

The Future Food System - A New Paradigm Arising?

A Master Thesis

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June Rebekka Bresson

Abstract

According to critical debaters it is necessary for all societies to change how we exploit the natural resources of the world, if we are to correlate to the planetary boundaries. Debaters argue that we need to fuse health and environment into our understanding of food systems to ensure public health in future. The purpose of this study is to understand whether we are on our way toward a sustainable food system, especially with respect to issues of health, environment and planetary wellbeing. With an entry point from a statement given by Food and Agriculture Organization Director-General José Graziano da Silva in November 2017, and literature to support this statement, I will try to provide an analysis with this as a background. I am asking selected key food actors in a Danish food governance context, whether they see new trends in relation to their work within the food systems. Through the lenses of Situational Analysis, I would like to understand the situation from the actors point of view and give my interpretation of the situation. Hereby, the thesis gets a sociological and constructivist approach, and throughout the analysis, I want to emphasise on possibilities and barriers for enhancing sustainable food systems, their development and their possibilities for the future. The Master Thesis is located at Aalborg University Copenhagen, in the study programme Integrated Food Studies.

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The Future Food System - A New Paradigm Arising?

1. Introduction

Several studies show that the modern food system exhausts the soil, plants and animals to a degree which can not continue without serious consequences (FAO 2017, Steffen et al. 2015, Lang & Heasman 2015, Hildebrandt et al. 2016, Marsden et al. 2014, Harremoës 2001, Carson 1962). The modern food system is also the reason for potential health problems – recent studies e.g. underpin that human beings have glyphosate in their bodies, which is potentially carcinogenic (Knudsen 2017, Stage 2016, The Greens 2016). It could therefore seem very reasonable to ask how far we have actually come in creating a sustainable food system.

Recently, the Food and Agriculture Organization of the United Nations declared that the nature of the challenges, that agriculture and food systems are facing now and throughout the 21st century, demands more insight into what is at stake and to what needs to be done. They argue that “business as usual” is no longer an option, but calls for major transformations of the agricultural systems, food processing, and in how we manage our natural resources (FAO 2017).

FAO Director-General José Graziano da Silva specified in a keynote speech at the Chatham House think tank on 27th November 2017 (FAO 2017), that:

"The future of agriculture is not input-intensive¹, but knowledge-intensive. This is the new paradigm (...) Food production increased over the last decades, but at a high cost to the environment, generating deforestation, water scarcity, soil depletion and high levels of greenhouse gas emissions (...) Nourishing people must go hand in hand with nurturing the planet" (FAO 2017).

FAO is just one out of many voices that affirm that this way of exploiting the natural resources of the world can not go on, if we want to correlate to the planetary boundaries (UN 2016, UN 2017, Steffen et al. 2015, Marsden et al. 2014, Lang & Heasman 2015, Hildebrandt et al. 2016).

Based on these questions as to what is at stake and what needs to be done, a great incentive appears in me to get immersed into knowledge about innovative food systems and sustainable practices, in

¹ Input-intensive is often seen as what the modern food system entail, with inputs of fertilizers and pesticides (Lang & Heasman 2015: 38 table 2.2)

line with the thoughts of José Graziano da Silva (FAO 2017).

The first question in my inquiry is, how far we have come in creating a sustainable food system? What do the thoughts about the food system look like right now? Are we moving towards a new food system paradigm in line with da Silva's thoughts? (FAO 2017). Are world citizens ready for - and possessing the empowerment - to transform their way of life in correspondence to the limits of nature? (Steffen et al. 2015, Tansey 2013, Nielsen 2018, Nielsen 2017). Is the powerful food industry willing to give up old practices, and transform their systems? (Lang & Heasman 2015, Burley 2017).

How are more silenced voices such as nature, health and the well being of future generations, if at all, encountered in the current food system thinking, in the perspective of the food industry, policymakers, agricultural organisations and consumers in general? (Clarke 2005, Lang 2009). Is food included in the climate debate, or are issues about the food system silenced, because food does not have a clear belonging? (Nordisk Råd 2017, Lang & Heasman 2015: 9).

An initial literature review shows that there are a lot of existing studies within agro-food scientific literature about the importance of creating sustainable food systems now, such as literature from United Nations Sustainable Development Goals (SDGs) (UN n.d. a, Hildebrandt et al. 2016), from studies about Planetary Boundaries (Steffen et al. 2015) and from *Nordic Council* (Nordisk Råd 2017). However, it seems that the implementation process of new research and objectives, such as the SDGs, is slow in Denmark (Fejerskov 2016, DIIS n.d.), and hard to transfer into the food industry (Lang & Heasman 2015: 85, 281, Personal communication with COOP), even though the Danish government launched an Action Plan to deliver solutions to the SDGs in 2017 (Udenrigsministeriet 2017).

Denmark is the most intensely cultivated country in Europe - and throughout the world (DN 2014: 8). About 80% of the Danish agricultural area is used for the production of feed for livestock, and not food for people (DN 2014: 9). In addition to the large area used in Denmark for the production of feed, we use large areas of land in South America, equivalent to one third of the Danish agricultural area for the production of soy for livestock (DN 2014: 9). Figures as these reveal that Denmark supports a system, which is dependent on a globalized food system that is not sustainable in its methods to supply citizens with food and products.

By reading the news, it is clear that new food trends are proceeding in respect to a more sustainable behavior in Denmark. Recently, COOP, the largest retailer chain in Denmark (COOP 2015 c), launched a package of vegan "meat" as a substitute to real meat (Vording 2018). This is an innovation in food production, based on a cooperation between customer demand, COOP, innovation in food technology, and farmers, in order to deliver societal solutions to the environmental problems of the meat production (Larsen 2014). Meat production is one of the largest contributors to climate change (Lang & Heasman 2015: 103). In the public sector, some of the largest cities in Denmark have increased the percentage of organic food supply in the public school food system (Københavns Kommune 2016 b). This public supply has the potential to lever organic food production on the farming sites, and thus supports a more sustainable agriculture than the modern conventional agriculture (Lang & Heasman 2015: 40). This action again has the potential to give the farmers the necessary steady income and livelihood, in order to create innovative organic food to the increasing societal demand (Jespersen et al. 2015). These new tendencies, thus, involves both the farmers, the retailers and the society, with a possibility to push a more sustainable food system forward (Kristensen 2017, Hauggaard-Nielsen 2017).

Such tendencies could lead to what is necessary in future to encounter the disputed climate change, and debaters argue that we need such cooperations where we stand together and conduct what they call "good governance" between government, businesses and private housekeeping (Hildebrandt et al. 2016: 23).

In recent studies, an aspect of this has been reinvigorated. These studies have tried to enhance stronger networks and knowledge sharing between the actors in the food value chain (Swisher et al. 2018, Hastings et al. 2016, Personal communication with HRS² 2017). There are several benefits of more knowledge and more networking between the food value chain actors³. One advantage is that kitchens may purchase directly from the farmers. Another advantage of this is that the farmers could potentially minimize food waste, if they knew exactly what to produce in advance, taken that they have agreements with the kitchens in advance (Personnel communication with Copenhagen Municipality 2018). Yet another advantage is that the popularity of Danish organic gastronomy could benefit farmers to lever sustainability in the agricultural sector in Denmark in future (Kristensen 2017, Hauggaard-Nielsen 2017).

2 Hotel og Restaurantskolen

3 A value chain is how raw commodities get value added in each chain from the farm to the consumer (Lang & Heasman 2015: 19). An actor in this respect is one link in / part of - the food value chain / food system. I utilize the concepts food system, food value chain and food supply synonymously in the thesis. More details in chapter 4.

Based on the introductory debate, that it is necessary to increase interconnection of the primary parts of the food system with retail and consumers (Kristensen 2017, Hauggaard-Nielsen 2017, Personal communication with HRS, Personal communication with Copenhagen Municipality), what then caught my attention was, how I could get an insight into such new trends in the food system, and whether we are moving towards a sustainable food system in Denmark. Narrowing it down from the introduction, the following problem statement comes to mind.

1.2 Problem statement

How are elements of a new paradigm for health and environment emerging in the Danish food system? From retail, organic movement and the public sector. What seems to be the barriers for the different actors to implement sustainable practices in their organisations?

1.3 Clarification and Delimitation

Based on the introductory debate that we need increased interconnection of the primary parts of the food system with retail and consumers, I would like to understand the current thoughts and possibilities for stakeholders / actors, that may have insights in a Danish food system context. There are many interconnected issues in food systems, therefore there are many entry points and actors to research. However, based on the knowledge I have about key food actors, I chose to ask COOP (a Danish retailer business), the municipality of Copenhagen, and the farmers' organisation, *Økologisk Landsforening* (Organic Denmark). For more details about why I selected these actors, please read methods chapter 3.2, and for a more general information about their organisations, please refer to chapter 5. The chosen actors will not be mentioned by name, as they are anonymized. They will be described as actors or participants in the thesis, or with an abbreviation of their organisations call-names.

My research has a two-piece goal. The first is to understand the perspectives of whether we are moving towards sustainable food systems, and what this entails. To accommodate this task, I am asking the chosen actors into their narratives about everyday practices in relation to the food system. Do they link health and environmental elements together within a food system thinking? (Lang & Heasman 2015: 2. See next sections). In addition, what do the actors acknowledge as barriers for developing and integrating sustainable practices in relation to food systems in their organisations? By asking stakeholders / key actors in the food systems, I could get an idea of where we might be heading when it comes to strengthening sustainable food systems in future.

To support an understanding of this research area, literature about food systems and paradigm-thinking becomes central to my research area. I chose literature by Lang & Heasman (2015) to provide this theoretical background. The problem statement is first of all inspired by their book (Lang & Heasman 2015), based on their argument that health and environment can not be separated from the food system thinking, if we want to ensure public health in future (2015: 2). Lang & Heasman developed a concept to capture this aspect termed Ecological Public Health (2015: 1), and I would like to elaborate on this concept in my thesis. Further, I have chosen to include Lang & Heasman's (2015) framework to situate problems facing the global food systems (Lang & Heasman 2015: 2). This is embedded in the conceptualization of three competing paradigmatic food systems, the Productionist paradigm, the Life Science paradigm and the Ecologically Integrated paradigm (Lang & Heasman 2015: Preface). This framework provides with an understanding of the complexity of the modern food systems and gives a possibility to link the concepts of "food systems" and of "paradigms" together (Lang & Heasman 2015: Preface), which is necessary in my analysis. More details of this theoretical framework and the concepts used in the thesis are described in chapter 4.

The second goal of my thesis is, that I want to understand the research questions through the lenses of Situational Analysis, a research strategy that has the strength to analyse important elements in a situation from inside out "social inversion" (Clarke 2005: xxxvi). What happens when all human and non-human actors as well as discourses get special attention in relation to the actors understanding and in relation to my interpretation of the situation? (Clarke 2005: 89). My thesis is that, we might not see important elements if not non-human and discourses are twinkled into the analysis, which Situational Analysis can bring to the research (Clarke 2005: 87-89). More clarification of these issues will be described in the methodology chapter in chapter 3.

I am not entering into a natural scientific discussion on whether there is enough evidence to state that we need to create another food system than today, or lay out a hard line for biological processes in food systems. However, I do want to review literature with a sociological, a science and technology (STS) and a public health approach, - literature that put light on the importance of creating sustainable food systems, which enhance health and environment.

Thus, I am entering a sociological and humanistic approach, and further a constructivist perspective (Clarke 2005, Lang & Heasman 2015, Sismondo 2010, Latour 2006), as the background for my research questions. I chose to lay out a sort of a map with theory / perspectives that "directs along

which to look" but not what to find (Clarke 2005: 77). This is elaborated in section 3.1.

By delimiting my research to cover food systems and health and environmental aspects in this way, I am opting out other important issues in connection to sustainable food systems. There are a lot of different approaches to investigate food: physiological, psychological, social, cultural and physical. Such as hunger, local food, food waste, small farmers versus agro-industrial actors, food miles or the behavioral (consumers) aspect or the physical aspects of food as a basic human need. However, I will touch on some of these issues through Lang & Heasman's (2015) conceptual paradigmatic framework.

In some cases a precise translation from Danish to English is not possible, and based on this fact, I will write the Danish word or concept in italic first, followed by the best possible English translation in brackets. Translations from the interviews of the actors are made as good as possible - from Danish to English. Danish organisations, councils and ministries will be described in their original Danish call-names, and the original call-names are followed by the English translation in brackets.

A clarification of the concepts and the wording of the problem statement with regard to "health" and "environment" in food systems is described more thoroughly in chapter 4. "New paradigms" is also called new tendencies or new trends in the thesis. Clarification of other concepts used in the thesis are described in the chapters 2, 3 and 4. This means that clarification of food systems, paradigms, sustainable food system, food governance, health and environment are described in chapters that entails these subjects.

1.4 Positioning myself

In order to understand my approach, I will provide the reader with some information about my background in this section (Creswell 2013: 6). I was trained as a Professions Bachelor in Nutrition and Health in 2005, where I got methodological tools to understand public health nutrition, both theoretical and practical, such as culinary skills, food campaigning and kitchens economy. Then later, I learned science, statistics and biochemistry. Thus, my background is in Public Health & Nutrition. Subsequently, I have worked with "food in an environmental perspective", my own concept of it, first as canteen manager in an organic kitchen for three years. Then I acquired a diploma in *Humanøkologi* (Human Ecology) at Aalborg University, with sustainability as the

fulcrum. Subsequently I worked as a project manager within food and environment campaigning, at a large hospital kitchen in Copenhagen. Since 2010, I have been volunteering in NOAH - Friends of the Earth Denmark, an environmental organisation, in a group called Food Sovereignty. All this means, that I have been on the labour market for quite some years. This background explains why I write as I do in the Thesis - my background is partly practical and partly theoretically based. My background and my motivation for creating the thesis derives from my big love for food, for public health and for a fair and democratic food systems for all. I would like to utilize some of the theory and tools given to us in the Integrated Food study program to expand an understanding of "food in an environmental perspective", and to conduct a qualitative research to understand a little piece of a bigger picture of food systems and future possibilities. Hopefully my thesis will bring light on the complex picture of food systems, in order to give others an outset to adopt in a following research.

1.5 Reading guide

In this section a short reading guide for this Master Thesis is outlined.

Chapter 1 was the introductory part. In the last part of this chapter, the State of the art is outlined.

Chapter 2 will present the Philosophy of Science, where I lay out where the thesis takes its basis.

Chapter 3 will present the methodological application of theory used in the thesis. It is a continuation of the philosophy of science from chapter 2. However, in chapter 3 the specific theories applied in the research are described. Concepts used in the thesis are clarified here.

Chapter 4 will present the theoretical framework for the thesis. Lang & Heasman (2015) gets a special place in my framework, and theoretical concepts used in the thesis are clarified here.

Chapter 5 will present the first part of the analysis, outlining the participating actors' organisations. The chapter is to a high degree created from knowledge gained from the interviews.

Chapter 6 will present my analysis. The first part is an explanation of the processes in conducting the actual analysis, and subsequently the final analysis for the thesis is delivered.

Chapter 7 presents the discussion and Chapter 8 presents the conclusion.

In every chapter and in every section, I will initially explain what the chapter will contain, and end up with a summary of the chapter on how the specific theory is applied in the following thesis.

The number of the figures, tables and matrices follow the numbers of the sections. In chapter 4 and 6, the chapter both contains figures, tables and matrices. This is good to know before commencing reading the chapter.

1.6 State of the art

In 1962, the biologist and author Rachel Carson wrote the book 'The Silent Spring', where she described the dangers of excessive use of pesticides, especially DDT (Carson 1962). This came as a huge surprise for most people and gave significance to the emerging environmental movement of the 1960. Silent spring became a metaphor for the misunderstood confidence in the technological mastery of nature, and rocked the belief that pesticides can be used without side effects for animals, plants and humans. She called for extreme caution in application. Carson described alternatives for spraying, but the most significant she pointed out was that unlimited and unregulated economic growth is not possible if people and nature are to exist peacefully together (Carson 1962).

In 2001, nearly four decades later, a report from European Environment Agency (EEA) stated something similar. Based on 10 case studies, it showed cases where society did not react on their knowledge on environmental "hazards"s from early on (Harremoës 2001). The application of the precautionary principle is a key message in the report, and it argued that scientific methods need to reflect the realities of multi-causality better (Harremoës 2001). In 2013, EEA wrote a second edition of the report, stating the same and highlighted a number of systemic problems (EEA 2013).

Meanwhile, in 2006 (Gee 2006), one more "hazard" termed the Endocrine-Disrupting Substances (EDSs), followed up the 10 others. Here was a key message that environmental health science is ignoring the different levels of proof for threats posed by EDSs (Gee 2006).

In the new millennium, United Nations have launched reports every year and several of the latest, state that the world do not need pesticides to feed the world (UN n.d. b, UN 2016, UN 2017). A report from 2017 states that ecological farming do have the potentials to be a sustainable solution for future food systems (UN 2017).

A recent report from *Nordisk Council* describes that we could feed the Nordic population in 2030 with organic food. A key message of the report is that food should be produced within the region using organic farming practices and with livestock mainly fed on grass and by-products not suitable for human consumption, meanwhile reducing the climate footprints of our food system and being better at growing plants that can fix nitrogen in the soil (*Nordisk Råd* 2017).

The report "Planetary boundaries: guiding human development on a changing planet" (Steffen et al. 2015) argue that there is an urgent need for a new paradigm that integrates human activities with the planetary limits (Steffen et al. 2015). The research draws on diverse theoretical methodology, with measures of nine planetary boundaries. It define a "safe operating space" that can help guide human society away from destabilized systems made by humans (Steffen et al. 2015).

On September 25th 2015, United Nations Member States adopted the new global Sustainable Development goals (SDGs), which include 17 development goals to end poverty in the world, fight inequality and injustice, and tackle climate change by 2030 (Hildebrandt et al. 2016, UN n.d. a). They give directions for how we can move towards a sustainable food system, supported by strong voices from science. Thus, SDGs could be seen as a part of a paradigm-shift (Hildebrandt 2016: 25), a big movement towards something different in the food system with sustainability as the focus (Hildebrandt 2016: 22). One point is that we need "good governance" to ensure sustainable development, and this involves state, businesses and private housekeeping`s (Hildebrandt 2016: 23).

Literature from Tim Lang and Michael Heasman (2015) was a way to get an critical outset on the food system paradigm-discussion, and thereby getting one perspective of how the modern food system and alternatives ones work. Lang & Heasman (2015) argue; "Despite the welcome agreement that food sustainability has to be central to whichever version of food futures is conceived, the evidence suggests that the food system is still heading - or is that drifting? - into major trouble on many fronts" (Lang & Heasman 2015: 281). Lang & Heasman (2015) suggest ways of moving towards sustainable food system by transforming to what they call the Ecologically Integrated paradigm (Lang & Heasman 2015: 40). Another important concept, and key message in the book is that health should be in the heart of every food policy - or as a fact, in every policy (Lang & Heasman 2015: 134). I will cover this more thoroughly in chapter 4.

Carolan (2011) examines the dominant globalised food system by asking whether we can afford cheap food in relation to public health in a longer term. He examines the economic concepts often applied in favour of cheap food. Carolan argue that other societal considerations within larger food policy, such as trade policy, is deciding how our food system is organised (Carolan 2011).

Literature within the scope of moving towards sustainable food systems was a book edited by Marsden et al. (2014). The book approach the problems facing global food systems with social, economic and political science. It provide with suggestions to EU food governance, public

procurement, sustainable food chains, bioeconomy, animal welfare, farmers entrepreneurship, and urban strategies, and much more. One of the keys of the book is that food studies need to embrace a critical approach to the food system thinking, always linking food systems with sustainability (Marsden et al. 2014). They argue that it is no longer possible for the society to separate food security (having enough food for all) and sustainability (create synergies of production) (Marsden et al. 2014: 1).

Thoughts about alternative - and local food networks is provided by Ingemann and Kjeldsen (2006). The organic movement "takes a critical stance towards the capitalist development of farming and food systems and poses in that sense an "alternative" to "conventional" food systems" (Kjeldsen & Ingemann 2006). The article poses the underlying understanding of what is an "alternative" and a "conventional" food system - with Denmark as an example. The authors argued that it can be difficult to provide a unifying definition of organic agriculture, other than that of being in opposition to conventional farming, and that the organic movement was more a social movement than a "sustainable agriculture movement" (Kjeldsen & Ingemann 2006). The authors argued that organic food is now being "conventionalized" since up to 80 % of all organic products is sold by supermarkets and retail chains. However, at the same time new trends such as e-commerce, consumer-owned farms, and cooperative sales outlets are created, but still not in the same high degree as the field has been commercialized and mainstreamed (Kjeldsen & Ingemann 2006).

