

Putting Farm-to-School on Sweden's sustainability menu

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Abstract

The global food system plays a significant role in the sustainability challenge. One way to approach such a complex problem is to provide a science-based, functional definition of success, and then to find leverage points in the system that can force change. Because they are accessed by all children, we see food education and responsibly sourced school food as such leverage points.

Farm-to-School is a US concept which encourages schools to provide classroom food education, a garden, and locally produced food in the school restaurant. We explored how the Farm-to-School concept might move the Swedish public-school system, in a strategic way, towards sustainability, using the municipality of Karlskrona as an example.

We interviewed stakeholders in Karlskrona to understand the current system, and what the benefits of Farm-to-School and the obstacles to implementation might be. We also interviewed stakeholders in the US, to gain knowledge about their experience of Farm-to-School.

We found that in Karlskrona there are some initiatives but restrictive regulations hindered innovation and local procurement, insufficient leadership meant there was no unified vision to work towards, collaboration was absent and not encouraged, and there was a shortage of resources. We therefore do not advise implementing Farm-to-School at present.

Keywords:

School food, Farm-to-School, Food education, Sustainability, Strategic Sustainable Development, Leadership.

Statement of contribution

This thesis has been a true collaboration from the beginning to the end. We have all contributed equally to it in terms of commitment, thoughts, discussion and time. Although it has been a huge amount of work, we have all thoroughly enjoyed the process. We have laughed a lot and been supremely respectful of one another during the very few hard times.

We have contributed equal effort but our expertise and our talents are varied. Iuliia has brought her understanding of qualitative research, and especially coding to the group. She listened quietly to conversations and then with one question or statement changed the mental model of the team and the direction of travel for the whole thesis. If it was not for her, we would not have answered the research question. Tina's bilingual communications ability rescued us many times, and by leading our correspondence with interviewees she gained us access to people who were not keen initially. She kept us on track by producing plan after plan, backcasting from deadlines and writing agendas for all the key meetings. She managed to keep it light-hearted and even entertaining by gamifying some meetings and providing lots of humor. Florentina brought a skill for finding papers which exactly answered our questions during the literature search and then a natural talent for interviewing which enabled us to get much more out of people than we, or they, expected. The breadth of her knowledge about food production gave an extra dimension to the work and her ability to see how one section related to the whole, benefitted us enormously. Frank contributed his ability to see the bigger picture while making incisive connections across our data and between our theory and results, a gift which contributed to the academic strength of the final product. His approachability and endless curiosity also made him a skillful interviewer, quickly gaining the trust of interviewees no matter their cultural context.

At the start of the thesis process, we agreed that one of our goals was to leave Karlskrona with three new friends for life and we have achieved this goal with flying colors. It has been a privilege and a lot of fun to work together and we feel that the quality of this thesis reflects that.



The image contains four handwritten signatures in cursive script, arranged in two rows. The top row features two signatures: the first is a stylized 'AOR' and the second is 'F. Yolo'. The bottom row features two signatures: the first is 'Tina' and the second is 'F. Santa'.

Acknowledgements

First and foremost, we would like to give thanks to Professor Edith Callaghan, our primary advisor, from whom we have received huge wisdom, direction, encouragement and inspiration. Her boundless passion and encyclopedic knowledge have made the process much more enjoyable than any of us was expecting.

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Thanks also to all the people who helped us find interviewees but were not interviewed themselves, Kate Greenberg of the US Young Farmers association, the US National Farm-to-School Network, and Neoma Geddes. Thanks to Liesel Carlsson for getting us enthused and pointing us in the right direction. They do not get the limelight but we could not have done it without them.

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Executive summary

Introduction

Solving the sustainability challenge will become increasingly urgent in the next few decades. The challenge includes an exponentially growing and demographically changing population, changing dietary habits, resource scarcity, and global environmental issues such as climate change. Not only is the global food system one of the main contributors to the sustainability challenge, it is also impacted because climate disruption is driving changes in land use patterns. To feed the Earth's population of 7.6 billion people, the food system needs to be resilient and resource efficient, on a global as well as on a local level, in order to provide healthy and nutritious food for all.

This study takes the perspective that the school food system is an important part of the larger food system, and a potential leverage point for changes in the system to occur. It provides leverage since it is centralized, involves many different stakeholders, and presents an opportunity to influence the food habits of many children simultaneously, irrespective of their socioeconomic status. Establishing healthy eating habits in youth can also help prevent health problems, therefore resources spent in the school food system can provide significant gains to the wider system.

Currently, all school children in Sweden, up to 16 years old, are provided with free meals. Every year, 260 million meals are served in Swedish schools, funded by taxes. Local municipalities are in charge of food procurement and menus for schools and the choices procurement officers make, in terms of what food to serve children, stimulates the production of certain foodstuffs. This, in turn, can create positive or negative impacts on the environment. The physical distance food has to travel to a school from the production site also impacts the environment in terms of greenhouse gas emissions.

A school is not only a place where food is simply consumed. Outside of the restaurants, children can receive food education and gain knowledge about their impacts on the environment through food. Adding information about the food system and increasing food literacy is a leverage point in the sustainability challenge because it enables more informed decision making.

A national movement in the United States called Farm-to-School (FTS) is attempting to increase food literacy and promote local economies. As the name implies, it does so by creating a direct link between schools and local farmers. Schools have the choice to implement one or more of the three pillars of FTS; education, school gardens, and local procurement. In addition to support for food education, and provision of healthy food, the concept also actively promotes community and social cohesion by encouraging collaboration between social groups who would not ordinarily have any interaction, such as teachers and farmers.

Planning for sustainable development in a complex and constantly changing environment like the food system can quickly become overwhelming. The Framework for Strategic Sustainable Development offers a structured approach as a response to the urgency of the global sustainability challenge. It identifies eight Sustainability Principles that serve as boundary conditions within which, society must function in order to be sustainable.

Research question

This thesis explores the question “How might the Farm-to-School concept move the Karlskrona public school system, in a strategic way, towards sustainability?”

Methods

An exploratory qualitative research approach was used, with data primarily collected through interviews. 19 interviews were conducted with stakeholders from Sweden and the United States (US) who are engaged in the school system and/or FTS. We wanted to understand the current procurement, education and school food system in Sweden in order to gauge how changes might occur, and how much appetite there is for food education.

The aim of the interviews with representatives from the United States, was to grasp the benefits of Farm-to-School and learn about the prerequisites to launching the concept there and any unanticipated benefits. The analysis of interview transcripts started with a process of deductive coding, followed by a group discussion to identify patterns. The five themes which eventually emerged were Regulations, Leadership, Collaboration, and Resources.

Results

Regulations

Very little prominence is given to food education in the Swedish school curriculum. There are initiatives in several subjects but they are not consistent or aligned. Pedagogic meals are meant to provide an opportunity for conversations around varied topics between teachers and students, but in reality, teachers are too busy disciplining the children.

Procurement laws discourage the municipality from choosing regional suppliers over international competitors. In addition, the hurdles to entering the institutional market are too high for small scale farmers to surmount. Farmers are not able to produce the required quantities, are lacking the capacity to deliver the goods to 63 different public kitchens, and they are overwhelmed with the amount and complexity of paperwork demanded for public procurement.

The interviews with people in the US have shown that the legal context for implementing FTS in their respective states is not ideal either, but that the people engaged in the program have found ways to work with it or work around it.

Leadership

Leadership ran through all the other themes from the way people viewed regulations and the way they were innovative with their use of resources, to their ability to collaborate across traditional boundaries. Swedish teachers agree that introducing FTS to schools would be dependent on engaged and interested teachers. Strong leadership would be required to drive change and integrate food education in the curriculum. Chefs who are concerned about environmental implications of food consumption show initiative when buying more environmentally friendly food but this is a personal choice and not one which is driven by the school food system.

Interviews with people in the US demonstrated that enthusiastic teachers, trying to make the learning process more interactive and applied, despite the need to comply with regulations, are

the drivers of successful FTS schemes. In fact, interviewees expressed that engaged staff was the only thing required for a successful program - with the right leader, all other obstacles could be overcome.

Collaboration

In Karlskrona Municipality, there was evidence of good collaboration in some areas, but also poor or absent collaboration in others. Usually, the strongest examples of joint work were demonstrated in traditional forms of hierarchy. Horizontal collaboration such as between teachers in the same school was limited at best, and across sectors such as school chefs and farmers was rare. We did not identify any structures to create or foster these relationships.

The National Farmers Association connects interested schools with farmers who are willing to show children around on their farm. Teachers commented that there was a lack of advertisement and engagement from the farmers association side. The need for closer collaboration amongst chefs was also highlighted during the interviews. They interviewed felt that there was no mechanism to accumulate and broadcast success stories which could provide collective wisdom for the network of chefs.

In the US, interviewees reported a high level of interdisciplinary collaboration as a key factor for the success of FTS.

Resources

All Swedish teachers expressed that there are many obligations in the educational system defining what they must do, leaving them with limited time and energy to do additional work, such as food education. The majority of the interviewees felt that there was insufficient funding for schools and that the money should come from the state without the school having to fundraise or ask parents for contributions towards school trips.

US teachers working with FTS admit experiencing problems with money and finding stable sources of funding to sustain their programs. There is ongoing uncertainty because the majority of money comes from grants.

Discussion

Regulations

Increased local procurement is important for Strategic Sustainable Development, because it not only enables farmers to enter the institutional market, it also benefits the environment, creates jobs, and contributes to a strengthened local economy.

To make tendering more accessible for farmers, either the EU legislation would need to be amended, or the public procurement process would need to be altered to allow small-scale producers to deliver smaller quantities. Karlskrona Municipality is already working towards this goal and the National Food Strategy is supporting these efforts. A co-benefit might be that the contracts would appear less attractive to multinational agro-businesses.

There is value in the “start small” approach to implementation, as demonstrated in the US, and we see an opportunity for Karlskrona Municipality in adopting a similar strategy. By driving change little-by-little and testing new solutions, the system can gradually adapt and costs can

be kept low. For that to happen and for motivated people to stay engaged, the level of bureaucracy would need to significantly reduce.

Leadership

In the absence of a clear vision, actions that are currently being taken in Karlskrona, do not reach maximum possible effect. If Karlskrona Municipality were to create a vision for the symbiotic development of food education and local procurement, FTS could be used as a strategic tool to coordinate actions and reach that vision. To ensure that actions are also strategic moves towards sustainability, the definition of success should be bounded by the eight Sustainability Principles identified in the Framework for Strategic Sustainable Development.

FTS shows alignment with the continuous efforts of the Swedish government to promote sustainability and the recently released National Food Strategy. We therefore suggest that if FTS were to be implemented, it should be with government support, alongside the NFS, under a clear vision for the synergistic development of food education and local procurement.

As much as governmental leadership would be crucial to create the right conditions for FTS, the success of the scheme would also rely heavily on individual leadership by the people involved. With passionate leaders among the teachers, school chefs, and farmers it would be possible to get children excited about the program and to get the wider community involved.

A paradoxical aspect of leadership is that it is both a prerequisite for the implementation of FTS in Karlskrona and an outcome of its implementation.

Collaboration

Like leadership, enhancing collaboration would be a fundamental prerequisite for the implementation of FTS, but also an outcome of it. Improving collaboration would allow those stakeholders, who might previously have been overlooked, to influence decisions which they are impacted by.

A strong network that promotes information exchange in and around the Karlskrona public school system would be important for enhanced collaboration, and for strategically moving forward.

Collaboration between similar groups, such as teachers in different schools or procurement officers in different municipalities, would mean that each group could learn from the experiences of the others. Increased information exchange of success stories and failures could lead to a faster overall development towards a more sustainable food system. Multi-stakeholder meetings would establish collaboration across different disciplines and sectors, resulting in a better understanding of each party's interests, and ensuring that those voices which have previously not been heard have their opinions aired.

The distribution center and amended procurement process, currently proposed by Karlskrona Municipality, would add another dimension to the collaboration between the municipality and local food producers.

Resources

Currently, schools in Karlskrona are focused on technology and a large proportion of school funds are directed towards computer hardware. Some of this money could be spent on FTS without any reduction in the quality of the Information Technology training.

There might be the possibility to introduce novel fundraising models to the Swedish system and add variety to what is currently a very linear system. Policymakers could then decide to what extent they want to provide resources directly, and how much they want to leave schools to compete for resources on the open market.

In the short term, it might be difficult to argue the case for resources to be spent on FTS, but in the long term, FTS can save much more resources than it costs. Because these savings are likely to be elsewhere in the system, it is important to take a whole system view and to understand that FTS would be a significant strategic step towards sustainability, e.g. in terms of healthcare savings.

By farmers winning public food contracts, taxpayer's money could be kept in the local economy. If those local farmers inspired children to become farmers themselves, there would be an increase in local jobs and an increase in the resilience of the local food system. FTS might also stop some of the good teachers leaving the profession or accepting administrative posts.

While resources are important, they are not absolute prerequisites for the launch of FTS. Availability of resources is largely dependent on people's perceptions, personalities, and bottom-up leadership.

Conclusion

If FTS was implemented in Karlskrona, in a way which incorporated a vision bounded by the eight Sustainability Principles, it could be a significant strategic step towards sustainability. However, because of the burden of regulation, shortage of leadership, absence of collaboration, and insufficient resources, we conclude that, at present, Karlskrona would be advised to address these issues before introducing FTS.

Glossary

Commodity foods	Foods that the US government has the legal authority to purchase and distribute in order to support farm prices.
Global food system	All the food production, food processing, food distribution and marketing, food consumption, and food waste that happens on earth.
KRAV	Swedish organic food label.
Positive feedback loop	A chain of cause-and-effect relationships. An increase in one part of the loop will cause a further increase in the original part in the same direction; a decrease will cause a further decrease.
School garden	Area of the school grounds dedicated to growing vegetables, fruit and/or herbs.
School meal	Consists of a hot meal, a salad buffet, bread and a beverage. This is free for all students until the age of 16.
School restaurant	Where school children in Sweden eat their food. It is called a restaurant rather than a canteen or cafeteria in order to establish an expectation of behavior.
The US National School Lunch Program	A federally assisted meal program operating in public and non-profit private schools and residential child care institutions.

