than otherwise.

NPD management style

To make the NPD process more manageable, most firms that engage in NPD divide the process into different stages (Cooper, 2008). Even though the NPD process is not clearly divided into different stages for farmers' A-H, there are signs of division of stages which ties in with Cooper (2008). In the context of farmers', A-H, the scoping stage includes being observant of trends and follows different social media on food crafts, talking with friends and family members. The stage is not conducted by the farmers in a broad and structured way as suggested by Cooper (2008) to determine the potential and the acceptance of the product will have in an early phase. The next stage suggested by Cooper (2008) is building a business case where economic and technical solutions will be stated. Farmers A-H do not "build" business cases, i.e. formally write down economic and technical solutions, most of the building occurs in their minds during the later stages of the process when the farmers see and realise how the NPD process looks like and what sets of skills are needed. In the stage of development, farmers do rough calculations during the process of creating the product, but they do not developing marketing strategies or detailed financial analysis in this stage as suggested by Cooper (2008).

The stage of testing and validation includes testing small product samples on themselves and later on consumers which then is evaluated. Depending on the reaction of their own and of the consumer, there will be changes and/or improvements before scaling up to the production. The final stages presented by Cooper (2008), is the market launch which is followed by a post launch review. Farmers A-H have low level of engagement in performing post launch review as it occurs occasionally and in an unstructured way. The most typical review was recurring consumers, if the product was preferred by consumers they came back and bought more. According to Panne *et al.* (2003), the more detailed the stages are followed the greater is the likelihood of succeeding, especially for radical innovations, however, as farmers' A-H are engaged in incremental innovations the likelihood of failing is less and thus, following these stages in detail becomes less important. The gates in the stage gate model presented by Cooper (2008) are important as decisions are made, whether to shut down or go further in the process. However, farmers A-H are not shutting down their projects at one of the earlier stages, instead, at earliest farmers are deciding to pause or to stop developing a product as it has been tested on consumers and validated.

Top management support

Panne *et al.* (2003) emphasize the need for long term commitment in innovation projects which requires a tolerant and persistent manager that not only prevents viable projects to be aborted in advance. These patterns can be found in the results were farmers A, B, C, E and G emphasize that NPD is a way to hand over an attractive firm to future generations. Furthermore, farmers A-H and J state that by being two, it feels more stable and comfortable making decisions, and this is in accordance with what Panne *et al.* (2003) states about the importance of support during decision making. Contradicting this, I and K do not see a problem operating their firms' and taking decisions by themselves. Furthermore, the general attitude among the farmers A-K are optimistic regarding temporary problems and as they solve the problems, they gain another

experience and hence, learning by doing which is in accordance with the findings from Panne *et al.* (2003). A-H and J state that they have a supportive partner which strengthen Panne *et al.* (2003) hypothesis, about supporting the decision-makers' leads to faster and better judgements.

6.3 Product-related factors

Relative price

Price is a deal breaker and finding the accurate level can be more than just difficult (Panne *et al.*, 2003), farmers A-K have collectively gone together via Skinnriket to improve quality and get higher prices on their sheepskins. Farmers A-K sold most or all of their sheepskin products through their own or other farmers' shop and farmers A-K sold sheepskins due to the high margins of income it brings. Farmers A-K indicated their set price levels was possible due to consumers connected to the product and the production. Farmers were able to explain what values, such as animal welfare and biological diversity, are encapsulated within the product. This interaction results in increased enjoyment for the consumer and a high enjoyment correlates strongly to a higher perceived quality which consumers are willing to pay for (Rödiger & Hamm, 2015). Furthermore, farmers A-J, who sold products in their own shop stated that healthy and long-lasting relationships with consumers insured a revisit and hence, they were likely to continue to purchase products which is in line with Rödiger and Hamm (2015) who suggest that increased interaction and involvement between consumers and producers creates enjoyment which leads to long-lasting relationships.

Relative quality

Panne *et al.* (2003) state that good quality is not essential, but rather relative quality that meets consumers' expectations. Farmers A-K emphasize the importance of knowledge sharing and letting the consumer understand the quality and labour behind the product. According to Heine and Petersen (2015), it is difficult for a consumer to assess the quality of unknown products, but it can be and usually is taught to consumers, either by the producers via interactions, commercials or other forms of dissemination of information. In the case of farmers, A-K, they share information about quality face-to-face with the consumer and not through other commercials or other forms of dissemination of information. The process of teaching consumers about quality includes sharing information transparently about the production, animal welfare, the history about the farm and thus, letting the consumer get an understanding of the entire production chain and the quality behind the products. As the farmers communicate through storytelling about their farms, it legitimizes their price as the perceived quality increases, which dictates the intertwined outcome between quality and price as suggested both by Jacobson and Asker (1987) and by Rödiger and Hamm (2015).