Dyball (2015) argues that we need to shift to a "biosensitive paradigm" from the "industrial paradigm", within which the social and environmental aspects of food production and consumption would be respected. Global and industrial food-production should be replaced by regional food systems to supply urban consumers. Dyball (2015) argues that a paradigm shift would mean reduced food choice and convenience and likely increase cost. However, what would motivate consumers to support it? The author suggested that consumers would embrace new food systems, if they valued the changes sufficiently to compensate for the forgone values of the old system. Positive values include personal skills in the creation of meals, knowledge of the provenance and standards of ingredients, and relationships with producers (Dyball 2015). These values, he argues, are most likely to arise when consumers interact with local food systems, which means that the primary value of local food systems lies in the educative capacity to foster a shift to a biosensitive paradigm, not in the absolute volumes of food that they produce. The author called this a new paradigm, with the range to reach out to all food-producing landscapes and farmers (Dyball 2015).

In other literature searches about paradigm-shifts, a recent danish Ph.D. thesis, argues that a paradigm-shift must include *collaboration* (Hansted 2016). The author argues that we need ways to engage a broader part of the population in important research concerning societal issues and in particular, collaboration. This is a key message of the report, and Hansted (2016) argues that there is a specific need to find new solutions and new forms of cooperation, where silos break down, meaning that researchers seek understanding and solutions across their respective own paradigms and worldviews (Hansted 2016). This is in order to correlate to the complexity of the challenges of today. However, at the same time, he argues, it is becoming increasingly unrealistic that any single genius or any isolated professionalism, business or nation alone can accommodate complexity and solve the problems in isolation. It requires cross-disciplinary knowledge from a qualified basis and collaboration across paradigms, many different people, systems and borders (Hansted 2016).

2. Philosophy of science

In this chapter, I would like to describe the philosophy of science behind the thesis, and lay out the position from which I have constructed the thesis in the universe of qualitative research.

I have developed the qualitative research design using tools from Creswell (2013), Maxwell (2013), Denzin and Lincoln (2008), and extended by Clarke (2005). I choose to extend the literature with Clarke's theory and methods, termed Situational Analysis, due to that I use it as both method, theory and research strategy.

First, I will outline the structures in doing the qualitative research, and then subsequent narrow down to the specification of the application in the thesis. In the last section, I will provide a sum up.

2.1 Qualitative research

In the 1960ies new theories in science appeared, casting doubts to the positivist approach as the only way to understand and scientifically measure the world. In the positivist perspective only one "natural" truth exists out there, and it just needs to be found by "the modest witness" with quantitative methods (Clarke 2005: 20, Denzin & Lincoln 2008: 4).

With this new approach, social-, human and health science studies and beyond (Clarke 2005: xxi) drifted away from the natural science's hard grip - in a mutual understanding of focusing on interpretive and qualitative approaches to inquiry, research and theory, leaving behind the simplicity of the positivist perspective, where only the skilled scientist ("the modest witness") was clever enough to find the truth (Clarke 2005:xxi, Creswell 2013: 11-12, Denzin & Lincoln 2008: 4).

A definition of qualitative research is;

"Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world" (Denzin & Lincoln 2008: 4).

The qualitative researcher may be described as a "bricolour" or a "quilt maker", who assembles images into montages through their observation, participation, interviews, ethnography and literature reviews, with many different things going on at the same time. Different voices, different perspectives, points of views and angles of vision (Denzin & Lincoln 2008: 5-7). Further, Denzin

and Lincoln (2008: 5) point out that; the qualitative researcher "uses the aesthetic and material tools of his or her craft, deploying whatever strategies, methods, and empirical materials are at hand" (...) and that the "choice of research practices depends upon the questions that are asked, and the questions depend on their context, what is available in the context, and what the researcher can do in that setting" (Denzin & Lincoln 2008: 5). The qualitative research is inherently multi-methodological, and this approach gives ground for reflections to secure an in-depth understanding of the phenomenon in question (Denzin & Lincoln 2008: 7, Maxwell 2013). See the last section in this chapter, for the application of these aspects into my master thesis.

2.2 The Philosophical assumptions

Philosophical assumptions are beliefs about ontology, epistemology, axiology and methodology (Creswell 2013: 19-22, Maxwell 2013).

When choosing qualitative research I need to convey which underlying philosophical framework exists for the specific qualitative research. Whether you are aware of it or not, there are always certain beliefs and philosophical assumptions to a qualitative research (Creswell 2013: 15, Clarke 2005, Maxwell 2013). This comes from e.g. our educational training and previous work.

It is important that you are aware of these beliefs and explicitly write about it in a qualitative study, as then both you self as a researcher understand how to construct the research, and for the reader to orient him or herself in the text (Creswell 2013: 15). The following table will outline my thesis' ontology, epistemology, axiology and methodology;

Philosophical assumption	Ontology (the nature of reality)	Epistemology (how reality is known)	Axiology (role of values)	Methodology (Approach to inquiry)
Constructivism	- The only reality possible are those we construct.	- Reality is co-constructed between the researcher, the researched and the situation investigated. - Depends on the relationship between researcher and researched	- Individual and indigenous values are respected. - Complexity represented.	- Interviews - Literature review - Data collection - Theory review -Relates to the methodology use, to assemble the necessary knowledge about the actors and the situation.

Table 2.2 constructed with inspiration from Creswell 2013: 20-22, 36-37, Clarke 2005: 7, 32

In order to explain the table, my thesis is build up upon a constructivist perspective with a strong link to the work and thoughts of Adele E. Clarke and of STS (Clarke 2005: xxvi-xxvii, about STS below). A constructivist perspective (the epistemological level) means that you believe that the reality is constructed by people, their actions and the negotiations between them (Clarke 2005: 7, 32). Reality is not created as the positivist approach (only one truth), or as the social constructivist approach (through social and human actions). (Clarke 2005: xxvi-xxvii, 7).

An important understanding of the constructivist perspective;

"postmodern perspectives view all knowledges (including the natural and social sciences and humanities, "lay" knowledges of all sorts, and knowledges from all sites globally) as socially and culturally produced" (Clarke 2005: xxiv).

Thus, taking this perspective, all scientific knowledge is made by humans, created between people, their negotiations and shaped by their networks, even the natural science positivist logical reasoning and conclusions (Clarke 2005: xxiv). You can not understand the society, if you do not see the interrelation between technology, discourses, power, and the relations that exists between people and organisations clearly (Clarke 2005: xxxv, Sismondo 2011).⁴

From the sociological tradition and the constructivist perspective, a new approach expired, termed Science and Technology Studies (STS) (Clarke 2005: xxxv, Sismondo 2011: 10-11, Coff 2016: 125, Latour 2006). The foundation for STS is in the Kuhnian paradigm thinking (Sismondo 2011: 12), that any scientific tradition is social in that scientists are always members of communities and trained into these (Sismondo 2011: 12, Kuhn 1970 - See chapter 4). Sociologists from this approach argue that neither science nor technology is a natural kind, and no privileged scientific method can translate nature into knowledge, or knowledge into a product (Sismondo 2011: 10-11, Clarke 2005, Latour 2006, Coff 2016: 125). Modern science has produced many complex technologies and networks, where culture and nature are interwoven (Clarke 2005: xxxv, Hildebrandt et al. 2016: 23-24, Sismondo 2011, Latour 2006). STS provides tools to analyse the complexity between science, technology and society within food systems, to put forth questions about phenomenons such as ozone depletion, forest deaths and global warming (Sismondo 2011, Latour 2006). Are they natural or man-made? Local or global? Both? (Clarke 2005: xxxv, Sismondo 2011, Latour 2006). Clarke argue that this approach: "involves us in the ontological politics of staying true to complexity" (Clarke 2005: xxiv).

⁴ At the ontological level, I think that there exists a natural truth, but human beings can not grasp it (Creswell 2013).

2.3 My approach to the qualitative framework

Narrowing down to the application of the theory of philosophy of science, I would like to describe what it means for my research design. Taking a qualitative, constructivist, interpretive approach gives me several possibilities:

- I can use myself as a “knower” in line with the natural scientist in white coat - I hold the research using the methodological and theoretical framework to justify the choices in the thesis (Clarke 2005: xxix, 85 - see next chapter, Ponterotto 2005).
- I can design my thesis with "pieces of quilt" (Denzin & Lincoln 2008: 5-7), that fits into the scope of my research relying on academic literature, scientific studies and my own interviews. This multi-methodological approach gives a breadth within the empiric data, however it may also provide some difficulties. I have to be both an interviewer, an analyzer, an ethnographer, a scientist creating an hypothesis and concluding, an author, a literature reviewer, a cartographer, and a secretary trying to get in touch with key food actors, who make a difference within my research area.
- I want to use these methodological tools to understand the complexity within my research area. My research questions becomes the center element in the Situation Analysis (Clarke 2005). This is described in the next chapter (chapter 3).

3. Methodology

With basis on the overall philosophical framework, I would like to describe and elaborate the chosen methodology used in the thesis. Based on the research questions, it is essential to find the necessary tools enabling me to uncover a framework to conduct the research. This imply the theory to create a background for the research, tools to collect empirical data, and ethical issues.

In the first part of the chapter, the research strategy is outlined, and subsequently the rest of the methodological framework is described. This includes the theory on interview design, actor selection and data analysis. On the methodological part to conduct an interview design, I will elaborate on the theory of Stainar Kvale (1997). The application of literature to data analysis is conveyed from Clarke (2005), Green et al. (2007), Maxwell (2013) and Creswell (2013). In the last section of the chapter, I will provide a sum up.

As mentioned in the introduction, literature from Lang & Heasman (2015) is utilized as a method / framework to understand food systems and their development. However, the application of this theory will be described in chapter 4 - in the theoretical framework.

3.1 Research Strategy

In this section I would like to describe the research strategy and its application in the thesis. I would like to utilize Situational Analysis, based on its strength to encapsulate the constructivist perspective in the research. Situational Analysis (Clarke 2005) derives from another sociological and qualitative research strategy, Grounded Theory (Clarke 2005: 40). In grounded theory you study a phenomenon and develop theory from the empirical observations and data, through interviews, observations, and other data materials (Clarke 2005: xxxi, 40).

Situational Analysis (S.A.) is a theory/method package, ie. that both describe the world within which it exists and delivers methods to analyse elements of the researched area (Clarke 2005: xxxiii). It is inherently a multisite research, because the codes and categories of a particular analysis can be both generated and applied across the full range of possible sources, useful with both small or large qualitative research (Clarke 2005: xxxvii). In S.A., the researcher becomes:

"not only analyst and bricoleur but also a cartographer of sorts", which is explained in the following sections (Clarke 2005: xxxvii).

As mentioned previously, the postmodern shift in qualitative science, changed the outset for social, human and health science studies and beyond (Clarke 2005: xxi), from the positivist way of simplification and universalising in research, to the postmodern way of opening up for analyses of differences, complexity and multiplicities of the society (Clarke 2005: 19-20).

With these changes came another perspective of how scientific knowledge is created (Clarke 2005: Prologue). The qualitative researchers are allowed to use themselves as "the knower" - the epistemological level - and use own understanding and background in the research (Clarke 2005: xxix-xxx, 21). This was previously contested by the positivist way of looking on bias, which basically means, that the researcher impact the researched field through presence. Nevertheless, taking a constructivist perspective means that all science is influenced by the scientist (Clarke 2005: 20). The changes also changed what is acknowledge as important elements / actors to research. For Clarke (and other scientists from STS), it meant that actors can be both human, nonhuman and discourses (2005: 20-21, 30-31 - please refer to the next pages). Further, it is emphasising that qualitative research is a way to understand local phenomena within a specific situation and within a specific period of time, more than it is a way to understand the truth for all sciences and for all scientist in all future. This is called situated knowledge (Clarke 2005: 20, 29-31).

Situational Analysis meant a shift from looking on the social process/action in Grounded Theory methods, to social ecology/situation, grounding the research more directly into the situation of the inquiry at hand. An argument from Clarke why this is necessary;

"situations defined as real are real in their consequences" (Clarke 2005: 21).

and:

"perspectives dominates the interpretation upon which action is based" (Clarke 2005: 21).

This leads up to a definition of Situational Analysis:

"Situational analysis seek to analyze a particular situation of interest through the specification, re-representation, and subsequent examination of the most salient elements in that situation and their relations" (Clarke 2005: 29).

This definition is explained throughout the following sections.

3.1.1 Situational Analysis as a method

My attempt to write an introductory description of the theory behind Situational Analysis is a way to narrow down its application in this thesis. Situational Analysis (S.A.) gives me methods to analyse within a complex research area by looking at the research questions as "a situation" (Clarke 2005, 28-29, 33). I use cardiographs / maps to gather and "open up"⁵ data from the interviews and literature reviews, and then I place the identified actors / actants / element into these (Clarke 2005: 83). This allows me to get a pictorial understanding of the situation, amenable to especially find differences and heterogeneous meanings (Clarke 2005: 75). Clarke argues that maps - more than narratives – provides a quick and easy understanding of complex situations and the interactions (Clarke 2005: 86).

Clarke (2005) operates with a very broad definition of what an actor is, in the analysis. Actors can be either human, non-human/objects (actants) or discourses in a given situation. This means that there are several different elements to consider, when talking about actors in a situation. Interactions do not only happen between people, but between people, objects and discourses, which makes situations more difficult to analyse without the necessary tools (Clarke 2005: xxix). If you leave one of these elements out, you might not fully understand a complex situation. S.A. has the tools to encounter this complexity by placing all the identified actors into the maps.

One of the foundations for Situational Analysis is to analyse differences and heterogeneous meanings in data. You can find silenced actors / actants / elements, such as a "dirty potato" (a non-human actants). This dirty potato may in fact pose as an inconvenience for a farmer. If the dirty potato is not cleansed, it is not possible to sell it directly to public kitchens, which the farmer may regard as a problem. Based on this aspect, the dirty potato is essential to find through analysis (Clarke 2005: 61-64). Likewise can S.A. take peripheral voices from minority groups into account and showcase power as a strong influential factor (Clarke 2005: 74).

A last important key message is that in order not to violate differences and heterogeneous meanings in data, Clarke argues, that you should not make premature theoretical closure in a qualitative research. This is encountered through the use of *Sensitizing concepts*, which basically means "*directions along which to look*" but not what to see (Clarke 2005: 77). I want to use sensitizing concepts (Clarke 2005: 52, 77) - in my analysis and throughout the thesis (Clarke 2005: 52).

5 "Open up data" is a notion Clarke uses a lot - in connection to the overview that pictorial maps deliver.

3.1.2 Situational Analysis maps

In this section I would like to describe how I created the Situational Analysis maps in my research. Firstly, I will shortly describe the maps. S.A. make use of three different maps. I only used the first map. I chose to delimit my research from the two last maps, because, what I needed was the methodological tools from the first map, to "open up" my data. The first map is called Abstract Situational Map and is presented in the following text (Clarke 2005: 87).

Abstract Situational Map

Abstract Situational Map lays out the analysis of all important elements in the situation,- human, non-human and discourses (Clarke 2005: 87). With this map, I analysed the specific situation and examined the most salient elements in the situation and the relation between them. I ask the questions (Clarke 2005: 87-89):

- Who and what is in this situation?
- Who and what really matters in this situation?
- What elements (human, non-human and discourses) makes a difference in this situation?

Abstract Situational maps involves three "steps": The messy map, the ordered map and the relational map. I will describe each of them in the following sections.

The Messy Map

The first map provides me with tools to understand the situation and "provokes me" to analyse the data more deeply (Clarke 2005: 83). I began to draft maps following after the interviews with the participants / actors in my research. My research questions were "the situation", thus the research questions were placed in the central circle on the maps, and then I placed the identified actors / actants / elements around the center. I "brainstormed" and interpreted on the most important actors. With new interviews or data, these new elements were put into the maps, if important. Maps were conducted several times.. All actors could potentially influence the situation that I analysed (Clarke 2005: 86-90). For the messy maps, see chapter 6, figure 6.1, and Appendix 4, 5, 6.

The Ordered Map

When I finished the messy maps, I went on to the ordered map, to put an order to the data (Clarke 2005: 89-91). It is possible to go back and forth between the messy maps and the ordered maps, but

it is important to make copies, date, keep all versions and make memos after each session (Clarke 2005: 89-91). In the ordered map, Clarke suggests that you discover your own categories (Clarke 2005: 89-90). I classified mine in groupings based on my research questions (which also is my pre-structured themes⁶): New tendencies, Health, Environment, Barriers. The ordered map is in chapter 6, table 6.1.2.

The Relational Map

Subsequently, from the messy maps, I drew lines between the actors / actants / elements to understand their relations. This provided a possibility to find important themes. Important themes mean that all the participants have a relation to an actors / actants / elements, within the scope of the research questions (Clarke 2005: 102-104). This imply important issues / sensitizing concepts to foreground in the following final analysis. The relational maps for my research are displayed in chapter 6, figure 6.1.2, and in appendix 7, 8 and 9.

In the actual mapping, it turned out to be somewhat harder said than done to conduct the maps. It was difficult to find non-human actants in the research. I realized that in the analysis phase. I will elaborate on this in chapter 6 (the analysis). In addition, I forgot data from the early messy maps (in the first processes of mapping to the later), and it was difficult to make final maps based on this. Furthermore, I do not owe the appropriate pencils to map the situation, which is seen especially in the relational mapping. Pens and brush strokes made it difficult. It would have been appropriate with a computer-program to draw the lines in the maps. I do not have such a program.

3.2 Actor selection

In the following section, I will describe how and why the actors was chosen. In chapter 5, the actors organisations is outlined and will provide a more general overview.

Based on the introductory debate, that there is a need to increase interconnection of the primary parts of the food system with retail and consumers (Kristensen 2017, Hauggaard-Nielsen 2017, Hastings 2016, Swisher 2018, Personal communication with HRS, Personal communication with CPH municipality), it would shed some light on the notion to ask actors / stakeholders, working inside the food system in some of the food organisations, previously known for achieving practices to enhance sustainable food systems in Denmark. The recent initiatives mentioned in the introduction (vegan meat, organic public food and farmers conducting new innovative products for

⁶ The reason why my research questions are the pre-structured themes, is described in section 3.3.

the retailers) gave me incentive to ask actors from these organisations. You may see these actors as first movers in a food system context (Windahl et al. 2009). Furthermore, it would give substance to the research if the specific actors work with food every day, and not in the general administrations in their organisations, and thus through their jobs and networks most likely have some experiences and thoughts in relation to the research area. Based on these considerations, I asked individuals with connection to food systems in general. During the winter of 2018, I asked COOP (a Danish retailer chain), the department of Public Procurement in Copenhagen municipality and *Økologisk Landsforening* (Ø.L. - Organic Denmark), whether it was possible to interview them in the near future, and they all accepted the invitation. The actors function as stakeholders in the Danish food system perspective and this put me in contact with actors that participates in networks and negotiations in Danish food governance⁷, that has the potential to create change in favour for moving towards sustainable food systems. As a last remark, before I am entering into the section on the actor selection, I started my research by asking several organisations, whom (I expected) represented different world views in food system paradigm thinking. Nevertheless, the final actors were the ones that answered my request.

Farmers/producers - *Økologisk Landsforening* (Organic Denmark)

United Nations states that organic agriculture is having the potential to develop sustainable food systems (UN 2017). In fact, a report from 2017 stated that we do not need pesticides to feed the world. Based on this aspect it would be interesting to contact the largest Danish organic farmers organisation, *Økologisk Landsforening "Ø.L."* (Økologisk Landsforening 2015 a). They are also the Danish IFOAM members, who have developed the four principles of what organic agriculture should entail (Økologisk Landsforening n.d. b, IFOAM n.d.). These principles have roots in the sustainable thoughts from Brundtland sustainability report from 1992 (MST n.d.). In addition, the four principles fuse health, environment and social life together, which is pointed out by social debaters as an extremely important issue today (Lang & Heasman 2015, Marsden et al. 2014). Historically, Ø.L. derives from the days when the organic movement in Denmark raised. From the start it has been a "sustainable agriculture movement" (Økologisk Landsforening 2015 a+b+c), and based on these aspects, it would be interesting to learn how the thoughts are within my research area and whether they see any new trends in food systems. Finally, Ø.L. embrace all kind of people within society, ordinarily citizens, farmers to businesses (Økologisk Landsforening 2017). All these aspects mentioned were reasons for interviewing Ø.L.