List of abbreviations

EU	European Union
FSSD	Framework for Strategic Sustainable Development
FTS	Farm-to-School
LRF	Swedish National Farmers Association (Lantbrukarnas Riksförbund)
NFS	National Food Strategy
RQ	Research Question
SP	Sustainability Principle
US	United States (of America)

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1. Introduction

This thesis focuses on the topic of moving the food system, and food education, towards sustainability. In our research we explored how Farm-to-School (FTS), an integrative food education concept from the United States (US), might provide a strategic step towards sustainability to Karlskrona Municipality in southern Sweden.

In this chapter we explain the sustainability challenge in regard to food and discuss the value of identifying leverage points to change the current food system in a strategic way, as well as describe the background of school food in Sweden and give an overview of FTS.

1.1. Food and the sustainability challenge

The food system is inclusive of all activities from production, processing, transport and consumption, to waste of foods. It also includes the governance and economics of food production, how resources are managed, and how these activities affect the natural environment ('What Is the Food System?' 2018). The current food system is a major driver of global ecosystem degradation (Gillespie and van den Bold 2017; Mason and Lang 2017). Approximately 38% of the ice-free land on Earth is used for agriculture activities, and 92% of clean water use is involved in the production of food (Mason and Lang 2017). The global food system is overwhelmingly dependent on fossil fuels for production and transportation of food, 20-30% of all anthropogenic greenhouse gas emissions are due to food production (Johansson 2005; Martin and Brandão 2017). The current production and consumption of food has an adverse impact on the global climate through its use of fossil fuels, on the local environment in farming areas through use of fertilisers, on biodiversity loss through monoculture and use of pesticides, and desertification through over tilling (Gomiero 2016). Food production and distribution is also often detrimental to those producing food because of relaxed minimum wage requirements and reduced occupational health and safety conditions driven by the seasonal demand for immigrant workers (Weiler, Otero, and Wittman 2016). In brief, global food production is vital to provide food for us all but paradoxically, it is also undermining the environment that our very survival is based upon.

Not only is the global food system one of the main contributors to unsustainable behavior, it is also impacted because climate disruption is driving changes in land use patterns. In the upcoming decades, future challenges include an exponentially growing and demographically changing population, changing dietary habits following an increase in average purchasing power, resource scarcity, and global environmental change such as climate change (Godfray and Garnett 2014). Moreover, we have a window of only a few decades to change either our consumption patterns, or our population growth (Ripple et al. 2017; Johansson 2005).

1.2. A sustainable food system

The United Nations Sustainable Development Goals have made a call for global action to “shift the world onto a sustainable and resilient path” (United Nations 2015b). Over half of the

seventeen goals can be linked to global food security or nutrition, including the goals that cover poverty, gender equality, water and sanitation, responsible production and consumption, and climate change.

To feed the Earth's population of 7.6 billion people, the global as well as local food system needs to be resilient and resource efficient, as well as providing healthy and nutritious food for all (United Nations 2017). Research confirms that sustainability transitions have been highlighted as most needed in several global domains including agri-food, transport and energy (Geels 2011), so building a sustainable food system is part of the solution to the sustainability challenge.

The UN defines a sustainable food system as, “a food system that delivers food and nutrition security for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised” (United Nations 2015a). This high-level definition of sustainable food system highlights the many stakeholders involved in the system. Some researchers state that there are three dimensions to creating a sustainable food system, sustainable production, sustainable consumption and equality of food supply for everyone (Garnett 2013). Sustainable production implies using less or reusing resources to minimize negative environmental impacts. Sustainable consumption refers to rethinking individual diets and demands, consequently switching to environmentally conscious consumption, and considering the environmental and social impacts before making a decision (Muldoon 2006). Equality of food supply for everyone addresses the problem of food excess for some, and its insufficiency for the others (Garnett 2013).

These high-level definitions of success are useful to help us understand the basics of the problem, but when considering all of humanity's activities with the aim of moving towards a sustainable society, it quickly becomes complex (Snowden and Boone 2007) and overwhelming. A complex system is one that has many components which interact with one another in ways which are erratic and, as described above, sometimes counterproductive (Robèrt et al. 2015, 5).

1.3. Strategic Sustainable Development

The dynamic complexity of the food system requires a strategic approach to sustainable planning. In this paper, strategic planning is defined as an approach that;

- takes a systems perspective.
- considers both short- and long-term effects.
- is flexible and adaptive to a steadily changing environment.
- strives for a shared mental model of all stakeholders involved.

This definition is derived from the Framework for Strategic Sustainable Development (FSSD), a conceptual framework that helps users to understand and solve complex sustainability challenges by providing concepts and tools which allow for a strategic planning approach.

One of the concepts used within the FSSD as a planning approach when creating a strategy is backcasting. As opposed to forecasting, backcasting applies a systematic approach which has the potential to create more accurate results. When using backcasting, a desired vision is first formulated, followed by the development of consecutive steps to reach that vision. A clear

vision of success can build creative tension, the “pull” between the current reality and the envisioned future, providing the drive to change the system (Robèrt et al. 2015, 21, 127).

Another core part of the FSSD are the eight sustainability principles (8 SPs), listed in figure 1.3, which in combination form a principled definition of sustainability and establish the boundary conditions of a sustainable society (Robèrt et al. 2015, 40). These principles provide the space to develop a vision within the boundaries of a sustainable society, and therefore enable backcasting. The 8 SPs are based on scientific knowledge of the socio-ecological system to be sustained, and were developed through an iterative consensus process (Robèrt et al. 2015, 40). The definition provided by the 8 SPs finds the balance between being “generally applicable and still sufficiently concrete” (Robèrt et al. 2015, 38). For this reason, the 8 SPs were chosen as the definition of sustainability used in this paper.

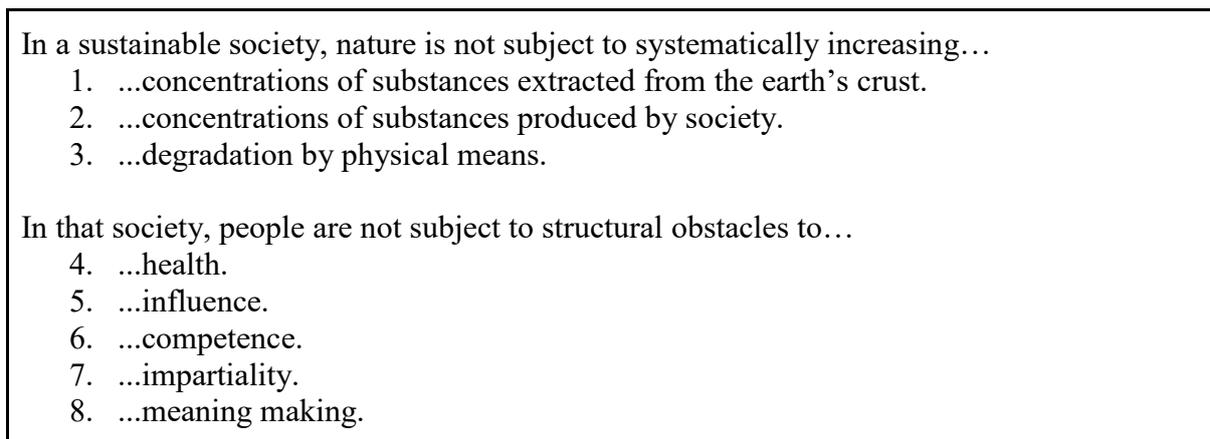


Figure 1.3. The eight Sustainability Principles (Robèrt et al. 2015, 40).

1.3.1. Leverage Points

The food system as described above is a complex system. Complex systems are difficult to map, model, or predict since they are nonlinear, and fast changing, which in turn makes it difficult to know where to exert effort in order to get a desired outcome (Meadows 1999). That said, it is possible to find points of leverage, places where little effort is needed to push the system into a new equilibrium. According to Meadows, all systems have leverage points that, when worked with properly, can spark change in the system (Meadows 1999). One key to solving a problem, like the sustainability of the food system, is to force changes by gradually addressing these leverage points.

Because the food system is such an important part of the sustainability challenge, this paper suggests that identifying and utilising leverage points within that system are strategic steps towards sustainability. That is to say, at these points a small amount of energy can create rapid, far-reaching change which moves the whole system towards sustainability as defined by the 8 SPs.

1.4. Food literacy

In this thesis food literacy represents a powerful leverage point because being food literate empowers people to help make more informed decisions about the way they spend their money, and influence their health. This term is frequently used by researchers in regard to a more sustainable food system and individual food choices. It relates to individual people's food skills and knowledge, but also to communities' ability to attain a healthy diet (Cullen et al. 2015; Nanayakkara, Margerison, and Worsley 2017; Truman, Lane, and Elliott 2017).

Food literacy involves knowledge about;

- all parts of the food system from farm to plate to waste, including transport.
- how food affects health.
- the food system in its broader meaning - how food affects economies, societies, culture, politics and the environment.
- skills and behaviors needed to choose, prepare, cook and eat food.

(Nanayakkara, Margerison, and Worsley 2017)

Research demonstrates that awareness about where food comes from, and what health effects it brings to our bodies, can influence individual food consumption because people will be more aware of the providence of what they choose to put in their mouths. This is an example of a leverage point called a "missing information flow" leverage point (Meadows 1999). Addressing this missing information flow can also instigate collective behavioral change by increasing public engagement with issues of social justice and equity in the food system (Powell and Wittman 2017). Therefore, the higher the level of food literacy there is in society, the more likely it is to create a collective shift towards a sustainable food system (Powell and Wittman 2017).

1.4.1. Food education

As highlighted above, the importance of understanding where our food comes from, the complexity of the system and the link to social, ecological and economic impact are all parts of solving the sustainability challenge. School is a place where children can gain knowledge about their impacts on the environment through food and understand better the relationship between humans and nature (Rojas et al. 2011). By incorporating food education into the taught curriculum or school food programs in any of these ways, food literacy is enhanced and children are encouraged to reflect on the system they are supporting (Wilkins 2005). In classes of younger children, habits are still malleable (Oostindjer et al. 2017; Lakshman et al. 2010), so interventions aimed at creating healthy food habits are likely to have effects which persist far into the future. As an additional benefit to this leverage point, the food behaviors of the children's parents are also altered by food education in schools (Lakshman et al. 2010; Katz et al. 2011).

1.5. School food programs

With an annual investment of up to 75 billion US dollars globally, an estimated 368 million children are provided with at least one school meal every day (World Food Programme 2013).

School food programs fulfill a variety of objectives related to social protection, education, and improving nutrition (World Food Programme 2013). The school food system has significant potential to create change in the larger food system, because it is centralized, involves many different stakeholders, and presents an opportunity to influence the food habits of many children simultaneously irrespective of their socioeconomic status (Rojas et al. 2011). Furthermore, establishing healthy eating habits in youth can help prevent health problems both now, (Nanayakkara, Margerison, and Worsley 2017), and later in life (Franks et al. 2007).

1.6. Swedish school food

School food was first introduced in Sweden at the beginning of the 20th century. At that time, only children from low-income families were entitled to free school meals. In the 1930s the Swedish school food system started to change towards greater inclusion under the guidance of the Swedish Social Democratic Party, the dominant political party in Sweden between 1932 and 1976 (Olsson 1991). Society's perception of school as a facility for education shifted towards seeing the school as an arena for leveraging social reforms (Gullberg 2006). In 1946, the Swedish government started to actively subsidize school meals and in 1967, municipalities were given responsibility for providing school meals to every child (Osowski 2012). The Education Act of 1997 obligated municipalities to provide free school meals to students on an everyday basis (Osowski 2012; Patterson and Elinder 2015). A new Swedish Education Act in 2011 proclaimed that school meals should not only be free of charge for students, but also nutritious (Livsmedelsverket 2013), although there was no guidance as to how this should be realized or how "nutritious" should be defined. Thus, it is the job of the local procurement officers to calculate the nutrition value of the food and decide upon the required quantities.

Currently, all school children in Sweden up to 16 years old are provided with free meals (Osowski et al. 2015; Livsmedelsverket 2015). Every year 260 million meals, funded by national taxes, are served in Swedish schools (Regeringskansliet 2014; Livsmedelsverket 2015).

Although it is not explicitly mentioned, the recently published National Food Strategy (NFS), which sets out Sweden's aims regarding food until 2030, will generate additional changes to the school food system (Regeringen och Regeringskansliet 2017). Not only does the strategy focus on trade by, increasing the production of Swedish food, increasing employment in the agricultural sector, and strengthening local supply chains, there is also a requirement for the public sector, including schools, to serve 60% organic food by 2030 (Regeringen och Regeringskansliet 2017). Last, but not least, the NFS puts emphasis on informing consumers and creating awareness of sustainable food choices.

