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## **Agricultural business model innovation in Swedish food production**

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### **Abstract**

This conceptual paper focuses on the need for knowledge in leadership, organization and innovative thinking that exist in primary production throughout the value chain from the farm to the final consumer. There are also needs in terms of improving and developing the entire value chain from the farm to the final consumer. Self-leadership and lean innovation is in this paper proposed to enhance the possibilities for business model innovation in the food production. The aims of the paper are two folded; Firstly, the aim is to present a framework containing self-leadership and lean innovation and

how these theoretical approaches can facilitate and shape business model innovation in the agricultural sector. Secondly, the aim is to show a way of working with this problem area in order to meet these needs in the agricultural sector. A framework for business model innovation is presented as well as an interactive research design addressing the problem area in terms of action research in which learning networks is an important concept. The paper concludes with suggestions for future research challenges.

# Agricultural business model innovation in Swedish food production: The influence of self-leadership and lean innovation

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*At Gudmundsgården, situated in an agricultural area on the west coast of Sweden, we can find a successful example of business model innovation with a lean approach. Sabine and Ralf Tebaay from Germany started in 1998 the first pig farm with its own butchery in Halland. The couple also runs the shop Gudagott together with Mostorp's farm (with beef and lamb) since 2005 in Halmstad with 20 employees, where they sell products from the two farms. From the start, the pigs are fed from their own or neighboring lands. No additives are fed to the animals. The business model is to slaughter the animals on the farm, making traditional meat delicacies such as sausages, pies and more which they sell in their farm shop and shop in Halmstad. The business idea is to reach a charcuterie production of the highest caliber by the best pure and natural farming and food production as possible which enhances the sustainability ideology. The entrepreneurs continuously build and develop their business model. Besides farm slaughter and sale, they also have catering, training in food handling, cooking and more...*

## **Abstract**

This conceptual paper focuses on the need for knowledge in leadership, organization and innovative thinking that exist in primary production throughout the value chain from the farm to the final consumer. There are also needs in terms of improving and developing the entire value chain from the farm to the final consumer. Self-leadership and lean innovation is in this paper proposed to enhance the possibilities for business model innovation in the food production. The aims of the paper are two folded; Firstly, the aim is to present a framework containing self-leadership and lean innovation and how these theoretical approaches can facilitate and shape business model innovation in the agricultural sector. Secondly, the aim is to show a way of working with this problem area in order to meet these needs in the agricultural sector. A framework for business model innovation is presented as well as an interactive research design addressing the problem area in terms of action research in which learning networks is an important concept. The paper concludes with suggestions for future research challenges.

## Introduction

This paper focuses on the need for knowledge in leadership, organization and innovative thinking that exist in primary production throughout the value chain from the farm to the final consumer. The aims of the paper are two folded; Firstly, the aim is to present a model containing self-leadership and lean innovation and how these theoretical approaches can facilitate and shape business model innovation in the agricultural sector. Secondly, the aim is to show a way of working with this problem area in order to meet these needs in the agricultural sector.

The example above from *Gudmundsgården* in Halland, Sweden illustrates the efforts from a producing entrepreneur in order to reach a successful and sustainable business model. The current paper aims to contribute with a framework that might help to make this effort a bit easier.

The problem area addressed is important on *society level* since the Swedish countryside has undergone major changes the past half century. Mechanization in both agriculture and forestry has increased productivity while labor has decreased (SOU, 2006). The agricultural sector has large capital values and is essential for the Swedish economy. Within these industries, including processing, worked approximately 416,000 persons in 2009, representing nine percent of all jobs in the country (LRF Report, 2009). For agriculture, the trend over time, however, has been that larger units have been formed in order to maintain profitability, which has contributed to the small number of farms and reduced the number of people employed in farming in Sweden. The number of full-time workers in farms fell by more than 5,300 people between the years 2007 to 2010, according to Agriculture's statistical report (Jordbruksverket, 2011a). The negative change in the agricultural sector is in many parts not compatible with a sustainable society.