⁷ Food governance perspective is described in chapter 4

Retailer - COOP

Based on the introductory debate, critical debaters such as Lang & Heasman (2015) argue that retailers play a very central role in leveraging sustainability in the food systems. Retailers have the power to change how things are working (Lang & Heasman 2015: 9, 12). Farmers are squeezed between agribusiness to food processing and retailers in the supply chain, with the consequence that the economic gains of food production are not given to the farmer himself. In connection to my research, I wanted to ask an individual with knowledge about food systems within one of the largest Danish retailer businesses. Based on the specific history of COOP - being a cooperative movement with over 1,6 million members in Denmark (COOP n.d. c+d), and the fact that they have been trying to prevent problematic chemicals in groceries (COOP n.d. a+b+e), I choose to ask them for an interview. I assumed that COOP do have the potential to leveraging sustainable food systems by demanding sustainable foods and goods, why it would be interesting to ask them about these issues.

Copenhagen Municipality

Copenhagen municipality has implemented an organic transition since 2002, to ensure organic food in the public sector. Nearly 90 % of all public food is organic (Københavns Kommune 2016 a+b), which provides me an interesting entry point for my research area. Contacting the municipality could give a compelling insight into how the organic transition developed, and whether other new food system trends are happening on the municipality level in these day. It would be interesting to ask the municipality whether they believe that the public sector do have the potential to lever even more sustainable food systems. I hoped to be in contact with an individual working with food every day - on the municipality level, and I made contact with Department for public food procurement under Children and Youth (*Børne og Ungdomsforvaltningen*).

3.3 Interviews

The interview is a way of gathering qualitative data. The interview design strategy used in this thesis is developed with Kvale (1997), where the emphasis is on semi-structured interviews (explained later). Moreover, literature from Creswell (2013) and Maxwell (2013) are utilized in the process of building up the interview and for the data gathering process.

To interview is a craft (Kvale 1997: 112). The interviewer is the tool and the interview is a special form for human interaction where knowledge is developed through dialog (Kvale 1997: 130). It is the job of the interviewer to shape a contact and an atmosphere that enables the dialog (Kvale 1997:

112, Maxwell 2013: 101). The quality of the interview depends on the researcher's knowledge, sensitivity and empathy, and requires - for most people - many years work, in order to understand mindset of the people, their culture, and ethical issues (Kvale 1997: 112, Maxwell 2013: 101).

In the interviews, I wished to create questions, that could form a platform for trust between me and the participants. I wanted to ask questions that had the potential to open up and capture their understanding and "meaning-making" about whether they see new trends and barriers in their organisations, and how this manifests itself (Kvale 1997: 135, Maxwell 2013: 101, 117). Meaning-making basically means the process of how individuals construe, understand, or make sense of life events, relationships, and the self (Kvale 1997: 135, Maxwell 2013: 30, 32). I wished to give the actors as much room as possible to elaborate on my questions, in their own pace (Kvale 1997: 102, 131). The interview questions were semi-structured, this means that they are mostly open-ended to let the actors come up with own understanding of the topic and hopefully open up their world life (Kvale 1997: 27, 94-95, 132-139, Maxwell 2013: 100-104). The interview questions were not constructed to rigid, because creativity, my stepwise insight and sensitivity alongside the interview is essential (Maxwell 2013: 101).

The aim of my interviews was to give me answer to my research questions:

- How are elements of a new paradigm for health and environment emerging in the Danish food system? From retail, organic movement and the public sector.
- What seems to be the barriers for the different actors to implement more sustainable thinking and practices?

Going from the overall research questions to create interview questions is described in the following table 3.3 (Kvale 1997: 135, Maxwell 2013: 117). What I especially needed to understand was whether issues of health and environment in relation to food systems are emerging. During this process it became clear that I had to divide the research questions into four overall interview questions; new tendencies (in general), health, environment and barriers. These "four" interview questions subsequently are what I refer to, when I write research questions or pre-structured themes. The following table 3.3 show how I tried to get answers to each of my interview questions.

Research questions	Interview questions
How are elements of a new paradigm for health and environment emerging in the Danish food system?	<ul style="list-style-type: none"> - Do you see new trends in relation to your practices towards food system in your organisation? - Do your organisation relate the concept of health into your work with food systems? - Do your organisation relate environment issues into your work with food systems?
Getting more concrete about new trends, health and environment ("actions")	<ul style="list-style-type: none"> - How are new trends (health and environment) integrated into your organisation? - How is this done in concrete terms? - Would you tell me about your practices in every day work?
What seems to be barriers for the different actors to implement sustainable practices in their organisations?	- What are the barriers for your organisation to work for enhancing more sustainable food systems?
Getting more concrete about barriers ("actions")	<ul style="list-style-type: none"> - Where do you believe we are headed with the food system in 20 years? - Do you see any barriers in moving towards sustainable food system in your organisation? - Are you an optimist in relation to solving the environmental problems in the food system?

Table 3.3 Showing how research questions were made into interview questions.

3.3.1 Steps in the interview design

Kvale created seven steps to the developing interview designs (Kvale 1997: 102-103). The seven steps involve: thematising, design, interview, transcript, analysis, verification and report (Kvale 1997: 27, 94-95, 132-139). With this literature, Kvale (1997) gets around the important parts of what is still seen as essential in a qualitative interview research today, such as thematising the interview questions and contextualizing the research at hand with old and current research (Kvale 1997: 102-103, 131-134, Creswell 2013 132-134). Kvale steps provide a structure in the interview - in order to gather the intended knowledge (Kvale 1997: 105). These tools are used in my interview design structure - before and under the interviews. This entails entries such as an interview guide, planning time, how many participants the research requires, and thoughts about resources (Kvale 1997: 105-111).

Later literature on interview design, suggest new aspects of what a researcher needs to know something about in the interview design phase (Maxwell 2013: 103). This is literature on always

asking about specific events or actions, rather than ask about generalizations of what the participant might or might not want to do or how they potential think about a subject. This is due to the human neurocognitive memory system (Maxwell 2013: 103). The more concrete the interview questions are, the better the participant may remember what actually happened, how they reacted in relation to specific actions, or what their thoughts are on the subject. This is an important detail, that I tried to build into my interviews (Maxwell 2013: 103).

However, when it actually came to my interview it showed, that this was easier said than done. By this, I mean that some of my research questions are rather abstract in themselves, e.g. which barriers do the actors see for moving towards a sustainable food system. It proved difficult for me to ground the interviews, as I am not yet a good interviewer, and I stumbled over my own words and concepts from time to time. Some of my questions were answered with "might be", and were not really answered. Only after conducting the interviews I realized this aspect. However, by listening to my recordings once more, I manage to create a reasonable dataset of their understanding of the research questions, by following up on what the actors said during the interviews and to some degree by going into more detail after each question.

In the following section, an initial interview guide is displayed (Kvale 1997: 135). The actual interview guides for the three interviews are displayed in appendix 10, 11 and 12.

Question 1-4: I would like to get in contact with individuals, asking simple facts-questions, such as name, position and job functions, the frames and values of their organisations, as well as knowing the thoughts and practices on food systems.

Question 5-7 : Questioning into the article from FAO, and following the narratives of the actors from there. I do not want to be too rigid from here. I do not want to follow a rigid interview plan, but want to be open and listening, to understand what they say about food system, health and environmental issues and other questions deriving from the article from FAO, and ask into this.

Question 8-10: Questioning in their thoughts about the future of the food system and barriers. More abstract questions, to get knowledge about their expectations of the future, and thus, what their organisations might aim at.

3.3.2 The article from the Food and Agriculture Organization

As background for the interviews, I utilized the article from FAO (2017) with Director-General José Graziano da Silvas statement, that we need a paradigm-shift in the food system. For me, this article started my journey - especially the heading of the article; "Knowledge is the new paradigm for the future of food and agriculture", and a section in the first part of the article; "The future of agriculture is not input-intensive, but knowledge-intensive", and "Nourishing people must go hand in hand with nurturing the planet" (FAO 2017). I noticed the connection between this statement and the perspectives from Lang & Heasman about the importance of the Ecologically Integrated paradigm (Lang & Heasman 2015: 40). One of the goals of this paradigm is on knowledge-intensive agriculture more than input-intensive, and where knowledge is seen as empowerment to the farmers and society (FAO 2017, Lang & Heasman 2015: 40, see chapter 4 table 4.1). Thus, the article represented elements of new trends in the food system, that will be part of the investigation in my thesis. I forwarded the article from FAO to the actors, in advance, to inform them on the basis and the thoughts behind the interview. I wrote as well that it would be useful but not mandatory, to read it, based on acknowledging the frames of their position - giving time in an already full program. In the interviews, after the introductory questions, I asked if they had read the article from FAO. None of them had read it in length. Then, I shortly read out loud parts of the article, and then I asked if they have seen new food trends from where they stand. I emphasized especially the part about "Nourishing people must go hand in hand with nurturing the planet" (FAO 2017), and then giving the actors time and room for considerations.

3.4 Literature Searches and Search Words

In this section, I will present how literature reviews were carried out, within the broad literature about food systems, paradigm discussions, health, public sector, organic food, and retailing, that fit into my scope. In 2018 you will find plenty of scientific literature on the scope of the thesis. To create a background knowledge for my research questions, I initially searched for "food system" and "paradigm" on Aalborg University's database, and then extended my search from there, pursuing the wording of "moving towards sustainable food systems". This subsequently provided more knowledge, new directions and new search words. Both through block searching and forward chaining searches. The overall theme is in a high degree covered through academic textbooks, scientific articles, newspaper articles and literature reviews etc. Other search words were; food system paradigm, food system paradigm-shift, sustainable food systems, moving towards sustainable food systems (for my literature searches, please refer to the appendix 13).

My scope has mostly been literature in the cross-cutting fields of social science, food and technology, health science, environment and policy - giving different insight to the complex picture of achieving sustainable food systems. Newspapers articles found on *Infomedia* have been informative in my search, especially in the introductory phase, since often it is social medias that brings up news about new research.

A very broad searches within "food system" and "paradigm" were made several times during the thesis interval, and covered issues such as; how to create new food systems, how to create alternative networks and food sovereignty movements, how to develop slow food initiatives and more nutritious food, how to achieve sustainable transport (food and food miles), and how to achieve better water quality, better network between the value chain actors, and as well as sustainable retailing.

I chose to include literature from curriculum as a mean to go into the food system and paradigm discussions. In this way, literature from Lang & Heasman was a part of curriculum at Integrated Food Studies and other supportive materials about food systems too. Furthermore, I wanted to get a profounder picture of the scope of my research, based on my interest to understand the historical perspective for how long it has been known that the modern food system makes an impact on earth. To support the historical perspective, older literature was utilized. This was in a high degree found by asking people in my environmental networks. In addition, I also found additional literature in this way, such as the theory found to the discussion chapter.

Even though I showcase my state of the art with single reports and articles, I am fully aware of the large amount of other studies and other scientific articles that lies behind those chosen. I have chosen articles that could create a foundation for the scope of the thesis, as well as articles creating connections to others as parts of a chain in the understanding of the scope - from literature on food systems to barriers and solutions.

3.5 Data Analysis

This section will describe the methods used in the data analysis, based on theory from Green et al. (2007), Clarke (2005), and Maxwell (2013) and Creswell (2013). The analysis part is the process where I reflect on how to work with my data and how to combine it with the theoretical framework and my research focus.

Data analysis commenced with the first interview, and throughout the project (Green et al. 2007, Clarke 2005: 7-8, 73, Maxwell 2013: 104). In this process, I utilized open coding as a strategy to fracture the data into elements. Open coding is basically when you read through your data several times and then start to create tentative labels for chunks of data that summarize what you see happening (Maxwell 2013: 107, Creswell 2013: 86, Clarke 2005: 73-78, Green et al. 2007: 547).

The first step was to transcribe the interviews very thoroughly, listening through the tapes carefully the first time and writing sentences down word for word. When listening through the tapes the second time, I made sure that the transcripts were correct, and no errors had been made in the written part. This is the immersion phase in Green et al. (2007) and allows a detailed examination of what is said in the interviews (Green et al. 2007: 547). I read the interview transcripts several times, and listening to the interview tapes again when needed, writing memos all along. This made it possible to get better notion of tentative ideas and sensitizing concepts and relationships between actors in the analyzed situation (Clarke 2005: 28, Maxwell 2013: 104-105, Green et al. 2007).

I utilized Green et al.'s (2007: 547) model for coding and creating themes alongside with Situational Analysis messy maps (Clarke 2005). However, Green et al (2007) provided the analysis with a more linear coding, immersing myself into data, coding, creating categories and identifying themes (see figure 3.5), and then Clarke (2005) subsequently provided the analysis with a pictorial overview over all actors/actants, in the way that only messy maps can contribute with (Clarke 2005). In this way, Situational Analysis maps opened up for my creativity and supported a process of finding silenced voices, nonhuman and discourses in the research questions (Clarke 2015). This is less likely to be found with Green et al's (2007) analysis tools, predisposed to only find elements of what the actors said in the interview. But in return, Green et al. (2007) provided a rational step-by-step analysis, to lay out entire sections of the interview to the further analysis (Green et al. 2007).

On the background of my pre-structured themes (new tendencies, health, environment and barriers), I narrowed down the search in the analysis for specific words and meanings, this is displayed in the following table 3.5 (bold font):

Research questions	What I want from the analysis
How are elements of a new paradigm for health and environment emerging in the Danish food system?	- Search for meaning of; health and environment in relation to food systems, new tendencies in food system.
What seems to be barriers for the different actors to implement more sustainable practices?	- To simply listen to their understanding of the barriers - and questioning into these
(Situational analysis tools)	- To listen, to read between lines for silenced data, non-human and discourses. - Using my own interpretation

Table 3.5. How and what data do I want to find in the analysis?

As mentioned in the table 3.5, I analysed for meaning about new tendencies in the food system, health and environment in relation to food system thinking, and barriers to sustainable practices in their organisations. Furthermore, I wanted to comprehend the actors overall understanding about food systems (Green et al. 2007: 548, Clarke 2005: 73-78). In the analysis I looked as well for different kinds of processes such as similarities and differences within the different interviews (Maxwell 2013: 106-107, Clarke 2005: 11, 73-78, Green et al. 2007).

Meaning-making from the interviews was primarily found in long descriptive texts and not through single words, when I used Green et al. (2007: 547). Based on this, I cut out larger parts of the interviews, and placed it in my data analysis matrix, which gave a condensation of meaning for each theme (Green et al. 2007: 547, Maxwell 2013: 109). Through Green et al.'s matrix it was possible to narrow down to single words and concepts (Green et al. 2007: 547). An example of this is given in chapter 6, table 6.1. The last step "Identified theme" in Green et al. (2007) form the platform for the analysts to shift over to an explanation or an interpretation of the issue under investigation (Green et al. 2007: 549). The "Identified theme" is believed to deliver the core of analysis (Green et al. 2007: 549). However, in my analysis, the last step in Green et al. (2007) "Identified themes" was not necessarily the data, that I used in the final analysis. It became an element on line with other actors/actants/elements in the further analysis with Situational Analysis maps. However, I kept the wording of "identified themes", as the concept that presented my final themes. For an example of my analysis matrix, see table 6.1 in chapter 6. For all the analytic matrices conducted with Green et al. (2007), see appendix 14, 15 and 16.

I modified Green et al.'s (2007) matrix a bit, to give my structure another stepwise process in the analysis. Due to that I only had pre-structured themes in my analysis, I placed them into step/box

number one. In this way my analysis matrices had 5 steps instead of 4 (as in Green et al. 2007). For an understanding of Green et al.'s (2007) analysis tool, please see the figure shown below. For my actual analysis matrix, please refer to chapter 6 and appendix 14, 15 and 16.

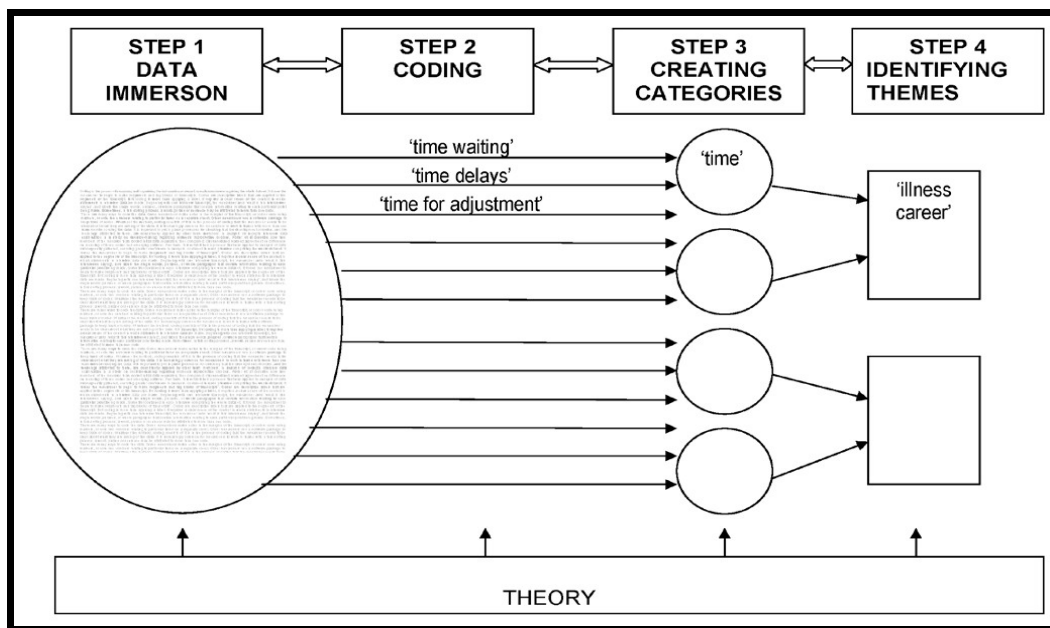


Figure 3.5. Four steps of data analysis to generate best qualitative evidence (Greenatal et al 2007: 547)

3.6 Research Ethics

In this section, I will write about the thoughts behind conducting interviews and the following analysis of the data. The means and goals of conducting a research is very important to me. From the task as environmental worker for NOAH, I know that severe injustice can be committed with data, and with the people involved in a situation. An example of this, is "I work for a good case, so it is OK to violate data". I see tendencies that "small peripheral actors" as NOAH is silenced, but I also recognize that small peripheral actors may seek to radical methods in order to be heard.

I am not saying that that is always what happens in the environment, however I say, I see the tendencies - and in the cross-cutting fields of nature conservation, innovation within food and technology, and potential economic gain, it can happen that someone skew data or voices. This is the core of what I interpret Clarke's Situational Analysis intend to avoid - in her development of tools to enhance silenced data and complexities, and to limit injustice in qualitative science (Clarke 2005: e.g. 47, 85). In fact that is the core of qualitative research, social scientific debaters argue. That justices are both mean and goal of qualitative research (Creswell 2013: 4, 56-61, Denzin &

Lincoln 2008: 195, Brinkmann 2007).

In my thesis this means, that it is important that the participants are given their own voices as clear as possible, both in the interview and in the subsequent analysis (Clarke 2005: 47 - "Baszanger's research").

What does ethical considerations mean in my thesis:

- that my actors are treated with consideration
- that my actors own voices are heard
- that my own novice researcher skills do not overshadow the first two points
- that my analysis becomes giving and that I learn something in the process.

3.7 My application of the methodological tools

Narrowing down to the application of the methodological tools mentioned in this chapter, I would like to sum up the main elements utilized in the further thesis:

- I utilize a multi-methodological approach to answer the research questions: Situational Analysis (Clarke 2015), literature searches, interviews (Kvale 1997), the article from FAO (FAO 2017), data analysis (Clarke 2005, Green et al. 2007), and ethical issues.
- I apply literature from Lang & Heasman as my theoretical framework (Lang & Heasman 2015). This will be elaborated in the next chapter (chapter 4).
- I approach the research questions with Situational Analysis, and utilize sensitizing concepts when I analyse the specific "situation" (Clarke 2005: 77).

4. Theoretical framework

This chapter will provide the reader with the theoretical background about sustainable food systems and food paradigm-discussions, and provide clarifications of the terminology used. As the background for understanding food systems and the complexity of the modern food system, I will apply literature from Lang & Heasman (2015). In a later section of the chapter, I will reflect on Lang & Heasman's concept of health as a new paradigmatic element in a food system context (Lang & Heasman 2015: 1). In the last section, I will provide a short sum up.

