Jesse Kujala

Strategic adaptation in SMEs

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ABSTRACT:

The changes in the global business environment can be felt all over the World. The dairy industry has changed due to changes in consumer behaviour, policy changes and climate change. This has had an effect also in Finland. The business environment in the Finnish dairy industry altered at the beginning of 2021 when Valio introduced contract production. This shift meant that dairy farmers could produce a fixed amount of milk versus the previous situation when they did not have a contract for a specific production amount. This situation forces dairy farmers to adapt to the new situation and develop their strategies more actively.

This study determines what changes strategic adaptation involves and what organisational attributes influence strategic adaptation in SMEs from the dairy farm sector in a time of significant industry change. The research in strategic change and adaptation is a renewed topic that is increasingly important in the agricultural field as it continues to face changes. The primary focus is on dairy farms that have needed to adapt to the changes in their business environment.

The conceptual framework consists of strategic change and adaptation literature, which is viewed from the perspective of SMEs.

The research strategy is survey research. The data is collected via an online questionnaire from dairy entrepreneurs. The population is around 3300 dairy entrepreneurs, and 504 responses were received. Thus, the response rate was 15 per cent. The answers were studied quantitatively in SPSS, where the analysis was done with regression analysis.

This study formed two regression analyses, which used two dependent variables to study the subject: operation development and production development. These measured the strategic change and adaptation of the entrepreneurs. The findings concluded that entrepreneurs' resources and support (external or internal) positively affected strategic adaptation. The more focused the entrepreneurs were on strategic planning, the more they focused on both strategic issues presented in this thesis. Those issues were operations development and production development, and they measured strategic adaptation of dairy farms. Entrepreneurs' focus on product quality development positively affected strategic adaptation.

This study gives valuable insight into the dairy industry and contributes to the literature by presenting a quantitative analysis of the strategic adaptation of SMEs in the dairy industry.

KEYWORDS: Strategic change, Strategic adaptation, SME, Industry change, Dairy industry

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Abbreviations

SME   Small and medium-sized company

1 Introduction

1.1 Motivation and background of the study

Food is perhaps a mundane thing in Finnish people's lives. Still, it is not given that food production flows without any challenges. Agriculture has a huge part in the policies of the European Union, and those decisions have significant effects also on Finnish agriculture. This situation, along with consumption changes, causes many challenges for the Finnish agriculture industry to which companies have had to react by changing their modes of operation.

This thesis focuses on the Finnish dairy industry and especially on dairy farmers who have been affected by recent changes in the Finnish dairy business environment. This thesis will concentrate on the dairy farmers that work together in the Valio group. Valio started contract production in 2021, which significantly changed the business environment of the dairy farmers and forced them to rethink their strategies. The changes the farmers have faced should drive them to think more strategically and adapt to find a new balance in their business environment.

Interest in agriculture studies, especially its entrepreneurial side, has been increasing recently (Dias et al., 2021). The environmental pressure and the financial challenges combined present significant challenges for the entrepreneurs and offer an excellent base to move the industry forward with new research. It is vital to research how and what entrepreneurs should focus on their resources and strategic attention in the current situation. This thesis begins the journey by studying what kind of attributes affect dairy farmers' adaptation. The dairy farmers in question are small and medium-sized enterprises (SMEs), and SMEs, in general, have a significant role in the economies around the World (Wiklund & Shepherd, 2005). Thus, it is essential to study them and understand how they adapt to their business environments.

1.1.1 Dairy industry

The dairy industry has faced significant changes in the past years. Dairy consumption in Finland has decreased over the past decades, while production has not significantly reduced (Ruokatieto, 2021, p. 8). This change has caused challenges for the whole industry. Another radical change has been European Union's decision to abolish the milk quota system in 2015. The milk quota system was an EU-level system initiated in 1984 that stated how much milk a dairy farmer could deliver to dairies without a levy. This was done to control the amount of milk produced and stabilise the milk price in the EU. The decision to abolish the milk quota system in 2015 freed the milk production in the EU's dairy market and enabled production growth. Along with the Russian embargo on EU agricultural products, this has caused trouble balancing the supply and demand of dairy products. (Klopčič et al., 2019; Philippidis & Waschik, 2019.) Due to these reasons, Valio, the biggest dairy and food company in Finland, started contract production with its dairy farmers. Valio is a Finnish dairy and food company founded in 1905. It is owned by 14 cooperatives, which are owned by roughly 4700 Finnish dairy farmers who deliver their milk to these cooperatives. Five of these cooperatives also sell all their milk to Valio. (Valio, n.d.)

In 2021 Valio initiated contract production to have better control over the raw-milk volumes it receives from cooperatives. This means that Valio made contracts with cooperatives that defined the amount of milk they received from them. This has a direct effect on the amounts the dairy farmers can produce. At the moment, a moderate decrease of raw-milk volumes is needed at Valio. The demand for milk products has shifted more towards milk powders than typical milk products, as milk consumption in Finland has decreased. This decrease in demand challenges Valio and dairy farmers who have to adjust to the new situation. (Valio, 2020.)

1.1.2   Dairy farms

As said, the dairy farmers are at the centre of this study. Selling milk is often the most critical source of income for dairy farmers. Thus, contract production has undoubtedly had a significant effect on them because the entrepreneurs are not in total control over the amounts of milk they can produce. This is a drastic change in the business environment. Mainly because only a few years ago, the production restrictions of the EU-level milk quota system were lifted off, freeing the production of milk. This forced dairy farmers to adapt to the new situation strategically (Klopčič et al., 2019).

The business environment has gone back and forth in a short period due to decisions at different levels in the industry, making the traditionally stable industry somewhat volatile. This has forced dairy entrepreneurs to adapt to the new situation by changing and developing their strategies once again. Dairy farmers could expand their production without legislative restraints only for a few years before the restrains were introduced again. Thus, for many farmers, the farm's development does not automatically mean the growth of milk production. Instead, it means focusing on the quality of the produced milk and developing organisational aspects.

Still, other matters have also affected farmers', and they have needed to adapt to the changes in their business environment. Recent research has acknowledged multiple adaptation needs due to environmental changes, i.e. weather-related changes, and some farmers have been proactive in answering these issues (Peltonen-Sainio et al., 2020). Sorvali et al. (2021) found that against the general perception, farmers are not as conservative on their views as traditionally is thought. For example, they are aware of the environmental challenges and strive to impact climate change issues positively.

Dairy farms are typically SMEs, and often smaller companies do not make formal strategic plans (Hauser et al., 2020; Wang et al., 2007). Strategic decisions and adaptation are still essential to succeed in any industry, significantly when the business environment

changes. It has been detected that farmers' managerial thinking has a significant role in the dairy farms' success (Mäkinen, 2013). The continuous change has also negative effects as it adds stress and burnout among Finnish dairy farmers (Kallioniemi et al., 2016). Therefore, it is vital to study dairy farmers and their strategic adaptation to industry change to gain valuable knowledge for future business environment shifts. This thesis aims to find what attributes influence strategic change and adaptation in SMEs from the dairy farm sector in a time of significant industry change.

1.2   Research focus and conceptual contribution

Research of the strategic change and adaptation in SMEs is a renewed topic, and thus a study of the subject is a welcomed addition to the research field. Much strategic change and adaptation research have been done in past decades (Burnes, 2004; Kraatz & Zajac, 2001; Schindehutte & Morris, 2001; Todnem By, 2005; Zajac et al., 2000), but it has been gaining some momentum also in the more recent years (Klammer et al., 2017; Leitner & Güldenberg, 2010; Santos-Vijande et al., 2012). Some studies have also been done to study strategic change and adaptation in the context of agriculture in which the initiating factor has often been the changes in the industry (Ferguson & Hansson, 2013; Klopčič et al., 2019; Philippidis & Waschik, 2019; Ryhänen & Närvä, 2019). Although some recent research has been done on the topic, some matters require more research. For example, Ryhänen (2019) qualitatively studied management in dairy farms that had undergone strategic changes. This thesis adds to that research by giving a quantitative perspective on strategic change at dairy farms. Klammer et al. (2017) called for more research on strategic renewal. Also, Ferguson & Hansson (2013) called for more studies in strategic development and the importance of entrepreneurs' values. This thesis touches on these subjects by studying how entrepreneurs' resources affect strategic change and adaptation and what impact strategic planning has.

The situation in the Finnish dairy industry is current and in need of research. The changes have only happened in 2021, and it will take dairy farmers some time to adjust to the

new situation. This quantitative research will contribute to the field by adding more depth to the SMEs' strategic change and adaptation research during a change in the industry, and it highlights relevant attributes of dairy farms that affect their strategic development. The research focus is also presented in Figure 1. New knowledge will be added to the research field through the insights of this thesis, and it can create new research possibilities.