It is also important on society level in a global perspective. The global demand for food will increase and in order to meet this demand the agriculture needs to change (Dobermann & Nelson, 2013). According to Horizon 2020 (European Commission, 2011) food security and sustainable agriculture are also prioritized areas for research and innovation-related activities due to the identified needs in this sector. Further, Dobermann and Nelson (2013, p 2) propose, based on discussions from different stakeholders in several recent reports, the following consensus: “*The world’s agriculture and food systems must become more productive, more resource-efficient, more resilient, and less wasteful*”.

Further, it is important on the *firm level*. There are great opportunities for Swedish farmers to increase their production capacity and market share. Swedish agricultural market share of the domestic market has declined from 75% to 50% in 20 years (Landsbyggsdepartementet, 2012). Primary production in agriculture is in the food sector in Sweden approximately 30 billion SEK (Jordbruksverket, 2011b) compared with, for example, Denmark, which has about as much arable land as Sweden with a primary production of about 75 billion SEK. So there is a potential for strong growth in the agricultural sector in Sweden. In addition, there are significant opportunities for export. Food production in the world will need to increase by 70% by 2050 under future scenarios based on e.g. population growth and production (FAO, 2009; Öborn et al., 2011). Several areas of the world will find it difficult to increase their production capacity due to negative climate impact while Sweden climatically is expected to have a favorable position with warmer climate and more rainfall. In addition, Sweden has farms where the environment is focused to a large extent, on high food safety and a unique animal welfare (LRF, 2009). The Government of Sweden is also committed to the vision

“Sweden - the new culinary nation” which also incorporates investments in primary production (Jordbruksverket, 2009).

However, the needs of farm primary production are large in terms of leadership, organization and innovative thinking. There are also needs in terms of improving and developing the entire value chain from the farm to the final consumer. The situation in the agricultural sector can be compared with the situation suppliers to the automotive industry have been in for a long time. Further, agriculture has traditionally been studied and compared with farming in other countries. We believe that agriculture has much to learn from studying the industry and how other successful entrants are working. The farms are becoming larger units and with this follow the staff and completely different requirements and needs of business and leadership in the company. This is evident in a number of studies that focus change requirements for governance and management when the company is growing by up to 10-20 employees (Barth, 2004) and is also valid for the agricultural sector. Research also shows that it is important that the farmer sees her-/himself as an entrepreneur (Vesala, Peuro & McElwee, 2007). Furthermore, it is essential to support farmers' knowledge not only on production but also on leadership and entrepreneurship to thereby enable growth through innovation and networking within the industry (Carter, 2001). If the current trend of reduced market shares, reduced production capacity and moving production abroad of food in Sweden is to be broken, the farmers/entrepreneurs/managers with associated agricultural support organizations have to ensure the development of the value chain. This is to eliminate waste and enhance value creation parts of the production in order to gain a greater customer satisfaction.

There is also a need for entrepreneurs in the agricultural sector to embrace new ways of thinking. Farmers often see themselves as producers and suppliers, rather than contractors, operators and product developers. The farmers are in situations where there is a need to find and implement new innovative ways of creating, delivering and capturing value in order to be able to meet existing challenges and emerging opportunities. This also requires a mindset change. Chesbrough (2010) states that an existing mindset is one of the main barriers for business model innovation and action is crucial in order to generate new business models.

To meet these needs several developmental projects are ongoing in Sweden. This paper is based on knowledge from two of these leadership projects, namely:

1. ***Project Ledarpraktikan***. In an ongoing study funded by the Swedish Board of Agriculture, the needs of leadership specifically has been identified and focused. The book “*Ledarpraktikan - the art of leading myself, my employees and my business*” (Ulvenblad, Wall, Cederholm & Hedin, 2012) is a result from this project and one way to fill this need. Agricultural advisors were trained in the autumn of 2012 to become Master Practitioners with new knowledge about leadership issues. During 2013 the education edition of the book was revised and the book was published in its second edition in August 2013. During autumn 2013 seminars were held based on the book to leaders in the agricultural sector. In this project nine agricultural advisors with 27 entrepreneurs are engaged spread all over Sweden.
2. ***Project Lean***. In a previous project where Lean production has been implemented on 12 farms with dairy, beef, grain and pig production, several cost-saving activities have been identified (Barth, 2012). However, what has also been noted in this evaluation is that this change identified several potential opportunities for innovation in the food chain. Advisors were trained in the autumn of 2012 to become Lean-coaches with

new knowledge about Lean philosophy and methodology. Nine Lean-coaches and 36 farms have been involved in the project.