The reasoning behind including theory from Lang & Heasman (2015) as the theoretical framework, was that I wanted to get immersed into knowledge about food systems and paradigm thinking, in order to take a step back, and try to comprehend the universe of interrelated activities that characterize food system actions, or the lack of the same (Lang & Heasman 2015). Furthermore, I wanted a critical outset to investigate the research area, which they provided. In addition, their publication is based on the works of many scientist, professions and contributors, from all over world, which gives it strength. Theory and concept from Lang & Heasman (2015) will be dealt with in the analysis in chapter 6, to support my research questions.

4.1 Food Paradigm discussion

Tim Lang is a social scientist specialising in food, public health, environment, policy and social justice, while Michael Heasman is Lecturer in Health and Wellbeing. According to their book (Lang & Heasman 2015), the food system development can be discussed within a framework of conceptualized paradigms. The book put forth an analysis of the trends they observed in social, political and biological development of food systems and the underlying food policy.

The way food was produced changed very rapidly after World War II, which came as a demand to face increasing populations in the world (Lang & Heasman 2015: 22-30). As a result of this, food systems alternated rapidly and the new way of producing and manufacturing food, Lang & Heasman termed "the Productionist paradigm", due to its ability to ensure enough food for the increasing populations (2015: 22-30). However, the authors argue that modifications are needed in the Productionist paradigm, based on the complexity of the problems that it creates for health and environment (Lang & Heasman 2015: 24-25, 279). Food supply chains are producing a range of food in environmentally unsustainable and wasteful ways (Lang & Heasman 2015: 11).

Nonetheless, there seems to be no clear options arising from the Productionist paradigm, they argue, and the future food systems depends on which stakeholders get to decide (Lang & Heasman 2015: 25, figure 2.3 in their book).

Lang & Heasman conceptualized two food system paradigms / world views, based on the "new" trends that tailed after the Productionist paradigm. The two new paradigms are called the Life Science Integrated paradigm and the Ecological Integrated paradigm. The Productionist paradigm is still the dominant paradigm in food policy, however constantly changing, due to that the Life Science Integrated paradigm is seen as an extension of the Productionist paradigm (Lang & Heasman 2015: 25). The two "new" paradigms are in conflict, due to differences in solutions for how to produce and manufacturing food in future (Lang & Heasman 2015: 25). A key message in their book is that the competing paradigms shapes different directions and decision-making for the people standing in the different paradigms, and allegedly shapes different actions of food policy, food industry and society (Lang & Heasman 2015: Preface). Taking this perspective, choosing one paradigm rather than another, will result in one way of how food will be produced and marketed in future. It will create more or less pressure on the future of food (Lang & Heasman 2015: 2, 23).

Food system paradigm

Lang & Heasman's definition of a paradigm is based on Thomas Kuhn's concept (Kuhn 1970) of the same (Lang & Heasman 2015: 24):

"A paradigm is a way of thinking, a set of assumptions from which new knowledge is generated, a way of seeing the world which shapes intellectual beliefs and actions"

Lang & Heasman clarify that "food paradigm" is:

"a set of shared understandings, common rules and ways of conceiving problems and solutions for food" (Lang & Heasman 2015: 24).

Based on the introductory part of this chapter, I would like to elaborate on the three paradigms. I have created a table below to provide an overview over key differences in the three paradigms / worldviews (Lang & Heasman 2015: 37-40⁸). "Worldview" and "paradigm" are used synonymously in Lang & Heasman's literature and in my thesis. This table (4.1) and table (4.2.1) represents a way to lay out a foundation for the understanding of food system theory applied in my thesis.

8 All tables and figures from Lang & Heasman 2015 are granted permission to use - by Tim Lang - 2018

Features	Productionist paradigm	Life Science Integrated paradigm	Ecologically Integrated paradigm
Drivers	<ul style="list-style-type: none"> - Commitment to raise output - Immediate gains sought through intensification 	<ul style="list-style-type: none"> - Capital-intensive use of Life Sciences (agrofood) - Commodity production - Tight managerial control - Mass scale 	<ul style="list-style-type: none"> - Integrative - Health at heart of food system - Environment aspects - Energy and waste impact reduction - Resource conservation - Diversity on and of the field - Ecosystems resilience
Key food sector	<ul style="list-style-type: none"> - Commodity markets - High-input agriculture - Mass production for mass markets 	<ul style="list-style-type: none"> - Commodity traders - Food retailers - Processors and food-service vie for domination of supply chains - Rise of logistics 	<ul style="list-style-type: none"> - Whole-chain systems approach (from land to consumer) - Subnational and regionalised food economies
Industry approach	<ul style="list-style-type: none"> - Homogeneous products - Quantity and Productivity - Quality as a cosmetic concepts 	<ul style="list-style-type: none"> - Hi-tech - Industrial-scale application of biotechnology primarily in agriculture but increasingly in manufacturing (enzymes not just GM) - Sophisticated use of mass media to shape food markets 	<ul style="list-style-type: none"> - Traditional - Shorter food supply chains - Authenticity - Minimal processing - Select use of biotechnology (fermentation not GM)
Scientific focus	<ul style="list-style-type: none"> - Chemistry and Pharmaceuticals - Traditional plant breeding 	<ul style="list-style-type: none"> - Engineering at molecular level to link genetics, - Biology - Engineering - Nutrition - Control from laboratory to field and factory - Science presented as neutral but tailored by industry-led/oriented funding - Big data - Precisions farming 	<ul style="list-style-type: none"> - Interdisciplinary - Ecological integration - Social and eco-systems resilience
Policy framework	<ul style="list-style-type: none"> - Largely set by agriculture ministries - Reliance on subsidies 	<ul style="list-style-type: none"> - Big science expertise but nervously about consumer reactions - Blurred regulatory and policy responsibilities between State and companies 	<ul style="list-style-type: none"> - Partnership of ministries - Collaborative institutional structures - Promotes advantages of decentralising and team-work
Consumer focus	<ul style="list-style-type: none"> - Cheapness - Appearance of food-competing- - Homogeneous products - Convenience for woman - Assumes safety of foods 	<ul style="list-style-type: none"> - Consumer sovereignty rhetoric - Language of choice - Personalised appeal 	<ul style="list-style-type: none"> - Citizens not consumers - Improved links between land and consumption - Greater transparency
Market focus	<ul style="list-style-type: none"> - Global and national markets - Emergence of consumer choice 	<ul style="list-style-type: none"> - Global ambitions - Large companies dominate 	<ul style="list-style-type: none"> - Regional and local focus - Bio-regionalism - nervous about export-led agriculture - Favors smaller companies but increasingly adopted by larger ones

Environmental assumptions	<ul style="list-style-type: none"> - Cheap energy for inputs and transport - Limitless resource - Monoculture - Externalities of pollution and waste 	<ul style="list-style-type: none"> - Intensive use of biological input-intensive - Claims to deliver environmental and health benefits 	<ul style="list-style-type: none"> - Resources are finite - Need to move away from extensive monoculture and reliance on fossil fuels - Need to integrate environmental, nature and conservation policy with industrial and social policy
Political support	<ul style="list-style-type: none"> - Historically strong but declining - Grounded in landed interests - Battles over subsidies 	<ul style="list-style-type: none"> - Dominant position in Research&Development - Difference in how to interpret Lite science paradigm 	<ul style="list-style-type: none"> - Weak but growing - Strengthening in some countries - Some merging of social and land-based movements
Role of knowledge	<ul style="list-style-type: none"> Agro economists as important as scientists - The State as gatekeeper 	<ul style="list-style-type: none"> - Top down - Expert-led - Hi-tech skills - Laboratory science base 	<ul style="list-style-type: none"> - Knowledge-intensive, rather than input-intensive - Skills needed across whole supply chain - Knowledge as empowerment
Health approach	<ul style="list-style-type: none"> Health follows: - Enough food - Low prices 	<ul style="list-style-type: none"> - Maintain mass food output but recognizes health problems from overconsumption - Think health can be technical fixed from an individual level - Seeks to improve crops for health 	<ul style="list-style-type: none"> - Ecological public health approach - Promotes diet diversity
Ownership	<ul style="list-style-type: none"> - Technocratic and landed elite 	<ul style="list-style-type: none"> - Highly capitalised 	<ul style="list-style-type: none"> - Varied with some community rhetoric - Mix of old landed interests and new businesses

Table 4.1. Differences in world views, by paradigm (Lang & Heasman 2015: 38-40)

As the table above suggests, the perception of how food should be produced and who produces it, and how it should be processed and sold, is very diverse in the different paradigms (Lang & Heasman 2015: 25, 37-40). In continuation of this, Lang & Heasman (2015) argue that, despite that most actors recognize climate change, obesity, poor/rich and food safety as important tensions, the means to solve these problems are not the same. Not even the understanding of what the problems are, is the same. This is seen in table 4.1. And an example of this is the concept "health", which is understood very differently within the different food system paradigms (Lang & Heasman 2015: 25,31,37, 281-282). I will elaborate on the concept of "health" later in this chapter.

Another example of how to understand the table: In the Life Science paradigm, you want to perform "techno-fixes" as a way to deal with soil exhaustion on the farming sites, with genetically modified seeds and control (Lang & Heasman 2015: 18, 31-34, 38-40). You want to restore land by building on the current way of conducting agriculture. In the Ecologically Integrated paradigm you want to minimise the use of chemicals and "work with nature", sustaining short supply chains, and build up societies with empowered citizens (Lang & Heasman 2015: 18, 31).

A third example from the table is that the Productionist paradigm and the Life Science paradigm to a high degree support a structure where food is owned and developed by large agro-industries (Lang & Heasman 2015: 37-40, 254-257). Another aspect of this is that universities and colleges of agriculture and extension services were also gradually integrated into the Productionist paradigm and Life Science paradigm (Lang & Heasman 2015: 26), with emphasis on that science is presented as neutral but tailored by industry-led/oriented funding (please refer to my table 4.1).

A key message in their book is that the food system management is difficult to change from a national policy-level today, because policy over food is separated in political silos. Food is governed through governance networks rather than by the State alone, which makes this more difficult than previously (Lang & Heasman 2015: 253-254). Food governance is a term referring to the processes and practices of how decisions are made about food, whether by government or any relevant stakeholder in the food industry (Lang & Heasman 2015: 254). It is only within the last two decades, that food policy surpassed from governmental responsibility to a food governance responsibility, and this resulted in imbalances in power relations between agro-industry, states, EU and citizens (Lang & Heasman 2015: 254). However, the authors argue that a change is necessary: *"Food policy requires different issues to be joined up rather than being dealt with in different policy silos"* (Lang & Heasman 2015: 253). In continuation of this, they argue that societies should be aware of who gets the "rights to food" in future (Lang & Heasman 2015: 22, 253, 284). The authors link the concept of "food democracy" to the concept of "rights to food", which basically means that the rights to food should be in the hands of the people who eats the food, and not in the hands of the agribusinesses (Lang & Heasman 2015: 22, 253, 284-287).

4.2 Sustainable Food Systems

To qualify an understanding of what sustainable food systems entails, I would like to use an entry point from Lang & Heasman's literature. One way to define what sustainable food systems entail is by pointing in the direction of the Ecologically Integrated paradigm (please refer to my table 4.1 and table 4.2.1). This paradigm incorporates to a high degree the Brundtland Report from 1992 (*Miljøstyrelsen* n.d.), and IFOAM's four principles of a organic agriculture (IFOAM n.d.). However, firstly I will lay out a broad definition of food systems and elaborate on the concept:

" a food system as a chain of activities from production ('the field) to consumption ('the table'), with particular emphasis on processing and marketing and the multiple transformations of food that these entail" (Ericksen 2008: 235).

There are many conceptualizations of food systems, but most of them describe a food system as a chain of activities from production to consumption, with particular emphasis on input and output from each chain (Lang & Heasman 2015: 19-22). The following figure 4.2 is a simple mapping of the food system / value chain. For each link in the chain there are multiple inputs / outputs (imports and exports on figure 4.2), and multiple actors involved (Erickson 2008: 235). I use the concept food system and food value chain synonymously in my thesis (Lang & Heasman 2015: 19-22).

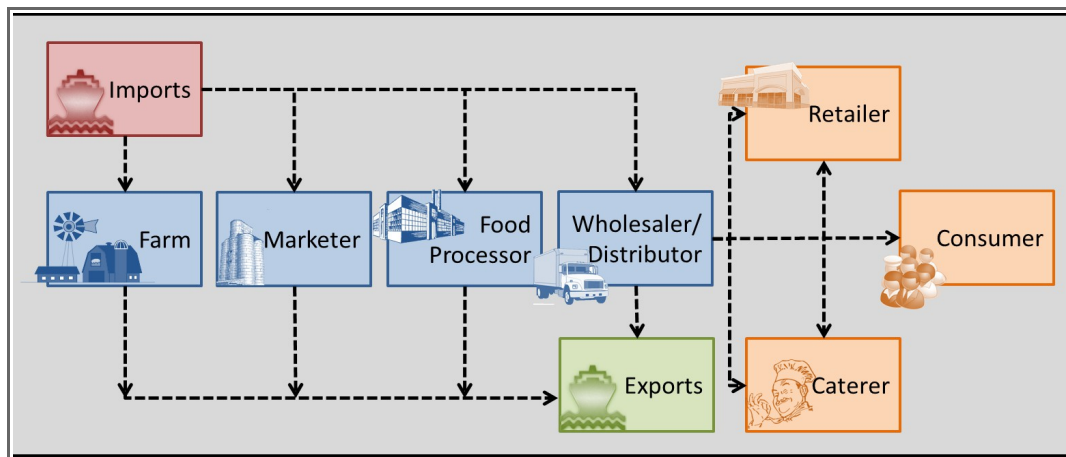


Figure 4.2. A figure on the food systems / food supply chain.

The shape of food supply chains / food systems is formed by food policy, and thus by social processes. It involves people and organisations, with different goals and actions (Lang & Heasman 2015: 18-19). In other words, food systems are a social phenomena, and it is necessary to understand that each part of it (import, farm, retailer etc) involves actors pursuing goals, which result in certain decisions and actions, from production to consumption (Lang & Heasman 2015: 19). However, it is important to outline that: *"there is not one food policy but many food policies and policy-makers; the combination shapes the overall dynamics of the food system"* (Lang & Heasman 2015:18)

The following table 4.2.1. will follow up the previous table 4.1 to provide a picture of what the different food systems paradigms entail. However, in table 4.2.1, I will frame the future possibilities and limitations for each of the three paradigms (2015: 282):

Policy focus	Productionist paradigm	Life Sciences Integration paradigm	Ecologically Integrated paradigm
Relationship to general economy	<ul style="list-style-type: none"> - State in charge - Shaping market solutions and addressing market failure 	<ul style="list-style-type: none"> - Corporation-led - Large private sector science budgets - Individualisation of solutions - Competition within the marketplace 	<ul style="list-style-type: none"> - Population approach - Social enterprise and fairness - Emphasis on eco-systems shaping economy activity - Cradle-to-grave approach
Approaches to diet, disease and health	<ul style="list-style-type: none"> - Accepts societal burden of disease - Main focus is on providing sufficient food 	<ul style="list-style-type: none"> - Individual choice is key driver - Niche markets - Nutrition is part of risk management and hazards control. 	<ul style="list-style-type: none"> - The right to be well - Aims for joint ecosystems and human health
Environment	<ul style="list-style-type: none"> - Environment is there to be mined - Costs are externalised - Tendency towards monoculture - Industrial chemical dependency 	<ul style="list-style-type: none"> - Mono-cultural tendencies - Hi-tech + low social knowledge approach - New bio-industrialisation - Technocratic approach to sustainable intensification 	<ul style="list-style-type: none"> - Biodiversity at heart of food systems - Ecological assumptions underpin sustainable intensification - Social & environmental concerns shape technical knowledge
Food business	<ul style="list-style-type: none"> - Commodity focus - industrial-scale ingredients and processing - Pursuit of low-cost food - Big budget marketing 	<ul style="list-style-type: none"> - Commodity focus with personalised niches - Private industry dominates economy activity 	<ul style="list-style-type: none"> - Costs internalised where possible - Tendencies to favour robust local food economies
Consumer culture	<ul style="list-style-type: none"> - Original vision of mass markets for mass consumers is turning into differentiation by ability to pay 	<ul style="list-style-type: none"> - Appeal to hi-tech and gadget society - Apparently personalised service - Choice-editing "beneath the radar" to preserve belief in consumer choice and cheap food culture 	<ul style="list-style-type: none"> - Societal responsibility based on a citizenship model - Consumers become citizens - Requires mass education to activate - Heightened role for NGO's - Price adjustment with cost internalisation
Role of the state	<ul style="list-style-type: none"> - Paternalistic state delivering markets and societal infrastructure 	<ul style="list-style-type: none"> - Balances of public and private sector - Rhetoric of minimal state but accompanied by strong state action in some sectors 	<ul style="list-style-type: none"> - Sets common framework while protecting resources and ecosystems - Encourages diversity and inclusiveness

Table 4.2.1. Different approaches to food future, by paradigm (Lang & Heasman 2015: 282)

These paradigmatic narratives offer different conceptions of the relationship between food, health and environment (Lang & Heasman 2015: 3). Together with the previous table 4.1, and table 4.2.1, I am providing a foundation for what sustainable food systems entail. By pointing to the Ecologically Integrated paradigm, I want to emphasise its argumentation on why biodiversity, health and society should be at the heart of food system thinking, and to emphasise the importance of commencing talking about "food democracy" (Lang & Heasman 2015: 254). I will elaborate this perspective in the following section.

4.3 Health at the heart of food systems

In the last part of the chapter I would like to elaborate my argumentation of why health and environment should be integrated in food system thinking. This section builds upon the elements from the Ecologically Integrated paradigm, illustrated in table 4.1 & 4.2.1. The previous framework from chapter 4 is thus the foundation for qualifying an understanding of this chapter, where “health at the heart of food systems” is conceptualised, by pointing to the Ecological public health.

4.3.1 Ecological public health

Lang & Heasman developed a concept termed Ecological public health (Lang & Heasman 2015: 1, 170, 214). It derives from questioning into why health and environment are not encountered in the food system thinking (Lang & Heasman 2015: 182). These questions are important, why I chose to lay out a longer line of argumentation. The authors ask:

"When evidence of poor diet's impact on population health is so strong, why are policy-makers reluctant to place public health at the heart of how the food system is organised? When supposedly modern, efficient food production has such a massive impact on the environment, why are consumers still largely kept in ignorance of the consequences of their personal choices? When food is so obviously mal-distributed on the planet, with billions over-eating while others under og mal-consume, why is there such a focus on ever increasing production?" (Lang & Heasman 2015: 22).

As we saw in tables, 4.1. and 4.2.1, health is understood differently in the three paradigms. This is maybe why it is difficult to deal with health in policy and between food governance actors. Is health all about when the society get enough food, or when they are not ill of their life styles? Or is health about wellbeing both physically, psychologically, environmentally and socially?

Issues of health, nutrition and environment are not integrated in the current way of producing food, to the degree necessary today. However, food has a deep impact on the environment, health and society (Lang & Heasman 2015: 9). For Lang & Heasman, it is a must to integrate these aspects, if we want to ensure public health in future. According to the Ecologically Integrated paradigm, health is more than just to prevent people from becoming ill. It is necessary what we demand the rights to be well (please refer to my table 4.1. and 4.2.1). Lang & Heasman use the definition of health as:

"the science and art of preventing disease, prolonging life and promoting health through the organised efforts of society" (Lang & Heasman 2015: 133).