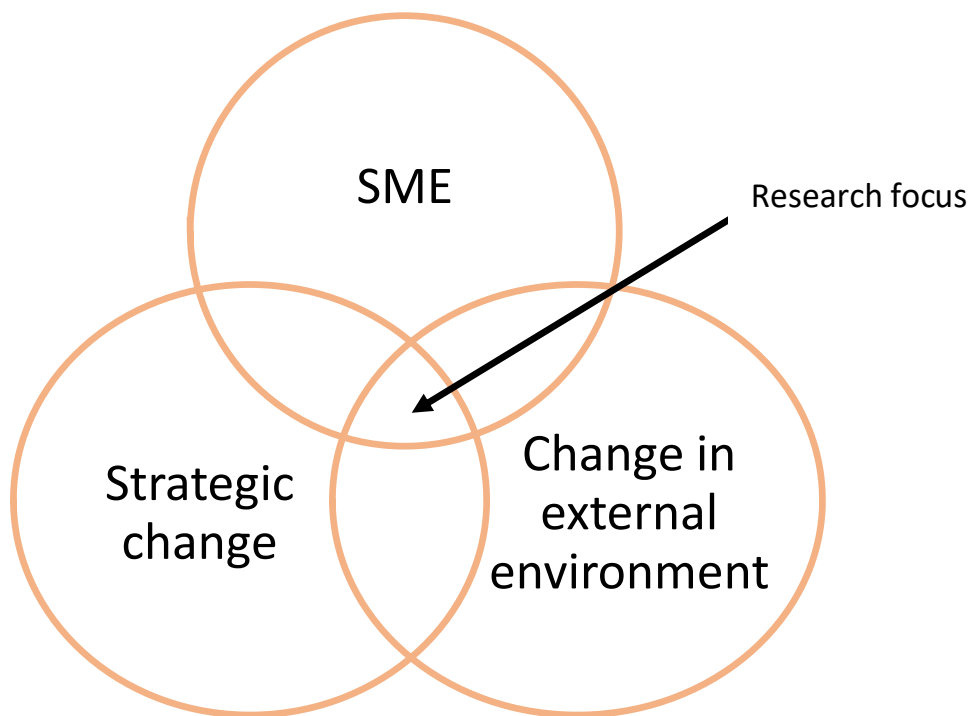**Figure 1. Research focus.**

1.3 Research problem

This thesis aims to study SMEs and what aspects affect their strategic changes. The context of this study is a group of Finnish dairy farms which have faced a radical external change. Valio transitioned into contract production, which brought a need for dairy farmers to develop and change their strategies. This study tries to find out what kind of

relations there are between the strategic choices of dairy farmers and companies' attributes. This study aims to extend the knowledge of SMEs' strategic change and adaptation in an environmental change by literature review and exploring the topic through an empirical study of dairy farmers. The thesis' research question is as follows:

What changes does strategic adaptation involve, and what organisational attributes influence strategic adaptation in SMEs from the dairy farm sector in a time of significant industry change?

This study is essential as it is increasingly relevant for dairy farmers to consider their strategic choices. For many farmers, this external change requires fundamental changes in the entrepreneur's mindset and rethinking of strategy as the business environment changes drastically, and in the agricultural field, it will continue to change with increasing speed in the future. Thus, it is vital to study this subject to give dairy farmers opportunities to consider their strategic choices and adaptation. Also, changing consumer behaviour and decreasing milk consumption brings challenges to the whole industry. All these aspects impact dairy farmers' operations, and they need to have the readiness and capabilities to change more than ever. This thesis sets out to find what attributes influence strategic adaptation and change of dairy farmers after a significant change in the external environment caused by the transformation into contract production.

Three hypotheses are constructed to ensure that the research question is answered sufficiently. The hypotheses have a conceptual background covered in the literature review chapter in connection with presenting the hypotheses. These hypotheses are also seen as potentially essential aspects through practice, and discussions with dairy industry professionals have helped shape them. The results of these hypotheses are viewed at the end of the results section of this study.

1.4 Delimitation of the study

The delimitations of the study are introduced next to clarify the scope of the study. This study focuses on SMEs' strategic change and adaptation caused by a change in their external environment. Thus, the change which origins from inside the SME is delimited from this study. As the research question states, the focus is on organisational attributes. Therefore, the deeper personal characteristics are not studied, although the considered entrepreneurial aspects can be seen as individual or organisational aspects depending on the view. This decision was made because the research's focus was to be kept at the organisational level. The population of the study was delimited to consist of a very specific group of dairy farmers, those who have been affected by the contract production, thus it did not include Finnish dairy farmers in general. This was done to narrow the research scope and to focus on a specific issue in the field. Another delimitation concerns the data collection method. The survey method was used in this thesis to collect data primarily to enable the data collection from a large population spread across Finland. The collected data was quantitative as it was convenient considering the collection method. This also ensured a more significant response rate as the threshold for answering the survey was low.

1.5   Structure of the thesis

This thesis is divided into five main chapters, which are briefly presented here. The first chapter acts as an introduction to the thesis by introducing the background of the study. It also shows the research focus and the research question of this thesis. The conceptual background is represented in the second chapter. It consists of industry change literature and strategic adaptation literature with a focus on SMEs. The hypotheses of the thesis are formed in this chapter. The third chapter concerns the methodology of this study. The fourth chapter examines the empirical results, and the final chapter discusses the findings concerning the conceptual background formed in the second chapter.

2   Literature review

In this chapter, two streams of research are addressed. First, literature on industry changes is addressed. Then the focus moves shortly to the basics of strategy to give an understanding of the subject. Then the rest of the chapter will focus on strategic change and adaptation, which are the main concepts of this thesis. In chapter 2.1, these concepts are reviewed at a more general level, and chapter 2.2 focuses on strategic change and adaptation in SMEs, introducing the hypotheses as well. Thus, this literature review unites SMEs' strategy and strategic change concepts while also addressing literature on industry changes.

2.1   Changing industry and strategic adaptation

Industries change constantly. Often the changes are small incremental ones that require only minor tweaks from the organisations in the industry. Nevertheless, sometimes, industries face more extensive changes, forcing organisations to react to survive. Organisations can answer these drastic changes in the industry very differently depending on their resources. (Meyer et al., 1990.) Industries change at a different rate, and companies are required to have other ways to cope with changes (Nadkarni & Narayanan, 2007). Some scholars divide the changes in the industry into two categories, continuous and discontinuous (Meyer et al., 1990). Continuous change often happens in stable industries, which, as the term suggests, changes a bit constantly. Organisations should respond to these small changes to keep them on the right track. Discontinuous change, on the other hand, does not happen as often, and its effect is more prominent for the industry and the organisations in it. These kinds of changes require actions from the organisations. (Meyer et al., 1990.) Rajagopalan and Spreitzer (1997) claim that the industry environment partially dictates what kind of strategic change creates better financial performance. Thus, organisations must consider their environment as usually, the

organisations cannot succeed if their strategies are not in line with the trend of the industry (McGahan, 2004).

Companies constantly adjust to the changing situations, whether internal or external, by changing and adapting their strategies to manage the changes they must face. Therefore, it is essential to define strategy before going further into strategic adaptation and change. The term strategy evolved from military use to business in the 1960s when Alfred Chandler published his strategy article. Strategy research has since covered countless different viewpoints, from a contingent perspective where organisations need to adapt to their external environment to a resource-based theory where the focus is more on internal attributes. (Furrer et al., 2008; Whittington et al., 2020.) After the 1960s, there have been many definitions for strategy in business use. A few most notable definitions are listed in table 1. Porter and Drucker have a similar definition of strategy. They both consider competitive advantage to be the key in strategy. (Drucker, 1994; Porter, 1996.) On the other hand, Mintzberg (2008) recognised that strategy is not always a straightforward process. Strategy forming does not necessarily follow a specific path but instead emerges from the stream of decisions. (Mintzberg, 2008.)

Table 1. Definitions of strategy.

Author	Definition
Alfred Chandler (Whittington et al., 2020)	"The determination of the long-run goals and objectives of an enterprise and the adoption of courses of action and the allocation of resources necessary for carrying out these goals."
Michael Porter (1996)	"Competitive strategy is about being different. It means deliberately choosing a different set of activities to deliver a unique mix of value."
Peter Drucker (1994)	"A firm's theory about how to gain competitive advantages."
Henry Mintzberg (2008)	"A pattern in a stream of decisions."

Next, the focus will move into strategic adaptation and change literature. Strategic change literature is traditionally divided into two schools of thought: content and process school. The process school focuses on the role of managers, and the content school focuses more on what causes strategic change and its effects. (Rajagopalan & Spreitzer, 1997.) One of the earlier well-known works on strategic adaptation is from Miles et al. (1978) which focus is on organisational strategy. It is based on adaptive cycles divided into three problems: entrepreneurial, engineering, and administrative. The adaptation process happens so that issues from all three areas are solved continuously. Hence, the adaptation process affects all parts of the organisation. (Miles et al., 1978.) In this view, the top managers formulate the strategy based on company's internal strengths and weaknesses and external opportunities (Singh et al., 1986).

According to Ming-Hone Tsai et al. (1991), in general, two streams, population ecology and strategic adaptation, have had a major significance on the literature about the relationship between organisation, environment, and strategy. The population ecology perspective claims that environmental selection determines a company's survival (Hannan & Freeman, 1977). Thus, while companies can develop their strategies, still, they are more like passengers, and the environment dictates whether the developed strategies succeed (Ming-Hone Tsai et al., 1991). On the other hand, strategic adaptation has the opposite view on the subject. Here companies have a remarkable ability to impact their strategic direction and success. Entrepreneurs' capabilities and the way one assesses environmental conditions have a significant effect on the strategic development of the company. (Porter, 1985, p. 2.) In strategic adaptation environment does have a substantial impact on the company. Still, the environment is not as fixed as in population ecology, and environmental conditions can be altered to some degree (Child, 1972). The contingency approach is another vastly studied approach. It is positioned between the two earlier described approaches in terms of effect ratios of environment and companies. Companies take into consideration their environment and choose strategies accordingly but do not try to change the environment as in the strategic adaptation approach. (Shane

& Kolvereid, 1995.) Organisations that can obtain fit with the environment will likely perform better than others (Singh et al., 1986).

Strategic adaptation is a vital factor when an organisation's business environment changes to enable the company's development. (Schindehutte & Morris, 2001.) Gioia and Chittipeddi (1991) emphasise that members of a company must understand the upcoming change. Creating an understanding of the internal and external environment is crucial for making a sensible plan for the change. This phase is called sensemaking and is usually done by top managers. This first step is vital as if the understanding of the current environmental situation is incorrect, the whole strategic adaptation initiative will go in the wrong way. The conception of the intended change is then articulated to the rest of the organisation. This is called sense giving. At this point, stakeholders of the organisation can discuss the intended changes, and they have a chance to affect them. (Gioia & Chittipeddi, 1991.) In this phase, communication is important to avoid significant flaws in the strategic adaptation and ensure that the new strategy will fit the new external environment (Zajac et al., 2000).