In the following text we will present the frame of reference in terms of (i) self-leadership, (ii) lean innovation and (iii) business model innovation and show how the first two can support the third.

## **Frame of references**

### **Self-leadership**

The common use of the leadership concept is that a leader is an individual who is the commander and inspirer for other individuals. However, leadership can also be seen in an alternative and complementary way. An individual, for example the entrepreneur, needs to lead her-/ or himself in approaching different situations and in interaction with others, which has been called self-leadership (D'Intino, Goldsby, Houghton & Neck, 2007; Houghton, Dawley & DiLiello, 2012; Neck, Neck, Manz & Godwin, 1999). Self-leadership (Manz, 1986; Manz & Neck, 2013) involves both strategies for thought patterns and strategies for behaviours (Neck & Houghton, 2006, p 270) and is defined as “a process through which individuals control their own behaviour, influencing and leading themselves through the use of specific sets of behavioural and cognitive strategies”.

Self-leadership and cognitive strategies has been shown to be important for individuals in different settings such as sports psychology, communication and education (Neck et al., 1999; Neck & Houghton, 2006). It was early known that our thoughts have an impact on our behaviour. In 1890 James (1890, p. 290) wrote “*The greatest discovery of my generation is that human beings can alter their lives by altering their attitudes in mind*”. However, studies about self-leadership both conceptually and empirically have been under-investigated (Neck & Houghton, 2006). This is especially valid for studies in entrepreneurship although the entrepreneur often is seen as “the innovative self” from Schumpeter’s perspective (Betta, Jones & Latham, 2010). Further, it is suggested that individuals with strong self-leadership see themselves to have more innovation and creativity potential than individuals who have weak self-leadership (DiLiello & Houghton, 2006).

There is a need for leadership and self-leadership skills for the agricultural entrepreneur which has been shown in the project Ledarpraktikan described above. Hence, self-leadership is one important piece of the framework enhancing innovative thinking.

### **Lean innovation**

Lean production, philosophy and methodology, has historically been applied in the industrial sector (Womack, Jones and Roos, 1990) but has also evolved into other areas with positive results (Berglund, Karling & Mellby, 2011; Berglund & Westlund, 2009; Hicks, 2007; Higgins, 2007). Lean originated as a concept at Toyota (TPS - Toyota Production System), which provide flexibility in production. The main objective of TPS is cost minimization achieved through quality control, quality measurement and improvement of the working environment (Womack et al., 1990). Lean production is the western revision of the TPS. According to Hayes (1981), the focus of Lean is to constantly work on minimization of waste and continuous improvement of the work that is value-added. Liker (2004) and Lewis (2000) argue that it is important that the focus is on the entire product value chain, where the focal

organization is constantly critically evaluating their work to eliminate waste which consequently can lead to improvements. A critical part of the Lean approach is its implementation in the organization. According to Berglund (2010) Lean implementation requires an entirely new way of thinking in everyday work. Therefore, in order to successfully implement Lean approach active and dedicated involvement of both managers and employees is required as well as change of all participants' attitude and behavior.

While the principles of Lean as described by Womack et al. (1991) have been successfully implemented in manufacturing settings around the world and have had numerous researchers publish work related to them, the same cannot be said about lean and innovation, or "lean innovation"); an area that has just recently started getting the attention of researchers (Schuh, Lenders & Hieber, 2008).