Innovativeness

Farmers A-H have products that are incremental innovations when seen from the micro perspective presented by Garcia and Calantone (2002). Farmers I, J and K, lack enough substantial improvement to their existing products that would classify them as an incremental innovation. None of the farmers A-K products can be seen as a radical innovation since they do not meet the requirements presented by Garcia and Calantone (2002) about changing the existing market structure.

Viewing the innovations from the four Ps standpoint (Francis & Bessant, 2005), none of the farmers have initiated a positioning and paradigm innovation as they have not introduced any products to a new context or shifted the core structure of the firm to another vastly different direction. Regarding process innovations, farmers A-H have made changes in the process of how services and products are delivered and created over the years. Farmers A-H, that engage

in product development, do it to improve the operations horizontally throughout the organisation. If professional breeding of sheep is included as a quality improvement process then farmers A-K are highly engaged in process innovation, i.e. creating a better product year after year. Farmers B, D, E, F, G and H have used experimental methods to examine the market for food innovation as they tested products on a small scale to see what kind of products sell and have a smooth production flow. This is in line with what Francis and Bessant (2005) write about process innovation activities that result in raising awareness about the opportunities and problems within the firm and thereby new innovative initiatives can be undertaken. Regarding product innovation, farmers A-H are actively engaged in a NDP process and have offered products or services to the market that are new to the firm and thereby make decisions that includes risks with unknown consequences. The fact that farmers A-K are engaged in process innovation and that farmers A-H has offered a new product or service confirms Baregheh *et al.* (2012) statement about small firms developing more process innovations rather than product innovations and the majority of the products are of an incremental kind and thus a low rate of innovation.

6.4 Market-related factors

Concentration of target market

A factor that is of great importance for the commercial viability of a product is the market structure (Panne *et al.*, 2003). Farmers A-K describe the buyers as almost exclusively consisting of tourists with strong purchasing power who visit the island during the summer season. The majority of products are sold during the summer months due to tourism. Farmers B, C, D, E, I, J sell to markets outside Gotland through their website and personal contacts. None of the farmers A-K have an active dialogue with consumers through other channels besides face-to-face. Farmers A-J sell through their own farm shops and this is where the main dialogue with consumers occurs. The dialogue enables a direct communication of the soft values of the products which is in line with what Panne *et al.* (2003) states about concentrated market facilities communication between buyers and sellers. According to farmers A-K, it eases communication between farmers and consumers as it enables clarification of ambiguities and does not demand exactness in choice of words or pictures, and it is less capital and time-intensive compared to the output of activities in an advertisement.

Timing of market introduction

Farmers A-K argued that their timing of new product onto the market was right, or at least not wrong, as the trend and demand for locally produced foods and products are currently higher than in previous years which can be tied with what Panne *et al.* (2003) writes about product timing and market maturity as an important factor of when entering the market. Furthermore, the products offered by the farmers are heavily influenced by already existing products that can be bought in the supermarket which indicate that consumers are already familiar with the farmers' new products. This relates to Panne *et al.* (2003), suggestion on the type of innovation determining whether a quick introduction will be an advantage or not, and as the farmer A-H products are of incremental nature, they are favoured by a quick introduction. Furthermore, the risk associated with speed may affect the quality of the products (Panne *et al.*, 2003), but despite the risk, farmers A-H aim for a fast market introduction and try to reduce the risk when developing new products by offering a variety of samples to find out which one is the most successful on the market.

Competitive pressure

The literature in economics is inconclusive whether a product needs competition or not (Panne

et al., 2003). Although competition exists among the farmers on Gotland, none of the interviewed farmers A-H perceived other farmers' products as competition. Rather, farmers saw other farmers' as colleagues and advisors during and after the NPD process which is in line with Braguinsky and Rose (2009) findings about farmers not seeing each other as true rivals. Furthermore, farmers share ideas, thoughts and knowledge with each other if they feel that there is reciprocity, respect and *quid pro quo* regarding the neighbouring relationship which ties together with Braguinsky and Rose (2009) findings about local competition in the agricultural sector.