In some situations, change is needed, but the organisation refuses to change the established ways of working. This will eventually harm the organisation. (Zajac et al., 2000.) Multiple things can cause resistance. For example, perception of the situation may be flawed, thus resulting in a false conclusion and resistance to change (Pardo Del Val & Martínez Fuentes, 2003). Kotter and Schlesinger (2008) point out that change is often feared in the company as its traditional ways of work might be threatened to change. Different motivational reasons can also create resistance — for example, cost of change and pessimistic view of the future due to past failures. Resistance can also occur due to the lack of creativeness. An excellent example of this is the poor strategic vision of managers, which inhibits the response to environmental change. (Pardo Del Val & Martínez Fuentes, 2003.) Thus, the capability to adapt strategically is crucial for the company.

Resistance to change can also be caused by the absence of specific capabilities to implement the change and by embedded values and emotional aspects (Pardo Del Val & Martínez Fuentes, 2003). In general, the organisation's ability to learn has a significant impact on its performance, creating adaptiveness in the organisation. Learning helps organisations to use other successful companies as examples in times of uncertainty. (Singh et al., 1986.) Hence, it is one of the critical strategic capabilities (Santos-Vijande et al., 2012). Resistance to change is not necessarily a bad thing as it may bring out the flaws of the intended change plans, thus creating an opportunity to perfect the change initiative. Change resistance is usually more considerable in larger strategic changes than evolutionary ones. Evolutionary changes are typically incremental changes that do not interfere much with work, thus creating less friction. On the other hand, strategic changes are more radical changes where the organisation's framework is transformed, creating more resistance. (Pardo Del Val & Martínez Fuentes, 2003.)

That the organisation does not respond to environmental changes should not always be regarded as harmful. Some studies have acknowledged that companies with historically valuable resources performed well despite not adapting their strategy to changes. Still, these resources may also become a burden if the environmental situation changes drastically and resource adaptation is needed. (Kraatz & Zajac, 2001.) Thus, the company may conclude that it is not advantageous to change anything if it can take advantage of its existing resources in a changing environment and continue with the old strategy. However, companies may be reliant on the environment for specific resources, which creates uncertainty for the company when the environment and available resources change (Singh et al., 1986).

Change often occurs due to the need to adapt to environmental change or to improve performance. Still, it is not always clear whether a change in the business environment requires a strategic change in an organisation. Strategic change may not be the best solution for the organisation if it means that established organisational strengths cannot be utilised and the organisation can still feasibly operate in the new environment (Pardo

Del Val & Martínez Fuentes, 2003; Zajac et al., 2000.) In other words, the organisation should always consider whether it is feasible to pursue a better fit with environmental conditions. Although, as Singh et al. (1986) note, the fit between the company and environment is the basic premise of the strategic adaptation.

Strategic change may be required when a company acknowledges that it needs to adapt to the new situation. (Zajac et al., 2000.) This may be caused by another company whose new innovation changes the business environment drastically (Drucker, 1994). A strategic change will be necessary if the company lacks specific resources or competencies to adapt to the new conditions. Generally, organisations are rather capable of assessing their resource limitations regarding the changing environmental situation and acting accordingly. (Zajac et al., 2000.) When an organisation starts to adapt and change its operations, it may eventually affect other parts of the organisation too. This is what Mintzberg and Waters (1982) called a domino effect, as a perhaps initially small change may in time change the strategic direction of the whole organisation.

Entrepreneurial orientation is often affiliated with strategic adaptation. When a company's management has an entrepreneurial approach, it is more likely to advance strategic change initiatives. (Klammer et al., 2017.) Companies with entrepreneurial orientation are described as more proactive. In other words, they do not solely react to the changes in the environment but make their plans and adjustments. Although, it is situation-dependent when the entrepreneurial orientation is a competitive advantage. So, the chosen strategy of a company and the business environment affect entrepreneurial resources' success. (Dess et al., 1997.) Entrepreneurial orientation is also an important aspect in the strategic adaptation of SMEs, and the focus of the next chapter moves to that direction dealing with strategic adaptation and change more in the context of SMEs.

2.2   Strategic adaptation in SMEs

SMEs are a crucial part of the business ecosystems as they are a significant business sector in every part of the World. In general, SMEs more often react to changes in the business environment rather than proactively change themselves. Even the SMEs that state they make strategic plans are more of an ad hoc than formal planners. (Wang et al., 2007.) Adjustments the companies make can also be called strategic adaptation. Companies' strategic adaptation has three elements: the capacity to adapt, how much it adapts, and the strategies it relies upon. Companies' available resources have a heavy impact on the adaptation process. Especially entrepreneur's resources matter considerably in small companies. There are different opinions about which factors are more critical for small companies in adapting to their environment. Others emphasise entrepreneurs' capabilities, and others regard them as less critical, focusing on the external environment. (Schindehutte & Morris, 2001.)

It is acknowledged in multiple studies that SMEs do not do thorough strategic planning as often as larger companies. Still, strategic planning is seen as an essential aspect of the development of smaller companies. (Hauser et al., 2020; Ryhänen & Närvä, 2019.) Also, studies have shown that dairy farms that formulate consistent strategies perform better overall (Groot et al., 2006). There are many reasons why SMEs do not engage in strategic planning as often, even when scholars see it advantageous for the companies. McCarthy (2003) argues that manager-owners' personality regularly dictates how the strategic planning is done, and often it is relatively reactive, but it is also commonly accepted that strategic planning positively affects companies' performance. Often a business environment's change may cause a gap in SMEs' strategies. Companies may lack a clear strategy for a while as they are currently adapting and trying to improve their former strategy. Companies with competitive capabilities can succeed in these moments even though the strategic direction is not evident. (Inkpen & Choudhury, 1995.) The timespan of SME's strategy may differ from larger companies because SMEs cannot usually influence their environment. This matters because the SMEs must stay agile and be prepared to change with the environment, thus the strategic thinking might be more short-term, as MacGregor (2004) points out.

The type of formulated strategy affects the likelihood of future strategic changes. If the strategy requires significant resource commitments, it is unlikely to face any significant changes. (Rajagopalan & Spreitzer, 1997.) Wang et al. (2007) propose that entrepreneurs' personal goals and aspirations significantly affect how they operate and develop their businesses. Thus, some entrepreneurs may not focus on strategic planning and adaptation as they value soft and intangible goals (autonomy, lifestyle, etc.) more than business-performance-related goals. In these situations, the company's business performance and strategic planning are not the top priority, affecting the company's success. (McCarthy, 2003; Wang et al., 2007.) Therefore, it is assumed that the more critical the entrepreneurs consider strategic planning to be, the more positive effect it has on the development aspects of the companies. This leads to the first hypothesis, which is proposed underneath:

H1: Strategic planning has a positive effect on operations development.

The availability of resources has a significant impact on entrepreneurs' ability to make strategic decisions, and it is crucial for the company's growth (Penrose, 1995, p. 31). The entrepreneur may lack specific skills or knowledge, and Wang et al. (2007) highlight time as one of the restricting factors often affiliated with smaller companies. Studies have shown that the entrepreneur's resources largely define how well and in which direction the company can be developed. (Kor et al., 2007.) Smaller companies typically have fewer resources than larger companies, which restricts the movement abilities of these companies. Therefore, smaller companies are more bound by their external environment as they may not be able to impact the external factors. (Penrose, 1995, pp. 217–218.) There have been arguments on external factors' influence on companies' performance, but many, Spanos and Lioukas (2001), for example, have noted that they matter as do internal factors. Nevertheless, Penrose (1995, pp. 217–218) argues that the greater the number of resources a small company possesses, it positively affects its performance and development. Some studies have acknowledged that especially smaller companies

benefit from a network of companies as they can combine their resources and utilise them to help everyone in the network (MacGregor, 2004). Also, in dairy farms, external resources, networks have been found to enhance the development of a farm (Hansson & Ferguson, 2011). Still, Katila and Shane (2005) have found that in some business environments, the lack of resources may even benefit the company as it might force it to be more innovative and make do with less.

The resources of the company may create a competitive advantage and lead to success. Especially when the resources the company possesses are different from competitors' resources. (Barney, 1991.) In SMEs, access to capital is especially critical, but entrepreneurial orientation and resources can mitigate the downsides of that. This can be achieved by being innovative and proactively using other resources to develop the company. (Becchetti & Trovato, 2002; Wiklund & Shepherd, 2005). Hall and LeVeen (1978) and Dias et al. (2021) have studied the factors affecting success in agricultural companies, and their findings support the earlier mentioned studies. They found out that organisational factors often have a significant role in the success of a farm, such as an entrepreneur's competence and available resources and networks. Based on the conceptual background depicted in the previous paragraphs, the assumption is that if an entrepreneur has enough resources and external support, he is more likely to develop the company strategically. Thus, the availability of resources is hypothesised to have a positive effect on production development, and the following hypothesis is formed:

H2: The availability of entrepreneurs' supporting resources (external or internal) positively affects production development.

An important aspect of making a strategy is to choose which paths to follow. A classical strategy theory from Michael Porter, generic strategy, considers that companies follow either strategic differentiation or cost leadership or focus strategy (Porter, 1985, pp. 11–12). Differentiation can be done by offering a high-quality product to the customers. This has also been acknowledged by Parnell (2000) to act as a positive force on the

performance outcome of the company. In other words, choosing a clear strategy enables the company's success. This would also erase the unwanted "stuck in the middle" position, which occurs when a company simultaneously uses multiple strategies. The "stuck in the middle" position also makes it challenging to succeed as different strategies require different focus areas. (Porter, 1985, pp. 16–17.)