1.6.1. Current legislation and guidelines

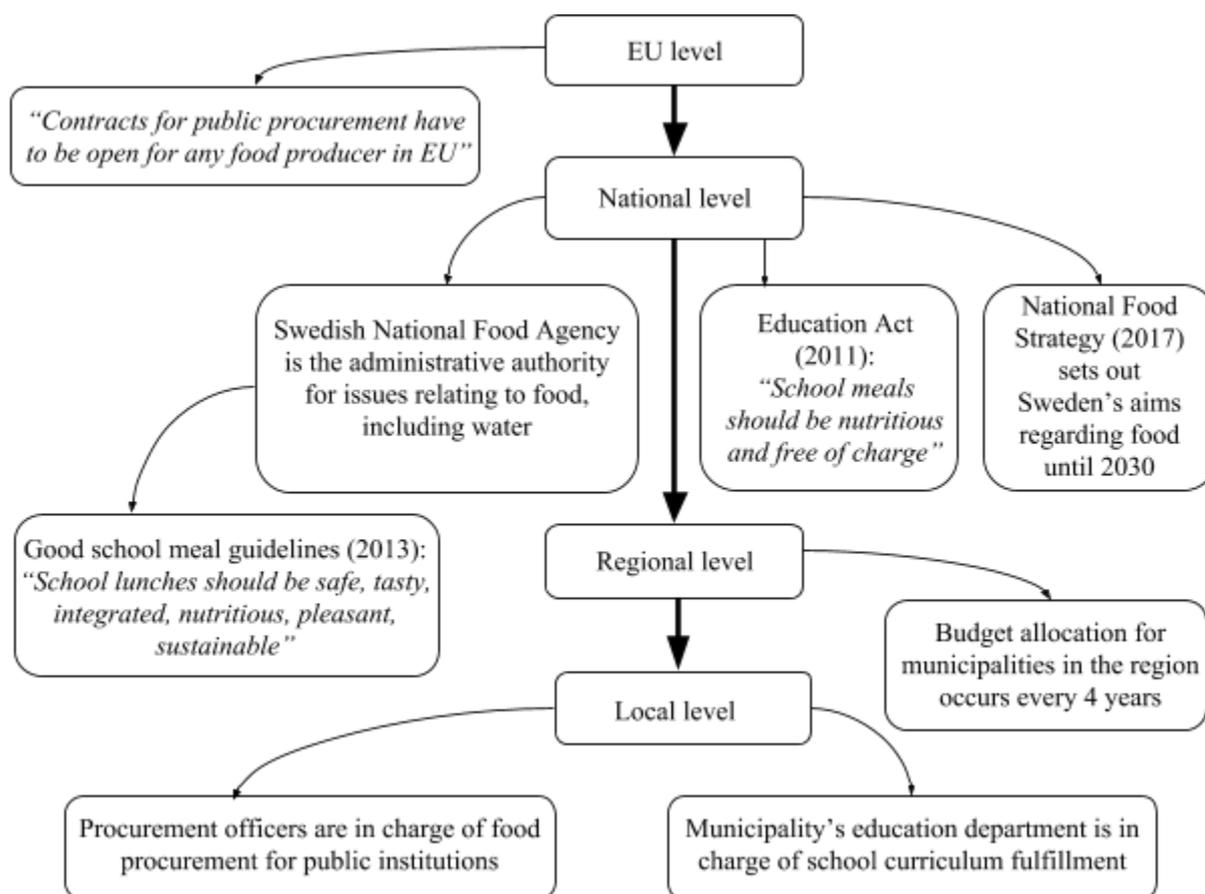


Figure 1.6.2. The Swedish school food regulatory landscape.

Swedish national legislation regarding the school food system is developed in accordance with European Union (EU) laws. The Swedish National Food Agency is the main body setting requirements for food hygiene in public and private institutions. Regional politicians set goals and allocate budgets for the local governments every four years. Local municipalities are in charge of food procurement and menus for schools. In order to guide the municipalities in terms of food choices, the National Food Agency published voluntary guidelines in 2007, which were updated in 2013, titled, “Good school meals for primary schools, secondary schools and youth recreation centers” (Patterson and Elinder 2015). These guidelines are used by municipalities to ensure that food is safe, tasty, and served in a pleasant environment. Another focus point of the guidelines is that the food served in schools should be environmentally and socially sustainable. According to these guidelines, the school meal should include a hot meal, a salad, bread with a spread, and a drink of either water or milk. A vegetarian option should also be available. The guidelines describe several “eco-smart” food options to minimize negative environmental effects and emphasize the ways to reduce food waste (Livsmedelsverket 2013).

1.6.2. Nutrition

Childhood nutrition is important because there are a number of studies showing the correlation between better nutrition and higher academic performance of school children (Ecoliteracy

2010; Wilder Research 2014). The primary benefits are better health, improved concentration skills, and improved behavior (Wilder Research 2014). What is more, poor nutrition is often caused by the parents' financial inability to provide high quality meals (Moore, Murphy, and Moore 2011). This means that schools which provide nutritious food, promote equal opportunities for every child (Carroll 2014).

The health effects of food extend beyond nutrition and academic performance. The current reality is that obesity, diabetes, and other nutrition-related diseases are increasing amongst children (World Health Organization 2017). Consequently, school based interventions are gaining popularity as means to influence food habits (Ickes et al. 2014).

1.6.3. Local procurement of school food

As well as improving nutrition, there are also benefits, such as enhancing the local economy and community, from introducing more fresh and local foods into school food programs (Janssen 2016). Local procurement can be another leverage point in the food system. If more food is bought in the local market by public institutions, such as schools, local producers can respond by increasing production, which in turn will enable more locally sourced produce. This process is an example of leveraging the system through creation of a positive feedback loop (Meadows 1999). Thus, encouraging local procurement could be one of the factors in the food system to facilitate the shift from the conventional agriculture to sustainable agriculture.

A conscious choice to pursue local procurement helps to support small scale agricultural development, and other social and environmental goals by utilizing the purchasing power of public institutions (Powell and Wittman 2017). Sourcing food locally would help to reduce the physical distance food has to travel to the school from the production site. This distance, also referred to as food miles, impacts the environment in terms of greenhouse gas emissions from air, sea, and road transport (Mason and Lang 2017).

1.7. Farm-to-School

The FTS concept was developed in California in the late 1990s in order to increase food literacy and promote local economies. It consists of three pillars as shown in Figure 1.7 with schools allowed to choose one or more to implement ('What Is Farm to School?' 2014):

- Food education. Educational activities in FTS programs aim to equip students with relevant knowledge about agriculture, food, health and nutrition, through classroom teaching, cooking demonstrations and farm visits (Schneider et al. 2012).
- School gardens. Use of school gardens supports students in engaging in hands-on learning through gardening.
- Local procurement. By bringing locally produced food into school restaurants, FTS provides students with fresh, nutritious meals, whilst opening doors to an institutional market for farmers. By creating a direct link between schools and local farmers the local economy can be strengthened.

CORE ELEMENTS OF **FARM to SCHOOL**



Figure 1.7. The three pillars of Farm-to-School ('What Is Farm-to-School?' 2014).

In addition to the three pillars, which each school is free to interpret in a way which best suits their circumstances, FTS provides a vibrant online library of news, inspirational ideas and best practice. As well as the online community, local community and social cohesion are promoted by providing an opportunity for community members interested in gardening to get involved with programs. Very often parents or grandparents take part as FTS helpers, which brings invaluable multi-generational and cultural enhancements, not only to the gardening, but also to children's overall learning experiences (Brill, Lichtman, and Wu-Jung 2014). This extra community dimension is an important part of a more holistic and sustainable approach to food education, as it involves a diversity of participating stakeholders and allows collective problem-solving. It also enhances community resilience by creating social bonds between groups that might otherwise not interact with one another.

FTS now has partner schools in 40 states across the US, and around 42,600 schools, impacting in excess of 23 million school children ('About National Farm to School Network' 2018). This expansion generated interest among researchers and there is a body of research looking at the impact of FTS on influencing eating behaviors in school children (Izumi, Alaimo, and Hamm 2010; Moss et al. 2013; Joshi, Azuma, and Feenstra 2008). This research provides evidence for the beneficial effects of FTS.

Children participating in FTS programs that incorporated educational activities in and out of the classroom reported increased student knowledge of sustainable agriculture, fruit and vegetable recommendations, identifying healthier food options, and changes in attitudes about trying new, less-liked, healthy foods (Schneider et al. 2012). Parents in focus groups reported changes in children's asking behaviors, and willingness to try new fruits and vegetables at home, and increased knowledge about gardening and the origins of food. Parents were also having more conversations around healthy food at home with their children. Children in FTS

programs were significantly more likely to taste an offered vegetable than children in control schools (Schneider et al. 2012).

Although FTS sees the three pillars as separate entities, we see “school gardens” as being a part of “food education”, and they will be treated as such for the purpose of this thesis unless stated otherwise.

1.8. Purpose

The purpose of this thesis was to explore how implementation of FTS might move a municipality in southern Sweden towards sustainability and to highlight any obvious benefits and obstacles to doing so. By considering this proposal through the lens of a principled definition of sustainability and identifying leverage points, we aimed to illuminate opportunities for a strategic move towards sustainability.

1.9. Research question

How might the Farm-to-School concept move the Karlskrona public school system, in a strategic way, towards sustainability?

1.10. Scope

The primary audience of our thesis was policymakers in public procurement and education, in Karlskrona. We deliberately wrote the thesis in such a way that it might also be easily digestible to both school teachers, procurement officers, and school chefs in Karlskrona, and might provide insights to policymakers in similar municipalities across Sweden.

Part of our research focused on the US experience of FTS as this is where the concept originated and where it is most widespread. However, the backbone of our research was focused on the current reality for Karlskrona Municipality’s procurement, food education, and school food system.

The scope of this study was limited to the assessment of the current food education in a selection of Karlskrona’s schools. We focused on public schools because there far more public than private schools and we did not have any contacts within the only private school in Karlskrona.

While food education can include various elements, this study focused on classes included in the school day, and school gardens. The scope also included the Swedish school food system and, in particular, how ingredients were purchased for school food in Karlskrona.

1.10.1. Scope limitations

For practical reasons, the scope of this thesis excluded students' behavior. Due to time and ethical constraints, we did not interact with school children regarding their food preferences and food consumption patterns in the school restaurants. Nonetheless, we acknowledged that these parameters would be important factors for the full implementation of FTS in Karlskrona. We also excluded other food options presented in schools (e.g. vending machines) from our scope. The additional food options might not have been available for all school children, whereas the school food was provided to each student, free of charge, on a daily basis.

We excluded calculations of the nutritional value of food that was served in schools. Since the Swedish government did not state precisely what the necessary nutritious intake should be, we chose not to impose our views. In order to maintain clarity, this study excluded health aspects of eating organic compared with conventional foods.

We also excluded the waste management of discarded foods in schools because that was not part of the FTS concept. However, we recognized that this was an important topic in terms of food education for children and under no circumstances wanted to downplay its significance.

Since FTS was not going to be implemented in any of the Swedish schools during the three-month period during which this thesis was written, it was out of scope to measure what actual impact FTS would have. This paper only evaluated what the potential outcomes of FTS might be.

2. Methods

In this chapter, we present the data collection and analysis methods used, along with assumptions and limitations. Our work was exploratory qualitative research. We used the city of Karlskrona as a case study for the possible implementation of FTS in Sweden. Data collection was primarily interviews but also a small amount of background information was gleaned from other sources such as personal experiences, emails, and anecdotes from people we spoke to but did not formally interview. This supplementary information informed the current reality in Sweden only.

2.1. Interviews

We interviewed stakeholders from the US and Sweden who are engaged in the school system and/or FTS. In total, we conducted 19 interviews between February 19 and April 23, 2018.

Interviews with people in the US and Sweden were conducted over the same time period. Because we were asking the two groups slightly different questions, we did not perceive any benefit in conducting the interviews in any particular order but took them as they became available. The results from each interview were independent of all the others so, if our understanding of FTS or the Swedish system changed as our interviews progressed, it did not influence the overall result.

A semi-structured interview approach was adopted in order to gather opinions about similar aspects of FTS implementation whilst allowing the interviewer some freedom to pursue areas of interest in greater depth as they occurred.

All interviews were audio recorded and transcribed with the consent of the interviewee. Notes were taken at the time by the observers and the interviewers as an aide memoire and to capture any immediate impressions. The transcripts were then sent by email to the interviewees for them to check for accuracy and to add any details they felt were necessary. The verified transcripts were imported into proprietary qualitative research software for coding and analysis.

A summary of interviewee numbers can be found in Table 2.2 below.

Table 2.2. Overview of interviewees.

Country	Stakeholder group	Number of interviewees
Sweden	Policymakers	3
	Procurement officers	3
	Teachers	4
	Chefs	3
	Farmer	1
	LRF representative	1
US	Teachers	2
	Farmer	1
	FTS non-profit representative	1
Total		19

2.1.1. Interviews in Sweden

Interviews with stakeholders from Sweden were aimed at understanding the current procurement, education, and school food system. We wanted to understand how changes might occur, and gauge how much appetite there is for food education. See Appendix A for the Swedish interview protocol.

Interviewees from Sweden were identified through local contacts from Blekinge Tekniska Högskola (Karlskrona University) and Karlskrona Municipality. We conducted interviews with three policymakers, three procurement officers, four teachers, three chefs from local schools, one local farmer and one representative of the Swedish National Farmers Association (LRF).

Interviews were held in person with one member of our team interviewing and another observing. Interview locations were opportunistic and consequently varied considerably from, rooms in the library at the university, interviewees' workplaces, interviewees' homes, and our homes. The allocation of interviewer and observer roles was random. Interviews lasted between one and one and a half hours. The majority of interviews with Swedes were conducted in

English. One interview was conducted in Swedish and translated into English by one of the authors.

2.1.2. Interviews with US representatives

The aim of the interviews with US representatives was to understand the benefits of FTS and learn about the prerequisites and challenges to launching FTS at schools. See Appendix B for the US interview protocol.

Interviewees from the US were identified either through our personal networks, or through the National Farm-to-School Network, who were kind enough to include a call for volunteers in their regular partner newsletter.

All US interviews were conducted via Skype. The interviews were held in English and lasted between 20 and 30 minutes. These video-call interviews with two teachers, one farmer, and one worker from a non-profit organization which delivers FTS to local schools, complemented our literature review by providing first-hand accounts of FTS.

2.2. Coding

We completed a two-stage coding process. First, in order to become familiar with the data, each of us initially read every transcript in its entirety. In order to help us look at the data from different viewpoints, we used the deductive codes listed in Appendix C. These codes were created as a first attempt to identify topics which would help answer the Research Question (RQ). The output of this round of coding was not directly used in the rest of the thesis. That said, it was an important step because it ensured we had critically evaluated all the data and, in doing so, themes had started to emerge.