Lean and innovation are in principle built on opposing ideas and clashing beliefs that are likely to cause discrepancies within a company that aims to innovate (Chen & Taylor, 2009). While, on one hand, innovation challenges existing procedures and norms, tolerates failure (Hindo, 2007), promotes rational risk taking, and offers employees a considerable amount of slack, lean, on the other hand, calls for standardization and consistency, eliminating all unneeded activities; called waste, and perfection through continuous improvement (Lewis, 2000). This makes them a controversial mix (Johnstone, Pairaudeau and Pettersson, 2011). The mix has also caused an even more controversial reaction; one with many supporters and just as many adversaries (Carleymith, Dufton & Altria, 2009; Lewis, 2000), with few proposing solutions for achieving a balance.

The supporters argue that, by companies becoming lean, or leaner, they will have more time on their hands to innovate (Carleymith et al., 2009; Poppendieck, 2002) and would actually end up producing a wider variety of products (Womack et al., 1991) that will better satisfy their customers (Poppendieck, 2002). The adversaries in turn, argue that by companies becoming lean, or leaner, they will become more occupied with daily activities that are geared towards maximizing productivity; which will undermine creativity (Amabile, 1998, pp. 77; Lewis, 2000; Lindeke, Wyrick and Chen, 2009) and will have a negative influence on the company's innovative capability (Chen & Taylor, 2012; Chesbrough & Garman, 2009; Hindo, 2007; Johnstone et al., 2011; Lewis, 2000; Mehri, 2006).

Another example of lean and innovation is related to business model innovation at both start-ups and existing firms. Steve Blank (2013) amongst others is promoting the idea of the "lean start-up". It is a process of "testing hypothesis, gathering early feedback, and showing "minimal viable products" to prospects" (Blank, 2013, p. 5). Even though it is a methodology originally created to create high-tech ventures, these techniques are largely employed by existing SMEs and large corporations. As Blank (2013) states if embraced, these techniques would improve growth and efficiency which would in turn impact positively GDP and employment. Additionally, he states that "simply focusing on improving existing business models is not enough anymore. To ensure their survival, corporations need to keep inventing their business models. This challenge requires entirely new organizational structures and skills" in order to be able to find new ways of creating, delivering and capturing value.

Examples of studies touching upon the interrelationship between lean and innovation are those of Lewis (2000) and of Chen and Taylor (2009, 2012). Lewis (2000) studies three medium sized companies to look at the relation between lean and financial performance, and while doing so finds that only one out of these three companies was still able to innovate because they were able to balance between lean and creativity, while the other two showed a

decrease in innovation. Chen and Taylor (2009, 2012) study the impact of lean on a company's innovative capability, and conclude that certain kinds of innovation are less likely to occur in companies that are lean. Nevertheless, both works do not shed enough light on the interrelationship between lean and innovation. However, as Chen and Taylor (2009) writes, and which they visualize (see figure 1 below), is that the two forces of lean and innovation, should not be separated, but combined.

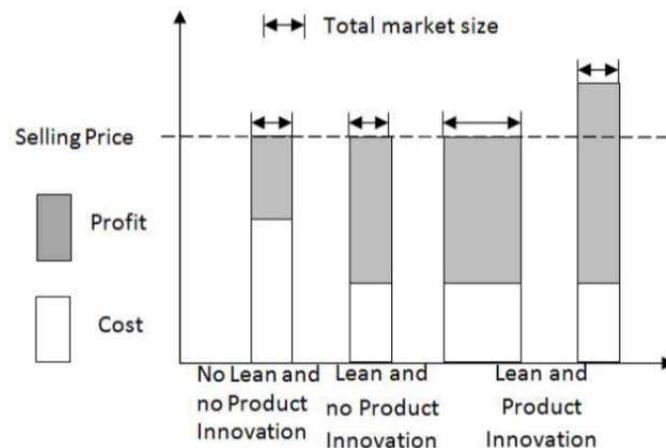


Figure 1. Lean and Innovation, Chen and Taylor (2009, p. 831)

This means that a company's total profit will increase "as a result of reduced cost, enlarged market size and enhanced customer willingness to pay higher prices for certain type of products" (Chen & Taylor, 2009, p. 831).