Porter's theory has voiced other opinions, especially about the "stuck in the middle" idea. Some scholars think that SMEs may very well succeed even though, or because of, they use a combination strategy as for them the adaptation to the external environment is crucial. Thus, combining different strategies in unique situations would benefit the company. (Parnell, 2000; Spanos et al., 2004.) It is also debated whether SMEs need a competitive strategy or if the most important thing is their capability for strategic adaptation. The reasoning for this is that SMEs must quickly adapt to the market's needs, and fixed strategies may not be beneficial. (Leitner & Güldenberg, 2010.) This relates to contingency theory which the basic principle is that the best way for a company to develop itself is dependent on internal and especially external situations. Therefore, the same solution may not be the best for all, but companies must analyse their situation and react accordingly. (Schindehutte & Morris, 2001; Zott & Amit, 2008.) Some studies have also noted that a highly focused strategy may prove risky if the company's product faces price fluctuation. This is a considerable risk at dairy farms because the production investments are substantial, and fixed costs usually do not react to the end product's price decreases very well. (Hochuli et al., 2021.) Leonard-Barton (1992) has recognised in her studies that product development requires good organisational capabilities from the company, thus the focus on product quality might increase the success of the company.

To sum up, differentiation can be a source of competitive advantage. The focus on product quality can be seen as a differentiation strategy as there the aim is to have a product that is somehow different to competitors' products. Thus, the assumption is that production development will be affected positively by focusing on product quality, as the development of the company's processes has been seen as an aspect that positively

impacts the company's success (Lumpkin & Dess, 1996; Thurik & Wennekers, 1999). This is linked to the determination of the company's strategic choices. When the company chooses what kind of a strategy it follows and purposefully executes it, the path is usually evident for all shareholders, and development is possible (Zajac et al., 2000). Thus, if the company concentrates on product quality development, it is assumed to lead to better production development. Based on this, the following hypothesis is proposed:

H3: Focusing on product quality has a positive effect on production development.

2.3   Summary of the literature review

This literature review consisted of multiple conceptual frameworks. First, the industry change was shortly viewed. Next, the focus moved from the basics of strategy to strategic change and adaptation, which are the main conceptual backgrounds of this thesis. In chapter 2.2, strategic change and adaptation were reviewed through SME literature and based on the discussion in the chapter, three hypotheses were proposed. Figure 2 presents the conceptual model and hypotheses. On the left, three hypotheses are pictured, of which effect on operations development and production development are studied. Operations development and production development are both a part of the strategic adaptation of the dairy farmers. On top of the figure is a change in the industry. This is a setting in which strategic change and adaptation are studied in this thesis.
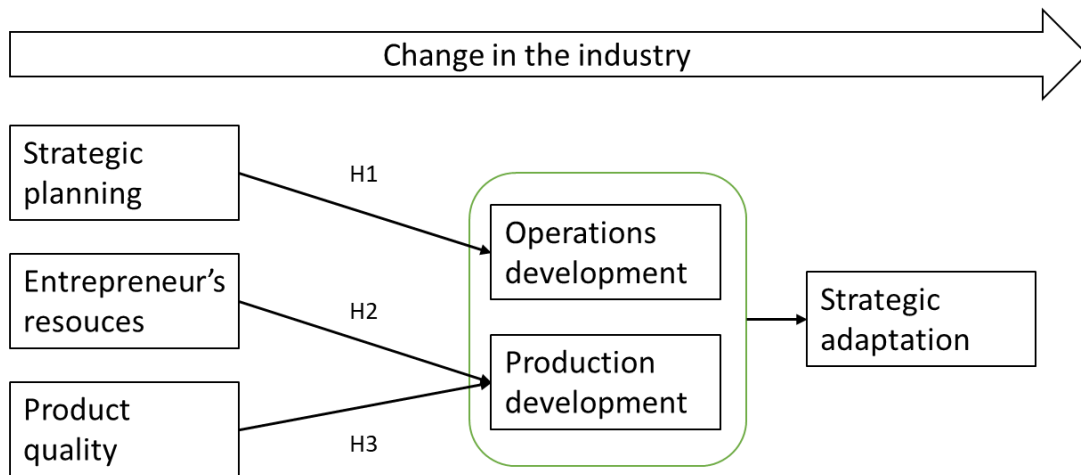
Figure 2. Conceptual model and hypotheses.

3 Methodology

3.1 Research strategy and method

This thesis utilises a survey research strategy. The survey strategy is a popular research strategy as it enables a straightforward collection of large amounts of data. With web surveys, the geographical challenges are minimised as well. The chosen strategy allows the researcher to collect quantitative data and analyse it quantitatively. This strategy is good when a researcher wants to have generalisable data. (Saunders et al., 2007, pp. 137–138.) This thesis gathers quantitative data via a questionnaire consisting of Likert-scale and multiple-choice questions and analyses the data with regression analyses. Quantitative research is often used when the studied population is large, and the researcher wants answers to questions like what and where (Heikkilä, 2014, p. 15).

The research method explains the specific ways of collecting and analysing data (Heikkilä, 2014, p. 170). Research methods are typically divided into three styles: exploratory, descriptive, and explanatory (Saunders et al., 2007, p. 132). An exploratory study is used when a researcher attempts to understand a problem or seek answers regarding certain phenomena or events. Often exploratory studies are conducted through literature review and interviews. (Saunders et al., 2007, p. 133.)

On the other hand, a descriptive study is used when a researcher wants to have an accurate profile of a situation or an event. This requires that the phenomena on which the data collection will happen must be well-known. An explanatory study tries to establish causal relationships between variables. The explanatory study is usually accompanied by quantitative data (Saunders et al., 2007, p. 134). The research method of this study is explanatory. This thesis studies a specific situation and tries to find causal connections between variables.

3.2 Sampling and case selection process

This particular group was chosen for this study because of a few reasons. First, the change to contract production was done by Valio. Thus, the dairy farmers had to be affiliated with Valio. The following reason was about negotiating access. The researcher could include a substantial share of Valio's dairy farmers in this study, making it possible to further the research and ensure a sufficient population. The survey was available to all dairy farmers of cooperatives Maitosuomi and Pohjolan Maito. Thus, the target population was 3300. Valio's whole number of dairy farmers is around 4300. Thus, the results depicted in this thesis should present well all the dairy farmers in the Valio group. The survey received 504 answers; therefore, the response rate was approximately 15 per cent. The survey was opened 797 times, but it should be noted that the cooperatives' employees also had access to the survey, and it may have slightly impacted the difference between responses and times opened.

Answers were received from every region where the cooperatives operate (Figure 3). Blue bars show the percentual share of responses per region, and the orange bar shows the actual percentage of dairy farmers per region. Amounts of responses are well in line with the current portion of entrepreneurs. Thus, it can be concluded that the results of this survey correspond well with the views of the whole population. None of the areas is over-highlighted. Most answers were received from the farmers located in Northern Savonia and North Ostrobothnia, and these regions also have the most entrepreneurs.
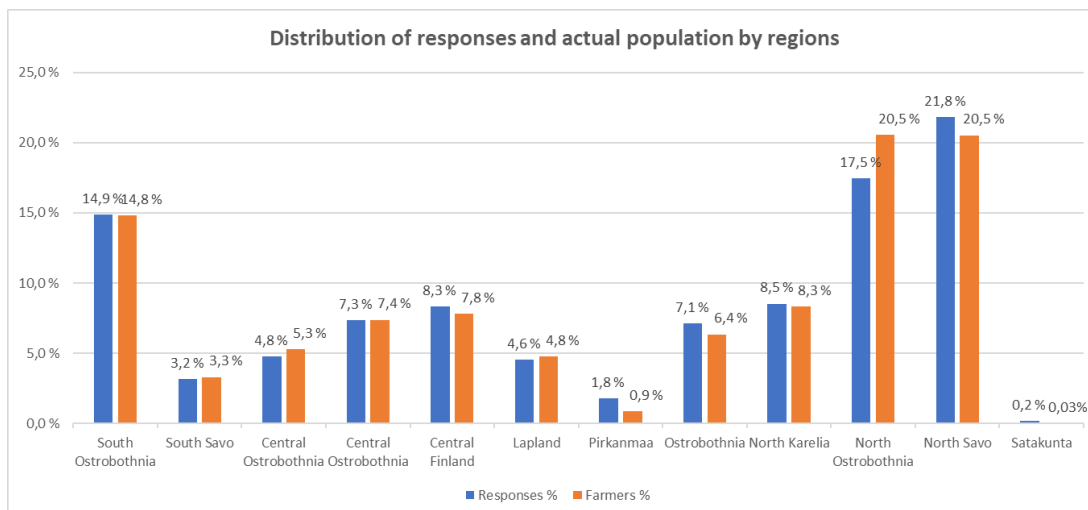
Figure 3. Distribution of responses and actual sample by provinces (n=504).

3.3 Data collection and analysis

This study collects data through a questionnaire. When collecting data through surveys, the most mistakes happen because of poor questions. Indeed, the layout of questions is the most crucial part of the survey. It determines whether a researcher will get analysable data for the research. Questions should be prepared so there is no room for misunderstanding as respondents cannot ask refining questions from the researchers. Surveys are an ideal way of gathering data from large amount respondents. (Heikkilä, 2014, p. 17; Valli, 2015, pp. 41–42.) It also creates limitations as the questionnaire cannot be too long if many responses are wanted. The data will also not be as broad as could be obtained from interviews. (Saunders et al., 2007, p. 139.)

The open-ended question can be asked in surveys, but it should be acknowledged that answers might be off-topic or respondents may not answer at all. There are two ways to analyse open-ended questions in surveys. First, the researcher can classify the answers and transform the answers into a numeric form. The important thing is not to form too broad classes, making the analysis difficult. It is best to create particular classes and eventually unite them if needed. The second method to analyse open-ended questions

is by qualitative methods. The answers can be themed, and analysis can be done based on that. (Valli, 2015, pp. 70–71.) Some qualitative data were collected on the questionnaire of this study, but it was analysed and utilised solely for the cooperatives' purposes. Hence, this thesis concentrated exclusively on quantitative data.