Once the deductive coding was completed, we each spent some time separately re-reading the transcripts, clustering the excerpts in different ways and considering observed patterns. We then reconvened as a group and discussed these emergent themes to identify the areas of agreement, and to discuss the areas where we saw different patterns. This process continued until we were all satisfied that we had a structure which allowed us to represent all the important findings in a way which seemed logical. By working separately and then coming together to form a consensus on these themes, we felt that there was a degree of social robustness to our findings which would not have been present if we had been doing the work alone.

Four themes were identified when we read the transcripts:

- Regulations
- Leadership
- Collaboration
- Resources

These themes provided the structure for the rest of the thesis.

2.3. Methodological assumptions and limitations

We made three basic assumptions in this work. The first was that implementing FTS would be a strategic step towards sustainability in Karlskrona's public school system if it were implemented in a way which was sympathetic to both the 8 SPs and the current school system. This assumption was necessary as a starting point in order to give clarity to our narrative.

Secondly, we assumed that there is a leader in everyone, contrary to the belief that leadership has to be taught to people. Therefore, leadership potential was present, but possibly not activated, at every level of the Karlskrona public school system. This assumption was important because if it was not true, then leadership would have to be handed to them in a formal way and that would dramatically alter the prospect of implementation of FTS in Karlskrona into being a large-scale project taking a long time and a lot of money. We preferred the idea that leadership does not need to be taught, it needs to be unleashed.

Our last assumption, supported by evidence from the US, was that given sufficient enthusiastic leadership and time, systematic hurdles such as unhelpful legislation or societal expectations could be overcome. This assumption, that nothing is impossible, is a prerequisite for any change.

The limitations of our work can be subdivided into those caused by the circumstances of the work and those caused by the methods used.

The limitations caused by the circumstances were those due to the fact that we were all completing our first piece of qualitative research, so we were clear that our choice of processes and our abilities might not be the same as someone who was more experienced.

Limitations in the methods used largely reflected the time constraint of the thesis. Our results may not have been truly representative of the population at large because of underpowering and selection bias. By underpowering, we mean that we were only able to interview a small number of representatives of each of the groups in the US and Sweden. This meant that we were unable to reach "data saturation" in our groups of interviewees and there might have been other, important, information which we did not access because we could not speak to enough people. We could have chosen to interview a larger number of people from a single group, such as Swedish teachers, and to reach saturation within that group, but we felt that such an approach would have led to a one-dimensional analysis and so we decided to interview a greater breadth of stakeholders at the expense of depth of understanding.

There was a risk of selection bias because the people we interviewed were accessible to us, rather than because they were randomly selected to represent the group they belonged to. Almost all interviewees were either known personally to us or were connected to us by one degree of separation. Only one US teacher was connected to us via an email newsletter sent to all FTS partners. The type of people who knew university students and who agreed to be interviewed may have had a different understanding of the system they worked in, compared to those who did not know university students. Likewise, people who did not agree to be interviewed may have held opinions which were different to those who did agree to speak to us.

In terms of our analysis, the definition of success as described by the 8 SPs was versatile but there were limitations to its utility. It aimed to provide boundaries within which human behavior was sustainable but it was not without its weaknesses:

- It was not completely comprehensive, there was no mention of animal rights for instance.
- It provided boundary conditions but there was still significant scope for individual interpretation about what constituted a contribution towards or a violation of each SP.
- Quantitative analysis of SPs four through eight was not possible. This left those SPs even more open to individual interpretation.

Given these limitations it was possible that, had we chosen to define sustainability in a different way, we might have arrived at different results.

Finally, the way in which we structured our coding could have influenced our results. We distributed the deductive codes between us and then we all read every transcript looking “through the lens” of the codes allocated to us. The obvious alternative would have been to distribute the transcripts so that we each read a small number of transcripts “through the lens” of every code. We could see that coding in that way might have given each of us a deeper understanding of the transcripts which we read. However, we felt that by each reading all of the transcripts we would, overall, have a better grasp of the data, thus enabling us to achieve consensus on the themes and contributing social robustness to the thesis.

3. Results

In this chapter, we present the findings of our interviews, organized by the four themes which emerged when we were coding: Regulations, Leadership, Collaboration, and Resources. Within each theme, we start with the results from our analysis of the interviews in Karlskrona Municipality, followed by what we learned from people in the US.

3.1. Regulations

The first theme, Regulations, explains the Swedish context which must be understood in order to answer the RQ and gives insight into the regulations that US interviewees are dealing with in their FTS practices.

3.1.1. Regulations in Karlskrona Municipality

The regulations relate to the areas of food education, including pedagogic meals, and public procurement which will be presented below.

Food education

Generally speaking, very little prominence is given to food education, and we found no unified approach to it in our interviews. According to the sections of the curriculum on Physical Education and Home Economics, teachers need to cover food education, but the content, the mode, and the extent of teaching is at the teacher's discretion. The food education methodologies that are currently employed range from formal, in class, education in Biology, Chemistry, Home Economics, and Physical Education, to farm visits, weighing food waste in the school restaurant, or cooking outside together as a class. Some schools invite farmers or the food department at the municipality to talk about food, while others do not. There is no, or little knowledge exchange or reporting between the school and the food department of Karlskrona Municipality regarding the course content. One school reported that they have a “health week” every year, a themed week around the topics of healthy living, food, and sustainability, cutting across multiple subjects.

A concern raised regarding regulations is that teachers are responsible for the students while they are in school. A Swedish teacher mentioned an accident that happened a few years back and said that teachers might be reluctant to go outside the box because they might get in trouble.

“We actually had a big accident in our school ten years ago and the first head they go for is the teacher's. It's the teacher who's wrong. I worked with the teacher who had the accident and he's really scared of doing stuff outside the box.”

One element that we identified as an opportunity for food education, mandated in the municipal meal policy, is pedagogic meals. During these meals, teachers eat their food together with the children at the same table. Pedagogic meals should “at an early stage provide adult role models for children and students in meal situations. They should be seen as a work tool in the pedagogic mission” (*Måltidspolicy. School Meal Regulations 2013*). Many of our interviewees spoke

about pedagogic meals but varied descriptions of their reality were expressed. One policymaker described them as a quiet, tranquil time when staff and children sit down and eat together while have enriching dialogues about varied topics.

“ . . . it is a moment when you sit together and you can talk about the food, you can talk about anything actually . . . it's a very important moment during the day . . . that's when the questions often come about food, and how important it is.”

Teachers had a different view of what happens during the pedagogic meals.

“It's to keep them [children] on their chairs, that they don't throw the food, that they behave kind of properly.”

“It's more like babysitting in the cafeteria. It's more, “take off that jacket”, “don't fight with your friend.” It's more like this. It's not that much talk about food . . . they treat it like a playground in some ways.”

Public procurement

Karlskrona Municipality operates under the direction of the Blekinge regional policymakers, who set the targets and budget for schools and school food programs every four years, reviewing them annually. Founded by regional legislation, contracts with suppliers are signed for four years. The main guideline for Karlskrona Municipality to address public food and food education is the meal policy, issued by the district council. It is written in collaboration between the educational department, schools, pre-schools and other communal stakeholders involved in public food. It is applied both in the school system and in the food department that cooks the food. All schools have a meal council two or three times a year where teachers, students, and kitchen staff meet to discuss the food served in school.

Karlskrona Municipality procures foodstuffs for 63 public kitchens of which 56 are school kitchens. There are 11 000 meals served per day at the public institutions in general. The cost of ingredients for a school meal is twelve Swedish Kronor on average (approximately 1.4 US Dollars). The school menus are created by chefs at each individual school which makes them significant actors in the procurement context because they are the only staff empowered to buy food. The ingredients are chosen from a list of foods approved by the regional procurement officers. There is no ready-made food on the approved list, only ingredients. However, 2% of food used in the kitchens can come from sources that are not on the list. This allows the chefs to try out new things and they can alter the procurement list, little by little, in cooperation with the procurement officers.

Chefs need to follow the law and need to abide by the local budget, regulations, and guidelines. Some of the guidelines are to serve fish once a week, have vegetarian alternatives every day, and be level one KRAV-certified as a minimum, which means that they have achieved a basic level of sustainable behavior and use of organic food (KRAV 2018). However, within these boundaries they are free to create their own menus. This freedom is not the norm in other municipalities according to the interviewees.

Although chefs and procurement officers all expressed a preference for using local ingredients, they felt they were limited in doing this by regulations. Public food purchases have to operate within EU law and this states that contracts for public purchases have to be open for any food producer in the EU to place a tender. This is supposed to ensure equality of access to markets.

Consequently, Swedish food producers are faced with competitors, mainly large agro-industry organizations, who, due to lower labor-costs, less strict regulations, better soil or a longer growing season, are able to offer cheaper prices for their products. However, there is a way to bypass this law in order to source food more locally. For example, in the case of meat, procurement officers ask for products that meet the strict Swedish requirements in terms of animal welfare. That way it is possible to narrow down the number of suppliers to mostly Swedish farmers, without actually specifying “Swedish” in the contract.

The situation is further confused by the absence of a definition for “local.” EU regulations, the NFS, procurement officers, and chefs all spoke about “local procurement” and “local farmers,” but none of them define “local” except for one policymaker who regards “local” as being within 100 kilometers.

While feeling constrained by some regulations, one person indicated that they would welcome increased legislation in other areas. They felt that currently the movement towards sustainability was driven mostly by individuals, chefs in particular, and not by the system.

“I can say that 100% of our schools have [vegetarian meal] one day a week ... I would like it to be decisions from the politicians. But we're not there.”

As discussed, Karlskrona Municipality has a four-year standard contract with food producers, but most local farmers are not willing to commit to this duration because of the constraint that long contracts put on them. They feel that they are vulnerable in such contracts for two reasons. Firstly, they might have a bad growing season and fail to fulfill the terms of the contract which would mean they incurred penalties. Secondly, a four-year contract for a particular product ties them to that product and a particular price, so they lose the flexibility to grow different produce each season depending on the market demand and thus might miss the chance to maximize their profit.

One policymaker told us that even if they were interested in entering the institutional market, many local farmers are not able to tender because Karlskrona Municipality is too big for them to be able to produce for the whole municipality. There are 56 school kitchens in the municipality and all of those kitchens are supposed to use the same products.

“One problem is, they don't have all the things we need. Second problem is, what they have isn't sufficient enough. For example, they don't have all the potatoes we need.”

The farmers feel that four years is too short a contract to enable them to commit to increasing their production capacities, and even if they did commit to increasing capacity, there is no guarantee of a repeat contract after one ends. The small-scale farmers think this exposes them to the risk that they might grow food for which there is no market. As a consequence, the way the procurement contracts work today mainly benefits large food producers. Bigger suppliers are able to deliver many different kinds of products, and have the ability to suffer losses that would bankrupt a small producer.

In exceptional circumstances however, it is possible for the small-scale farmers to call the municipality directly to sell their produce. For instance, if a farmer has excessive seasonal food that they need to sell urgently, they can call the municipality and arrange to sell their surplus directly. One procurement officer reported that this happens infrequently because most farmers

do not know about it and the farmers avoid this route because the prices are lower than they can usually get on the open market.

In regard to the NFS, one policymaker spoke about how difficult it is for farmers to keep up with changing regulations. They mentioned that local farmers may find it difficult to change their production routines to comply with increasingly stringent legislation in terms of organic food.

“ . . . we can also see trends that when you raise that level of organic food, they [the government] raise it too quickly and the farmers are not that quick to change how they produce things, so when they do that, they are not able to place a tender. And then they [the municipality] have to buy food from other countries instead because we can't match that. So, we want them [the government] to raise that, but we don't want them to go too fast to say “we need 90 % organic next year” because you can't change it that fast.”

Another challenge mentioned by both farmers and procurement officers was the amount and the complexity of paperwork for farmers to fill out in order to take part in tenders. The interviewed LRF representative said that if farmers do not understand the procurement process, it is difficult to tender. One suggestion to overcome this barrier that was mentioned by procurement officers, farm representatives, and chefs, was for the procurement officers to break down the procurement tenders so that it is easier to understand the process.

It became clear that the municipality is already having discussions about how to best address the logistical problems that small farmers face as a response to the NFS, which aims to increase food trade within Sweden. The final solution is not decided yet but it might include joint or cooperative contracts and/or a transportation hub that will serve as a storage center for all the goods requested by the kitchens. That way, instead of having one large scale farmer deliver their produce to all the kitchens, the same volume can be split between several small-scale farmers who only need to deliver to one place. From there, the municipality will take care of the delivery to the kitchens. With this new investment, a concern voiced by Swedish farmers and procurement officers alike, regarding the difficulty of getting produce from small farms to multiple customers in a short period of time, would be solved.

3.1.2. Regulations in the US

The interviews with people in the US have shown that the legal context for implementing FTS in their respective states is not ideal, but that the people engaged in the program have found ways to work with it or work around it.

Significant effort was required to ensure that FTS could happen in accordance with State and Federal laws. For example, a US teacher had to talk directly to regional politicians in order to implement FTS in the way which they wanted. They brought the students to the City Council to get a variance of the regulations regarding having chickens at the school. They also mention that this action served as a stepping stone for the other schools to start keeping chickens, as it set a precedent.

“For some reason our town is not excited to have chickens within the city limits, but they did grant us the variance and it was for one year . . . to make sure that there weren't

any odor problems . . . it would be nice if our town would maybe even just consider doing away with that . . . so that they could see that other people have good intentions with having chickens in town.”

Procurement officers have to work within a limited budget, of which a portion is provided by the government for subsidized commodity foods. They are therefore restricted to purchasing low-cost food from large scale farms, instead of the more expensive local food from small producers. One way to work within these boundaries is exemplified by our interviewee from a non-profit organization. Their approach is to start small, just focusing on one food product at a time, as a way to get one local item into the menu each month, rather than shifting the whole menu. One way to achieve this has been through leading taste tests. The non-profit goes into school kitchens and helps to prepare the food to be sampled and then, over the lunch hour will serve small portions and provide some information about what it is and where it came from. The children try the food, and they vote on it to say whether they would try it again or did not like it. This way, there is proof for the procurement officers that the students actually like the new menu item which then ideally will be incorporated into the regular menu.