Market research and Marketing

None of the farmers A-H have carried out extensive market research before starting to develop new products. It has been suggested by Panne *et al.* (2003) that market research is necessary for NPD processes, in order to solve and/or show problems before it becomes too costly. Instead, farmers' A-H let their gut feeling decide which products they think consumers want. Farmer H expressed that they had thought that the demand and the consumers' interest for their product would have been higher which goes in line with what Panne *et al.* (2003) says about the consequences of an absence of adequate market research. Although none of the farmers says that they do in-depth market research, B, D, E and G are observant of trends and follow different media on food crafts. Some of these observations have resulted in farmers B, D, E and G developing new products which correspond to what Panne *et al.* (2003) says about the importance of market research in terms of finding opportunities on the market. Farmers A-H mentioned that when developing new products, they test on a small scale by producing a small amount or a variety to obtain which ones the consumers prefer. This kind of activity can be seen as a kind of market research which is presented by Panne *et al.* (2003), as the product going through an evaluation process with the consumer. Hence, farmers get a better understanding of preferences and can thus change and sort out any unwished qualities of the new product before a full-scale launch.

When it comes to marketing, farmers A-K have low to no continuous advertisement to attract new consumers. Instead of focusing resources on anonymous advertisement farmers A-J focused on building relationships with existing consumers and spreading the word that way, in line with Sheth and Parvatiyar (1995) view on relationship marketing, allowing the farmers to lower cost and generates a higher perceived quality to the consumer which enables to create a better understanding between the two actors. Regarding transaction cost, the farmers described specifically that continuous marketing through advertisements, web page or social media was too time-consuming and thus too costly which goes in line with what Sheth and Parvatiyar (1995) writes about lowering transaction cost by using relationship marketing.

7. DISCUSSION

This chapter aims to discuss and reflect upon the analysis and results, and how they relate to existing literature. Furthermore, the study's two research questions are answered, which are the following: (1) What activities do Swedish lamb producers undertake within new product development? (2) How do Swedish lamb producers work with new product development processes? Furthermore, a discussion about theoretical implications is presented and finally, methodological reflection.

7.1 Activities Swedish lamb producers undertake within NPD

In contrast to the stage-gate model presented by Cooper (1990), there are signs of farmers undertaking similar activities but on a more abstract level without any clearly divided stages and explicit documentation or formalisation. One of the reasons could be that stage-gate by Cooper (1990) is based upon larger firms and is a guide to facilitate NPD processes which are characterised as formalised and structured and hence, miss out the small firm perspective. It is also reasonable to think that small agricultural firms are not involved in the exact same NPD processes in which larger firms are, as farmers' communication is facilitated by working in small teams and any kind of formalising processes may be an obstacle and hinder progress in the product development process. The activities that farmers undertake in their NPD process are similar to the ones presented in prior research (Huang *et al.*, 2002), which includes product development, preliminary production analysis, in-house product testing and preliminary production analysis, and thus a simplification of the stage-gate presented by Cooper (2008).

Scoping

In contrast to Stewart-Knox and Mitchell (2003) who suggests that firms should include consumers from the very start, the findings of this study show that farmers include consumers in one of the latter stages; testing and validation. The contradiction may be due to farmer's new food products are of incremental kind and are sold on a mature market and hence, including consumers in an early stage may delay and complicate the NPD process unnecessarily. Instead, the results from this study indicate that farmers let their own perception and opinion decide which product to invest and develop further, thus the decision becomes highly subjective. The risk of relying on a subjective manner is that the product might fail due to it relying on one or two individuals' gut feeling and thereby has a weak foundation. On the one hand, one can assume that because farmers rely to a large extent on the outcome of previously developed products and thus have learnt enough about consumers' needs (if those assessments have been done correctly), then conducting market research might be abundant for future products. On the other hand, if there is a will for developing completely new product segments, market research creates a good foundation and helps farmers explore possibilities that might not have been realised otherwise. The early gates in the stage-gate model by Cooper (1990) might be seen as abundant as the farmers involved in this study almost always develop a physical product before consumers get exposed to it.

Building business case

In this study, there are no farmers that make a business case in a structured form at an early stage in the NPD process. For most of the farmers NPD is based on learning-by-doing and the farmers do not necessarily need to build a business case as the product will undergo changes along the way. Although farmers may see it unnecessary to build a business case, hurdles might be found and become avoidable. The closest activity found that could be linked to building a

business case is some farmers setting targeted prices on their products in the early stages of development, based on own experiences of previous product prices and simple calculations, but the main pricing adjustment mechanism is based on consumer interaction which occurs in the stage of post-launch-review.