In continuation of this definition, the authors provide a pictorial map of what health entails:

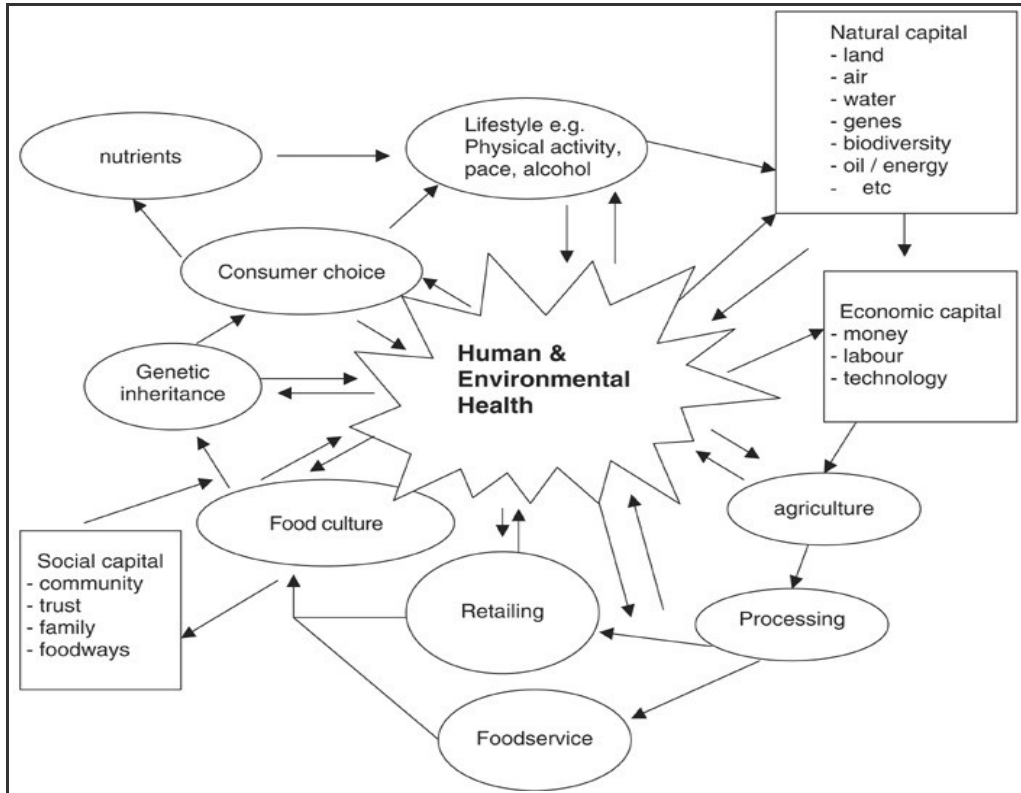


Figure 4.3.1 Definition on ecological public health (Lang & Heasman 2015: 45)

Figure 4.3.1 illustrates why health is not only individual, but also a social phenomena, and that all kinds of influences shape the conditions for health (Lang & Heasman 2015: 45, 133). This conceptualization links human health with the environment and the food systems, based on an approach where “ecology” is centered. Here it becomes important to understand the myriads of interconnected factors, which impact our health (Lang & Heasman 2015: 45-46). *Ecology* basically means the relation between living organism and the surroundings, and how these impact each other (Lang & Heasman 2015: 45-46). In this way, figure 4.3.1 illustrates why environment, health and cultural elements are fused into the food system discussions in my research questions (Lang & Heasman 2015: 157, 45, 133). Figure 4.3.1 is my entry point to why both health and environment are parts of the food system discussion in my thesis. An example of the figure 4.3.1 is, that why feeding animals with grains (exploiting the natural capital) will impact the environment and health in a myriads of different ways (Lang & Heasman 2015: 44).

4.4. My approach to the theoretical framework

Narrowing down to the application of the theoretical framework, I would like to sum up the main elements utilized in the further thesis.

- I have provided the analysis with a critical framework to understand food systems and their development by utilizing the three food paradigms mentioned in this chapter.
- I have identified the Ecological Integrated paradigm as a sustainable food system.
- I have introduced an ecology approach to understand public health, where food, health, environment and social aspects are fused together. This is termed Ecological public health.
- I have introduced the following concepts:
 - Health at the heart of food systems
 - Food democracy
 - Food systems / food value chain is inherently a social phenomena
 - Moving towards sustainable food systems requires food policy to join up such efforts.

5. The organisations of the actors

Before commencing the analysis of the research questions in chapter 6, I would like to describe the organisations of the involved actors here in chapter 5. In this way the organisations and their functions are more thoroughly described. I have written this chapter based on literature about the organisations and their functions, as well as the knowledge I gained from the interviews. It is important to highlight that I could have acquired knowledge about my research questions from a large range of food system actors. There are many actors who are seen as relevant within this field, however only three actors were interviewed, partly because they were the only ones who actually responded to my mail, but also due to time limit. For the transcriptions of each individual interview, please refer to appendix 1: *Økologisk Landsforening*, appendix 2: COOP, appendix 3: Copenhagen municipality (CPH).

Økologisk Landsforening (Organic Denmark)

Økologisk Landsforening (Ø.L.) is Denmark's largest organic farmers' association with 3000 members, and it also represents IFOAM (*Økologisk Landsforening* 2015 a+b), which stands for the International Federation of Organic Agriculture Movement (IFOAM n.d). For decades Ø.L. has been working for developing and strengthening the organic agriculture, first as a social movement and now as a strong political voice in a Danish context (*Økologisk Landsforening* 2015 a+b+c).

The purpose of the association is to ensure the continued development of organic food production in Denmark (*Økologisk Landsforening* 2017). The organisation is a private organisation build-up with different types of memberships - and an annual quota fee. The different types of memberships are private members, as well as business members (*Økologisk Landsforening* 2017), and thereby they have a large range within a Danish food system context. Business member vary between farmers, professional kitchens, and businesspeople (*Økologisk Landsforening* 2017).

Ø.L.'s tasks are for a large part within the framework of the projects that the organisation funds (Appendix 1: 6.59). Many of these projects are aimed at farmers. Some of the projects are market-oriented and look at how retailers can develop their business, to meet the demands of organic consumers. Strengthening export is also a large task for Ø.L. In order to train the businesses to be export-oriented, Ø.L. has developed an "export academy", where they offer courses to the farmers (Appendix 1: 6.59). Based on the fact that Ø.L. is the Danish chapter of IFOAM, they also align

themselves with the four IFOAM principles dealing with health, ecology, justice and precaution (IFOAM n.d.).

Ø.L. has ongoing sales management, activities in funds and in various committees, councils, in political lobbying and networking (Appendix 1: 2.00). Their function in society means that they do a lot of communication, writing leads for different magazines, as well as their own titled *Økologisk og Økologi & Erhverv* (Organic and Organic & Business) (Appendix 1: 2.00). Ø.L. works for enhancing a "*naturforeneligt landbrug*" (naturally compatible farming), which means managing resources based on the specific geographical conditions, and ensuring sustainable productivity. They show great concern about animal welfare, they are aware of minimising pollution in production, not destroying our groundwater, ensuring a proper natural content, as well as securing climate protection, etc. (Appendix 1: 2.50).

COOP

COOP is Denmark's largest retailer corporation (COOP n.d. c). COOP is managing the retail chains Kvickly, SuperBrugsen, Dagli'Brugsen, Coop.dk Shopping, Coop.dk MAD and the subsidiaries Fakta A/S and Irma A/S. (COOP n.d. c). COOP is a commercial business with a board of directors, as well as a store manager for each shop. COOP is also a co-operative movement, owned by more than 1.6 million members. The members can participate in some of the decision-making in a national council (*Landsråd*) (COOP n.d. c, Sæhl 2017).

The executive department in COOP, which I contacted, is managing the areas of organic food, climate, chemistry, value chain issues, charity (COOP n.d. e). One example of this work is COOP's work with assessing the risk raw materials products (Appendix 2: 30.00). When for example COOP considers investing in a new product, and contains e.g. palm oil or soya, they assess the conditions in the value chain first. Often raw materials typically come from a very long value chain and may entail some critical health and environmental issues in the production, such as deforestation for growing crop, or the use of potentially dangerous chemicals in agriculture. These considerations also include wood and fish (Appendix 2: 30.00). One of COOPs goals is that the organisation should sell 50 % more environmentally sustainable products by 2020, which is an increase of sales in these products from 6 billion DKK in 2015, to 9 billion DKK by 2020. As an example of their efforts to reach this goal, they are in the process of discarding the sale of non-eco labelled products. In addition, they try to incorporate sustainable wording in the documentation of the sustainable products they already have on the shelves (Appendix 2: 01.51).

In relation to the food system, it is very much a part of their DNA that they are a cooperative movement (Appendix 2: 10.15). They have written into paragraph 7 of their purpose clause (business statement) that they must support sustainable social development. It is also written that they must work for democracy, as COOP itself is democratically run, and it means that they support and prefer trading with other democratized companies. In this way, they have a specific approach to the democratic organisations of the food system. Furthermore, they want to educate consumers. Collaboration is part of this work. 80-100 years ago, COOP owned its own food production line. Today they have outsourced the manufacturing, and buy the food products like any other retailer chain. However, based on this background, the actors argue that they have a close cooperation with primary production. In this way, they have close relationship with Thiese, Meyers, Sødram, Sørís, Bertel Hestbjerg and others (Appendix 2: 14.00).

The Municipality of Copenhagen

Since 2011 the municipality of Copenhagen has worked within the cross-cutting field of food and public procurement (Appendix 3*: 5). EU legislations regulate how the public sector can purchase food, and the municipality demands are marketised to ensure equal competition within the European Union, in order to prevent fraud (Morgan & Sonnino 2008: 30). Through public procurement it is possible to harness the power of purchase to enhance sustainable food systems (Morgan & Sonnino 2008: 84-85).

I got in contact with the Department of Children and Youth (*Børne- og Ungdomsforvaltningen*), that has the daily responsibility for the children food procurement in Copenhagen. While also cooperating with the Department of Social Management (*Sundheds- og Omsorgsforvaltningen*), with steering groups meetings around the food procurement (Appendix 3*: 0.15). The municipality works closely alongside various partners to push the barriers of procurement policies to allow for quality and equality in competition within food procurement. This work has led to an award with prizes for "the most sustainable procurement of the year" (Københavns Kommune 2016 a). Latest, the department for public food procurement has presented a new working group for food procurement lawyers with the goal to enhance knowledge-sharing and networking (PlanMiljø 2017, Appendix 3: 40.30).

The department managing public food procurement has the overall responsibility for the municipality's food supply, and all the things in connection to this task, e.g. catering offers, partnerships, contact to the kitchens, developing the tenders contracts (Appendix 3: 0.30).

When I asked the interviewee what they consider the most important issue in relation to the work with the food procurement, they told me that it was to ensure the health and well-being of children, as well as a decent curriculum in nutritional science in public schools.

When new food contracts are subscribed, in the municipality, any new important information about "environment and health" have to be given to the department already in the initial phase / period, with a mandatory deadline, before the contracts are signed. However, when a new-subcontractor is hired, the full extent of the environmental and health factors can never really be obtained, although the department always makes a genuine effort, before a contract is signed (Appendix 3: 10.00). In order to obtain a better view of the aforementioned factors, the department has developed different initiatives. A food procurement group for all public juristic civil servants launched in 2017, as a method to obtain food-related knowledge-sharing within the group, that work with the public purchase everyday (Appendix 3: 18.42). In this way, networking, knowledge-sharing and cooperation contrast with the constraints around the scarcity of resources, time and priority in the public sector. The group utilize each other to get more knowledge about important aspects of food and purchase (Appendix 3: 9.37). Another initiative to enhance sustainability has been establishing working groups that go in depth with specific food areas. Right now, a "sustainable fishing group" has been established. Their goal is to research sustainable fishing, trying reach definitions of sustainable fish production, and to research themes such as whether "*spildfisk*" (waste fish) is a useful source of nutrition in the public food production (Appendix 3: 21.40). Previously, a working group helped develop and leveraging diversity in fruit and vegetable supplies (POGI n.d.). A last initiative mentioned is a new cross-municipal food group in Copenhagen, with the purpose to increase cooperation and disseminate knowledge about food within all other civil sectors that work with food in the different cross-municipal departments (Appendix 3*: 0.15). One argument holds that the municipality is slow in creating new initiatives, however when it does, it provides thorough and concrete solutions, whereby other food actors can use this knowledge horizontally (Appendix 3*: 9.15).

6. Analysis

In this chapter I will lay out the analysis for the research questions. There were two different processes alongside the analysis. The first process involved the application of the methods described in methods section in chapter 3; Green et al.'s (2007) model to ground, code and develop initial data from the interviews, and Situational maps to open up the data again to potentially find nonhuman actors / actants and discourses. The second process of the analysis was the phase where I identified themes (final themes) - as answers to each of my four research questions / pre-structured themes⁹: new trends, health, environment, and barriers, and where I elaborated these. The first process is described in the beginning of this chapter, and the later process is described in section 6.2 - 6.5. Each section will describe methodology reflections and the process involved in each part.

6.1 Analysis for my research questions

Based on the different methods to conduct an analysis, described in the methods section, different processes appeared for me in the actual analysis. Firstly, an initial process, where I did a first coding with the model from Green et al. (2007) on each interview, which gave me a way to code word for word in the interviews, down to single words and meaning-making, and sorting this out more and more. Doing so, made it possible to create initial data from each interview - and later set themes - for each of the pre-structured themes; new tendencies, health, environment and barriers.

An example of the analysis with Green et al. (2007) is displayed in the following table 6.1.

Step 1 Pre-structured themes	Step 2 Data immersion	Step 3 Coding	Step 4 Creating categories	Step 5 Identifying themes
New tendencies	(Appendix 3, minute; 4.00) <i>"Yes, so I'm just sitting at my little desk, I have nothing, I can not cook in that way. I'm not really good at cooking and I do not know much about the ingredients either. However, I know a lot of people who do. I know the kitchens, I know the organic conversion consultants, I know the suppliers. So, my role is just to be a mediator between them and to describe what they can, and to describe the visions they have in the documents, so I ensure that the ends meet and that they actually have full understanding of each other. Sometimes, I see myself a bit more like a mediator, more than anything else."</i>	"So, I see myself a bit more like a mediator, more than anything else"	"mediator between them"	Mediator (Facilitators?)

Table 6.1. Showing the process of analysing with Green et al. (2007)

⁹ As mentioned earlier, the research questions is also the pre-structured themes in the analysis.

When I conducted the analysis of all interviews with the tools from Green et al. (2007), I carried data further to the Situational Analysis maps to open up the analysis field again, for new elements in the situation: nonhuman actants - and discourses. This stepwise process made it possible to be in close contact with what was said in the interviews and then subsequently provided an unrestrained creativity opportunity for me to find non-human and discourses through Situational Maps, where data is not only from what is expressed in the interviews, but also lay out my interpretation of other important elements that makes a differences in the situation (Clarke 2005: 87-89).

In the process of placing data into messy maps, I realized that I had to create different messy maps for each of the pre-structured themes, and not only one map. This was necessary in order to understand each research question. It was simply not possible to get an overview when all data from all four research questions was placed on a single messy map. It was simply to messy! I did not realize this, before I was at that specific phase in the analysis.

One example of the messy map for the research question "new tendencies/ trends" in the food system in Denmark, is displayed below in figure 6.1. The three other messy maps for "health", "environment", and "barriers" are displayed in appendix 4, 5 and 6.

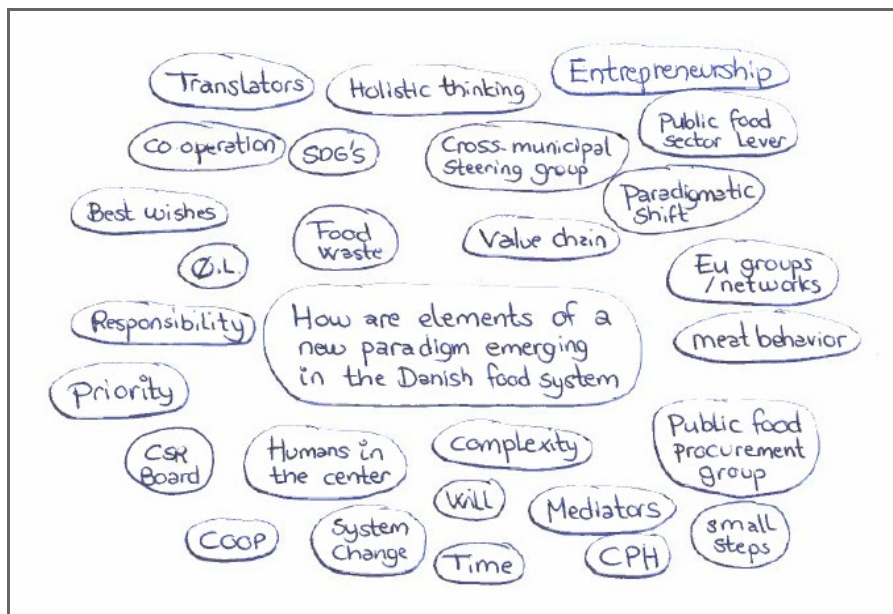


Figure 6.1. messy map on "new trends"

In the process of moving from messy maps for each question to ordered maps, I gathered the data on one ordered map / matrix again. This is displayed in the following table 6.1.2. As the reader will see, each elements from the messy maps gets a more thoroughly description in the ordered map.

	Ø.L.	COOP	CPH
New tendencies	<ul style="list-style-type: none"> - Cooperation in the food system/value chain - Holistic thinking between town and country - System change is needed to lever sustainable food system - Paradigmatic shift in public kitchen - Complexity within solutions - Complexity between actors and organisations in the food system - Local food 	<ul style="list-style-type: none"> - Greater responsibility in food system - Small steps towards sustainability - "Translators" within the food system (in the value chain) - Holistic perspective in demands in procurement - Wishes for future - CSR board - Cooperation in council, boards and committee's - Cooperation in value chain / Food system - Meat behavior 	<ul style="list-style-type: none"> - Sustainable Development Goals (SDGs) legitimize CPH to lever sustainability in food systems - Cross-municipal food group - Cooperation in value chain / Food system - Cooperation across EU countries borders - "Human at the center" - New food jurist group - Use of public food procurement to lever organic food systems - Will - Meat production - Food waste - Small entrepreneurship SME - is being enhance in the EU
Health	<ul style="list-style-type: none"> - Health science - Productionist paradigm - Think new - if health should be a part of the food system - Nutrition Transition - We do not deal much with health issues - "What health science is, can and want to" - 9 % of Danes income is used for food. 	<ul style="list-style-type: none"> - Difference in meaning of health - Health as an individual choice - Health as learning about food - Health "inside" food - Health encountered through the translator role - Health out of precaution - Different paradigms approaches - Translators 	<ul style="list-style-type: none"> - Health as learning about food - Understand food - Respect food - Lost contact to food - Mediators in relation to health too?
Environment	<ul style="list-style-type: none"> - "<i>Samfundsnyttigt landbrug</i>" (community-friendly agriculture) - Change & solution-oriented - New climate-model from Ø.L. encounter environmental goals - Systemic complexity - "<i>Samfundskritik</i>" (criticism of society) - "<i>Naturforeneligt landbrug</i>"(nature compatible agriculture) - VAT is unfair for the organic farmers / production - Externalities is not in the price 	<ul style="list-style-type: none"> - Environment out of precaution - Environment goals meet through their translator role - Meat behavior - Externalities 	<ul style="list-style-type: none"> - Public food jurists can lever organic food purchase - Local food - Food waste - Mediators in relation to environment in food system too?
Barriers	<ul style="list-style-type: none"> - Few resources - System changes is needed - EU agricultural policy especially pillar 1 makes it difficult to change the agriculture - Slow process - Transition is needed to enhance sustainable food system - "Ø-mærke" (organic label): No room for real climate improvements - VAT is unfair for the organic farmers - Disintegrating society 	<ul style="list-style-type: none"> - Economy - Priority - In good times versus in bad times,- in good times it is possible to go for sustainability - External pressure is needed to change the organisation's goals toward sustainability - System change is needed 	<ul style="list-style-type: none"> - Few Resources - Not time enough - Fight for time - Time is needed for immersion into knowledge - Time is needed to connect to people and network - Food law - More cooperation in EU is needed

Table 6.1.2. the data placed in ordered map for each actor

The just mentioned table 6.1.2. shows elements for each research questions in the ordered map. I have placed a description of the meaning of some of the words and concepts, where it was necessary. In the messy map, only single word and concepts were mapped in order to keep the messy map simple. From there, the data were carried further from ordered map to relational maps, where it is possible to understand relations between data. In the following figure 6.1.2, the relational map for new trends is shown. The other three relational maps are described in appendix 7, 8 and 9.