Implementation of the lean approach in the agricultural industry is a relatively new idea and area of research. For example, Chicks and Cox (2005) question the applicability of lean management in the food and agriculture industry in the UK. They argue due to the fact that lean originates from the manufacturing industry it can be difficult to embrace the lean approach in the agricultural sector as it is more suitable for high-volume production. On the other hand, the current practices show that the lean approach is widely used in many different non-manufacturing contexts such as healthcare (Weinstock, 2008), public sector - municipalities and municipal operations (Brännmark, 2011) as well as in the financial sector (Jenkins, 2011). At the same time evidence from the food industry in European SMEs (Belgien, Germany and Hungary) indicate improvement in operational performance, especially regarding productivity and quality (Dora, Kumar, Van Goubergen, Molnar & Gellynck, 2013). However, the authors note that this way of working is still in its infancy. Further, different types of improvement programs including lean manufacturing are used in the food industry also in small organizations in Canada (Scott, Wilcock & Kanetkar, 2009).

The agricultural sector in Sweden is facing increased competition and global pricing pressures causing problems with profitability and increased risk that put many companies out of business. It is therefore important that farms are developing and implementing new efficient methods that can counteract the current challenges the farmers are facing. According to LRF's profitability survey (LRF, 2013) the agricultural sector has recovered slightly, but it is still a long way from sustainable profitability. Lean approach may be a possible strategy to increase agricultural sector understanding of how to improve the organization and the individual pursuit of learning. For example, in his study of the effects of implementation of the lean approach in municipal activities, Brännmark (2011) identified positive effects such

as, for example, reduced “leadtimes”, better use of space, increased productivity and improved workflow, smoothed workload and higher customer satisfaction.

Lean innovation is another important piece of the framework enhancing innovative thinking. Lean implementation and research in the agricultural sector is relatively new but from the lean project we have seen how lean can contribute to a change in mindset for the entrepreneurs.

### **Business model innovation**

When the Swedish agricultural businesses are exposed to increasing competition from abroad, they require new ideas and approaches developed to make farming more productive and competitive. Legislation, international competition and strong players in the value chain have contributed to large-scale production economics as guide for the development. Entrepreneurial farms which managed to break this trend and developed a more differentiated business usually have developed new business models based on a network approach (Lawson, Guthrie & Cameron, 2008; see also the example of *Gudmundsgården* above). Here, the large farm has been replaced by networks of farms, which together are responsible for resource mobilization and use of resources. One characteristic of these companies is that business models are integrated with parts of society that focuses environment and community involvement. By visualizing and integrating this development in the business model, the company can obtain value-systems that contribute to long-term profitability. Here, large parts of the service sector has been developed (Tillväxtanalys, 2010), but also in the agriculture sector is potential for development by creating inter-organizational innovation where the market will be provided for in a new way. Further, new business models have been developed in terms of so-called hybrid organizations – organizations in-between the profit and non-profit sector, which also relate to what several farmers as entrepreneurs are dedicated to (Boyd, Henning, Reyna, Wang & Welch, 2009).

Previous research show an increasing interest since mid-1990s in using business models as descriptive and analytical constructs by both academics and practitioners. An increasing amount of research evidence shows that business models are seen as a key to companies' competitiveness, renewal and growth (e.g. Chesbrough & Rosenblom, 2002; Johnson, 2010; Lambert & Davidson, 2012; Teece, 2010). Despite this interest in the business model concept, researchers do not agree on a common definition and vocabulary, resulting in definitions with varying scope and conceptual focus (Johnson, 2010; Zott, Amit & Massa, 2011) for example a focus on the individual enterprise or on a the whole value network ( see Lambert & Davidsson, 2012). Further, according to Lambert & Davidson (2012), empirical research on the business model concept in the period 1996-2010 is predominantly European-based in relation to media, information technology and biotechnology industries. Such a narrow focus offers an opportunity to explore business models in other industries and time periods (e.g. the agricultural sector in Sweden).