Development

Furthermore, this study confirms Baregheh *et al.* (2012) statement about small firms are more involved in process innovations than product innovations and thus lower level of innovativeness. One reason why farmer is engaged more in process innovations could be that they develop products based on existing knowledge and skills, and since products derive from lamb and sheep production, it is therefore reasonable for farmers to focus on process improvements behind the product such as breeding. Viewing the innovations from the statement made by Baregheh *et al.* (2012), one could argue that product innovation drives process innovation as developing a product innovation automatically include phases of scaling up the processes behind new products. This indicates that farmers who actively are developing new products are automatically engaged in process improvements that derive from these new products whereas the farmers who are not actively developing new products only are engaged in the process improvements linked to existing products. A further explanation of why farmers are to a large extent involved in incremental innovation might be due to farmers producing food products that are well embedded in consumers context and fills consumers' needs that ties to Stewart-Knox and Mitchell (2003) findings about new food product embeddedness affect the products ability to succeed on the market. There is no reason for being unique for the sake of uniqueness when developing new food products, if incremental products work there is no need to innovate further. Farmers level of innovativeness could also be a result of managing risk as they are using pilot experimental as a method when examining the space for their innovations and thus, resulting in the innovations described above.

Testing and validation

Similarities to prior work by Huang *et al.* (2002) and Cooper (2008) are found in this study, referring to in-house product testing. Farmers evaluate product based on subjective opinions, which determines whether or not to continue testing the small product samples on consumers. However, the stage of testing and validating is one of the later stages in the NPD process and as consumers have not been exposed to the product during scoping, it indicates a high level of risk taken by the farmers as the cost, and risk of failure, increases for each stage. The increased risk does not seem to bother farmers as market research at an early stage is too complicated to conduct, thus accepting the increased risk.

Launch

Regarding launch, this study confirms Huang *et al.* (2002), and, Rochford and Rudelius (1997) about small firms being less frequent engaged in marketing-related activities. Farmers engagement in relationship marketing may be a result of consumers seeking and wanting to build a relationship with the farmers and thus indicate that relationship marketing become a natural activity. However, to what extent different activities impact the consumers purchasing decisions is not for this study to answer. Another reason may be that farmers invest most of their time and capital in the production processes, leaving few to no resources for advertisement, which corresponds to Huang *et al.* (2002) who found that small firms are likely to be more engaged in technical activities than marketing.

Post-launch review

After product launch farmers do not collect feedback in a structured format, it occurs occasionally but is more of a consumer initiative. There are certainly valuable insights to be gained if

the farmers structure a feedback system for consumers, that would benefit future NPD processes. Farmers' communication with consumers is the main price adjustment mechanism, where the products qualities is also discussed, and as most farmers did not have any problem selling their products indicates either the price-to-quality ratio is right or too low, the latter being more plausible. Farmers' interpret consumer actions through interaction that later adds to the farmers subjective views of what is important in forthcoming projects and by doing this in an unstructured way may lead to certain actions gets unproportionate attention in future development.

Summary

To summarize chapter 7.1, this study demonstrates that Swedish lamb producers are most engaged in the activity's development, testing and validation and consumer relationship when launching the product, and less in scoping, building business case and post launch review. In terms of scoping, farmers product is not based on a structured form of market research instead they let their subjective feelings decide, as consumers get exposed for the products in the later stage of the process. Moreover, farmers build their NPD process on learning-by-doing and do not build a structured business case as the product are likely to undergo changes along the developing process. Farmers are more involved in developing process innovation than product innovation which implies that they are more likely to focus on improvements behind the product than developing completely new product innovations. Consumers get exposed for the product in the stage of testing and validation, where farmers test small product samples to find out consumer preferences. When launching the product, farmers engage in relationship marketing, but have an overall low level of engagement in marketing-related activities. Lastly, farmers do not systematically collect feedback from consumers in a structured way as it only occurs occasionally and are more of a consumer's initiative.

7.2 How Swedish lamb producers work with NPD processes

Food is rooted in culture, not only the consumption of food, but also how it is produced in terms of farming and product development which implies that new food products and food products are most often sold in mature markets (Balbontin *et al.*, 1999). In this study, the farmers develop product innovation of incremental kind that follows local traditions.

This study findings confirm previous research (De Massis *et al.*, 2016; Ledwith, 2000; Nicholas, Ledwith and Perks, 2011), about small firms being engaged in NPD processes are likely to have a clear team composition, interaction among members of the firm and actively are working cross functional. Moreover, farmers seem to have adapted their NPD activities to their organic organisational structure which enables a trial-error process and to detect deficiency. One possible explanation could be that interaction and overlapping tasks within the team enables them to disrupt routines, discover and solve multidimensional problems in the NPD process as suggested by prior research (De Massis *et al.*, 2016). Furthermore, the results indicate that farmers working in teams creates another benefit by solving problems fast, as they aim for speed, in terms of a quick market introduction. This could further imply that farmers working alone do not develop new products due to being stuck in routines and not able to solve problems that arise from being engaged in NPD processes, however, this study does not find support for such a claim.