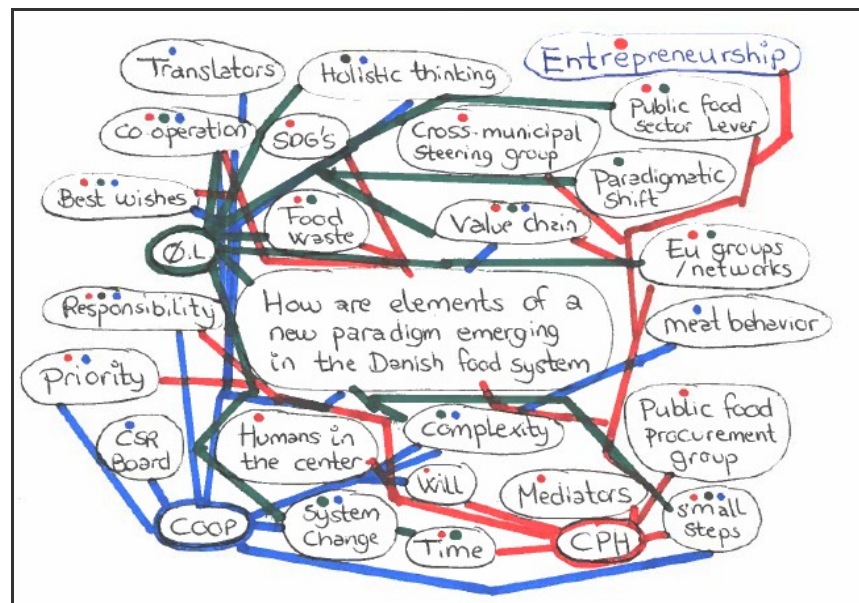


Figure 6.1.2. Relational map

In the process between creating messy maps, the ordered map and relational map, it became clear to me that the actors do take up some of the same overall issues, as patterns of what was expressed in the interviews. Concepts and single words gathered in clusters, so to say. In this way, 1 to 3 identified themes became focal points for each pre-structured theme. In the following sections of chapter 6 (section 6.2-6.5), the identified themes are displayed in boxes. For each identified theme, all the elements / data that pointed in this specific direction are classified under the identified theme. The analysis is build upon a conversation with quotations from the interviews - woven into my research questions and the theoretical framework. I use quotations directly from the interviews, why I have placed an explanation in brackets, where the quotation needed a further explanation. I translated large parts of the interviews, however I shortened the English versions to make it more readable, if it was necessary for the understanding. The transcriptions are displayed in the Appendices (Appendix 1: *Økologisk Landsforening*, Appendix 2: *COOP*, and Appendix 3: *CPH*).

As it will become clear to the reader, even though I am very inspired by Adele E. Clarke and her Situational Analysis, the analysis did end up as a human centered analysis mostly. I did not create non-human actants as identified themes. I found myself taking the participants perspectives into consideration in a high degree, which did it difficult to perform an analysis of non-human actants.

6.2 Identified themes created for "new trends / tendencies"

I created three overall themes for the research question "new trends" based on the interviews and my interpretation. The following box displays the three identified themes, followed by the data that pointed me in this direction.

<p>Co-operation</p> <p>Cross-municipal steering group; cooperation in food system/value chain; cooperation across EU country borders; Public food jurist group; CSR board; Greater responsibilities in the food system / value chain; complexity; Holistic thinking between town and country site; Humans at the center; System change is needed</p>
<p>Facilitators</p> <p>Translators between primary producers and consumers; Holistic perspective in demands to value chain / food system actors; Public food procurement to lever a sustainable food system; Mediators.</p>
<p>SDGs helps to lever sustainability goals in food systems</p> <p>After the introduction of SDGs, it is legitimate to work with sustainable food systems</p>

6.2.1 Cooperation

I want to describe "**Cooperation**" as a central theme under "**new tendencies**".

<p>Cooperation</p> <p>Cross-municipal steering group; cooperation in food system/value chain; cooperation across EU country borders; Public food jurist group; CSR board; Greater responsibilities in the food system / value chain; complexity; Holistic thinking between town and country site; Humans at the center; System change is needed.</p>

In the interviews, all the actors mentioned cooperation in food systems as a central issue. Both within and outside their organisation, in cooperations between actors in the food system, in a new cross-municipal council, in new food groups in Denmark and across borders in the European Union and in participation in different councils. This made me realize that one overall theme is co-operation, when it comes to "new tendencies". From this theme, I created several sub themes, which will follow later in this section. The following quotation from CPH will commence the line of reasoning:

"I think there are many new things happening. Really much willingness to share it. The world opens up, I think. We also have the C40 now, which is a network that the Millennium Urban Food Policy Pact is part of. And here it is the world that shares it. It is not only the EU now. Then the whole world is beginning to ask how we can achieve a better food system." (Appendix 3: 33.53)

Another quotation from COOP which also illustrates this picture:

"I have a lot of contact with media and I represent my organisation in different contexts. Advice boards, committees and councils, where we discuss such questions as how the legislation should develop and what research is needed in order to support the development of our food system in the right direction." (Appendix 2: 4.10)

The actor from Ø.L. mentioned cooperation in connection with the organic transition in Denmark:

"Yes, both farmers, businesses and consumers, and anyone who are also interested in organic production. A new group is among other things the big kitchens. The professional kitchens, which increasingly relate to organic (transition). It's all the way around." (Appendix 1: 4.15)

The quotations gives a good sum up of what I mean by "co-operation" as an overall theme. It seems to be important for all of the three actors, to create networks and to collaborate with sustainability and food systems as the specific goal, and not just a "task" beside something else. In continuation of the talk about cooperation, another issue from CPH mentioned, in relation to "how to do" cooperation:

*"as I see it right now, there are many different roads, when you dive down. Of course there is the major highway called a larger sustainable system, but there are really many tracks on it. Where do we move? Hopefully the tracks are parallel. Hopefully they do not cross each other, in order not to crash into each other on the roads. And that's the thing, it's the art of navigating this pathway. And that we all want the same. Therefore, we should not want it too much, then it may go wrong." (Appendix 3 *: 11.00)*

This point is important to elaborate on. It seems to be important for all the actors to work together, however, there has to be a coordination. The organisations need someone or something to gather the efforts and coordinate knowledge and tasks, otherwise it may end up the wrong way:

*"If you are doing something out of a sustainability concern, because you BELIEVE you are asking for the right thing." (Appendix 3 *: 11.40)*

Following:

*"We need to think carefully about it before we do things. First we need to find out whether this has consequences." (Appendix 3 *: 12.00)*

This is an important knowledge gained from the actor from CPH. How can we cooperate and coordinate our efforts, with the best possible outcome, within the given time, frames and knowledge? One of the solutions given in this interview, is in fact, to build even stronger cooperation, standing together to enhance knowledge sharing and networks, to help each other moving towards a sustainable food system. The actor from CPH told about a new food juristic group between municipalities and the possibilities within this aspect:

"We need to immerse ourselves, however everybody should not do it. It does not make sense that we all immerse ourselves in the same (theme). It is not particularly effective. Therefore, to try to minimize the transaction costs of the individual municipalities, we (the group) say, "I know a lot about this food, super fine, and I'll share that with the group". Then there may be one in the group who says, "hi, I'm about to make a dairy offering and I think it's so exciting to work with milk. Therefore, I will dive into that subject". Excellent, then come and share it with the group next time." (Appendix 3: 20.00)

This aspect of cooperation, joining forces and coordinating knowledge and tasks are subjects seemingly important. It is interesting in regard to the solutions that are ahead of us. Is it possible to move together towards a sustainable food system? If applying Lang & Heasman's framework, it may be difficult, when considering that the actors inside the food system stand in different paradigms with different interests on outcome and future goals. If we apply this terminology, and add the knowledge about how the food system is governed by food actors in the food system, then how can we stand together around a common goal? Lang & Heasman (2015: 254) point in the direction of the Ecologically Integrated paradigm in this question at hand (Ecologically Integrated paradigm in chapter 4, table 4.1 and 4.2.1 og 4.3.1). The authors argue that we have to operate together in the food system in order to change the way that the Productionist paradigm has directed us in the last decades. Lang & Heasman put it like this: *"Food policy requires different issues to be*

joined up rather than being dealt with in different policy silos” (Lang & Heasman 2015: 253). However, this is not only a critical voice from Lang & Heasman. This point of view is supported by several other scientific authors (Hildebrandt et al. 2016: 21-23; Hansted 2016, Dyball 2015, Marsden et al. 2014, Holm 2007, Murdoch & Miele 1999).

The actor from Ø.L. further argues cooperation as a sort of a "movement":

"We are concerned about the (organic) conversions of the kitchens. And it's a very professional approach on how to work with food. And it's all the way from soil to table (...) This is a conversion of food systems. It is simply a culture change undergoing. It is a whole sector in society. Those who work with the professional meal management begin to think in a new way, and it is gradually becoming reasonably comprehensive." (Appendix 1: 30.38)

In this line of reasoning, two of the actors mention the organic transition within the Danish public kitchens as an important trend with a potential to move the food system to a more sustainable one. Another important issue that all three actors talked about was cooperation between actors in the value chain, which has the potential to strengthen the work with sustainability. Networks and knowledge sharing between actors in the value chain / food system is important, they said. The reason seemed to be, that in this process of getting to know each other better (each actor in the food system / value chain) it provides great possibilities . An argument from CPH about this issue:

*"When I started demanding organic halal meat, it did not exist on the market. But then I said, we want it, and you will get points for it. Then it existed two years later. It was really expensive to buy. Now, five years after, you can actually get it. It's still more expensive - but you can get it at a reasonable price. So, I guess, all people want to sell (their food), and therefore they'll have to change. There is no one who is not interested in a better world, if you want a good future for your children. Nobody says, I want the world to go under tomorrow." (Appendix 3 *: 37.00)*

COOP also talked about the strength that cooperation in the value chain provide them with:

"However, I think we have a closer cooperation with suppliers, closer partnerships than some of our competitors have. It's a bit of a thing from ancient times. The very close relationship we have had with These Dairy for almost 30 years, that's a good example of it. We are really fair to each other and help each other in times of crisis also, and we are risky in trying new things

together. In line with this relationship, we also have relationships with Meyers, with Sødam, with Søris, and with Bertel Hestbjerg's Popple pigs." (Appendix 2: 14.00)

The quotation tells something about that cooperation strengthen the food value chain and likewise strengthen local entrepreneurship. Lang & Heasman (2015: 282) argue that the tendencies to favour robust local food economies should be strengthened, along side with social movements and fairness in food systems, as a part of the Ecologically Integrated paradigm. This is supported by others (Marsden et al. 2014, Hildebrandt et al. 2016, Morgan & Sonnino 2008).

Another string of cooperation implies that the different actors in the food system / the value chain takes the responsibility for the development of sustainability themselves. COOP argued:

"we would like the relevant parts of the value chain to take responsibility for becoming more sustainable themselves." (Appendix 2: 32.00)

With this quotation emerges the question about "good governance" (Hildebrandt et al. 2016: 23-24, Lang & Heasman 2015: 286, Hansted 2016 - about "*collaboration*"). How are we to ensure that actors in the food systems accomplish this joining up cooperation and good governance in a sustainability food system context? Good governance and food democracy is conceptualize-wise connected in Lang & Heasman's line of argumentation (2015: 254). Especially, the involvement of large multinational agricultural companies is a prerequisite for lasting sustainable changes (2015: 254-257, 282). These multinational companies may have vested interests in developing sustainable practices, because their foundations are built upon the financial gain of their agricultural input-output system (Lang & Heasman 2015: 38-40, 254-257, Hildebrandt et al. 2016: 21-23, Burley et al. 2017). What is good governance depends on the eyes that see. However, from the perspective of the Ecologically Integrated paradigm we have to enhance food democracy to meet this. As a means to move away from supporting businesses, which put emphasis on the economic gains of the input-output systems. A solution to this, in the public sector, if public procurers change the purchase:

"I see it in this way. I can purchase (the food) that I want. So I just need to know what is going on. Once, I have knowledge about things, I can demand something else." (Appendix 3*: 38.00)

This possibility is an important element. Here, it seems that there is room for purchasers to change behaviors in the questions about sustainable food practices. However, this possibility is present at

COOP too, if they chose to do it (elaborated in a later section):

"For internal use (we have) formulated that we will increase our sales of responsible products by 50%" (Appendix 2: 5.00)

6.2.2 Facilitators

Facilitators
Translators between primary producers and consumers; Holistic perspective in demands to value chain / food system actors; Public food procurement to lever a sustainable food system; Mediators.

Another issue that I created under "new tendencies", is "**Facilitators**"¹⁰, based on, that all of the three actors implicitly told that they use their positions to lever sustainable food systems. Of course in a lesser or higher degree depending on their different positions and functions in their organisations. The actor from COOP mentioned that they are a sort of a translator between the actors, in the food systems, translating from a language of what consumers demand from the primary producers, and the other way around:

"Our role in the midst of the food value chain is to try to translate the wishes of the consumers which are often some sustainability wishes from a social perspective. And then translate them back into the value chain in a language that the suppliers understand. I very much regard our role as a translator role. We must tell consumers how their products are actually produced, what is the value chain in it? And we must tell suppliers and manufacturers which are the consumer's actual demands from your production? And then we are the link in both directions". (Appendix 2: 33.25)

The actor from CPH called the municipality a mediator:

"Yes, so I'm just sitting at my little desk, I have nothing, I can not cook in that way. I'm not really good at cooking and I do not know much about the ingredients either. However, I know a lot of people who do. I know the kitchens, I know the organic conversion consultants, I know the suppliers. So, my role is just to be a mediator between them and to describe what they can, and to describe the visions they have in the documents, so I ensure that the ends meet and they actually have full understanding of each other. Sometimes, I see myself a bit more like a mediator, more than anything else." (Appendix 3 : 4.00)

¹⁰ For me, a Facilitator is a person or thing that makes an action or process easy or easier.

Another strong argument into this line of reasoning from CPH:

"We can not go out and change the world - but we can be a driver, we can be those who push, we can be those who pay attention to things." (Appendix 3: 38.00)*

The aspects about facilitating something that you believe is a more sustainable solution, is an important means for moving to another paradigm today (Brown et al. 2009). Especially, when the public sectors and the national sectors become the drivers, this could be a game changer. I am linking this perspective together with one of the core arguments from Lang & Heasman about the Ecologically Integrated paradigm, where there is a societal responsibility to ensure public health, based on a citizenship model, where consumers become citizens (2015: 282), and where food democracy is the foundation for the society (2015: 254).

The strength of the fact that all three actors from my interviews are working in positions that position them in a Danish food governance network, gives a great possibility to change how things work in a Danish food systems context:

*"I think it's new to see the public sector as a driver of change and to use it as actively as we can. But then you need to get the time to do it. Because it's not just something you do overnight. You should have priority time for it. I hope that we will get this in the Copenhagen municipality based on the new food jurist group. Thus, we get more focus on the fact that it's an area where we can reach many of our goals." (Appendix 3 *: 40.30)*

The role of the retailers potential to change which products are on the market is an important issue in this context. Lang & Heasman are very critical towards the retailers. The authors state that retailers are having too much power these days, and that they to a high degree decide which products are on the market (Lang & Heasman 2015: 9, 12). This aspect I touched a bit in the last section of 6.2.1 (50 % responsible products in 2020), and I will elaborate on this issue in section 6.4.1.

6.2.3 SDGs helps to lever sustainability goals in food systems

SDGs helps to lever sustainability goals in food systems

After the introduction of SDGs, it is legitimate to work with sustainable food systems
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Another theme that I created under "new tendencies" is based on an argument from the interviews.

Here, I was told that ever since the development of the Sustainable Development Goals (SDGs), it has become legitimate to work with sustainability in the food system, on the municipality level, and that it is actually a demand from the municipality. I chose to see this as an overall theme:

"With the 17 world goals, we are moving in the same direction (...) and in fact, because they (United Nations) developed these goals, it has also become more legitimate to work with it." (Appendix 3:35.12) (...) We are asked to refer to how we try to meet them (SDGs). Therefore, I think there are a lot of things that go in the same direction. As a matter of fact, this (SDGs) is working the way all down the system. Down to the individual procurement lawyers/jurists. Or at least in the municipality of Copenhagen, it is the fact." (Appendix 3*: 35.30)*

This is an interesting idea from CPH. Not only do the Sustainable Development goals bring 17 goals to develop a sustainable human interaction with nature, the SDGs also thereby creates a positive expectation of something more to it.

The actor from COOP mentioned in a phone call (Personal communication with COOP), that it is difficult to translate the SDGs directly into the food industry and retail. There seem to be parallel roads, one with the ideological SDGs and one for the food industry. However, the fact that the municipality of Copenhagen demands SDGs integrated in the everyday work of the civil servants, it could be seen as a possible way to create new ways to work with the SDGs, which do not drive in parallel roads.

6.3 Identified themes created for "health"

I created two overall theme for the research question "health" based on the interviews and my interpretation. The following box displays the data, that pointed me in this direction.

<p>Different approaches to health</p> <p>Health as an individual choice; Health as learning about food; Health "inside" food; Health encountered in the role as translator; Health out of caution; Lost contact to food, Understand food; 9 % income for food; Mediators.</p>
<p>Health Science</p> <p>What health is, can and want to; Nutrition transition; "we do not work with health"; Health out of caution; Different paradigms approaches; Ecological Public Health</p>

All the actors understand health in relation to a food system context. However, there were differences in their approaches to health. Lang & Heasman's work with the conceptualization of

health as a paradigmatic element, which is getting a special attention here. The authors argue that health has different meaning to different people, based on the paradigms from where they stand (Lang & Heasman 2015: 41-46 - see table 4.2.1).

6.3.1 Different approaches to health

Different approaches to health
Health as an individual choice; Health as learning about food; Health "inside" food; Health encountered in the role as translator; Health out of caution; Lost contact to food; Mediators.

In the interviews I quickly understood that when I asked into the subject of how the actors understand health, and how they integrate health into daily practices in relation to the food systems, the notion of health was approached very differently. Even though all three actors mentioned that they work with health, in one way or another, they take different entry points to enact health, depending on their different understanding, positions and functions. In the following section I want to describe this aspects. The actor from CPH works with the concept of health, as a matter of a learning aspect:

"It's both about health and learning. Because I think that, the two things are connected. Because, as you learn about the raw material, you learn to understand that this is something that grows, it's not just something that you buy in a plastic bag". (Appendix 3: 27.09)*

CPH talked about some potential projects where children come in contact with food, and are taught about food in new ways. The actor from COOP also understand health as learning, however more than that (Appendix 2: 38.05):

"We think more environmental sustainability than using health as a proxy for it. Health, we think, is more about the fact that consumers themselves should have the opportunity to put together healthy diets and lifestyles based on what they choose from us. There are several ways to think of health. We ensure that the goods we sell and produce are produced with integrity, which makes it possible for future generations to benefit from this. It is a very broad way of defining health. You can also look at the composition of products, and this we bring further by advising and producing school materials, about how you take responsibility for your health as a consumer today. This is about the individual health. The third way to think health is to go to the product level and remove sugar and salt out from these products, and then we can place a keyhole brand on it, and sell more products with fibers. We are actively working to increase sales of healthy goods."

The next quotation was not a direct answer to my question about health, however I interpret a connection between the quotation and health matters:

"Yes, you can say that it is very much in our DNA that we are a cooperative movement. As such, we have written some things into our purpose clause, which ordinary limited companies would not write in their purpose clauses. E.g. it says that we must support sustainable social development. It is written as paragraph 7 of our purpose clause. It is also written that we must work for democracy, that is, we ourselves are a democratic enterprise, and that means that we support and have a preference to trade with other spirit-based or democratically-based companies. In this way we support a specific approach to the organization of the food system." (Appendix 2: 10.15)

When we take a look at Lang & Heasman's literature, the Productionist - and Life Science paradigm lay out health as an individual choice, where focus is on educating the consumers with leaflets and school materials, and thorough nutritional labeling (Lang & Heasman 2015: 43). The responsibility for diet-related health is thereby put on consumers (Lang & Heasman 2015: 43).

By reading the quotations from COOP and by going through their campaigns (COOP n.d. a+b), I know that COOP works with health. However, some of the quotations portray COOP positioned in the Productionist - and Life Science paradigm, when it comes to health based on their way of the educating and nutritional labeling (Lang & Heasman 2015: 41-47). However, the picture is blurred when it comes to this aspect of health. Both COOP and CPH are providing the schools with some school education, not only leaflets, therefore there are different approaches to the fact about where they stand in this context. By providing the schools with education, health becomes more than an individual choice for COOP and CPH. They empower people by educating them, which is a part of the goals from the Ecological Integrated paradigms (Lang & Heasman 2015: 40). Nonetheless, based on my knowledge of COOP's purpose clause on social development, I assume that they could embrace public health more than they currently do, if they have the will to do so. Social development of today should (possibly) embrace health, environment and food democracy much more, based on the current environmental issues that societies face today (Steffen et al. 2015, Marsden et al. 2014, Hildebrandt et al. 2016).