“We follow a “harvest of the month” schedule so each month we have a different local food item that we teach students about in the classroom and then also serve in the cafeteria. For example, February was beets and so all of the school districts did some kind of taste test featuring beets that were grown locally. And this month is beef and so it involved beef. January was carrots. So, it's kind of a first stepping off point to integrating local food just by starting with one food item rather than trying to do the whole menu change.”

3.2. Leadership

Interviewees in both Karlskrona and the US referred to leadership in a number of ways and it ran through all the other themes; from the way people viewed regulations and the way they were innovative with their use of resources, to their ability to collaborate across traditional boundaries. We have highlighted the most relevant aspects below.

3.2.1. Leadership in Karlskrona Municipality

In Karlskrona, we identified three notable ways that people discussed leadership; obstacles to leadership, teachers and leadership, and demonstrated leadership amongst chefs. These will be presented below.

During our interviews, the policymakers and procurement officers clearly indicated that food education is an important matter, and that it is controlled by the education department of the municipality. The Swedish teachers stated that it would be a laborious process for them to change the school curriculum in order to incorporate more in-depth food education because traditional decision-making patterns act as a barrier to changing the food education curriculum, as they are often affected by the value judgements of the people in charge. They said that teachers do not have any power to make such changes, as it is the job of policymakers and

government representatives, so the only option to them would be to lobby others to make change.

Of the people we spoke to, only one policymaker mentioned the importance of changing the whole education system in order to improve food education in Karlskrona.

“There is no use to come to just one school and say “you need to do this study visit.” We need to change in the system.”

Swedish teachers agree that introducing FTS to schools would be dependent on engaged and interested teachers. All interviewees mentioned that there are many restrictions in the educational system which inhibit initiatives coming from the teachers. There are many regulations defining what the teacher must do to comply with the work requirements. To implement FTS the teachers must be truly motivated and passionate to make a change.

“If you're starting something special like that [FTS], which is sort of not in the curriculum, then there needs to be a person in charge who really loves this and wants to fight for it and walk the little extra mile sort of.”

We also spoke to one teacher who expressed their frustration about the high level of bureaucracy. After having put time and effort into planning a school garden, they had, even years after submitting their proposal, not received the permission from the municipality to proceed with planting.

Only one of the interviewed teachers, was actively incorporating food education into their lectures at the moment. This lack of personal initiative could also be linked to the fact that there is no centrally managed training for teachers to give quality food education to children. When asked if teachers have any food education or guidance about what to tell the children, one procurement officer said that some of the teachers get food education, but it is not something that is done centrally.

Teachers were not unanimous when speaking about food education. One perceived that food education was already a part of subjects like Home Economics and felt that more teachings around that topic could be built upon.

“[Food education] could be incorporated in our learning curriculum. It's already in there, it's just someone has to have the responsibility to keep it going and it's going to take a little bit of money in comparison with now. I think it could be done.”

Individual initiatives with regard to food education do take place. Two teachers mentioned that they intentionally act as role models during the lunch break.

“We talk a little bit about vegetarian food and that it doesn't pollute as much as eating meat but I think a lot of students are a bit afraid to say, “I'm going to try this.” So, I actually started eating, in school, vegetarian. It's not just showing that it's a choice, it's for me as well.”

One interviewee mentioned that in an attempt to reduce food waste, teachers who supervise school meals encourage the children to take smaller portions of food and then return for a second portion if they are still hungry.

Our interviews with chefs showed that those who are concerned about environmental implications of food consumption and sustainability in general, tend to be environmentally conscious when buying the food for the school meals, for example, by finding ways to replace meat.

“. . . now there are so many alternatives to beef. For example, we had tacos last Thursday. And it was about 50% ground beef, and 50% soy. And they [the children] didn't know, they didn't notice . . . So, it's good for them, for the environment, and good for us and the budget.”

There are chefs in Karlskrona who accept the limits of the procurement list, but some are also capable of finding loopholes in it for more imaginative cooking practices. For example, at one time, there was no fresh but only frozen fish on the list, so one chef became a legend amongst their peers when they bought fresh fish from the local fishermen.

“He is running his own race, and no boss cares about it because he is really good.”

3.2.2. Leadership in the US

Interviews with people in the US demonstrated that strong leadership is one of the key elements to the success of FTS in US schools. Enthusiastic and passionate teachers, trying to make the learning process more interactive and applied, despite restricting conditions, are the drivers of successful FTS schemes. In fact, our interviewees expressed the opinion that engaged staff was the only thing required for a successful program - with the right leader, all other obstacles could be overcome. When inquiring about their personal motivation, some interviewees pointed out that they had been exposed to nature and farming since their childhood, e.g. growing up on a farm or helping their parents in the garden at home. Others had been involved in agriculture as adults, e.g. growing food themselves in their gardens.

In terms of spreading the sustainability message of healthy and local food, people that deliver FTS drive even more benefits because often, they are often active in educating the local adult community.

“I think the farmers markets are definitely catching on. More people know about the farmers markets, more people kind of understand where they can get local food in the community, so it engages them in that way. I think it also engages parents . . . when they hear that we're in the cafeterias, doing taste test, it starts that conversation of “Hey what are they serving my kids for lunch and how can we make sure it's healthy?” so I think it engages parents in the conversation of school lunch, rather than them just kind of being passive and letting it happen.”

When asked about risks to their local programs, the people who organize FTS in the US focused on leadership, rather than finance or material issues. The concern is how to sustain the program if the passionate individuals who lead the scheme leave, and a person who is less enthusiastic replaces them.

“I am nervous and I do feel that I am one of the driving forces to keep this going and to make it grow . . . And so, I know our teachers value that [FTS], I know our community

values it, I just hope that the person who comes in also values it as well . . . Because they could easily because it's, you can connect it to our district standards and what we're going to teach our kids but they could easily say, "We don't need to do that" but they could say that "it's just an additional cost and that we need to focus our monies elsewhere".

3.3. Collaboration

The third theme which we identified was the importance of collaboration in ensuring that the whole system works with the same shared understanding of food education. By collaboration we are referring to joint work of two or more individuals and/or groups within or across sectors, and disciplines, in order to achieve a common goal.

3.3.1. Collaboration in Karlskrona Municipality

In Karlskrona Municipality, there was evidence of good collaboration in some areas, but also poor or absent collaboration in others. Usually, the strongest examples of joint work were demonstrated between a boss and the people who report to them. Collaboration between similar groups within the system, such as teachers in the same school but teaching different subjects was limited at best, and between unrelated groups such as school chefs and farmers, or teachers and policymakers was rare. We did not hear about any structures to create or foster these relationships. In the following, we present the ways in which the different stakeholder groups collaborate. These are: policymakers, teachers, farmers, and chefs.

The lack of direct dialogue between different levels in the system is best exemplified by the relationship between schools and policymakers. While policymakers have the responsibility to decide the content of the school curriculum, the teachers reported that those same policymakers rarely, if ever, came to see what's actually happening in schools.

“. . . we wanted the politicians to see the work that we were doing and they didn't give us any answers. It's almost worse than getting a bad answer, is getting no answer at all. I don't feel that we have politicians in Karlskrona that are on their toes to meet up with their students. It's a long way from the school. I've never seen a guy from the council at our school and we are the biggest and the most central school in Karlskrona. I've . . . never met the guy that says what Karlskrona should do, in four years! . . . We are here and they are there and we don't talk together. “

As well as staying connected to the rest of the system, there are other advantages to policymakers who collaborate closely with others. One policymaker mentioned that it is expensive to be the first one to be innovative and try a new thing out. They said that it is difficult and risky to be the one who makes all the mistakes first and that it is better to cooperate with other municipalities and trial things together, or to take turns. By doing this, the costs and benefits would be distributed amongst everyone. However, there was no apparent structure for facilitating regional collaboration. Stakeholders are left to make contact with others through their own initiative and/or personal connections.

Teachers within the same school sometimes collaborate with each other between subjects. They have organized thematic weeks like the above mentioned “health week” where both the school food and lectures revolve around a chosen theme. In one school the school nurse and the head chef talk to children about healthy food, why it is important to develop healthy food habits and what the school food contains. Another example was a Biology teacher and a Home Economics teacher who joined forces to dissect and then cook pigs' hearts. One policymaker told us that as long as teachers follow the curriculum, they have the freedom to allocate more time to topics they see most value in.

“As long as you fulfill what the curriculum says, you are free to combine it. You are free to put more time into something that you think is most interesting. And you are free to combine different subjects. For instance, Home [Economics] and Physical Education are good to combine. You can do subject overarching, thematic, you work between many subjects.”

However, in another example of the absence of collaboration between teachers and policymakers, the teachers felt that the curriculum was so full that there was no time left for them to expand into areas of interest.

“... there's a lot of rules nowadays I think, “You should do this and you should do that” but if you took that down a bit, I think it would be easier to let the teacher do stuff they like.”

For some teachers it is harder to incorporate collaboration for food education into their study plans due to the profile of their subjects. One teacher of foreign languages mentioned that food is not in their remit, so they did not include any food education in their lessons. They also did not see any opportunity to combine teaching foreign languages with food education or gardening activities. It was also stated that some teachers are comfortable working and teaching the way they are used to and that not many teachers are ready and willing to change their routines. This makes it difficult to promote innovations and collaboration in education.

As part of its work, LRF connects interested schools with farmers who are willing to show children around on their farm. It was mentioned that there was a lack of advertisement and engagement from the farmers association side. LRF also organizes events, such as regional exhibitions or school lectures for farmers to talk about their work, as part of its program to raise the profile of farming as a career for young people in Sweden.

Chefs receive education about how to cook more sustainably on topics such as, how to include more vegetarian foods on the menu, or how to waste less foods. In a new trial project called “klimatsmart” chefs from five different kitchens collaborate on how to cook food with low CO₂ emissions. However, this is a new one-of-a-kind initiative. Usually, all kitchen staff meet one or two times per year in a big meeting where they are given instructions. No interviewee mentioned any opportunities or incentives for collaboration during these events.

The need for closer collaboration amongst chefs was highlighted during the interviews. They mentioned that there is no mechanism to accumulate and broadcast success stories which could provide collective wisdom for the network of chefs. In one comment, a chef, who works hard to exploit loopholes in the system to their benefit, expressed frustration that their supervisor was not taking any initiative to spread the good practices that they implemented.

“As my boss, I think she should be very interested in how I get this far and still have money over and all the guests [school children] are happy. That should interest her, but maybe she has too much to do with other things. She has administrative things to do, a lot, so I don't think it's so easy for them.”

Some, but not all, interviewed chefs see themselves as having a teaching role when talking to the children about food. They indicated that they are open to complaints and ideas, and children are able to approach the chefs directly to share their thoughts. A chef can be invited to speak to students at the request of a teacher, but this happens spontaneously rather than in a systematic way. The chefs we spoke to all said that they enjoyed interacting with the children. One chef who works in a small school actively strives to have a larger impact on the food habits of the local community as well as the school children.

“I have a good relationship with the parents, they are open discussing, and when I go to the shop to buy my food – I live on the next island – there are always people talking, parents or grandparents, and talking to me about food, and what their kids and grandkids have been eating.”

3.3.2. Collaboration in the US

In the US, interviewees reported a high level of interdisciplinary collaboration as a key factor for the success of FTS. The identified groups include teachers, farmers, third-party organizations and the community which are presented in the following.

One US teacher, who has also taken on the role of the FTS coordinator of their school, shared that it is their intent to engage more teachers into FTS throughout the curriculum.

“I really want to partner with those teachers [science and maths teachers] throughout the next school year, so that we can bring their class down to the garden and they can have a lesson. Maybe not a Farm-to-School lesson but they can have . . . a math lesson, and figuring out the ratio of whatever it is that . . . the teacher wants to focus on. So, we're very fortunate that our school gives us time in the summer to do some curriculum work. And we've already set aside some time that I'm going to be able to partner up with those teachers.”

Farmers mentioned how few young people are starting careers as farmers. Through collaboration with farmers, schools make it possible to broaden the horizons of the children and reveal the reality of farming as a profession.

“I think it's . . . valuable, it's investing in people who will potentially become farmers themselves, even though they don't have that opportunity to grow a garden or they'll be excited and willing to support other local farmers you know because they've been out on a farm and they've seen how much hard work it is and they really enjoy, and they're picking their own carrots or their own beets.”

There is a widespread practice that a third party FTS organization works with procurement officers and schools in several districts locally. Such organizations run classroom programs which focus on teaching children about where food comes from, healthy eating and nutrition,

how to grow and cook food. They also organize farm visits and summer camps. The core focus of food education is on connecting children to healthy local food. Such organizations cooperate with teachers to try to bring other subjects into the school gardens. In the community of one of our interviews, the FTS non-profit representative initiated an organizing committee, the so called “green club”, where they meet with parents and teachers to discuss new ideas, plan upcoming projects, and talk about how they can best support each other in regard to food education.

A US teacher explained that over the course of nine years that their school garden has existed, together with the FTS non-profit representative, they have managed to tie the curriculum to gardening activities. Teachers who feel comfortable with gardening take their students to the garden and are able to handle it on their own. Those that are not as comfortable can use the service of the non-profit FTS organization that fosters collaboration between farms and schools. Collaboration between the non-profit organization and schools has enabled them to organize summer camps with some curriculum work in the gardens in the summer.

A US teacher mentioned that during the taste tests each month in their school, they give the children some recipes of the products they have tried, so that their parents can cook it as well. It was mentioned that children talk to their parents about what they have learnt at school while grocery shopping or dinner. Similarly, one US farmer and the FTS non-profit representative agreed that people behind FTS at schools indirectly educate the community. This sparks an interest in local food among the parents, creating support for local food at the farmers markets.

“I think the benefits are that we're helping kids eat healthier, we're creating kind of this network of people who care about local food, we're bringing it into the spotlight, bring it into the conversation of people, so it's no longer just eating food but it's where does this food come from, how is it produced, who produced it. I think that piece is really exciting and hugely beneficial for any community.”