In this study, farmers experience in NPD appears to be one of the fundamental component for engaging in NPD and the only way to gain further experience is by taking a chance, i.e. risk. As the farmers have a long-term commitment with their farms, there is a need for risk-minimisation and this could explain why the farmers only develop their toolbox by adding another tool

step by step, and rarely building a new toolbox. Moreover, experience and know-how are depending on the outcome of previous NPD processes and thus could mean that both successful and unsuccessful tools and experience are used in existing and/or future projects for small scale agricultural firms. Furthermore, the results show that farmers' internal synergies are linked with previous experience, learning-by-doing process and alliances with others which indicate that synergies evolve as farmers learn and engages more in NPD processes. These reflections tie in with Panne *et al.* (2003) who state both the strengths and weaknesses of learning-by-doing in NPD, stagnating product development and stay within the pre-set lines given by existing products or try something new and accept the risk of uncertain outcomes.

Despite farmers not having explicit systems for handling experience in NPD, the results from this study confirm previous research (Cooper, 1985), about small firms being engaged in informal processes as the farmers have an informal way of learning from these experiences. The informal nature of farmers system of handling experience could indicate that their decisions on which tools to bring to future projects are evaluated through an intuitive feeling rather than evaluated in a systematic way. However, one cannot say if it better or not to have an informal structure, compared to a systematic structure, during the learning by doing process, as none of the farmers had any form of systematic structure for experiences gained during the NPD processes. It is likely that a combination is preferred as it combines speed and flexibility with knowledge that facilitates analysis and follow up.

The results show that farmers generally invest no or little effort into formulating a strategy towards their NPD. Furthermore, this study confirms Cooper's (1985) suggestions that there is an absence of a formally written down strategy in small firms and one reason could be that they work in small teams which minimises the need for a formulised strategy as they can easily communicate among each other. This enables flexibility as the farmers can continuously evolve a strategy, however, it could also be a disadvantage as it might cause continuous time-consuming discussions about the strategy and thus, create uncertainties and contradictions of how the farmers' intended it to be in the first place. The absence of a formulated strategy does not necessarily mean that the farmers' lack a strategy for their NPD as signs of strategies related to risk management where found. A further explanation of why farmers' relatively low engagement in formulating a strategy could be due to strategies interfere with the farmers' learning by doing processes as it benefits from less structure and guidance.

This study confirms that persistence and support during the food product development process is important, as prior research suggests (Stewart-Knox & Mitchell, 2003; De Massis *et al.*, 2016). Even if the results do not contradict previous research it may add interesting insights about the fundamental importance of having a supportive partner when initiating new products. Lack of support, in terms of not having a partner or colleague might explain why these firms have lower level of engagement in developing new products and similar pattern where found by Ledwith (2000) who state that lack of support might even result in projects never getting initiated. Moreover, farmers who run the farms by themselves, might have an idea of how to develop new products but lack the motivation and persistence to start as they are stuck in their thoughts that arise from being alone.

By looking on the characteristics of Gotland as targeted market, one can get further insights about how farmers' work with NPD processes. Instead of seeing each other as competitors, farmers' shared ideas and knowledge amongst each other, indicate that the overall attitude towards competition is low. During the empirical collection there was a sense of farmers taking the abundance of tourism, more or less, for granted which may reflect on the competitive awareness of the farmers' and how little analysis of the market that has been conducted. When taking

tourism for granted, i.e., assuming that what is produced is sold without much effort, the rate of NPD may be lower compared to if the same farmers had either increased competition or less tourism. In relation to Ledwith and O'Dwyer (2009) suggestion, farmers could investigate rival firms' and their products as a way to increase competitive awareness and market research, which may facilitate the farmers own NPD processes as lessons can be learned from rival firms.

The opportunity to reach tourist or other potential consumers outside the tourist season is difficult and if farmers want to expand and target new markets on the mainland, they might have to change how they work with NPD processes. While their communication is facilitated by primarily focus on one market during the tourist season, it is more of a challenge during the rest of the year since the main strategy of targeting consumers is face-to-face and thereby, they might need to change their marketing strategy.

In contrast to Baregheh *et al.* (2012), who found evidence of food SMEs having low engagement in partnering up and thus creating strategic alliances, farmers in this study on the other hand seem to be relatively active. An explanation could be linked to the fact that farmers individually benefits from a strong contextual demand, i.e., Gotland as a tourist destination, and thus, not see each other's as competitors as mentioned above, whereby they are more inclined to share ideas and knowledge among each other during the NPD processes.