Ø.L. mentioned that they do only work with health to a less degree, based on the following:

"I have not talked about it at all, it is another dimension. And that's something we do not deal with very much, unfortunately you can say. There are many reasons for this. Health is very distorted. We have a health science that does not want to recognize that organic production is healthier and it is completely grotesque. Because there is nobody that works with it, who does not know that it's healthier. It's simply something about what science is, can and want to. And how they are thinking in that world, with evidence and all that." (Appendix 1: 38.10)

This is an important key message of the analysis. It points in a specific direction telling me something about the trouble that "health is in". If this fact is a truth for several food actors, then it might be difficult to move for a sustainable food system solution, with health integrated, as the argumentation from Lang & Heasman suggests (2015: 1). There are two aspect within this quotation. The first aspect will be elaborated in this section. The other aspect gets special attention in 6.3.2.

If you elaborate the argumentation from Lang & Heasman, in the Production paradigm, health is portrayed as being enhanced if there is enough food (Lang & Heasman 2015: 6, 19). Thus, an increasing food production is the goal (Lang & Heasman 2015: 41). In the Life Science paradigm you build upon the Productionist paradigm, and here you use sophisticated science to enhance health, offering long-term dietary solutions. The goal is thus to advice society to get the right nutrigenomics and personalized genetic "cogs" in the human "machine" (Lang & Heasman 2015: 45).

The quotation from Ø.L. gives incentive to argue, that today elements of the Life Science paradigmatic are present, when it comes to health (Lang & Heasman 2015: 40). To elaborate on this, I bring in the Life Science paradigm's claims of consumer sovereignty. The emphasis is on your personal choice and a personalised appeal with vitamins as the solution, however the Life Science paradigm puts an emphasis on hi-tech industry and manufacturing, and industrial-scale applications of biotechnology (See table 4.1 and 4.2.1. - the Life Science paradigm). These technologies claim to deliver environmental and health benefits. Nonetheless, Lang & Heasman claim that the big science experts are nervously approaching the consumers with information that could provide the consumers with the empowerment to choose on a well-informed basis.

In the Ecologically Integrated paradigm, health is something about enhancing old food system traditions in new ways, to interconnect soil, farmers, society, individual health and public health,

and environmental well being (see table 4.1, 4.2.1 and figure 4.3.1). Education is a means to empower consumers, to transform to citizens. These elements from the Ecologically Integrated paradigm is, to a high degree, the current situation within the organic movement in Denmark. However, in the question about health, the organic movement may have lost the battle to the Life Science paradigm, if Ø.L. is not following up on the health-issue in a food system context. I understand the following quotation from Lang & Heasman as an elaboration on this argument:

"If the Life Science Integrated paradigm becomes well ensconced in the corridors of power, the Ecologically Integrated paradigm may be forced into more strident opposition to win public acceptance" (Lang & Heasman 2015: 40).

If the Danish organic farmers organisation do not pay attention to the matters of health in connection to food system thinking, a question arise, who will then integrate health into the work in agriculture? I will elaborate on this in the next section.

In the line of reasoning about different approaches to health, I would like to highlight an element from the interviews. The fact that I understand that the actors represent "mentors" and "translators" (described in the section "facilitators" in 6.2.2), could potentially provide a reason for them to imply health as well as environmental demands in their work. Mentoring health in a food system context in the future.

6.3.2 Health science

Health Science
"What health is, can and want to"; "we do not work with health"; Health out of caution

I would like to elaborate the second aspect of the previously mentioned quotation from Ø.L.:

"I have not talked about it at all, it is another dimension. And that's something we do not deal with very much, unfortunately you can say. There are many reasons for this. Health is very distorted. We have a health science that does not want to recognize that organic production is healthier and it is completely grotesque. Because there is nobody that works with it, who does not know that it's healthier. It's simply something about what science is, can and want to. And how they are thinking in that world, with evidence and all that." (Appendix 1: 38.10)

It seems that it is difficult to ensure health through science today, based on the history of the Productionist paradigm, Lang & Heasman argue :

"Academics were not helping much either; mostly they remained in discourses set by their academic disciplines, in silos, rather than helping create bigger pictures to offer policy-makers" (2015: 6) and : *"there are countless heavy reports giving substance to the view that the food policy challenge – far from being resolved by Productionist or the Life sciences integration paradigms – is deepening and needs a radical overhaul"* (2015: 18) and: *"Universities, colleges of agriculture, extension services and a panoply of support were gradually incorporated into this paradigm, which came to dominate food policy in the mid-20th century"* (2015: 26).

These quotations from Lang & Heasman support the issues, that I gained from the interview with Ø.L. However, this analysis involves much more than I can deal with in this thesis, therefore I will only shortly touch on two aspects in the following chapter.

First of all, the consequence of this: If an organisation which normally works for environment, health and green solutions in Danish agriculture in general (partly based on IFOAMs four principles), chose not to work with health in a Danish food system context, based on the fact that health is "distorted" (or with other words to "difficult to work with"), it could provide some problems for public health for the Danes in general. This is a key understanding of my analysis. If Ø.L. do not work with at least some aspects of the concept "health at the heart of food systems" on the agricultural level, who will work with it in a Danish context?

Secondly, I would like to point out the certain kind of scientific beliefs that prevailed through the Productionist paradigm and (now) the Life Science paradigm, and the consequences for science that it can imply (Lang & Heasman 2015: 26). As mentioned in the line of argumentations by Lang & Heasman on the previous page and in table 4.1 (read under: Science focus: "Science presented as neutral but tailored by industry-led/oriented funding" in the box Life Science paradigm), the national, the governmental and the educational bodies were colored by one way of enacting science which resulted in at least one aspect. This aspect is touch on here, provided by Ø.L.:

"There ought to be different forms of free funds, funds which can be used much more experimental and much more in accordance with (...) it is a longer story. It requires that you get immersed into the substance - the techniques of the financial world. There is no way around it, that

if you want a development in a society, the state must intervene, and use whip and carrot. And this is the reason that we have the welfare society of today. That's because we had a state that took responsibility. That is why we have the reasonable equality we have (in Denmark)." (Appendix 1: 1 hour 5 min.)

The quotation shows that the actor believes, that if we are to ensure a sustainable, healthy food system, our National State must intervene, in line with how we regulate our welfare system. This is a key message in Lang & Heasman literature as mentioned previously as mentioned before. They argue that we have to change the Productionist paradigm and rethink how to operate from a policy level (2015: 253).

6.4 Identified theme created for "environment"

I created one overall theme for the research question "environment" based on one interview and my interpretation. The following box displays the data, that pointed me in this direction.

Community-friendly agriculture

Community-friendly agriculture; "*Naturforeneligt landbrug*" (best translation; nature compatible agriculture); 6 new climate-goals from Ø.L; "Ø-mærke"; SDGs help to lever sustainable goals in municipality; POGI; 50 % more sustainable products in 2020; Change and solution-oriented; Mediator; Translator role; Jurists can lever organic food; systemic complexity; criticism of society "*Samfundskritik*"; Local food; Precautionary Principle.

When I asked into the subject of how the actors understand environment in relation to the food system and how tasks are integrated in their organisations, they had a more common understanding of the concept than of the issue of health. Environmental goals are meet through different initiatives by the actors organisations. However, especially one quotation from Ø.L. colored what to put forth in this section. I chose to foreground it as the identified theme: "community-friendly agriculture" (*Samfundsnyttigt landbrug*). I will described the other actors point of view in the question about environment, however they did not mention this aspect of "community-friendly agriculture" in the interviews.

6.4.1 "Community-friendly agriculture"

The notion of "community-friendly agriculture" (*samfundsnyttigt landbrug*) originally appeared from the interview with Ø.L. It was given as an argument about that farmers could perform important environmental tasks for the society and get paid for it:

"One of the ways you can do this is that, instead of paying farmers to just being a farmer today... that is how it works today. The farmers receive the largest part of the huge subsidy budgets in comparison to the total EU budget. Therefore, you can say that's fine enough, if it's necessary, but then they have to honor the services that society needs. It's a way to change. It's not something we do from one day to another. The so-called CAP, the Common Agriculture Policy, is being renegotiated every 7 years and then there are some midway assessments, so it's a rather slow process. But this is a must." (Appendix 1: 28.21)

If the farmers conduct community friendly tasks, the society and the nature would benefit. The farmers are already being paid by the EU, and they are already out there on the farming sites all over the country everyday. However, the task needs systematic management. Lang & Heasman touch this particular subject indirectly by the emphasis of social and eco-system resilience in the Ecologically Integrated paradigm (Lang & Heasman 2015: 40: see table 4.1). However, other literature supports this aspect (Marsden et al. 2014, Dyball 2015, Hildebrandt et al 2016). The argumentation from Ø.L. could strengthen the development of sustainable food systems.

Ø.L. has developed a new plan / model to ensure climate performance in relation to how they treat the farming sites. A plan with 6 new climate goals:

"We have decided that in the coming years we will start working on creating a new model. That is, the organic agriculture must "move into the grade". A climate goal is one out of six parameters. Nature content is another. Social aspects is another goal. There are six in all. On the climate side, it's about getting farmers to lay down more carbon in the soil, for example, better nitrogen bonding, self-sufficiency with energy, there are many opportunities, a lot of possibilities. There is an entire climate catalog for what we want to do." (Appendix 1: 44.00)

Ø.L. also mentioned, that they could not develop the Danish "Ø-mærke" (national organic label), based on the fact that it is under EU regulation now:

"EU controls the Ø-mærke. The label is directly government-driven, and because of that, it is directly controlled under the EU regulation." (Appendix 1: 41.30)

The actor from COOP mentioned another way of working with environment in food systems;

"It is based on the precautionary principle, because we are owned by the consumers. Then they say, "We'd rather be a little too careful than a little too careless" with respect to what's in our products. Therefore, we just do, what consumers would like us to do, and we set a goal to phase out chemicals. It's not because we've started saying that the environment has a problem. It is driven by the fact that we sell healthy and safe products for the consumers." (Appendix 2: 40.10)

Another aspects of the environmental work that COOP perform:

"For internal use (we have) formulated that we will increase our sales of responsible products by 50%" (Appendix 2: 5.00) (...) "where we sold for 6 billion of such products in 2015, we will sell for 9 billion DKK of such products by 2020" (Appendix 2: 6.30)

This work provides possibilities. The critical voice from Lang & Heasman (2015: 9, 12) is, that it is not what happens on the land (the farmers), but off the land (in terms of processing, retail and food service), that causes the problems of how things work in food systems. The farmers and the land are being squeezed, and do not have the strength to dictate the workings of the food supply chain any longer (2015: 12). However, if COOP's goals (50 % more responsible products by 2020) are executed, it may create another trajectory for COOP than for their competitors.

The actor from CPH mentioned the environment aspect by:

"We need to be CO2 neutral soon. Not all procurement lawyers think about it in their contracts. That's something I'm mentioning a lot in all contracts. And it is not only CO2 neutral within the purchase itself, it is also in the production of the products. If we can start thinking about this connection, can we then make (better) demands to our producers? Or can we help the producers think more sustainable? Can we talk about how to help the producers become more sustainable? Can we ask questions in a certain way, that's more sustainable? Do they want to change their production in one way or another, or do they not dare?" (Appendix 3: 29.15)

The last part is indeed something that could enhance sustainability in food systems. In the public food sector there are strict rules for how to purchase food and products (mentioned in chapter 5). Lang & Heasman (2015) only touch this indirectly by pointing out what the Ecologically Integrated

paradigm entails; the underlying holistic thinking between the interconnection between rural urban land and cities. However, another source, Morgan & Sonnino (2008), argue that it is possible to harness the power of purchase to enhance sustainable food systems through public procurement (Morgan & Sonnino 2008: 84-85).

6.5 Identified theme created for "barriers"

I created one overall theme for the research question "barriers" based on the interview and my interpretation.

Recalcitrance of the current food system paradigm

Not time enough; Different things that are needed in relation to time*; Few resources; Priority; Fight; Economy; External pressure is needed to change the retailers; EU agricultural policy; Food law; Slow transitional period; No room for real climate work; VAT; disintegrating society.

6.5.1 Recalcitrance of the current food system paradigm

In the interviews I quickly understood that from where the actors stand, there are common barriers to enhance sustainable practices in relation to food systems. It was about time, resources and priority. It seems that the actors need to battle brave fights to perform and integrate what they see is needed. The actors are running as if in a "treadmill" (please read next page), to enhance better solutions in the questions at hand. The underlying financial system which the food system is part of, is having a huge impact on the possibilities to change anything (Lang & Heasman 2015: 6-7), and based on these issues, I chose to term the identified theme for "Recalcitrance of the current food system paradigm". The time aspect was mentioned several times, and I would like to elaborate on all the things that "time"* is needed for, in connection to the actors work with food systems:

- Time to responsibility
- Time to be thorough and find sustainable solutions
- Time to immerse themselves in knowledge
- Time to network activities
- Time to coordinating activities
- Time to help pulling in the same direction
- Time for cooperation
- Time to understand the complexity
- Time to write what they understand
- Time to do all that they want (in the question at hand)
- Priority time is needed
- Fight for time and resources

Lang & Heasman do not directly mention "time" as a subject on either of the paradigms. However, Lang & Heasman use the concept of agricultural treadmill to conceptualize what happens in the industrial model of agribusiness (Lang & Heasman 2015: 201). In this model that sees fewer farmers producing food, resulting in increasing farm concentration, whereby the farmers need new technologies to intensify production, in order to earn more money (Lang & Heasman 2015: 201). It is the conceptualization of "treadmill" I horizontally use to understand the picture of what I interpret in the interviews about time, priority and resources.

As previously mentioned, due to that the food system is a social phenomena among other things, - shaped by government, law, food industry, finance, science, farmers and society, and the consumers who eat the food, - the current paradigm will automatically impact the way that food systems operate and which products it produces (Lang & Heasman 2015: 18). Thus, all of the actors working within the food system every day, will necessarily get impacted by the underlying paradigm. With governments in the West subscribing to a neo-liberal influenced ideology (Lang & Heasman 2015: 22), the actors working in this system will have to correspond to the given financial conditions within this paradigm.

"More time" is in the "treadmill" an intrinsic factor for creating a more sustainable food system. This issue was especially the case for the actor working in the municipality: (Appendix 3*: 36.08)

"CPH: Time. - That I do not have time to do all I want. I simply do not have enough time.

We are not enough people.

Me: Can you get it in one way or another?

CPH: No. It is not a high enough priority.

Me: By whom?

CPH: The municipality. I am only myself and I have a lot of other things to do too."

This is an important key understanding of the research. Time is not "something" that comes out of the blue. "Time" depends on the management, who decide what is prioritized in everyday practices. If time is not prioritized, then the tasks to enhance sustainability is undermined. COOP touch the issue about barriers in another way:

"We also see that in times of crisis, or in times when the organisation lacks customer flow and money, it's very often the quick battle offerings that we are trying to entice people. Then you choose the widest possible products. That is, choosing a product that you know appeals to 50-60% of consumers and that is what you put in the offerings" (Appendix 2: 7.48)

The quotation tells me something about the difference between "bad times" and "good times". COOPs food policy does not provide the necessary foundation to lever sustainability in a longer term, and how can COOP reach 50% more responsible products in 2020 then? It depends on the management of the organisation. Furthermore, COOP said:

"The CSR area is seen as something that is expensive" (Appendix 2: 9.36)

And :

"The management is more concerned with the competition perspective. Therefore, the role of NGOs and the role of the media, is to increase awareness of the value chain and the pressure on the value chain, I think. And to increase awareness of the challenges of our way of producing food. This gives us the incentive to demand (change)". (Appendix 2: 36.30)

Ø.L. touch "barriers" in the term of having less resources, but also in another way. They emphasise the current EU policy and the financial aspects in the food system:

"The EU's agricultural policy is one of the most important factors for the agriculture of today." (Appendix 1: 27.27) (...) "We are working on that the subsidy system (CAP) should not be abolished, but it needs to be converted in order to pay farmers to provide social tasks. Social tasks are a lot of things, however it is about climate, not the least. It's about nature, it's about protecting our resources, drinking water, and it's about social aspects too." (Appendix 1: 29.09)

In continuation of this perspective:

"If you want to influence politicians - or want to get in dialog with the politicians about some things which are really basic, then yes, it is actually about an unsexy issue - that is our VAT system." (Appendix 1: 51.00) (...) "There are no one discussing VAT. Not in Denmark. You do it in other countries. But you do not do it in Denmark. But that might be necessary. The case is, that if you sell one liter of milk in the supermarket, - A conventional for 5 Danish kroner and an organic for 10 Danish kroner - then, the VAT amounts to 1/5 of that amount. That is, 1 Danish krone for the conventional milk and 2 Danish kroner for the other (organic) milk. It is 1 liter of milk in both cases. The State earns 1 Danish krone more (on the organic milk), because the starting point (price) is higher. And that makes no sense. Why should the government earn more money on individuals who choose to become organic farmers? These farmers ensure that social costs (externalities) are internalized in the price. It's a paradox." (Appendix 1: 51.29)

I will elaborate on the title of the section "Recalcitrance of the current food system paradigm". In the process of analysing, I firstly termed the theme for "Recalcitrance of the Productionist paradigm". I abstained. The reader would then necessarily have to accept the idea of the Productionist paradigm. However, what I wanted to emphasise with this theme was the underlying barriers that seemingly derive from the current food system paradigm, and in Lang & Heasman's literature, the Productionist and Life Science paradigm is in a high degree widely present. An argument to support this is from Ø.L;

"There is a lot I could not have imagined, if I had looked forward 40 years ago. You could say that it went OK (for the organic farming), however, I would say that the world has evolved in a completely different and almost horrible direction in the same 40 years. It is paradoxical. We've got more organic agriculture now, however in the same period of time we got a planet which is in a really bad shape. It is not easier to become an organic farmer. Fewer and fewer farmers. Agriculture is getting bigger and bigger. The pressure is enormously hard. The economic situation

is very difficult. The competitive conditions are difficult, and the more globalization there is, the more you remove producers from their close markets." (Appendix 1: 10.20)

This quotation will be rounding up my analysis.

Lang & Heasman touch on this aspect to a high degree. There seems to be barriers with respect to the mentioned issues in this section (6.5.1), which needs to "be joined up rather than being dealt with in different policy silos" (Lang & Heasman 2015: 253). This aspect was elaborated more thoroughly in analysis section 6.2.1.

7. Discussion

In this chapter, I will discuss the results of the analysis. I will first outline a broad discussion in the sections 7.1-7-4. Subsequently, I will discuss new literature up against the findings in my analysis, in section 7.5. In section 7.6, I will provide a short sum up.

7.1 Discussion of the overall findings

This section contains the reflections on how the overall research questions were met as well as a description of the processes that became a part of my journey to answer my research questions.

I approached the research area using a qualitative and multi-methodological research design, with a attempt to provide a constructivist perspective. I utilized several sources and methodologies: interviews, literature reviews and tools to hold the research. I applied Lang & Heasman as my theoretical framework, as a way to go one step behind the paradigmatic universe of interrelated activities that characterize food system policy actions or lack of the same. I intended to go in depth with tools from Situational Analysis - non-human actants and discourses - however it ended up with a human-centered analysis, where focus is more directly on the actors understanding and the literature reviews. I could have chosen other sociological literature and other methodological tools as background for my analysis, or I could have laid out other themes from the interviews, and the outcome would have been different.

In the process of developing interview questions, I realized that it was necessary to divide the research questions into four interview questions. These four interview questions were subsequently termed pre-structured themes in the analysis and further on. This way, I got answers to how the actors acknowledge and integrate new trends of a new food system, with an emphasis on questions about health, environment and barriers to move towards a sustainable food system.

Through immersing myself to the data from the interviews, this resulted in a process, where data gathered in clusters of words and meaning. I tried to create themes using the understanding of the concept “sensitizing concepts”, where by I kindly ask the reader to look in a specific direction in the interview. In this way, I developed identified themes for the four research questions. I created seven identified themes in the analysis. The identified themes provides with answers to my problem statement, and I will elaborate the results in the box below and in the following chapter.