Data for this study was collected through a web-survey software Surveypal. Surveypal ensured that the questionnaire was simple and straightforward, which are essential features for a good survey (Heikkilä, 2014, p. 47). The conceptual background was used to prepare the survey. The survey was reviewed by employees at cooperatives to ensure the questions' validity and correct any significant flaws. Data was collected through cooperatives' intranet-site from 5 March 2021 until 21 March 2021. A common problem noticed in online surveys is that it might be challenging to delimit who can answer the questionnaire (Heikkilä, 2014, p. 17). The method of arranging the survey on the intranet minimised that problem. The survey contained Likert-scale questions, multiple-choice questions, and short open-end questions. Open-end questions were themed and analysed through qualitative methods, but they were utilised for the cooperatives' purposes only as they had a more practical point of view. This thesis focused on the quantitative data gained from the survey. Quantitative data was transformed from Surveypal to SPSS, which was used to analyse the data.

The collected data is studied via regression analysis. A few preparations were made to ready the data for the regression analyses. Factor analysis was used to compose valid variables from the data to be used in the regression analyses as dependent variables. These variables were formed from a set of questions in the survey. These questions measured the importance of specific developmental issues for dairy farmers — the factor analysis produced two factors that fulfilled the requirements (Table 2). The first factor deals with operational issues. It consists of developing networks, developing entrepreneurs' know-how, keeping track of changes in the industry, increasing automation of production, and developing animal welfare. Therefore, this factor is named operations development. The second factor is production-oriented and consists of bettering product

quality, increasing production yields, and improving profitability. Thus, it is called pro-duction development. Both factors deal with strategic change and developmental issues in their way.

Table 2. The content of dependent variables (formed through factor analysis).

Dependent variable	Operations development (Dependent variable 1)	Production development (Dependent variable 2)
Content	Developing networks	Bettering product quality
	Developing entrepreneurs' know-how	Increasing production yields
	Keeping track of changes in the industry	Improving profitability
	Increasing automation of production	
	Developing animal welfare	

Independent variables used in the regression analyses are listed in table 3, along with control variables. Three independent variables are used in this thesis. The first is product quality development which is about are the dairy farmers focused on developing the quality of their product by improving the protein and fat content of milk. Strategic planning measures how important that is for the respondents. The last independent variable is the availability of entrepreneurs' supporting resources (external or internal). This estimates how many resources the respondents have.

It is expected that the location of the farm is not the defining factor in developing the company. Studies of dairy farms and their strategic change in different European countries have similar results, which indicate that geographical area is not as important as other factors. (Hansson & Ferguson, 2011; Ryhänen & Nissinen, 2011; Verhees et al., 2018.) Thus, location is a control variable in the regression analyses (Table 3).

Typically, the larger farms and their operations are more complex than the operations of smaller ones. Thus, the larger farms could be assumed to have more interest in strategic

issues. Still, in many studies, it has been shown that entrepreneurs do not formulate strategies in SMEs (Wang et al., 2007). All the companies in this study are SMEs. However, the sizes of companies still vary significantly in the population.

Nonetheless, the size of the farm does not necessarily define how well the farm performs and focuses on strategic issues, but it is due to other aspects. Hence, the farm size is used as a control variable. Also, a set of questions dealing with farm operations are used as control variables (Table 3).

Table 3. Independent and control variables.

Independent variables	
Resource and support. Availability of entrepreneurs' supporting resources (external or internal)	Product quality development (changes in feeding to influence milk content)
Strategic planning	
Control variables	
Farm size	Increasing cows
Optimising milk production amounts	Additional investments
More accurate insemination of cows	Increase of advisory services
The legal form of a company	Regions

3.4 Validity and reliability

Validity and reliability are used to evaluate whether the research findings are of good quality. Total confirmation of the correctness is impossible to obtain; thus, researchers assess their work through validity and reliability. (Saunders et al., 2007, p. 149.) Next,

validity and reliability are described in more detail. Also, the actions that are taken in this study to ensure good quality research are stated.

3.4.1 Validity

Validity means that the study's findings represent what was being studied. Validity is ensured with careful planning and data gathering. Careful selection of population and high answer rate help in the validity issues. (Heikkilä, 2014, p. 27.) In this thesis, the population was carefully selected and limited, and the research question was formed carefully. Validity can be ensured by rigorous planning and well-organised data collection (Heikkilä, 2014, p. 27). Validity is divided into two parts. First, it concentrates on whether the study has found the proper operational measures for the studied concepts. Secondly, external validity can be analysed, which is also called generalisability. This means that the study results can be reproduced in different research settings, such as in other populations. (Saunders et al., 2007, pp. 150–151.) Many threats to validity come from the extended period of data collection. For example, participants may drop out of the study. This study minimises this threat as the data collection happened in two weeks. Another threat to validity is the time of the study. The responses may be biased if the survey occurs very near the matter studied. (Saunders et al., 2007, pp. 149–150.) In this thesis, the topic is very recent, and the contract production had started only two months before the questionnaire was released. The respondents had known about the upcoming changes earlier. Hence, they had had time to internalise it and create a less biased opinion.

3.4.2 Reliability

Assessing reliability is about the data collection techniques and analysis. Reliability can be verified when another researcher can come to the same conclusion if one replicates the research. Thus, the same conclusions must be derived from the data. (Heikkilä, 2014,

p. 178.) This thesis describes the data collection and analysis process to understand the process. Another factor influencing reliability is the size of respondents. With a small number of respondents, it is impossible to generalise the results as one answer has too big of a significance. (Heikkilä, 2014, p. 28.) In this study, the response amount was 504, which can be concluded to be sufficient. This way, another researcher may be able to reach a similar conclusion. The population studied should be as representative of the whole population as possible to accurately depict the entire population's opinion. (Heikkilä, 2014, p. 28.) In this thesis, the respondents were well in line with the whole population, as shown in Figure 3 earlier. Participant and observer error or bias can threaten research reliability and should be considered before conducting data collection. This can be mitigated by making the data collection procedure as neutral as possible to participants and allowing anonymity. An observer should remain as objective as possible and document data collection and analysis. (Heikkilä, 2014, pp. 28–29; Saunders et al., 2007, pp. 149–150.) The objectivity is ensured with careful planning of the questionnaire, which also guarantees the anonymity of respondents.

4   Results

The assumptions for linear regression analysis are tested before doing regression analysis. First, correlations of variables were analysed (Table 4). This was done using Pearson correlation analysis, which can give values from -1 to 1. Both extremes depict a perfect correlation between variables. (Heikkilä, 2014, pp. 90–91; Kestilä-Kekkonen, n.d..) In regression analysis, none of the variables can have a perfect correlation, and no variable has a perfect linear correlation with each other in table 4. Therefore, through Pearson correlation analysis, none of the variables is excluded from the further analysis.

Table 4. Pearson correlation of all variables used in regression analysis.