3.4. Resources

In terms of Resources, our fourth theme, we asked Swedish interviewees explicitly what they thought they would need in order to implement FTS in Sweden and what they thought the barriers to implementation would be. In order to triangulate our results with the expectations of the Swedes, we also asked interviewees from the US what resources were needed to make FTS work at their school.

3.4.1. Resources in Karlskrona Municipality

The resources that people in Karlskrona perceived as important can be summarized in three main types: local food production, time, and money. These will be presented below.

The Swedish farmer mentioned that the number of farmers in Blekinge region has been steadily decreasing. According to them, there were 150 dairy farmers in Karlskrona in 1981, whereas currently there are only 55 dairy farmers. This decline in local dairy farmers is due, at least in part, to farmers retiring when there are very few people taking up farming as a profession.

Without the prospect of a new generation taking over their farms, those that want to retire have no choice but to sell their small farms to large agroindustry operators. These operators are not popular amongst the older farmers because they do not employ many people, they use a lot of chemicals and they often have their head offices located in different towns or different countries.

As mentioned above, all Swedish teachers expressed that there are many obligations in the educational system defining what a teacher must do. These obligations left the interviewed teachers with limited time and energy to do additional work, such as food education, outside the curriculum.

“. . . there are so many “musts.” So many things that we feel we have to do and make sure . . . we do this and that and . . . There's no energy for that little extra.”

There is some scope for individuality though. There are a small number of “Principal Teachers” who get some children for one extra hour per week to study more advanced or more applied topics.

“I can do whatever. There's no boundaries. If I feel like I can do something, I do it.”

Some teachers change professional fields due to the workload. This is seen as a vicious circle for teaching because the teachers who are most likely to leave for other positions are the ones with transferable skills and the motivation to make changes in their lives. One Swedish teacher felt that these are exactly the sort of role models the children need.

“I think they're [passionate teachers] out there but they're choosing other fields because it's getting too hard and they are . . . I think a few of them are thinking, “Should I do something else?” and a few are choosing to become principles and that's not good because we need these people on the floor.”

The shortage of teachers is exacerbated by a steady increase in students. There is currently a shortage of teachers in Karlskrona and recruiting new teachers is difficult. A Swedish teacher said that they thought the situation is likely to get worse in the future because teaching is not currently regarded as a desirable career.

“We have been looking for maths and science teachers for almost a year and not one has been interested. The work is getting harder, if you brought the time to teachers it would be easier to do this.”

The interviewed Swedish farmer felt educational time pressure, too. They said that schools sometimes send 50-75 students in a bus. It takes a lot of time to show so many people around the farm, and the farmer was concerned that the visit might not be as safe because it is difficult to keep track of everybody. The farmer made it clear that smaller groups are more manageable, and that the educational quality per student is greater.

The majority of the interviewees felt that there was insufficient funding for schools, and that the money should come from the state without the school having to fundraise or ask parents for contributions towards school trips. State provision of education is enshrined in law, with schools unable to raise more than a very small amount by means other than the government.

Teachers, farmers and procurement officers all told us that schools are often not able to make a trip to a farm due to the lack of money to fund transportation.

“[One] problem is that they need money to pay the bus, and then when they come here [to the farm] it's free. I don't take anything for it.”

Teachers stated that consequently, any personally initiated activity should not cost anything, since policymakers do not allocate any budget for it.

“In Karlskrona Kommun [Municipality] it is, I guess, very difficult, we have . . . unbelievable restrictions with money so, “it should not cost anything” of course. Obviously, it's [the money] getting worse.”

There was a subgroup of people in Karlskrona who felt differently about money. They did not see the lack of money as an overwhelming problem but more as a boundary of the system. One teacher pointed out several examples of how schools managed to find money to support Information and Technology studies by buying 3D printers and tablet computers. One spoke about their desire for getting beehives at school. They acknowledged that funding would be an issue and that it might be dangerous for the children, but their biggest concern was where they should locate the hives. One chef saw managing money as a game to be played. They saved money by serving cheaper food several times a week and then was able to spend much more on special occasions such as having smoked salmon at Christmas.

“. . . maybe I serve vegetarian lunches for everyone, so I can use that money I saved from that to buy good groceries. Because vegetables are always cheaper than meat, and I do many things with beans and peas, and different kind of minced meat like soy protein and such things, I work much with that. So, I get money over to buy even better things, that's the secret of it. If you serve meat all week long you don't have any money left.”

3.4.2. Resources in the US

Teachers working with FTS admit experiencing problems with money and finding stable sources of funding to sustain their programs. There is ongoing uncertainty because the majority of money comes from grants, very often governmental grants.

“In the US, the government has national funding for Farm-to-School and it all kind of depends on who the president is and what Congress votes on and where they put the money.”

However, teachers try to either apply for additional grants or make money themselves to cover some of the expenses. One US teacher told us that they have a large garden at school and that they would be selling the produce from the garden at the local farmer's market during the summer in order to raise funds, and then using the produce in the school kitchen during term time in order to save money that could then be used elsewhere.

4. Discussion

In the following sections (Regulations, Leadership, Collaboration, and Resources) we will discuss what strategic benefits FTS could add to the Karlskrona system, and in what ways the current system does or does not currently support the implementation of FTS.

4.1. Regulations

The Karlskrona public school system is currently bounded by certain rules and regulations that need to be complied with. To understand how to strategically navigate towards sustainability, it was important for us to explore the system in which Karlskrona sits. By doing that, we could identify some possibilities, but also obstacles for FTS. In terms of strategic sustainable development, local procurement and the school system were highlighted as possible leverage points. Local procurement because it can drive positive feedback loops towards a sustainable food system, and the school system because it involves all children in school, independent of their socioeconomic status, and hence influences many people.

4.1.1. Local procurement

As mentioned in section 1.6.4 increased local procurement is seen as an important leverage point because it can drive positive feedback loops. More local procurement feeds more local production, and increased local production enables more local procurement. Buying food locally is highlighted as important in regard to strategic sustainable development because increased local procurement can benefit farmers by creating a way into an institutional market, benefit the environment, create jobs, and contribute to a strengthened local economy.

When analyzing if and how FTS could be implemented in Karlskrona Municipality we found that, if procurement legislation was amended to make tendering more accessible for farmers, it could benefit local production as discussed in section 3.3, Collaboration. As an alternative to amending EU legislation, but arriving at the same result, the public procurement process could be altered to allow producers to provide smaller quantities of goods. A co-benefit of smaller contracts might be that they are less attractive to large multinational producers who might feel that it was not worth the effort of bidding for them. This would further enhance the opportunity of local farmers to bid for contracts. As described in section 3.1.1, Regulations, in Karlskrona Municipality, there are already some efforts to work towards this goal. The NFS is a step in the right direction towards facilitating local procurement because it pushes for increased local production.

However, the NFS is not wholly a gift to small scale farmers because it mandates an increase in organic ingredients in public procurements lists up to 60 percent by 2030. Currently there is insufficient organic production in Southern Sweden to meet this demand and the transition to certified organic farming takes a long time. The transition is also expensive for the farmers because they are unable to charge the premium prices which organic food attracts as they make the change. For this reason, it might be necessary for farmers to be offered incentives to move their operations to organic methods. If there was a significant increase in organic farming locally, such as that demanded by the NFS, it would help the current food system to reduce substances extracted from the Earth's crust (SP 1) by reducing transport, and cut down substances produced by society (SP 2) by halting the use of synthetic fertilisers and insecticides.

It could also be an opportunity from the FTS viewpoint, to educate children about the differences between chemically assisted farming and organic methods.

4.1.2. Implementation approach

In the US interviews, the importance of starting small was mentioned several times. Through starting small, change could be made little-by-little, and it allowed for prototyping which was not too expensive. By changing one food item at a time, the US schools were able to gradually change the menu, and build strong connections with the local farmers at the same time. There was evidence of limited room for flexibility within the procurement practices in Karlskrona which could be built upon to adopt similar practices as in the US.

Bureaucracy in the Swedish education system was highlighted as a barrier for implementing FTS. We heard a story of a school garden project pending since several years, waiting for approval by the municipality. As discussed in section 3.2, Leadership, we also discovered that because of societal norms, FTS would require governmental support in the form of visible leadership, for instance by significantly reducing bureaucracy. With bureaucracy kept at a minimum, the chances of a successful implementation of FTS would increase, and it would be more likely that stakeholders who step forward to lead would stay engaged, and not become frustrated by the slow rate of progress. In this way, FTS could be seen as a way to prototype new, strongly supported, but moderately regulated change within the wider system of Karlskrona. Because of the time involved and the administrative burden of changing regulations, it is even more important that any changes are made with a clear understanding of how they are strategic steps towards sustainability. Any errors made are likely to persist for many years.

4.2. Leadership

When analyzing our data, leadership, or the lack of it, emerged and ran through all the other themes. It became apparent that FTS would help attain a vision of success for both the enhancement of food education and increased local procurement. We also found that for a concept like FTS to be successful there needs to be top-down and bottom-up support.

4.2.1. Vision of success

A few initiatives are currently happening in Karlskrona in regard to food education, but we identified a lack of a unified approach. Teachers are left to their own devices to come up with methods of teaching about food, with little guidance from the curriculum and no high-level supervision. In regard to procurement, the same pattern was detected, e.g. the vision of food procurement in the NFS is open to interpretation in a way which does not provide a strategic unified approach. In the absence of a clear vision, actions that are currently being taken in Karlskrona, do not reach maximum possible effect because they do not build upon one another to achieve a single desirable goal. This, in turn, means that the municipality does not leverage change in the wider system in the most efficient way. We suggest that if Karlskrona Municipality would create a vision for the symbiotic development of food education and local procurement, FTS could be used as a strategic tool to coordinate actions and reach that vision.

Figure 4.2.1 shows how a vision can align uncoordinated actions. From this viewpoint, FTS can build creative tension and a goal that stakeholders can understand and work towards. To ensure that actions are also strategic moves towards sustainability, the definition of success should be bounded by the 8 SPs.

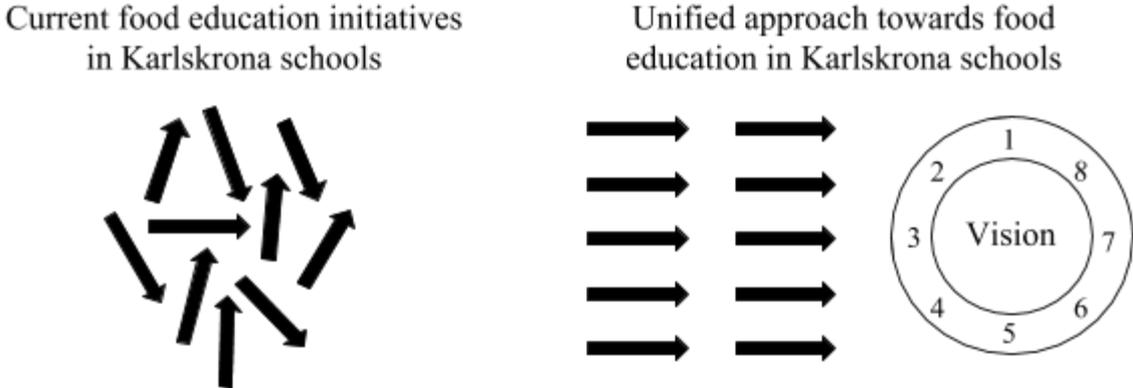


Figure 4.2.1. The importance of a vision bounded by the 8 SPs to align actions.

4.2.2. Leadership approach

A vision of success is not the only ingredient for a successful implementation of FTS in regard to leadership. We identified that there would need to be top-down and bottom-up leadership. A crucial element of the success of FTS in the US were the engaged and motivated people involved in the program. In addition, the US government is leading by showing support and by granting funds. The same kind of top-down, bottom-up support will be necessary in the Swedish context as described below.

Just like the US government is giving grants for FTS, the Swedish government could show leadership and support in the same way. Currently, the Swedish government demonstrates continuous efforts in promoting sustainability. The recently released NFS promotes support for strengthening the local economy and for growth in the production sector, both of which are co-benefits of FTS. As well as encouraging sustainable food production, the NFS also aims at creating awareness of sustainable food choices amongst consumers. These goals are directly aligned with the FTS pillar of increasing food education. We therefore suggest that if FTS was implemented alongside the NFS under a clear vision for the synergistic development of food education and local procurement, it could be a strategic way in which one could benefit from the other.

Swedish interviewees said that even if regulations and the administrative burden could be overcome, school gardens, for example, were unlikely to be seen as a priority, unless they were centrally supported by the government. In general, we witnessed that the trust in, and reliance on, institutional power in Sweden was strong, so support from traditional leadership structures such as the government would be an important part of establishing FTS.

As mentioned by the US interviewees in section 3.2.2, the success of FTS relies heavily on individual leadership of the people involved. With enthusiastic and passionate individuals driving the program in a school, it seemed as if many obstacles could be overcome. With passionate leaders among the teachers, school chefs, and farmers it was possible to get children

excited about the program and to get the wider community involved. For example, as the children began to participate in monthly food tastings and speak about it at home, their parents became keener on buying local products which gave a boost to the sales at the local farmer's markets. With passionate leaders it was also possible to engage parents to volunteer their time and get involved in the program.

Even though we found a few brilliant examples of individual leadership in the Swedish setting, as for instance, the teacher who acted as a role model by eating vegetarian school lunches, overall, we detected a lack of the individual leadership needed to deliver a program like FTS. With the workload that teachers currently have to manage, we do not see any available capacities to maintain engagement. Most of the teachers perceived many limiting regulations and felt overwhelmed by the demands of the curriculum, leaving them with no energy to implement additional initiatives.

To empower stronger individual leadership ubiquitously in Sweden, the government would need to show support by backing up the core intentions of FTS. This way, it would be more likely to find positive responses among school representatives and local policy-makers. A paradoxical aspect to leadership is that it is both a prerequisite for the implementation of FTS in Karlskrona and an outcome of its implementation. Given the societal norms mentioned above, we suggest that the Swedish government would have to create the right conditions first in order for people to feel empowered to take initiative and show up as leaders.