Regarding similarities to Ledwith and O'Dwyer (2009), the findings indicate farmers' involvement in building up close relationships with consumer might only focus on a selective few consumers. One can assume that their marketing approach automatically results in a limited number of consumer relationships as it is strongly dependent on time-consuming face-to-face interaction and that bonds are tied closer to like-minded individuals. However, in contrast to Ledwith and O'Dwyer (2009), this study has not enough empirical evidence for supporting previous research regarding the consequences of missing out specific consumers as farmers select a few to build an interactive relationship.

Moreover, relationship marketing is used by the farmers in order to communicate their products through storytelling to explain the quality and legitimize price levels. In relation to Stewart-Knox and Mitchell (2003), relationship marketing is an effective strategy for the farmers to customize the product which indicate high possibilities of adapting the storytelling to specific consumer wishes and needs. Moreover, this indicates that the farmers fulfil an important role as storyteller and bearer of the farm's values. However, to be able to get an impression about the quality of the products one must meet the farmers face-to-face, otherwise consumers would not be able to get the desired perception about the quality of their products. Due to farmers being storytellers they cannot be replaced by others as the farmers themselves are a big part of the story and farmers own words and explanations are crucial in order to legitimize the price level and consumers expectations when buying an expensive product.

Summary

To summarize 7.2, the farmers that engage in NPD processes have a clear team composition, interaction among members and are actively working cross-functionally. There is an absence of formally written down strategy for the farmers NPD processes, instead, the farmers communicate daily among each other which enables for flexibility as the farmers can continuously evolve a strategy. Moreover, farmers have a long-term commitment and develop their tool-box of knowledge by adding another tool step by step and rarely develop a completely new tool-box. The informal nature of farmers system of handling experience could indicate that their decisions on which tools to bring to future projects are evaluated through an intuitive feeling rather than evaluated in a systematic way. This implies that farmers are rather focusing on an ad-hoc way of learning-by-doing which permeate the entire NPD process. The study further

demonstrates that farmers who are engaged in NPD processes work in teams. This can be explained as support is one of the most important aspects of the NPD process as it strengthens firm culture, experiences, management decisions, consumer interaction, solving multidimensional problems, division of labour and finally complementing individuals strengths and weaknesses. Lastly, farmers engage in relationship marketing which enables the farmers to customize the products content which indicate high possibilities of adapting the storytelling to specific consumer wishes and needs. Relationship marketing is used by the farmers in order to communicate their products through storytelling to explain the quality and legitimize price levels.

7.3 Implications for the research field of small businesses

Within the literature of NPD in small businesses, there is a lack of understanding of how small firms can incorporate and work with NPD practices as been demonstrated in the problem statement (Moltrie *et al.*, 2007; De Massis, Kotlar, Frattini, Chrisman & Nordqvist, 2016). The findings of this study can contribute theoretically to develop a better understanding of how small firms work with NPD and processes that derives from being engaged in NPD. In contrast to the prior literature on NPD presented by Cooper (1990) and Panne *et al.* (2003) the interviewed farmers do not structure their process as suggested, instead, farmers have an ad-hoc way of guiding their products to the market which permeate most to all activities occurring throughout the NPD process. In contrast Panne *et al.* (2003), factors such as technology advanced products, R&D team and R&D intensity that prior work suggest to be of importance are not implemented by small businesses. Those factors might be more appropriate in larger businesses and not perceived as important to small businesses and there might also be a contextual aspect that varies from different business contexts. The findings indicate that there is a lack of theory and models that describes the NPD process in small businesses as one might need to have a different approach to understand how small businesses engage in NPD, whereby this study contribute.

7.4 Methodological reflection

One could criticise the use of the stage-gate model by Cooper (1990) and the framework presented by Panne *et al.* (2003) as the framework is a 16-year-old literature review of 43 papers and both, to a large extent, focuses on large firm's innovation processes and thus are missing out the small firm perspective. While conducting an extensive literature review, limited number of frameworks were found that could be considered appropriate as none were based upon small firms. It was deemed appropriate to use as a broad framework as possible due to limited research on the topic and the framework by Panne *et al.* (2003) includes a wide range of factors that believed to be of importance for approaching NPD in small firms. To answer the research questions of this study, one would need a framework that can function as a foundation for developing an understanding of how small agricultural firms work with NPD processes as there has been limited studies addressing this issue.