Correlations

Pearson Correlation	Farm size (in litres)	Resources and support	Legal type: Soleprop	Legal type: Agri group	Legal type: Ltd	Region: South Ostrobothnia	Region: South Savo	Region: Kainuu	Region: Central Ostrobothnia	Region: Central Finland	Region: Lapland	Region: Pirkanmaa	Region: Ostrobothnia	Region: North Karelia	Region: North Ostrobothnia	Region: North Savo	Production development	Operations development	Importance of strategic planning	Expanding (Increasing cows)	Quality development (Changes in feeding to influence milk's content)	Production amount optimisation (Changes in feeding of cows)	Additional investments	Decreasing fluctuation of production amounts (By accurate insemination of cows)	Increase of advisory services
Farm size (in litres)	1																								
Resources and support	,265**	1																							
Legal type: Soleprop	-,316**	-,104*	1																						
Legal type: Agri group	,146**	0,062	-,791**	1																					
Legal type: Ltd	,305**	0,078	-,496**	-,105*	1																				
Region: South Ostrobothnia	0,007	0,011	-0,030	0,052	-0,014	1																			
Region: South Savo	0,019	,100*	0,010	-0,009	0,001	-0,076	1																		
Region: Kainuu	-0,072	-0,038	,093*	-0,065	-0,057	-,093*	-0,040	1																	
Region: Central Ostrobothnia	0,042	0,074	-,097*	,102*	-0,009	-,118**	-0,051	-0,063	1																
Region: Central Finland	-0,063	-0,008	0,050	0,000	-0,077	-,126**	-0,055	-0,067	-0,085	1															
Region: Lapland	-0,075	-0,015	0,020	-0,008	-0,016	-,091*	-0,040	-0,049	-0,062	-0,066	1														
Region: Pirkanmaa	0,066	0,012	0,070	-0,055	-0,035	-0,056	-0,024	-0,030	-0,038	-0,041	-0,029	1													
Region: Ostrobothnia	-0,022	-0,022	0,030	-0,047	-0,007	-,116**	-0,050	-0,062	-0,078	-0,084	-0,061	-0,037	1												
Region: North Karelia	-0,006	-0,033	-0,017	-0,023	0,070	-,128**	-0,055	-0,068	-0,086	-,092*	-0,067	-0,041	-0,085	1											
Region: North Ostrobothnia	0,030	-0,007	-,147**	0,036	,187**	-,192**	-0,083	-,103*	-,129**	-,139**	-,101*	-0,062	-,128**	-,140**	1										
Region: North Savo	0,047	-0,027	,096*	-0,037	-,095*	-,221**	-,096*	-,118**	-,149**	-,159**	-,116**	-0,071	-,147**	-,161**	-,243**	1									
Production development	,227**	,121**	-0,041	0,001	0,062	0,048	-0,010	-0,023	-0,077	0,045	-,093*	0,022	-0,009	-0,015	0,019	0,029	1								
Operations development	,343**	,276**	-,146**	,106*	0,089	0,007	0,024	-0,022	-0,030	0,024	-0,075	,109**	-0,050	-0,035	0,084	-0,022	,292**	1							
Importance of strategic planning	,300**	,260**	-0,066	0,035	0,065	0,038	0,000	-0,003	-0,027	0,016	-0,011	0,085	-,106*	0,011	-0,007	0,018	,047	,491**	1						
Expanding (Increasing cows)	-0,027	0,008	-0,031	0,023	0,023	0,020	-0,026	0,035	-0,040	-0,043	-0,031	-0,019	0,016	0,058	-0,028	-0,006	0,047	-0,003	0,045	1					
Quality development (Changes in feeding to influence milk's content)	0,071	-0,013	-0,086	,094*	-0,002	-0,080	-0,050	0,001	,121**	-0,076	-0,020	0,061	0,043	-0,021	0,007	0,024	,137**	,150**	-0,027	,167**	1				
Production amount optimisation (Changes in feeding of cows)	-,109*	-,115	0,074	-0,054	-0,038	-0,059	-0,064	0,040	0,046	-0,084	,104*	,095*	-0,074	0,028	-0,013	0,042	-,123**	-,126**	-,092*	-0,050	,286**	1			
Additional investments	0,055	-0,031	-,090*	-0,022	,131**	-0,024	0,050	-0,033	-0,042	-0,045	-0,033	-0,020	0,064	0,003	0,039	-0,013	-0,004	0,005	0,034	,368**	0,007	-0,053	1		
Decreasing fluctuation of production amounts (By accurate insemination of cows)	0,051	-0,012	-0,003	0,023	-0,017	-0,086	-0,029	-0,011	,158**	-0,015	-0,056	,128**	0,006	-0,055	0,021	0,006	,134**	,148**	,099*	-0,032	,392**	,090*	-0,002	1	
Increase of advisory services	0,055	0,051	-0,080	0,052	0,067	-0,035	0,017	-0,048	0,052	-0,064	-0,047	-0,029	0,054	0,074	0,004	0,005	0,077	,112*	0,056	0,039	,219**	-0,014	,167**	,322**	1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Then, the normality of data is observed. The observed residuals' distribution to the theoretical normal distribution in the P-P plot was compared. If the residuals follow the line, it is normally distributed. This was done for both dependent variables with the independent variables. In figure 4, the dependent variable was operations development. The dots differ only slightly from the line. Therefore, the sequence of variables can be considered normally distributed.
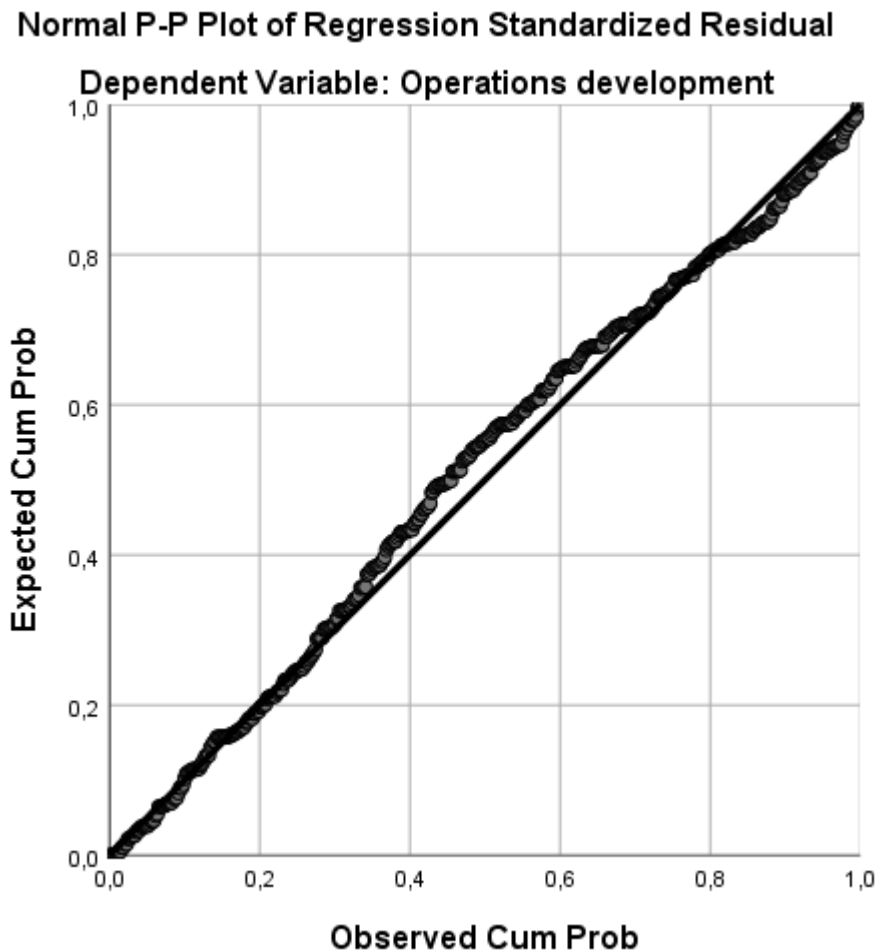

Figure 4. Normality of variables.

The linearity of the data can be analysed with a scatterplot, which was done for both dependent variables with the independent variables. The dependent variable was operations development in the scatterplot presented in figure 5. As the dots are spread relatively evenly, the sequence of variables can be considered linear. The sign of nonlinearity

would be an apparent nonlinear curve in the dot pattern. Thus, regression analysis can be formed with these variables.

Figure 5. Residuals' linearity.

Then, the same tests were done with another dependent variable used in this study, production development. Residuals deviate slightly from the normality line, but the curve is small enough to consider data normally distributed (Figure 6).

Figure 6. Normality of variables.

The linearity of the data was analysed with a scatterplot presented in figure 7. In this scatterplot dependent variable was production development. As the dots are spread relatively evenly, the sequence of variables can be considered linear. The sign of nonlinearity would be an apparent nonlinear curve in the dot pattern. Thus, regression analysis can be formed with these variables.
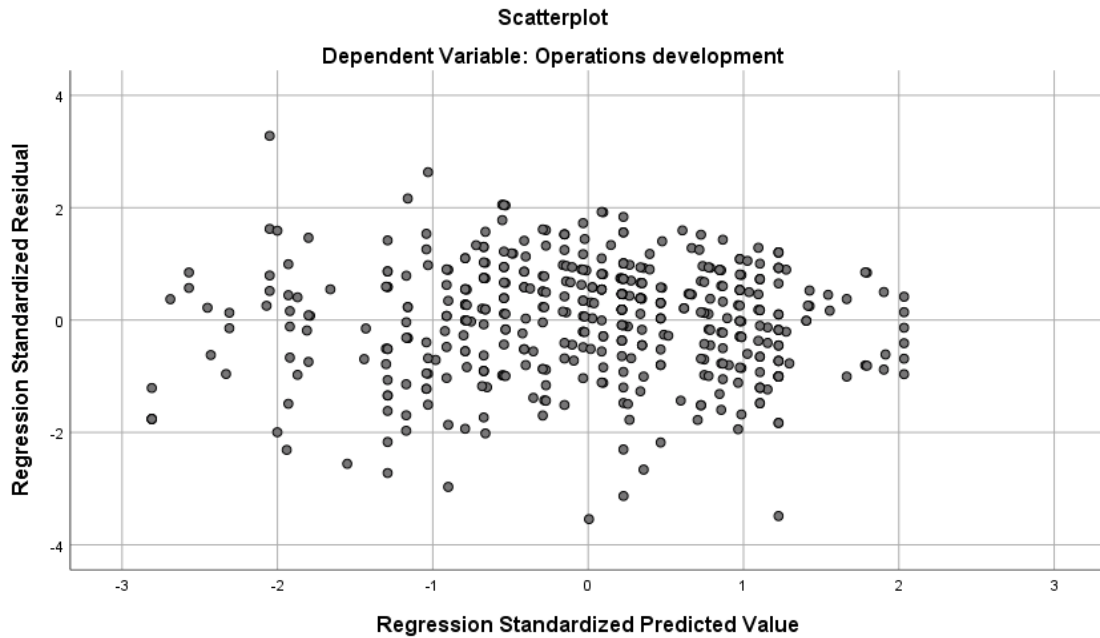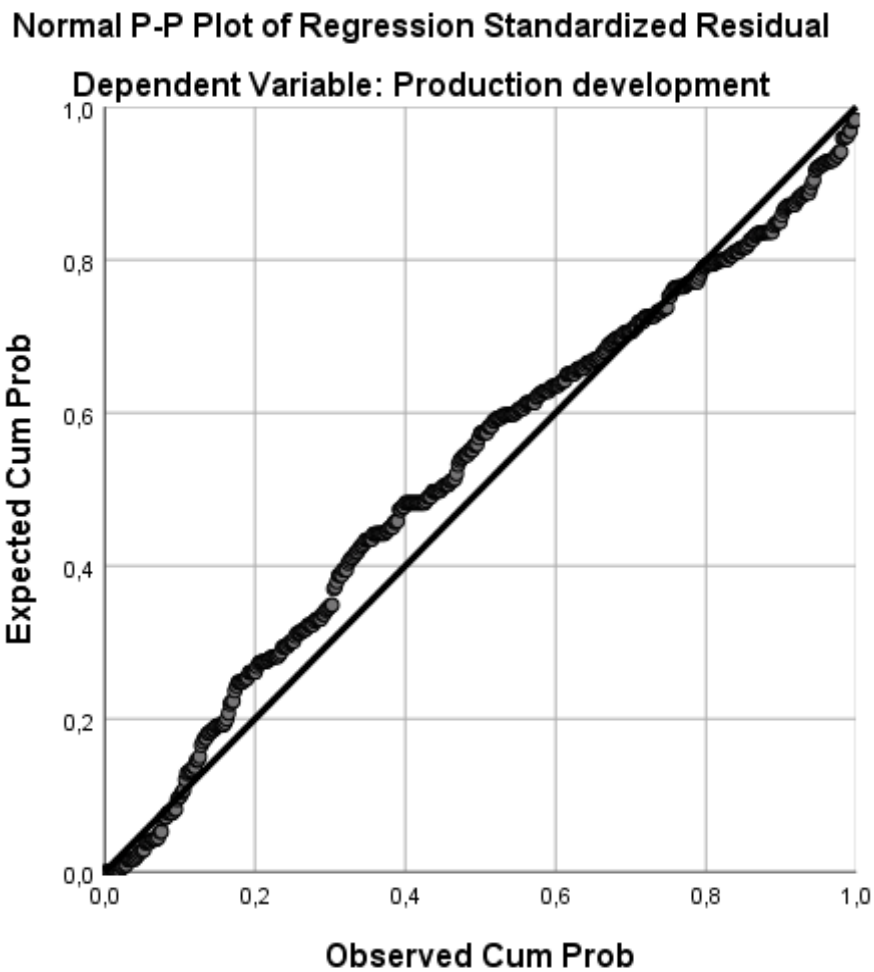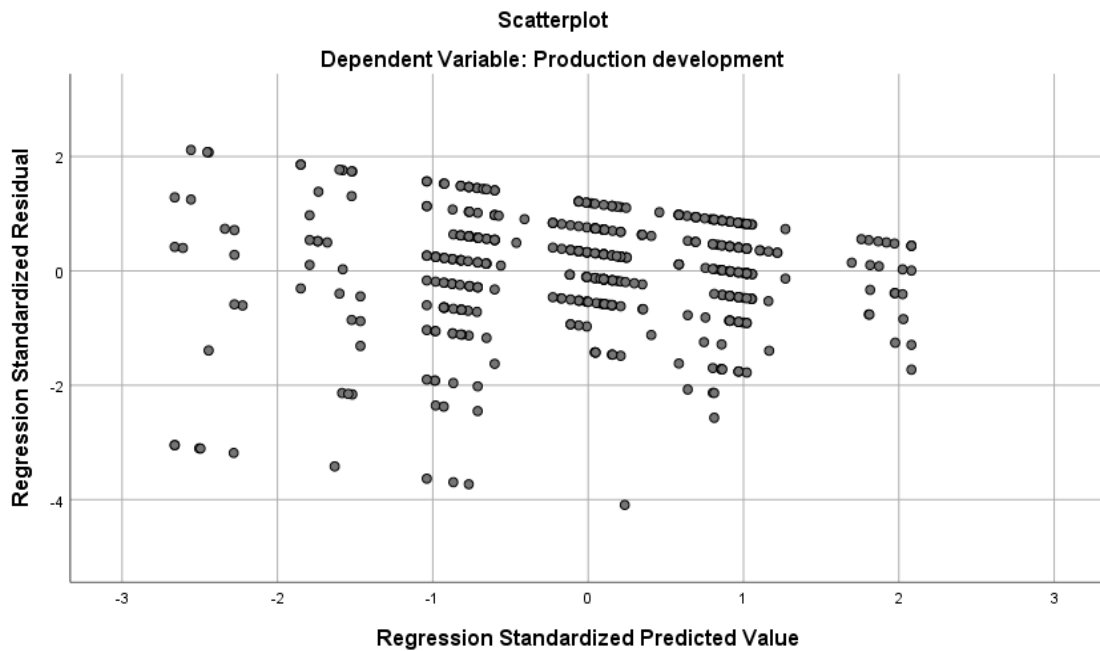
Figure 7. Residuals' linearity.