Although research about business models in the agricultural sector has been limited we have found some exceptions. This research is often related to developmental areas in the world (see for example Beuchelt & Zeller, 2012). However, we can also find early examples of the 19<sup>th</sup> century as in the *Swift Company* in America which managed to decrease the amount of time cattle were shipped live by using local slaughters, railways and the new type of refrigerated possibilities (Teece, 2010). Further, research about entrepreneurship in the rural environment has focused on business models in the food-production value chain such as restaurants (Markowska, Saemundssen & Wiklund, 2011).

Research on business models are connected to the Lean Innovation concept. *Business model innovation* is to “innovate the very theory of the business itself” (Johnson, 2010, p. 13), i.e. to create and deliver new value, develop new skills, new strengths, and new ways to make money. Business model innovation is one way to create competitive advantage if the model is sufficiently differentiated and hard to replicate for incumbent companies and new entrants alike (Teece, 2010). As stated by Lambert & Davidson (2012) the conceptualizations of business model vary depending on both the purpose and the adopted theoretical perspective. Therefore, our starting point in this paper is in line with the definition of a business model from Zott & Amit (2010) focusing on the activity system perspective on business models or outward value network perspective which is also in line with our purpose. This definition fits well with the lean philosophy. First, it looks into design elements of the business model, i.e. the content (what activities shall be performed); structure (how those shall be related) and governance (who shall perform them and where) of the activities. Second, it looks into design themes of the business model, i.e. novelty (innovative content, structure or/and governance of the activities); lock-in (elements that can retain business model stakeholders); complementarities (bundle activities to create more value); and efficiency (reorganize activities to reduce transaction costs). By adopting the activity system perspective on business models we will answer the call of Zott & Amit (2010) for further theoretical development by drawing on activity theory which “has received scant attention in the management and organizational theory” (p. 224). For example, both social aspects and transitional dimensions of the actors’ relationships when producing activities can be explored. These social aspects are also part of the self-leadership conducted by the entrepreneurs.

In the building of this framework we have addressed *practical*, *empirical* and *theoretical* problems according to the previous sections. The *practical* problem relates to the problematic and challenging situation the farmers/entrepreneurs are facing among other things decreasing revenue and increasing competition. The practical problem also relates to the national and global interest in developing the agricultural sector and securing a sustainable food production. The *empirical* and *theoretical* problem can be defined through the fact that we lack research about the agricultural setting both empirically and conceptually in self-leadership, lean-innovation and business model innovation.

## **Action research and learning networks**

To be able to reach the goal of making research regarding the enhancement of business model innovation in the agricultural sector relevant for the academy as well as the practice, there are needs for working in an interactive way with entrepreneurs and consultants within the field.

*Action research* means working closely with the participators the researchers are also studying. In this way it is possible to reach the practical problems in a way that can only be done from a collaboration perspective. The purpose of action research is to solve practical problems in a real context. Action research is therefore a mean to understand and manage the relationship between theory and practice. Researcher and project participants ask questions, develop working methods and seek the answers together. It is then the researcher's duty to protect the newly gained knowledge and experience, by systematically analyzing and studying the processes that contribute to the collective knowledge. Action research thus relates to solving practical problems while developing new knowledge (Greenwood & Levin, 1998). Thus, the researchers become involved in the problems and issues that really concern the "other side" and must be sensitive and really understand the entrepreneurs' situation.

Therefore, it is the “Alfa and Omega” of researchers to be able to come into the group and get the other participants in the project to trust them (Tell 2001).