Regarding credibility, the result is an interpretation of the information gathered from conducting interviews with the farmers. The patterns found and analysed are filtered through an academic lens while using an academic language which may lead to a dissonance between their perceived reality and the researchers' perception of the farmers perceived reality. To get a deeper understanding and depict the farmers context better, one could have interviewed a fewer number of farmers but increased the number of interviews per farmer during a longer period of time. A longitudinal approach is appropriate when examining processes as one can follow the

events occurring and get a first-hand view on different processes described in the study (Bryman & Bell, 2015). There are a number of practical limitations in a thesis that makes using a longitudinal method more challenging, like shorter time limitations and smaller budget. However, the longitudinal method needs certain preparations and was not considered before the start of this thesis, which limits the possibility of an excellent execution and hence, it was not chosen as a method for this study. One could also question the choice of conducting response validation as it only verifies what has been said during the interviews, and not the researchers perceived impressions. The analysis and codification do not, and should not, be affected by the interviewees opinions as the ownership of the outcome from the interviews is considered to be the researchers. Moreover, the researcher's interpretation is built upon a subjective perception of farmers' reality obtain through the interviews and hence, indicates that the interpretations are likely to be different depending on who conducts the study, the ontological and epistemological perspective researcher holds.

Regarding transferability, the results of this study cannot be generalized to all farmers in Sweden, but that is not the intention of this study. Instead, the researchers' hope that one can make a conceptual extraction of the results from the eleven firms and that these can provide valuable insights on how other farmers work in similar contexts. As there have been limited studies investigating NPD processes from a small agricultural firms' perspective, hence, it could serve as a foundation and starting point for further research. To obtain a higher level of transferability and to ensure purposive sampling the researchers could have targeted even more extreme cases as suggested by Eisenhardt (1989). During the process of selecting farmers to interview, a more thorough background research of the farmers could have been done and as the study relied heavily on informants, some cases had low engagement in the NPD processes. In order to obtain more extreme cases, the researchers could have set up clearer criteria for what is meant by NPD processes and in hindsight, adding a time-limit to the criteria would have been an appropriate choice in order to only obtain farmers that started their NPD process within the last 2-3 years. This could have resulted in some minor, but yet important, changes when selecting firms to interview. Moreover, instead of focusing only on lamb producers, this study could have focused on farmers in general to get a broader approach of small firms' NPD processes within the agricultural sector as a whole. By adding the time-limitation and broadening the base of possible interviewees the researchers could have found even more extreme cases and thereby, to find stronger patterns of how small agricultural firms' work with NPD processes. The approach would not have jeopardized the function of the study rather it might increase the relevance for the agricultural sector and still contribute to the scientific community. However, these insights were gained after collecting empirical data and due to time limitations, the sampling method and the interviews could not be remake in a satisfying way.

Regarding dependability and the limitations of replicating the study, the question of whether farmer I, J and K should be included in a replicating study might arise as they are not fully representative for investigating NPD processes. The reason for this is because those farmers are not actively engaged in NPD processes even though they continuously work with improvements regarding previously developed products. However, the argument for still including these farmers is that they work with process improvements regarding their previously developed products while running the farm mostly by themselves and thereby contribute to interesting insight on how different constellations of farmers work with NPD processes. But if this study were to be replicated again, then these three farmers might be excluded from the sample.

Finally, finding an accurate level of subjectivity while being embedded in the constructivist research paradigm is a difficult task (Bryman & Bell, 2015), and consequently, this study may have limitations regarding confirmability. The researchers' personal expectations and opinions

may have created elements of being biased regarding interpretations during the interviews, the results and thereby, the conclusions drawn from these. These actions may have resulted in misinterpretations that were not meant by the farmers or researchers behind the theory used.

8. CONCLUSIONS

This chapter answers the aim of the study, to develop a better understanding of how small-scale farmers work with NPD processes. The chapter shows the key findings of the study and ends with recommendations for future research.

The aim of this study was to develop a better understanding of how small-scale farmers work with NPD processes. By using Stage-gate model by Cooper (1990), in combination with the framework presented by Panne *et al.* (2003), this study demonstrates that Swedish lamb producers are most engaged in the activities development, testing and validation and consumer relationship when launching the product, and less in scoping, building business case and post launch review. Moreover, Swedish lamb producers have increased involvement in processes within firm- and product-related factors and are less involved in activities that relates to project- and market-related factors.