Finally, the multicollinearity of variables is analysed (Table 5). These variance inflation factor (VIF) values are taken from regression analyses. The first column is from the regression analysis, with operations development as a dependent variable. In the second column, the dependent variable was production development. It can be seen that a few variables have a VIF value over 10 with both dependent variables, which is generally considered a threshold when estimating multicollinearity (Craney & Surles, 2002). Therefore, some adjustments were required. A few variables were removed for the final regression analyses to avoid the multicollinearity problem. A variable "company form agricultural group" was eliminated, and two other company forms were included, sole proprietary and ltd. All the regions had high VIF values. Therefore, only three regions with the most farmers were added to the final regressions. These changes lowered the VIF values of the remaining variables and reduced the risk of multicollinearity.

Table 5. VIF values of variables.

	VIF	
	Operations development	Production development
Availability of entrepreneurs' supporting resources (external or internal)	1,156	1,163
Importance of strategic planning	1,190	1,198
Farm size (in litres)	1,364	1,378
Expanding (Increasing cows)	1,369	1,405
Quality development (Changes in feeding to influence milk's content)	1,432	1,467
Production amount optimisation (Changes in feeding of cows)	1,237	1,208
Additional investments	1,425	1,444
Decreasing fluctuation of production amounts (By accurate insemination of cows)	1,380	1,374
Increase of advisory services	1,253	1,224
Legal type: Soleprop	27,755	27,709
Legal type: Agri group	21,064	21,058
Legal type: Ltd	9,980	9,990
Region: South Ostrobothnia	70,462	69,504
Region: South Savo	17,361	15,092
Region: Kainuu	22,702	22,673
Region: Central Ostrobothnia	38,009	38,042
Region: Central Finland	44,941	42,924
Region: Lapland	27,319	26,227
Region: Pirkanmaa	11,628	11,635
Region: Ostrobothnia	38,423	36,368
Region: North Karelia	42,865	42,535
Region: North Ostrobothnia	82,639	84,025
Region: North Savo	97,441	97,270

4.1   Regression analysis

Next, the regression analyses are formed with the variables that passed the assumption tests. These regression models aim to study the impact of independent variables on dependent variables operations development and production development. Altogether, four separate regression analyses were formed, first without controls and then with them. First regression models are done without control variables and then with them, and operations development is used as the dependent variable in the first two regression models.

In regression model 1 (Table 6), both independent variables had a significant positive coefficient with the dependent variable. F-test was statistically significant, and the adjusted R square was 0,283. So, the independent variables could explain 28,3 per cent of the variance of operations development in this regression model.

Table 6. Regression model 1.

Operations development	
(Constant)	2,192***
Availability of entrepreneurs' supporting resources (external or internal)	0,136***
Importance of strategic planning	0,348***
Quality development (Changes in feeding to influence milk's content)	0,371***
F	62,030***
R2	0,288
Adjusted R2	0,283
N	465
*p < .10 **p < .05 ***p < .01	

Then control variables were added to regression model 2 (Table 7). Both strategic planning, resources and support, and product quality development remained positively statistically significant. Control variables farm size and region North Ostrobothnia had statistically significant positive coefficients with the dependent variable operations development, and production amount optimisation had a statistically significant negative coefficient with the dependent variable. F-test was statistically significant, and the adjusted R square was 0,326. Thus, by including control variables, the regression model can better explain the variance of the dependent variable.

Table 7. Regression model 2.

Operations development			
(Constant)	-0,05*	Decreasing fluctuation of production amounts (By accurate insemination of cows)	0,050
Availability of entrepreneurs' supporting resources (external or internal)	0,1***	Increase of advisory services	0,179
Importance of strategic planning	0,315***	Legal type: Soleprop	-0,087
Farm size (in litres)	0,424***	Legal type: Ltd	-0,069
Expanding (Increasing cows)	-0,223	Region: South Ostrobothnia	0,050
Quality development (Changes in feeding to influence milk's content)	0,397***	Region: Northern Savonia	0,016
Production amount optimisation (Changes in feeding of cows)	-0,312***	Region: North Ostrobothnia	0,23**
Additional investments	-0,141		
F	16,844***		
R2	0,346	*p < .10	
Adjusted R2	0,326	**p < .05	
N	460	***p < .01	

Next, regression analyses were done with the second dependent variable: production development (Table 8). First, only independent variables are added to regression model 3, and later control variables are included in regression model 4. Regression model 3's f-test result was statistically significant, and the adjusted R square was 0,11. This means that the model does not explain the variance of the dependent variable well. The dependent variable production development had a positive coefficient with the independent variables, but only strategic planning and product quality development were statistically significant.

Table 8. Regression model 3.

Production development	
(Constant)	3,189***
Availability of entrepreneurs' supporting resources (external or internal)	0,036
Importance of strategic planning	0,226***
Quality development (Changes in feeding to influence milk's content)	0,295***
F	20,456***
R2	0,116
Adjusted R2	0,110
N	471
*p < .10 **p < .05 ***p < .01	

Then control variables were added to regression model 4 (Table 9). The regression model´s f-test was statistically significant, and the adjusted R square was distinctly higher with 0,143. Independent variables strategic planning and product quality development remained statistically significant. Control variable farm size had a statistically significant positive coefficient with the dependent variable production development. A control variable, production amount optimisation, had a statistically significant negative coefficient with the dependent variable.

Table 9. Regression model 4.

Production development			
(Constant)	1,062	Decreasing fluctuation of production amounts (By accurate insemination of cows)	0,123
Availability of entrepreneurs' supporting resources (external or internal)	0,008	Increase of advisory services	0,035
Importance of strategic planning	0,192***	Legal type: Soleprop	0,119
Farm size (in litres)	0,370***	Legal type: Ltd	0,122
Expanding (Increasing cows)	0,199	Region: South Ostrobothnia	0,137
Quality development (Changes in feeding to influence milk's content)	0,331***	Region: Northern Savonia	0,108
Production amount optimisation (Changes in feeding of cows)	-0,355***	Region: North Ostrobothnia	0,112
Additional investments	-0,267		
F	6,531***		
R2	0,169	*p < .10	
Adjusted R2	0,143	**p < .05	
N	466	***p < .01	

Beneath in table 10 are the results of the hypotheses. A plus sign means a positive effect, and minus means a negative effect. Hypothesis 1 was as follows: *Strategic planning positively affects operations development,* and the empirical results supported this hypothesis with statistically significant positive results. Hypothesis 2 was as follows: *The availability of entrepreneurs' supporting resources (external or internal) positively affects production development.* The results did not support this hypothesis. Although it had a positive coefficient, but it was not statistically significant. Hypothesis 3 was: *Focusing on product quality has a positive effect on production development.* The empirical results supported this hypothesis, and it was a statistically very significant positive result.