4.3. Collaboration

Collaboration is a vital element in terms of strategic sustainable development. A joint effort is required to achieve sustainability in the food system because of its complex nature involving many interconnected processes and actors. In order to ensure the shift towards a more sustainable food system, all the different stakeholders need to be involved and provide support to each other on their way. Collaboration between stakeholders also touches on the leverage point of enhanced information flow. With increased understanding between stakeholders, knowledge about the food system will appear in places it did not reach before. The FTS concept could provide a basis for connecting different stakeholders and raising their interest and awareness about the wider food system.

4.3.1. Collaboration reinforces leadership

Like leadership, enhancing collaboration will be a fundamental prerequisite for the implementation of FTS, but also an outcome of it. Improving collaboration will contribute to promoting influence and impartiality in Karlskrona Municipality (SP 5 and SP 7), because it will allow those stakeholders, who might previously have been overlooked, to influence decisions which they are impacted by.

Leadership and collaboration enjoy another dimension of synergy in that they form a positive feedback loop as demonstrated in Figure 4.3.1. Leaders who reach out to the community to find new ways of working together will foster collaboration. As a possible consequence, more people would feel inspired by this approach and might act as leaders in a different setting to promote collaboration. Thus, one helps to strengthen the other.

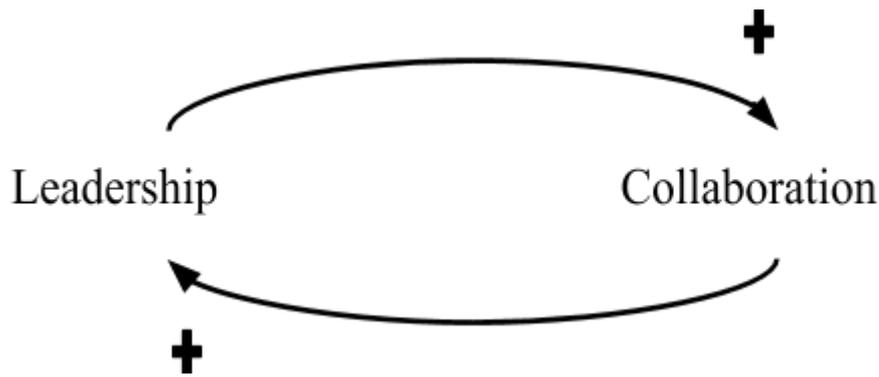


Figure 4.3.1. Positive feedback loop between Leadership and Collaboration.

4.3.2. Building a network

FTS is a centralized network that promotes information exchange and connects stakeholders in, and between, the food production and the education system. With a network of about 42 600 schools in the US, FTS provides a strong online information exchange hub, where experiences, positive as well as negative, can be shared and built upon. Our results show that currently in Karlskrona, there is very little collaboration within and between different groups of people, even groups such as teachers in the same school or procurement officers in the same region. Although there is some collaboration such as that between farmers and some teachers, or the “klimatsmart” project between chefs. These relationships are created in an opportunistic way and there is little, or no, systematic facilitation to create or maintain such links.

As mentioned in Introduction section 1.4, inserting information flows in the form of missing feedback loops can leverage a system towards sustainability. A strong network that promotes information exchange in and around the Karlskrona public school system would be important for enhanced collaboration, and for strategically moving forward. One example of how a system can be limited by an absent feedback loop is the pedagogic meals. This initiative is one of the few centrally organized initiatives we found in Karlskrona, but a lack of information exchange made it uncoordinated and it did not reach full potential. Initially, pedagogic meals were set out by policymakers as a means to improve food education and to give teachers an opportunity to discuss topics with the children in a relaxed environment. In our interviews, teachers explained that they were generally busier disciplining the children than discussing food. By using a concept like FTS as a network, this miscommunication could be avoided.

Insufficient communication between the members of Karlskrona’s public school system results in a reduced sense of community, where everyone is focused on their own business and does not have any incentive to interact with other groups. For instance, we found that there are proactive chefs trying to bring innovative solutions to the school kitchens. However, communication between chefs at a regional level is limited to a few times per year, and there is no systemic reporting about what works well, and what does not. Therefore, each one of the chefs carries on doing what they alone think is the best option in terms of sustainability.

Collaboration between similar groups, such as teachers in different schools or procurement officers in different municipalities, would contribute to competence for each member of those groups (SP 6). Each group could learn from the experiences of the others and would not have

to “reinvent the wheel” themselves. Increased information exchange of success stories and failures could lead to a faster overall development towards a more sustainable food system because stakeholders could learn from each other’s experiences and not make the same mistake twice.

A focus of communication, as demonstrated by the FTS online library, could act as an aggregator of best practices and success stories. In the US, teachers, school chefs, and non-profits involved in FTS, work very closely together to align their work to get the maximum educational value from the FTS activities. These ideas and resources are freely available online for anyone to use. Discussion with FTS experts from the US could help to ease the process of FTS incorporation into the education and procurement systems of Karlskrona. The National Farm-to-School Network could help to identify which elements can be imported directly into Sweden and which parts are suggested to be abandoned or modified.

4.3.3. New ways of collaborating

In order to implement FTS, different stakeholders, from farmers, to teachers, to policymakers would need to meet around a table to discuss how to integrate the concept in Karlskrona. These meetings would establish collaboration across different disciplines and sectors, resulting in a better understanding of each party's interests, and ensuring that those voices which have previously not been heard have their opinions aired. This is a direct contribution to ensuring influence and impartiality in society (SP 5 and SP 7). An example of current uncoordinated actions in procurement is the absence of a definition of “local procurement.” The NFS encourages more locally sourced food, and Karlskrona Municipality's procurement officers and school chefs also expressed the desire to buy more local food. Although “local” was a hot topic, there was no agreed upon definition that explained exactly what it meant. As a result, different parts of the system operate within their own definitions of “local”, making meaningful comparisons across the system impossible. At best this will cause confusion and frustration and at worst, it might mean people working towards different goals, inadvertently slowing down the progress towards sustainability.

An example of collaboration that might happen in the system soon, and that would benefit local procurement, is the proposed distribution centre and amended procurement process discussed in 3.1.1, Regulations in Karlskrona Municipality. By creating a joint distribution centre farmers would have a centrally managed way which they could utilize in order to answer the procurement tenders. This would significantly increase their influence (SP 5) in the local system, and would mean that large agro-industry producers would not have such an unfair advantage over them (SP 7).

And finally, as has happened in the US, schools could encourage parents and grandparents to become involved in school gardens. This would have the effects of enabling children to learn about older people’s life-stories as well as gardens. This would also provide a contribution to the health (SP 4) and meaning-making capacity (SP 8) of the older generation, as they would be offered more opportunities to be physically and socially active.

4.4. Resources

Our interviewees identified time and money as required resources for the implementation of FTS. As discussed in 3.4.1, Resources in Karlskrona Municipality, most people saw the absence of these resources as an absolute obstacle that must be resolved before any progress could be made. A few interviewees had a very different outlook though. These people saw resources as just another boundary of the system. They were keen to work with other people and to share resources with others to gain maximum possible benefit. For example, currently, schools in Karlskrona are focused on technology and a large proportion of school funds are directed towards computer hardware. Some of this money could be spent on FTS and in the opinion of some of the teachers we spoke to, there would not be any reduction in the quality of Information Technology training the students received.

If FTS were to be implemented by leaders with this outlook, there might be the possibility to introduce novel fundraising models to the Swedish system and add variety (and therefore resilience) to what is currently a very linear system. As an example, at present there is an expectation that all money used in school education should come from the government, but in the US, schools apply for grants and sell their produce to raise funds. This might provide more money but the tradeoff would be the need to have parents and/or teachers capable of writing grant applications as another resource which must be found and nurtured. Thus, one challenge for policymakers would be to decide to what extent they want to provide resources directly, and how much they want to leave schools to compete for resources on the open market. Direct funding would show symbolic support and central leadership as discussed above, but a less regulated approach might lead to greater resources.

In the short term, it might be difficult to argue the case for resources to be spent on FTS, but in the long term, FTS can save much more resources than it costs. Because these savings are likely to be elsewhere in the system, it is important to take a whole system view and to understand that, although there might not be a rapid return on investment, FTS would be a significant strategic step towards sustainability. For example, the small financial investment required to implement FTS would be very small in comparison to the healthcare savings achieved by teaching school children about healthy lifestyles and food choices, meaning they would not become obese and develop heart disease and diabetes in the future. A small investment in FTS leading to local farmers winning public food contracts could also keep a lot of taxpayer's money in the local economy as discussed in section 3.1.1, Regulations in Karlskrona Municipality. If those local farmers inspired children to become farmers themselves, there would be an increase in local jobs and an increase in the resilience of the local food system. What is more, FTS might be sufficiently different and interesting to stop some of the good teachers leaving the profession or accepting administrative posts.

If FTS were to be implemented every child, regardless their personal resources (SP 7), would get the chance to interact with nature in a garden setting on a regular basis at school. By helping to grow food in a garden, children would take ownership of the project and derive satisfaction (SP 8) from seeing every stage from seed to harvest to plate.

While resources are important, they are not absolute prerequisites for the launch of FTS. Availability of resources is largely dependent on people's perceptions, personalities and bottom-up leadership. For the most part, Swedish interviewees were not enthusiastic about FTS, reiterating that there is lack of resources such as time and money for it to be implemented in

Karlskrona. There was a small segment of Swedish respondents, who, like the US interviewees, saw the lack of proper leadership as a more crucial obstacle for the lack of resources. As the old saying goes, “Where there's a will, there's a way”.

4.5. Reliability and validity

Interviewing representatives from the farming industry, municipality officials, teachers and school chefs meant that we got a good insight into how the Swedish system works and we are confident that our description of the current reality of school meals in Sweden and of public procurement in Karlskrona are accurate. However, when it came to opinions about the current system or of implementing FTS, choosing to interview a breadth of groups of people, at the expense of depth, meant that interviewees with strong opinions were likely to influence our results in a way which was not a true reflection of that whole group of people. For example, some teachers were positive and only saw possibilities, while others only saw limitations and so it was difficult to know what the overall outlook of all teachers was. If we had interviewed more people in each group, each one of these personal outlooks would have had less weight in the overall results and our findings would have better represented reality.

We feel that our diverse ages, genders, nationalities, education and work experiences has given this work considerable social validity. In order for us all to reach consensus, we feel that the message we were agreeing on had to be very clear and not something subtle that could have been interpreted differently in another cultural context.

4.5.1. Recommendations for further research

We view this thesis very much as an exploratory first step. In terms of further work, assuming that Karlskrona makes the choice to implement FTS or something similar, or would like to have a more detailed business case, we see a need for further detailed research to understand the demands placed upon the teachers' time, and the practical details of implementation. This should include parents, dieticians, school children, and further representatives of the groups we interviewed. We would strongly recommend a phased approach with a few teachers, probably in one school starting with small projects and building up.

In order to demonstrate movement towards sustainability and to justify taxpayer's expenses, a robust method of appraisal should ideally be part of any scheme. We therefore see the development and validation of a tool to assess the impact of FTS as a crucial piece of research which could easily have global applicability. Further opportunities for research might include ways to scale up our findings to other municipalities in Sweden, and beyond. Transfer beyond Sweden may be possible but with increasing geographical and cultural distance from Karlskrona, further exploratory work similar to ours will be required to ensure applicability.

5. Conclusion

The purpose of this research was to explore how the FTS concept might move the Karlskrona public school system, in a strategic way, towards sustainability.

The current food production system is contributing to ecosystem degradation and a move towards a more sustainable food system is an important step to tackle the sustainability challenge. This thesis has identified two important leverage points to move the food system towards sustainability. The first is related to food education in schools, ensuring that children will grow up as conscious consumers. The second revolves around public institutions having a large influence on the market and therefore the power to shape the way food is produced.

We found that, if implemented, FTS could move the Karlskrona public school system towards sustainability by ensuring every child left school with a high degree of food literacy, improving their health and increasing the resilience of both the local economy and social networks. All Swedish interviewees felt that local food and food education was important and that they would welcome the introduction of a concept like FTS.

However, we think implementation would be difficult at present, for four main reasons. Firstly, because of regulatory restrictions, particularly overly bureaucratic regulations concerning changes to schools and the school curriculum in Sweden, partly the demands placed upon teachers by the curriculum, and partly EU regulation mandating that all food producers must be able to bid for all contracts.

Secondly, implementation would be hindered by insufficient leadership both from the government and from teachers in schools. The situation at the moment is that there is no single vision for food education meaning that initiatives stand on their own, are small in numbers, and do not work together to build upon one another.

The third reason is that there is currently very little collaboration between individuals and groups of people in Karlskrona. This is true even between groups who, in principle, are working together, specifically teachers.

Finally, a lack of resources would make implementation of FTS difficult. The most pressing shortage is one of teaching staff but also time and money.

We feel that if FTS was implemented in Karlskrona, in a way which incorporated a vision bounded by the 8 SPs, it could be a significant strategic step towards sustainability. However, because of the burden of regulation, shortage of leadership, absence of collaboration, and insufficient resources. On balance, we conclude that, at present, Karlskrona would be advised to address these issues before introducing FTS.

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Appendix A - Swedish interview protocols

Preamble

We are writing a thesis about FTS which is an American school meal concept involving:

- Procurement - promote locally produced foods.
- Education - educate children regarding farming, food, health and nutrition.
- School gardens - hands on learning in school gardens.

We would like to interview you about the possible influence that FTS might have if it was introduced to schools in Karlskrona.

Thank you for agreeing to talk to us today, we're really grateful for the opportunity to interview you and our thesis would not be possible without it. Before we start, is it OK if we record the interview today? It is only for our use and by recording it, we are able to listen again and really understand the things that you say. (If they're happy, I'd start the recorder now).