New trends	"Cooperation", "Facilitators", "SDGs helps to lever sustainability".
Health	"Different approaches to health" "Health Science"
Environment	"Community-friendly agriculture"
Barriers	"Recalcitrance of the Productionist paradigm"

The box illustrates the findings of my research. These identified themes bear evidence of that I interviewed actors that represent a great awareness of sustainable practices within the food system. The findings are to a certain degree colored by this fact, and significantly point in a rather “positive direction”, by which I mean, that all participants would like to move towards more sustainable food systems with respect to the research questions. The consequence of this is that my findings do not take into consideration how we can enhance sustainable food systems, from the point of view of other food governance actors, that do not carry the same kinds of paradigmatic thoughts about what is important in the questions at hand. Furthermore, my competences as a critical interviewer, or the lack of the same, makes it more difficult to be a critical researcher. An example of this competency is to follow the thread in the interview, and to keep on asking when the questions are not answered clearly.

Through the literature by Lang & Heasman I created a critical outset / background for my analysis which provided me with a chance to grasp especially the complexity within food systems. A critical paradigmatic food system discussion is necessary today, if you pay attention to the critical voices, such as United Nations (United Nations n.d. a+b, United Nations 2016, United Nations 2017), Food and Agriculture Organization (FAO 2017), Marsden et al. (2014), Tansey et al. (2013), Steffen et al (2015), Dyball (2015), Hildebrandt et al. (2016), FAO (2017).

I tried to conceptualize what a sustainable food system entails by pointing to the Ecological Integrated paradigm (Lang & Heasman 2015), and pointing towards their definition of health too. With this approach to health, both health, environment and social aspects needs to be fused into the discussions on food systems. The illustration from chapter 4, figure 4.3.1, explains this connection. It is necessary to frame the concept of health from an ecology approach, which makes it important to understand the myriads of connections revealing between living organisms and surroundings, in the discussions about food systems. I tried to lay out an understanding of this framework in order to utilize it in the analysis. I suggested that the organic agriculture that we know of today, contains

some of the same elements as the Ecological Integrated paradigm entails.

In this way, Lang & Heasman got special attention in my research. There are pros and cons of using their theoretical framework. The pros was the special attention that my analysis of food systems and their development could gain from this, a more critical outset. Their literature connect social, biological, technical and economical phenomenons in relation to food systems and build on many scientists work from all over world, and in this way their standpoints derives from many other critical voices, and not only their own. The cons is that my research get one-sided. I am aware of that. However, it was a choice. I had to create a research design, where I - the "bricolour" or the "quilt maker" - could carry out the research, without losing the overview (See chapter 2).

The outset for a critical research was extended with the possibilities from Situational Analysis to put forth silenced actors. Due to the fact that food do not have a clear belonging (Nordisk Råd 2017), and that food is under influence from many food governance actors with different interests of future food systems (See section 4.1), it is important to develop tools where it is possible to grasp this complexity. One of my goals was to conduct an analysis where I could understand the research questions from inside out "social inversion" (Clarke 2005: xxxvi). If we rely on Lang & Heasman's literature, then food, food systems and health could be seen as small peripheral actors compared to the strength of big agro-industries, and Situational Analysis provides with tools to analyse especially these elements as mentioned several times in the thesis.

The structure of the qualitative research in general also provided with great potential for me to put forth the silenced actors voices. Further to this framework (ie. qualitative research with Situational Analysis as the research strategy), I chose to get immersed in the constructivist perspective, and this laid out a whole new world view for me. Deriving from this perspective, all scientific knowledge is created by humans, and shaped by their negotiations and networks (Clarke 2005: xxiv). This has raised my critical awareness in general.

Based on the mentioned theory and tools, I created identified themes with background in the constructivist perspective. Ie. "Health Science" and "Recalcitrance of the current food system paradigm". The possibility to pedestal such actors (actants) shows the strength of a constructivist perspective which Situational Analysis derives from. However, I could have elaborated these topics much more. It did not carry out as I had hoped initially. I did not go in depth with the possibilities from S.A. to enhance non-human actants, which I will elaborate on in section 7.3.

7.2 Interpretation of the results

The validity of the research design depended on my skills to employ all of the different multi-methodological tools and to perform a balanced analysis where the voices of the actors are heard. Furthermore, it depends on the relevance of my research questions, the literature I found to support the research questions, the line of my argumentations, and the selection of actors. I tried to provide justification to the research by holding the methodological tools tight to the body.

Based on my results, I see tendencies amongst my participants, that there is an appetite for moving towards more responsibility in relation to sustainable food systems. The willingness for the participants to elaborate on their efforts clearly exist. However, they do need a helping hand. Their management do need to follow up with priority, time and manpower. The actors put forth several ideas in the interviews, which have the potential to lever sustainable practices in their work. Some of the ideas are still in the initial phase, ie. on the actors own "wish-list", and are not integrated in the organisation. This is seen in different ways in all of the interviews. "Priority not given" means that the management do not prioritise the work area of the actors highly enough, in order to give them the needed time and manpower to create viable sustainable solutions. "Time not given" is only a symptom of the aspect "priority not given". Time is only a limitation, which can be solved if the management prioritise to make the change. "This is only an aspect which I tell you here and now because you ask me" is another such statement on the "wish-list for the future". If changes in a food system context – where health is integrated – should take place, the management of the organisations need to provide the proper time, priority and resources.

Each of the actors had different approaches to the research questions (new trends, health, environment and barriers), based on their different functions. E.g. they do not necessarily have to consider issues of health, if this is not required in their job-function. This results in that they talk about the topics from different angles. In this way the research gives a more broad picture of the thoughts and practices in a Danish food governance perspective. The advantage of this is that you get a perspective of individuals working in different parts of the food system / food value chain, which give an insight from each part of the food system. In my research, one actor was from the farmers level, one was from the retailers level, and one was from the municipality level. However, a disadvantage from this small sample of key food actors is that it does not provide a more full picture of what we need to do in a food system context, and it requires that you buy the premise that we need to change our way of conducting the food production. If I had asked a more varied selection of

key food actors, from other parts of the food system, my research would have had the potential to meet the problem statement more fully on whether we are moving towards a more sustainable food system. For example I could have benefited from gaining knowledge from other actors / parts of the food system, e.g. “Imports” or “Food processor” or “Consumers” (see figure 4.2). This would have changed the research design, however it could have provided a better overview of current thoughts about tendencies in the food systems. However, by focusing on what I see as “first movers” in relation to how they approach food and food systems, Økologisk Landsforening, COOP and the municipality of Copenhagen, suggest that there is a significant change here. In addition, the research design had a realistic framework, given my resources and the accessible time.

From the findings I see, that these Danish food governance actors want to change their organisation in favour of getting health more fully integrated into their organisations. Through their roles as “facilitators” this could have a ripple effect to other cross-sectional sectors, other organisations or other parts of the food value chain / food system. However, health as a concept is a contested area, and it needs a helping hand, which can only be provided at state level. I suggest, this could be an outset for a new research. The actors are already in a process of moving, and the Danish State would just have to support the work of these engaged food actors. Another suggestion is that the work of enhancing a healthy, social and environmental friendly food system ought to have its own council - in the Ministry of Food and Environment. This would also meet the criticism from Lang & Heasman, that “*Food policy requires different issues to be joined up rather than being dealt with in different policy silos*” (Lang & Heasman 2015: 253).

The entry point to enhance a new understanding of how health and food systems are connected, would be to more explicitly disseminate the idea about the health concept with an ecology centered approach, as I suggested with the figure 4.3.1. Another entry point to talk about health as more than getting the right nutrition, is to commence approaching the food systems as a social phenomena. If we begin to discuss terms as e.g. food democracy, we get a framework from where it is possible to discuss “who owns the rights to food” and “who can decide over food”, and questions such as “should health be a part of the food system thinking” arise. If individuals and society get to know e.g. food democracy as a concept, then they would necessarily have to try to understand what this entails.

7.3 The limitations of my research

The limitation of my research is that of my resources, knowledge and experience as a novice researcher. For example, I could have elaborated much more on the discourses and non-human actants as mentioned in the previous section. As the thesis reveal, I am really inspired by the possibilities in Situational Analysis pointing out silenced voices, non-human and discourses actants, that may not be heard otherwise. I do see possibilities within S.A. to support the environmental work, to lay out some sort of analytic framework for nature conservation and for environmental and health issues. However, I did not have the time and the necessary "in depth" analytic skills to perform this work. This would require more knowledge about the world of symbolics, power structures and the like. The background for symbolics and non-human actors are still somewhat difficult for me to grasp. I find it difficult to understand how to work with "a dirty potato", mentioned shortly in the thesis (cf section 3.1.1). This might be one reason that I ended up with a human-centered analysis mostly. In addition, my research questions and my theoretical framework had a human-centered focus.

It was difficult for me to perform a multi-methodological qualitative research, due to all of the different "roles" a qualitative researcher requires (see chapter 2), having in mind the theoretical framework and other methods at the same time. Especially, I was somewhat nervous in the interviews, and therefore felt that my trustworthiness was tested.

Furthermore, I had a great desire to provide the interviewed actors with tentative themes. Therefore, even though I approached the assignment with great humility toward scientific work in general and towards the participating actors, my aspiration to develop tentative themes, may have impacted the findings. An example of this could be that most of the themes are rather positive minded and not critical. In addition, I did not want to be too critical, due to that these actors already implement sustainable practices in many aspects, even though they are not provided with sufficient time and priority from their management.

7.4 Recommendations for future research

- How do key food actors *cooperate* with other actors in the different organisations or in the food value chain? Which kind of cooperation is in fact strengthening sustainability projects?
- How do the key food actors *facilitate*, and which elements gives the best results? What type of facilitator competencies / roles are in fact strengthening sustainability projects?
- In depth analysis of non-human actants and discourses in another research.
- Support interdisciplinary / cross-sectional projects, where the focal point is “sustainable food systems”. Such projects should enhance cooperation, networks and knowledge sharing between different interest groups / food governance actors (politicians, NGO’s, scientists, farmers organisations, different professions within health, psychology, biology etc.

Especially, due to the complex picture of what health entails, it is necessary to develop the right methodological tools to grasp the myriads of factors (see figure 4.3.1). As suggested, all kind of scientists, professions and citizens are needed if we are to solve the complexity that prevails in the food systems today (Lang & Heasman 2015, Marsden et al. 2014, Tansey 2013, Dyball 2016 etc.). We need "collaboration". No single scientist alone can accommodate complexity and solve the problems in isolation (Hansted 2016). A last remark is that future research should also focus on how to disseminate ideas, such as food as a “democratic right” (Lang & Heasman 2015: 254).

7.5 New entrances to the research area

Based on the findings in the analysis, I realized that there are overall issues that reach far into the complexity of the modern food systems. A core of uncertainties that lay beneath food systems / food value chains, their development and the future possibilities. I take a new entrance to the research by suggesting two new theories, which I find have the potential to encounter these uncertainties.

I suggest, that these sources could create a background for a new analysis of what sustainable food systems should entail. I put forth literature with a sociological approach (Rosa 2014) and an ethical approach (Alrøe 2016). Both theories “talk into” the postmodern changes of society and science (discussed in chapter 2 and chapter 3 of this thesis).

Firstly, I put forth critical sociological theory (Rosa 2014). I heard the notion of “a lack of time” and “lack of priority” several times in the interviews, and based on this, I looked into literature that could provide with an understanding of such aspects. Rosa actually argues up against the paradigm-discussion deriving from Thomas Kuhn. Rosa (2014) argues that we have to move away from the

paradigmatic "puzzle-solving solutions", and provide society with real solutions to the problems of postmodernity (Rosa 2014: 11). In continuation of the discussions in my thesis (chapter 2 and 3) on how the postmodernity gradually changes the society and science, Rosa argue, that these changes are interconnected with an acceleration of life in every corner of its meaning: Technological acceleration, evident in transportation, communication, and production; The acceleration of Social change, reflected in cultural knowledge, social institutions, and personal relationships; And acceleration in the pace of life, which happens despite the expectation that technological change should increase an individual's free time (Rosa 2014: 21-26).

The reason why I emphasise Rosas literature here, is his claim, that this acceleration regime transforms itself into our relationship with others, to society, to space and time, to the world of nature and the lifeless objects. On a longer term we might lose the connection to ourselves, to others and to nature (Rosa 2014: 50, 94-111). The acceleration makes it almost impossible to change how we live our lives and how production systems work. Criticism, protests and political opposites are time consuming, and may be limited in this way (Rosa 2014: prologue). The social acceleration have strings to the capitalist market system (Rosa 2014: 12, 33), where the society is coordinated and oppressed from an invisible web, "the time regime" (Rosa 2014: 12). It is controlling our time down to the smallest details, while it claims that we are more free than ever. This is not the case, according to Rosa (2014: 12), and in fact the social acceleration has become an automotive system (Rosa 2014: 38-39). Nevertheless, these aspects are not ethically articulated in society, due to the fact that it is "invisible" (Rosa 2014: 12).

I enter the food system discussion into my thesis in the following way. Rosa emphasise that this social acceleration impacts the way we rely on technological solutions in order to enhance food security (Rosa 2014: 26). Technological acceleration means that in order to meet less time, we provide new technologies that escalate biological processes (Rosa 2014: 51). Nevertheless, he argues, no technical solution has until now minimised the amount of time consumed, due to a fact that new technology only bring new tasks to it (Rosa 2014: 30). He exudes calmness in respect to this social acceleration.

From this aspect about technological acceleration, another theory provides aspects of responsibility and precaution in relation to the food systems. This theory is from Alrøe (2016). With the technological changes of our food production, Alrøe claims that we need a new ethical basis for concepts such as sustainability and precaution. Ie. newer ethical theoretical tools, that takes into

account how human beings depend on ecosystems and are based on the lack of appropriate knowledge about the consequences of our lifestyle (Alrøe 2016: 227-228). Sustainability and the precautionary principle can not be sufficiently justified within the frames of the older traditional ethics. Together with another scientist, Alrøe developed a figure to entail this aspect. The figure is termed "Four dimensions for ethical extension" (Alrøe & Kristensen 2003). Here, it is necessary to move from a "neighbor's ethics" to a "future ethics" (Alrøe 2016: 228).

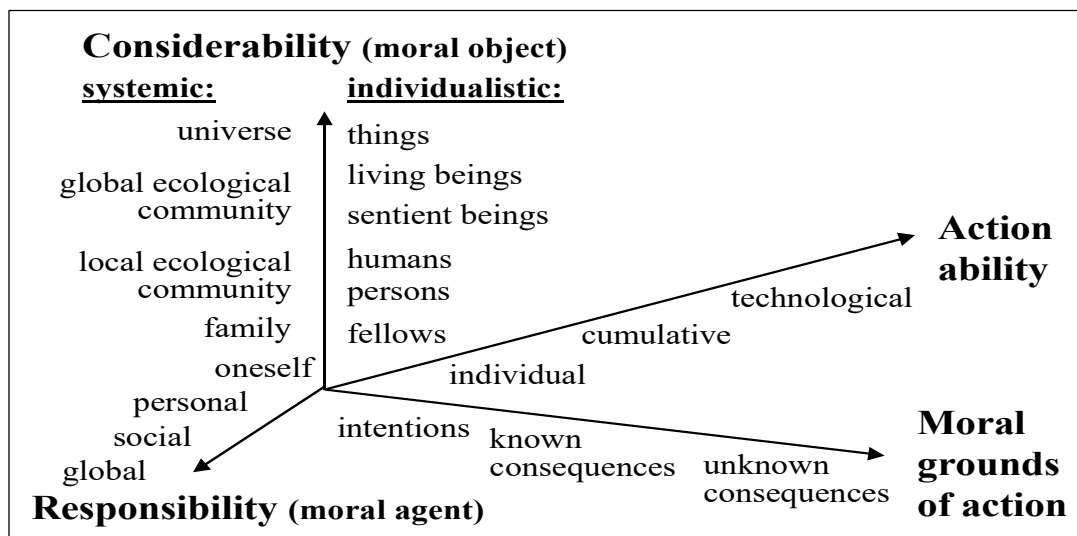


Figure 7.5 Alrøe & Kristensen 2003: 71. "Four dimensions for ethical extension"

Alrøe & Kristensen (2003: 71, Alrøe 2016: 237) assume that it is necessary to ensure "organic justice", which is based on a link between the moral concerns of individuals and the systemic consideration of the ecological community which individuals are parts of. They put emphasis on the areas in the top of the axis. In this area, sustainability is based on a moral consideration for the ecosystems and for future generations. Alrøe mentions that organic farming is one example of a food production, that is based on ethical principles (Alrøe 2016: 227).

7.6 Short Sum up

In this chapter I provided the reader with a discussion, and considerations from the process during the analysis - and after conducting the analysis. I delivered new ideas and theories to future research. In the next chapter, I will present the conclusion.

8. Conclusion

I utilized multi-methodological approaches to answer my research questions. The overall aim of my interviews was to provide me with answers to my problem statement:

“How are elements of a new paradigm for health and environment emerging in the Danish food system? From retail, organic movement and the public sector. What seems to be barriers for the different actors to implement more sustainable thinking and practices?”

From this problem statement I created four research questions, and in the analysis I found seven identified themes. These are displayed in the following box:

New trends	"Cooperation", "Facilitators", "SDGs helps to lever sustainability".
Health	"Different approaches to health" "Health Science"
Environment	"Community-friendly agriculture"
Barriers	"Recalcitrance of the Productionist paradigm"

The results from the analysis provided me with overall answers to my research questions, which can work as an outset for other studies. It is possible to draw some lines from the research and see some overall tendencies of whether the three food actors are moving toward a more sustainable food system – in their minds and in their practises – with specific focus on health and environment as the new trends in this context. I understand that these food actors are on the move for enhancing more sustainable practices into their work with - and around - food systems. I see that they try to implement sustainability in their everyday, and I hear how they try to disseminate this work to other organisations and food actors – as part of being mentors and facilitators. However, it is not possible to see what these new trends actually imply in a substantial matter. I have not provided a full picture of what their barriers imply and how they meet these constraints. To meet this, I provided some suggestions to elaborate in future researches, mentioned in section 7.4.

Thus, each of my four research questions provide me with an overall understanding of how the actors acknowledge and integrate concerns of health and environment into their work with food

systems. To understand the worldview of the key food actors, within the research area, might be the first step to understand how health and environment can become a larger part of the food systems discussions in Denmark. From the analysis, it seems reasonable to articulate concerns about the missing discussions about health matters in a food systems context, and on the fact that health and environment is not currently a part of the food system thinking to a high degree. This is necessary to disseminate both to the public and at the policy level.

I will shortly elaborate on the key findings from my analysis. All three actors acknowledge the importance of health in connection to food systems. However, in very diverse ways, based on their different understandings and different job-functions. This is also one of Lang & Heasman points, that health is very differently understood. One of the key messages from the analysis, in regard to this, is that health needs to be followed up on knowledge level, on cooperation / network level and on policy level, if we want to ensure public health in future. With large mergers between agro-industries, there is more than ever a need for this, I suggest. However, this is a complex task for government, industry and civil society. Especially based on the fact that food is governed through a large range of food governance actors, which do not necessarily have identical interests. To meet such tendencies, it is necessary to collaborate in new ways. To a high degree, I see that these tendencies on cooperation and networking are present in the practices of the three interviewed actors, however they need “priority time” to conduct this specific task. Another finding is that we ought to commence talking about health in public again “in depth”. The concept of health – from an *ecology* approach – ought to be integrated as a natural part of the food system thinking in future. A suggestion on how to approach such a demand, is to commence orientating us toward terms that contain several aspects “inside the concept itself”. Demanding e.g. “food democracy” would potentially mean that the society get to understand what this concept entails. This may enhance changes in the way food is produced, due to the fact that informed citizens may choose differently, if they know what the modern food systems imply.

Whether we are on the move for a paradigm-shift towards sustainable food systems, I can not really answer after conducting the analysis. However, a lot of academic studies and my interviews, suggests that it is necessary to change the current way of producing food in future.

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Personal communication (phone call)

COOP - personal communication January 2018

CPH - personal communication January 2018

HRS - personal communication 29th November 2017

Overview Interviews

Økologisk Landsforening February 28th 2018

COOP March 14th 2018

CPH Municipality March 21th 2018

Tables and pictures in the master thesis

All tables and pictures have been granted permission to use.

Tim Lang in April 2018

Julie Green in April 2018

Hugo Alrøe in May 2018

PICTURES used in the thesis

Front-page: "Follow the leaders," Berlin, Germany, April 2011.

Credit: Isaac Cordal

Appendices

All appendices for the thesis are submitted as another individual PDF file

The PDF file contains 17 appendices.