To use *learning networks* is a way to make use of all the competencies in a cross-sectional setting with different agricultural stakeholders and researchers. Via an innovation network it is possible to achieve collective efficiency, collective learning and the intersection of different knowledge sets (Levén, Holmström & Mathiassen, 2014, p 157). That regional networking has the potential to enhance the innovation competence is demonstrated in several studies (see for instance Gellynck et al, 2007 and their study of innovation in food firms). Innovation is considered, by both practitioners and researchers, as very important in order for firms to acquire competitive edge, but a very hard process for the single company to organize on its own. Therefore, there has for a number of years, been an emerging interest among scholars to study inter-firm learning, to develop a capacity to innovate (see for instance Tidd and Bessant, 2011). Earlier experiences (Halila & Tell, 2012; Tell, 2001) of using learning networks to develop small industries have showed the strength in organizing joint learning for innovation, and the possibility for universities to act as an innovation hub. However, the organizing and fostering of learning networks with a focus on innovation, is a very complex and delicate process, and we need to learn more about it. By this way of working, strong relationships could be built between academic and businesses which could be exploited for future co-production of knowledge, thus ensuring a future of “*interactions and processes to bring together those who study societal problems and issues (researchers) with those who act on or within those societal problems and issues (decision makers, practitioners, citizens)*” (Denis & Lomas, 2003, p. S2-1).

## **Conclusions and research challenges**

The starting point for this conceptual paper has been two leadership development projects in the agricultural sector in Sweden, namely (i) *Project Ledarpraktikan* and (ii) *Project Lean*. From these projects we have seen a need for leadership and self-leadership skills for the agricultural entrepreneur as well as innovative thinking in order to become even more competitive in the market. We have also seen that knowledge in lean approaches enhances innovative thinking. Hence, self-leadership and lean innovation are proposed to be two important pieces of the framework enhancing business model innovation.

In the building of this framework we have addressed *practical*, *empirical* and *theoretical* problems according to the previous sections and by these also identified gaps in previous research. The *practical* problem relates to the problematic and challenging situation the farmers/entrepreneurs are facing among other things decreasing revenue and increasing competition. The practical problem also relates to the national and global interest in developing the agricultural sector and securing a sustainable food production. The *empirical* and *theoretical* problem can be defined through the fact that we lack research about the agricultural setting both empirically and conceptually in self-leadership, lean-innovation and business model innovation.

The practical problem is in line with the practical problem for all companies, i.e. to improve the participating companies’ skills and understanding of the existing business models and how one can identify opportunities and implement new solutions for innovation triggered by lean thinking, managing to overcome the existing mind-set via self-leadership. The challenge is to develop new business models for the agricultural sector. At present, however, there are not many studies on business model innovation concerning the agricultural sector. This might be

a reflection of the fact that business model innovation is a relatively young field of research. From a theoretical point of view this approach may contribute with new knowledge to the existing business models for the agricultural sector. This approach can also be related with existing cross-industrial studies on business models and business model innovation (e.g. Morris, Schindehutte, Richardson & Allen, 2006; Lindgren, Taran & Boer, 2010) to identify the existing parallels and differences between sectors. Further, it can be a contribution to previous research in efficiency and productivity within the agricultural sector. Previous research has mainly been carried out through quantitative studies based on accounting data and statistics (e.g. Alston, 2010; Färe, Grosskopf, & Margaritis, 2008; Lio & Hu, 2009). The proposed approach contributes with an action oriented approach with learning networks and a new focus in terms of business model innovation.

Previous research has shown that learning networks has the potential to enhance the innovation competence (see for instance Gellynck et al, 2007 and their study of innovation in food firms) and stimulate the collective learning and the intersection of different knowledge sets (Levén, Holmström & Mathiassen, 2014, p 157). Earlier experiences (Halila & Tell, 2012; Tell, 2001) of using learning networks to develop small industries have also showed the strength in organizing joint learning for innovation, and the possibility for universities to act as an innovation hub. This is however a very hard process for the single company to organize on its own. Hence, the challenge for researchers is to create a learning network with an action research oriented approach to build trust and ensure a future of *“interactions and processes to bring together those who study societal problems and issues (researchers) with those who act on or within those societal problems and issues (decision makers, practitioners, citizens)”* (Denis & Lomas, 2003, p. S2-1).

A challenge for future research is also to understand the role of self-leadership and lean innovation in facilitating business model innovation. For example; future research could investigate the role of self-leadership in overcoming lock-into “old” business logic and generate understanding regarding how can it be used in the process of business model innovation. Future research could also focus on how the process of lean innovation in the agricultural sector has been implemented and in what ways this implementation has facilitated and shaped business model innovation.

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