We would like to reassure you that everything you say will be treated as confidential. We will anonymise your data as soon as we can. Once the interview is transcribed, we will delete the audio file. If we want to quote you directly in our thesis, we will double check with you.

You are very welcome to stop the interview at any time and you do not have to give us an explanation. After the interview, we will send you the transcript. We would be really grateful if you could check it and let us know if you'd like to clarify anything.

If you would like anything explained in Swedish, we're happy to do that but we would like to minimise the use of Swedish in order to keep translation to a minimum.

Interview questions for Swedish policymakers

Desired outcome

- What is the connection between procurement and education?
- How much flexibility there is in the system for change?
- What are the barriers stopping the municipality (schools) from buying local foods?
- What are the opportunities for local food procurement?

Warm up questions

- How long have you been working in your current role?
- Can you tell us more about what your work involves?

Questions about the current reality

- Who sets your goals related to food?
- Who reports to you?
- To what degree, and in what ways, does your current job work with the school food system?
- In what ways does your department collaborate with the education department to enhance the educational opportunities of school meals?
- To what extent do local policymakers influence school meals?

- Who else has influence over the school meals that are served in Karlskrona (cost, composition, source etc.)?
- Do you know of any programs that encourage school children to get involved with their food such as FTS?
 - Are these used in the area?
 - Have they been tried in the past?
 - What was the experience of using them?
- We heard that the average cost of a meal is twelve kr. Is this correct, and does this cover overhead costs or the ingredients only?
- How is the budget for school meals set?
- When the budget is allocated for school meals, do you set rules about how that money is spent?
 - Is there any flexibility or negotiation?

Questions about what they think

So far, we've been talking about Karlskrona but we're also interested in the wider system. We've read the new National Strategy and we would like to ask a few questions about how that might affect school meals.

- Do you think the National Food Strategy or Blekinge Food Strategy will have any impact on school meals in Karlskrona?
 - If yes, can you tell us in what ways?
 - If no, why not?
- In what ways does your department work/collaborate with local food suppliers/farmers?
- One of the aims of the NFS is to increase the volume of organic food to be procured.
 - Do you think these changes can be delivered in a cost-neutral way?
 - If not, do you know where the extra budget might come from?
- According to the NFS it should be made easier for small and medium-sized suppliers to tender for public contracts for food and catering services.
 - What are concrete measures to open up public procurement to small scale farmers in the Blekinge region?
 - What has stopped these measures being taken in the past?
- Do you think there are any problems with the current school food system?
 - If yes, what are they?
 - How could they be resolved?
 - What has stopped progress on these issues so far?
 - Are there any problems specifically with regards to sustainability?
 - Why is this not sustainable?
 - How would you change it if you could?
 - Are there any other changes you would like to see?

Interview questions for Swedish procurement officers

Desired outcome

- What does the system look like?
- What is the connection between procurement and education?
- How much flexibility is there in the system for change?

Warm up questions

- How long have you been working here?

- What's something that you appreciate about your work?
- What changes are happening regarding school meals at the moment?

Questions about what they know

- This is what we've understood the system to look like: The government sets overarching strategies, but it is up to the individual commune to decide what to put on the plates.
 - Is that right?
 - Can you tell us about the organizational structure for school meals here in Karlskrona?
- Where do you get your guidance for school meals from (who sets your goals)?
- Who do you set school food goals or targets for?
- What guidance or targets do you have to meet at the moment when purchasing for school meals (nutrition, cost, proportion of organic etc)?
 - How often does this change?
- What does the collaboration look like between your department and the educational department when it comes to school meals?
 - Is food education in the curriculum?
- What does the collaboration look like between your department and local food suppliers or farmers?
- Who has influence over the school meals that are served in Karlskrona (cost, composition, source etc.)?

Questions about what they think

- What impact do you think the National Food strategy will have on school meals in Karlskrona?
- Have there been any initiatives to change the school meals to make them healthier/organic/vegetarian etc etc?
 - Did any of them work?
 - Why/why not?
- What changes would you like to make to the current system?
 - Why
- What do you think are the problems with the current system?
 - How could they be resolved?
 - Why has that not happened?
- Is there anything else you think we might find useful?

FTS and education

- Is food education part of the curriculum?
- What do you think about using school meals as an opportunity for education?
- Do you know of any concepts that encourage the school children to get involved with their food such as Farm-to-School?
 - Are these used in the area?
 - Have they been tried in the past?
 - What was the experience of using them?

Interview questions for Swedish teachers

Desired outcome

- How does the school food education work in their school?

- What can be improved in terms of food education?
- What are the barriers at the moment to local procurement, education and school gardens?

Warm up questions

- How long have you been working in your current role?
- Have you seen changes in food education during that time?

Current reality

- Who decides what the food education in your school should be?
- Can you tell us about the food education in this school?
 - How is it delivered in the classroom?
 - What do you teach them about how food is produced?
 - How would you change this if you could?
 - What do you teach them about how to prepare food?
 - How would you change this if you could?
 - What do you teach them about food choices?
 - How would you change this if you could?
 - Why have these changes not already happened?
 - How is success measured in terms of food education?
 - What is the educational element to school meals?
 - How is it supported by staff?
 - If not, why not?
 - What about pedagogic meals, can you tell us how they work?
 - Where does the information about food to discuss during the pedagogic meal come from?
 - Is it up to teachers to tell the students what is healthy food?
 - Do you and your colleagues participate in this initiative?
- What trips are there for children to visit a farm or a food production facility?
 - Are they part of the curriculum or does it depend on the teacher's initiative?
- Do you have or have you had a school garden?
 - If yes, can you tell us about it?
 - Is it popular with the staff/children?
 - Is it included in your teaching time with the children?
 - If no, why not/what happened?

Questions about FTS

- FTS is a scheme in the US which incorporates food education, school gardens and local procurement. Can you see any benefits of such a scheme compared with the current process?
 - How about problems?
- Can you see any barriers to introducing such a scheme?
- Why do you think this has not been done before?

Interview questions for Swedish farmers

Desired outcome

- What are the barriers and opportunities to work with food education for children?

- How farmers work with children on the farm?
- Barriers and opportunities for selling to local schools (municipality)?

Farming

- How long have you been working in the agricultural sector?
- Can you tell us about your farm?
 - How big is it?
 - What type of farm is it/what do you produce?

Procurement

- How do you sell your products at the moment (This might be a massive question, in which case, we'll have to ask them how they sell the majority of their crop or the main crop etc.)?
 - Are you satisfied with the way your current business model operates, e.g. profits, logistics, etc.?
 - How could it be better?
- Do you sell your products to the municipality?
 - If yes, why?
 - If no, why not?
- We understand that food producers need to sign a four year contract to deliver foods for the municipality. Food producers can call straight to the municipality if they have excess food to sell urgently. Is this correct (Depending on the answer, we might need to ask clarifying questions)?
 - How does the process work if you want to sell the excess food to the municipality?
- What could be changed to make it easier for farmers to sell to schools/municipalities (Try to get beyond prices)?
 - How could these things be resolved?
 - What has stopped progress on these issues so far?
- What initiatives have there been in the past for farmers to sell their products to schools/municipalities?
 - What were the results?
 - Why do those schemes not run any more?
- What initiatives are there for farmers to cooperate with schools in regards to food education (If they look blank, we might need to give the example of FTS in the US)?
 - What are your thoughts about these schemes?
 - Would you be willing to participate in those?
 - If no, why not?
 - If you do participate, what is your experience of the schemes?

Education

- How do your farm visits work?
 - How does this program improve food education for the school children?
 - Are there opportunities for farmers to come to school to share their knowledge?
 - Are there barriers to farmers visiting schools?
 - What barriers are there for school children to visit your farm?
- Do you/how do you measure the success of the farm visits?
- What is the mechanism to connect farmers to the municipalities/schools for visits?

Interview questions for Swedish chefs

Desired outcome

- What does the system currently look like?
- How much freedom do chefs have to make decisions?
- What do they think about - KRAV, money, rules, education, what the children like to eat?
- What barriers and opportunities do chefs face?
- What is their opinion of FTS?

Warm up questions

- How long have you been working here?
- How long have you been working with food in schools?
- What is your favorite part about working in the school restaurant?

Questions about what they know

- Have you ever wanted to buy some food that was not on the list?
 - If yes, how did you make it happen/or why could you not buy the food
 - How about local/seasonal food?
- What changes would you like to make about the food you can order?
- What changes would you like to make about the way you order food?
- What information is available about the food in the procurement list, (where meat comes from etc.)?
 - Does this influence your decisions?
- Are there any partners who influence your decision making, (parents, school staff, headmaster, external companies, municipal staff)?
 - If yes, who are they?
- Do you work together with other kitchens?
 - If yes, how?
 - If no, why not?
- How do you work with the teachers?
 - If you do not, why not?
- Do the children join you in the kitchen to learn?
 - Do you think this is a good thing?
 - Why/why not?
- Can you tell us about pedagogic meals at this school?
 - How do they work?
 - How are you involved?
 - What do students/chefs/teachers like about them?
 - What do students/chefs/teachers not like about them?
- This is what FTS involves. In your opinion, is this realistic?
 - What concerns do you have?
 - What opportunities do you see?

Appendix B - US interview protocols

Preamble

We are writing a thesis about FTS and what we need for this is a thorough understanding of how the system works from the viewpoint of someone who has worked with it in the US.

Thank you for agreeing to talk to us today, we're really grateful for the opportunity to interview you and our thesis would not be possible without it. Before we start, is it OK if we record the interview today? It is only for our use and by recording it, we are able to listen again and really understand the things that you say. (If they're happy, I'd start the recorder now)

We would like to reassure you that everything you say will be treated as confidential. We will anonymize your data as soon as we can. Once the interview is transcribed, we will delete the audio file.

You are very welcome to stop the interview at any time and you do not have to give us an explanation. After the interview, we will send you the transcription. We would be really grateful if you could check it and let us know if you'd like to clarify or change anything.

Interview questions for US teachers involved in FTS

Desired outcome

- What was their experience with FTS?
- How has it helped to improve the food education?

Warm up questions

- How long have you been working in your current role?
- How long have been working in the school system?

Questions about current reality

- Can you tell us about food education in your school?
 - How is it delivered (classroom education, school gardens, procurement)?
 - Who organizes it?
 - Who delivers it?
 - Is it a part of the school day or is it an extra activity?
 - How is it funded?
 - How is success measured?
- How long has FTS been running at your school?
- Can you tell us about how FTS has improved food education in your school (food preparation, food origins, healthy choices)?
 - Has FTS had other educational benefits or school culture benefits?
- What problems have you come across as you've implemented FTS?
 - How have they been overcome?
- If you had a chance to start over with the FTS from scratch, would you do anything different?

Interview questions for US farmers involved in FTS

Desired outcome

- What are the benefits and barriers to being a farmer involved in FTS?

Questions

- Can you tell us about your farm?
 - How big is it?
 - What type of farm is it?
- How are you involved in FTS now?
- How long have you been involved?
- Has your involvement changed over the years?
 - If so, how?
- Why did you get involved in the first place?
- What changes did you have to make to your farming practice to become involved with FTS?
- Before you started being involved, what were your concerns about the scheme?
 - Did they materialize?
 - How were they overcome?
- What are the advantages to being part of the scheme now?
 - Any financial/business advantages?
 - Any advantages beyond financial?
 - Are there benefits that other farmers have realized from FTS, that have not materialized for you yet?
 - Why have these benefits not been available to you?
- Are there any ongoing problems with the scheme?
 - Why have these not been addressed?
- If you had a chance to start over with the FTS from scratch, would you do anything different?
 - Why?

Appendix C - Code tree and number of excerpts

Code	Number of excerpts
<ul style="list-style-type: none"> ● 8 SPs <ul style="list-style-type: none"> ○ SP 1 - Lithosphere - Contribution 20 ○ SP 1 - Lithosphere - Violation 3 ○ SP2 - Man Made - Contribution 28 ○ SP2 - Man Made - Violation 10 ○ SP3 - Physical Degradation - Contribution 3 ○ SP3 - Physical Degradation - Violation 2 ○ SP4 - Health - Contribution 27 ○ SP4 - Health - Violation 1 ○ SP5 - Influence - Contribution 39 ○ SP5 - Influence - Violation 7 ○ SP6 - Competence - Contribution 57 ○ SP6 - Competence - Violation 6 ○ SP7 - Impartiality - Contribution 22 ○ SP7 - Impartiality - Violation 15 ○ SP8 - Meaning Making - Contribution 18 ○ SP8 - Meaning Making - Violation 10 ● Prerequisites for FTS to happen 2 <ul style="list-style-type: none"> ○ Financial/business prerequisite 101 ○ Physical prerequisite 31 ○ Societal prerequisite 176 ● System level 1 <ul style="list-style-type: none"> ○ EU level 19 ○ Karlskrona Municipality 150 ○ National level 67 ● Farm-to-School 13 <ul style="list-style-type: none"> ○ Education 17 <ul style="list-style-type: none"> ■ Already happening in education 28 <ul style="list-style-type: none"> ● barrier to implement FTS education 10 ● strategic step to implement FTS education 48 ■ Barrier to education 29 ■ Opportunity for education 74 ○ Local Procurement 17 <ul style="list-style-type: none"> ■ Already happening in procurement 31 <ul style="list-style-type: none"> ● barrier to implement FTS - procurement 18 ● strategic step to implement - procurement 19 ■ Barrier to procurement 25 ■ Opportunity for local procurement 45 ○ School Gardens 20 	

<ul style="list-style-type: none"> <ul style="list-style-type: none"> ■ Already happening in gardens <ul style="list-style-type: none"> ● barrier to implement FTS - Gardens ● strategic step to implement FTS - Gardens ■ Barrier for school gardens ■ Opportunity for school gardens ● Demonstrating success <ul style="list-style-type: none"> ○ Co-benefits of FTS ● Risks / Threats 	<p>14</p> <p>6</p> <p>12</p> <p>29</p> <p>23</p> <p>70</p> <p>38</p> <p>103</p>
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