This study can conclude that the interviewed farmers have an organic organisational structure with no formulated or formalized strategies in any of the grouping factors, rather focusing on an ad-hoc way of learning-by-doing processes which permeate most to all activities occurring throughout the NPD process. Farmers produce incremental product innovations and have an unstructured way of guiding their products from idea to market launch which includes letting their gut feelings decide and to test small samples on consumers, where the process is favoured by speed. The sampling method implies that consumers get exposed to new products in the latter stage of the NPD process and thus increases the risk of failing by not including them in the initiated stage of scoping. The risk is countered by the farmers through adopting a portfolio strategy, where the shortcomings of one product can be restored by another products success. Moreover, farmer's engagement in market research is generally low, with exception of a few sporadic feed-back comments from consumers. Farmers' main marketing channel is through face-to-face interaction with consumer while communicating the quality and to legitimize the price. The study further demonstrates that farmers who are engaged in NPD processes work in teams. This can be explained as support is one of the most important aspects of the NPD process as it strengthens firm culture, experiences, management decisions, consumer interaction, solving multidimensional problems, division of labour and finally complementing individuals' strengths and weaknesses.

This study has focused on NPD processes in small agricultural firms while other studies have focused on NPD processes in large firms and on mostly industrial products (Calantone & Cooper, 1979; Cooper & Kleinschmidt, 1986), where these have neglected food products (Stewart-Knox & Mitchell, 2003), and thereby this study contributes theoretically to the scientific field. Moreover, this study has shed light on the matter of NPD processes through a farmer's perspective. The findings provide empirical insight that might be valuable for governments and policymakers wishes to increase the innovation rate in the agricultural sector of Sweden.

8.1 Future research

This study has focused on how Swedish lamb producers work with NPD processes. It would be of interest to investigate and compare how farmers engage in NPD in other farming sectors such as horticulture, dairy and agritourism. By using the outcome of this study as a foundation, future research could examine the relationship between the activities in which farmers are engaged in, with the NPD stages to find out how the interconnect with each other, to gain further processual insight about NPD in the agricultural sector. Due to the high level of products failing as they have been launched to the market it would be interesting to examine the key elements of why

firms fail when developing new products. Furthermore, a longitudinal study would be appropriate for investigating both elements of failure but also to find out how farmers work with NPD processes over time.

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Appendix 1: Text on Facebook

Hello,

We are two business and administration students from SLU and are writing a master's thesis on new product development in lamb production.

What we mean by new product development is a product and/or production that is either new to your company and/or new to the consumer.

We are interested in companies that have more than 50 ewes and are located in Svealand or northern Götaland. We will conduct on-site interviews as much as possible so if you are interested, we will contact you with further details on what dates and times that might fit.

Feel free to send a pm or email to hohu0002@stud.slu.se, if you would like more information or to report interest. When registering interest, please send with brief basic information such as size, location, type of new product/production and how long you have been running the company itself.

Sincerely, Hugo Hultin and Simon Johansson

Appendix 2: Questionnaire

The questionnaire has been developed by Cecilia Mark-Hebert, SLU and Erik Hunter, SLU. With their permission, we have been able to share this.

- Can you tell us a little about your company and your production?
- Can you tell us a little about your product?
- Where did the idea come from?
- Is there any pronounced strategy for product development in the company? Different customers or utilize more of the raw material.
- How is the product sold? Who are the buyers?
- What resources do you see as important in the development of this new product (s)?
- What is the added value base for your new product?
- When you launched your new product, have your buyers had any problems with it in any way?
- When you were launching the product on the market, what did you do?
- What did you know about the market when you launched your new product?
- Is there anything special about past experiences that were important to you when you launched your new product?
- Have you made notes of past experiences? And how did you do them? How did you use them?
- The underlying motives for developing a new product, which ones are you?
- Do you have any sales-related goals for your new product?
- Do you see the product as a success? In what way? if the product is not ready, is it where you intended it to be in the process?
- Is there anything that you see as a challenge or a failure?
- What do you think are the prerequisites for future success?'
- If you have to explain why you have been successful or have faced challenges.
- What factors explain successful product development for You?
- What factors explain perceived challenges?
- Do you see any cause for concern for your new product?
- Can you describe how you looked at the problems that arose in the product development?
- Did you change your business slightly after the problem? to minimize it happening again
- Did anyone in your local area help you see challenges? Is it difficult to take help from the local environment when you face challenges?
- When you met challenges, what did you do?
- How did the "product development" land?
- An investment in developing a new product is unique ... if it did not reach the market / survived in the market, How do you feel / feel?
- What do you think are the consequences of the experience?
- Can you tell us a little about how you handled the challenges
- Developing new products is fraught with challenges ...How do you view the support available in the process?
- How do you look for support to liquidate something that was not what you had in mind?