Table 10. Results of the hypotheses.

	Hypothesis set in the beginning	Result
H1	+	+***
H2	+	+
H3	+	+***
*p < .10		
**p < .05		
***p < .01		

5 Discussion and conclusion

In this chapter, the conceptual implications are viewed in which the study's empirical findings are compared to the conceptual background. Next, the managerial implications are contemplated from a more practical point of view. Also, the suggestions for future research are considered, along with the limitations of the study. The chapter ends with a short conclusion.

5.1 Conceptual implications

This thesis dealt with the changes in the dairy industry and especially its effects on dairy farmers. The main conceptual background focused on strategic adaptation and change in SMEs and industry change. Strategic adaptation in SMEs is a renewed topic, and it is especially interesting in the context of dairy farms due to the drastically changing business environment. The research utilised a quantitative research method and collected data through a survey. Regression analyses were formed to analyse the data. The research question was as follows:

What changes does strategic adaptation involve, and what organisational attributes influence strategic adaptation in SMEs from the dairy farm sector in a time of significant industry change?

Three hypotheses were formed to ensure sufficient answers to the research question. The conceptual background supported the results of the thesis. The more dairy farmers had given thought to strategical aspects, the more they focused on developing their companies. This was concluded by other scholars; strategy and strategic adaptation positively affected SMEs' performance (Groot et al., 2006; Hauser et al., 2020; Ryhänen & Närvä, 2019).

Operations development was the dependent variable in the first two regression models. It had a statistically significant positive coefficient with all the independent variables and the control variables farm size and region North Ostrobothnia. It also had a negative statistically significant coefficient with the control variable optimising milk production amounts. Adjusted R square was higher with control variables. Therefore, the regression model's explanation rate was higher when control variables were added to the regression model. The results are logical as dependent variable operations development consists of strategic aspects that farmers considered vital, such as developing a network, improving farmers' know-how, increasing animal welfare, increasing production automation, and monitoring changes in the operating environment.

Thus, the hypothesis' result that an increase in strategic planning positively affects operations development is logical. This does not contradict the findings in other studies which have acknowledged that strategic planning positively affects companies' performance and resources (Hauser et al., 2020; Ryhänen & Närvä, 2019; Wang et al., 2007). Availability of entrepreneurs' resources and support had a positive statistically significant effect on operations development. This has contradicting findings on the previous literature. On the one hand, the lack of resources challenges the company's ability to adapt (Kor et al., 2007) and might enable them to think outside of the box and eventually overcome the lack of resources (Katila & Shane, 2005). Especially entrepreneurial orientation has been seen to positively affect performance in agricultural firms (Dias et al., 2021). In some studies, the historically valuable resource base has hindered change as the company is reluctant to adjust its resources (Kraatz & Zajac, 2001). Companies can also become dependent of resources provided by the business environment which is a risk when the environment changes (Singh et al., 1986). Region North Ostrobothnia had a statistically significant positive coefficient with operations development. This would be an exciting topic to study further as to why this specific region had such an effect.

Often, larger farms focus more on strategic matters (Ryhänen & Närvä, 2019). The regression model's results support this view as farm size positively affected operations

development. There has been a tendency to either expand or exit the dairy industry (Ferguson & Hansson, 2013). This might also explain why the larger farms are more interested in the development aspects. Also, product quality had a positive effect on operations development. Product quality development means that farmers focus on developing the quality of the milk. Farmers' goal typically is to have a good fat and protein content in milk to improve the product's price. Therefore, optimising it relates well to operations development.

Parnell (2000) and Spanos et al. (2004) have noted that having a clear focus on business operations has been beneficial. Product quality is an obvious choice for the dairy farms to focus on because milk is the core product they sell, and its quality is highly valued. Feeding changes to optimise milk production amounts had a statistically significant negative effect on operations development. Here, the question layout could have been more precise. As the question used the word "optimise", it is not clear whether dairy farmers would increase or decrease production, only that any optimising attempts negatively affected operations development. This question would have needed clarification, and because of the uncertainty, the results of this question may not be reliably studied and will not be analysed further.

Production development was the dependent variable in regression models 3 and 4. It had a statistically significant positive coefficient with two independent variables: strategic planning, product quality development, and a control variable, farm size. It also had a negative statistically significant coefficient with optimising milk production amounts, but this has the same possible shortcoming as described in the earlier paragraph. Thus, this result is not analysed further. Production development did not have a statistically significant coefficient with the independent variable resources and support. As a result, hypothesis 2 was not supported by the study. Adjusted R square was higher with control variables. Therefore, the regression model's explanation rate was improved.

Strategic planning had a positive effect on production development. This has been acknowledged in other studies (Groot et al., 2006), which implicate that strategic focus improves business performance. Strategic planning may include plans to diversify or research the most profitable business areas, as has been the case in Switzerland (Hochuli et al., 2021). Product quality development had a positive effect on production development, therefore, supporting hypothesis 3. This means that the farmers who focused on the product quality improvements were also concentrated on production development. This can be seen as a differentiation strategy (Parnell, 2000; Porter, 1985, pp. 11–12) which is rational as the product quality development affects straight to the development of production.

The hypotheses' results that were analysed in the previous paragraphs were initially formed to ensure that the research question was answered with enough precision. The subject was studied through regression analyses that had two dependent variables: operations development and production development. Together, these variables represent strategic adaptation, which was a key point in this thesis. Many attributes influence the strategic adaptation of dairy farms. The strategic planning of dairy farmers is one of the key attributes that influence the strategic adaptation of farmers. Also, the dairy farmers investments in product quality development were essential for strategic adaptation. The farm size also had a vital role in this, as the larger farms were more interested in strategic adaptation.

5.2   Managerial implications

This thesis is relevant for all dairy farmers and their stakeholders. It is relevant to understand strategic adaptation in dairy farms, as many studies have concluded that farmers do not often make formal strategic plans (Ryhänen & Närvä, 2019; Verhees et al., 2018). It is still of significant importance for these entrepreneurs to make strategic plans and follow the changes in the business environment. The most important thing is to continuously adapt and even proactively develop their strategies to match the changing

situation. Some dairy farmers might get "stuck in the middle" (Porter, 1985, pp. 16–17) if they do not have a clear strategic vision, and this might reduce their opportunities to compete. If they had a well-articulated strategy, it might be easier for them to adapt to the changes in the business environment.

The regression analyses' interesting notion was that the larger the farm, the more focused it was on operations development and production development. This could be explained by the fact that larger farms think about strategic issues more than smaller farms. Also, entrepreneurs have different values, and they are not always that business-centric (Wang et al., 2007) which might be the case with the smaller farms in this study. Ferguson and Hansson (2013) studied values in dairy farms that concluded that dairy entrepreneurs often have both business and farm-living values. Having different values impacts strategic thinking, and these values may contradict each other. The business-centric farmer may focus more on the profit than the one who simply enjoys the farm-living. However, on the other hand, it should be in the interest of all the farms to focus on these strategic topics, as it would help them survive in the business.

5.3   Suggestions for future research

The study was conducted via a survey as quantitative research. Therefore, qualitative research on the topic would give more insights into the area of this study. This studied phenomenon is unique, but the dairy industry and its entrepreneurs also face other challenges and changes. Thus, it would be interesting to study deeper the strategies dairy farmers have implemented and how they see the industry's future. This study offered ideas for future studies also from the resource perspective. It would be interesting to study what resources dairy farms perceive as the most valuable and rare.

Another research idea is to compare small and large farms and their strategic focuses, as it was evident in this study that the farm size impacted these strategic issues. Overall, the effect of the farm size in strategic matters is an interesting finding that should be

discussed within the industry and could be a future research topic. The subject of performance between different sizes and types of farms has been studied in the USA (Li & Li, 2018), and this could be studied in the Finnish context.

5.4 Limitations

A few limitations have been acknowledged in this thesis. The study was conducted in a specific geographic area in Finland, limiting the generalisability to other countries. However, the population of the study was substantial compared to all dairy farmers in Finland. Thus, the results may give a good picture of the situation in Finland. This thesis studied only a part of the population affected by contract production. This choice was made based on research access. Still, a significant sample, 76 per cent of these dairy farmers, were involved in the study.

The survey was conducted online, limiting the responses to those who had access to the survey. All the possible respondents may not have been able to access the survey due to the willingness to fill out an online survey, or maybe some did not have online access that would have enabled answering.

The research method created some limitations. The subject was studied through quantitative methods, which restricted the type of data gathered. Qualitative methods could have given a more detailed perspective on strategic adaption in the SMEs and exciting insights on dairy farmers strategic decision making. Even though the choice of a research method narrows the available data, it was concluded that it gave an excellent insight into the phenomenon and enables a more detailed qualitative study in the future. Population size was substantial and spread across Finland. Thus, it was practical to use only quantitative data which could be gathered online.

5.5 Conclusion

This thesis adds to the discussion of dairy farms' strategies. It is a current topic and ever more vital to be understood by scholars and entrepreneurs in the field. It will benefit the whole industry when the strategic discussions become more mainstream at the farms, enabling the entrepreneurs to succeed better in their endeavours. Strategy is not a strange concept at the farms, but it is not yet utilised as broadly as it could be. In conclusion, the results of this thesis increased support on the matters previously studied, as any contradicting findings were not discovered.

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