UNDERSTANDING THE RELATIONSHIP AMONG SUSTAINABILITY, INDUSTRIAL DESIGN AND SERVICE SYSTEM DESIGN: CO-DESIGN IN AALBORG TO ACCESS LOCAL FOOD

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ABSTRACT

UNDERSTANDING THE RELATIONSHIP AMONG SUSTAINABILITY, INDUSTRIAL DESIGN AND SERVICE SYSTEM DESIGN: CO-DESIGN IN AALBORG TO ACCESS LOCAL FOOD

Design has been a structural part of the industrialization processes and has inadvertently contributed to the creation of the current ecological problems of the planet. So far industrial design discipline has been producing its ecological solutions, mostly using an approach focused on products, but the changes required by the question of sustainability are systemic and can be based on the usage of services.

Considering the requirement of changes in production and consumption modes, this thesis proposes a systemic approach to the problem of sustainability. Systemic change, which focuses on social interventions in daily life as well as alternative production models, is a more holistic approach for sustainability.

When shifting the focus from product-based and result-oriented solutions towards process-based, experience-oriented and context-related ones the design discipline introduces co-design approach with more intense participation of users to the design process.

This thesis investigates the issues mentioned above through a case study about the development of local food system in Aalborg. To this purpose, more specific user and local area research is conducted. The case study consisted on the development of a service concept, using the co-design approach to propose relevant changes in daily life in local area.

ÖZET

SÜRDÜRÜLEBİLİRLİK, ENDÜSTRİYEL TASARIM VE HİZMET SİSTEMLERİ TASARIMI ARASINDAKİ İLİŞKİNİN KAVRANMASI: YEREL GIDAYA ERİŞİM İÇİN AALBORG'DA ORTAKLAŞA TASARIM ÇALIŞMASI

Endüstriyel Tasarım, endüstriyelleşme süreçlerinin yapısal bir parçası olmuş ve çevreyle ilgili problemlerin oluşmasında rol oynamıştır. Şu ana kadar, Endüstriyel Tasarım disiplini ürün odaklı çevreci çözümler üretmiştir ancak, sürdürülebilirlik için gerekli değişim sistemiktir ve hizmet kullanımı üzerine yoğunlaşabilir.

Üretim ve tüketim biçimlerinin değişmesi gerektiğini dikkate alarak, bu tez sürdürülebilirlik problemine sistematik bir yaklaşım geliştirir. Sistemik değişim, sosyal dönüşümlerin yanı sıra alternatif üretim biçimlerinin önerilmesine de yoğunlaşarak, sürdürülebilirlik için daha bütüncül yaklaşımlar önerir.

Tasarım disiplini, ürün ve sonuç odaklı çözümler yerine süreç, deneyim ve bağlam odaklı çözümlere odaklanarak, kullanıcıların daha yoğun katılımıyla gerçekleşen, ortaklaşa tasarım yaklaşımını geliştirmiştir.

This thesis investigates the issues mentioned above also with the support of a case study about the development of local food system in Aalborg. To this purpose, more specific user and local area research is conducted. The case study consisted on the development of a service scenario and it uses the co-design approach to propose relevant changes in daily life in local area.

Bu tez, yukarıda bahsedilen konuları, Aalborg şehri için geliştirilen yerel gıda sistemi konulu saha çalışması yardımıyla desteklemektedir. Bu amaçla, daha özel kullanıcı ve yerel alan araştırması yürütülmüştür. Saha çalışması, yerel alanda günlük yaşantıda değişiklikler sunmak üzere hizmet senaryosu geliştirilmesini ve bunun için ortaklaşa tasarım yaklaşımının kullanımını içermektedir.

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LIST OF ABBREVIATIONS

AH: Allotment House

CAD: Computer Aided Design

CAM: Computer Aided Manufacturing

CO: Café Owner

CSR: Corporate Social Responsibility

DKK: Danish Kroner

GDP: Gross Domestic Product

GM: Genetically Modified

GNP: Gross National Product

GPI: Genuine Progress Indicator

IDSA: Industrial Designers Society of America

ISEW: Index of Sustainable Economic Welfare

LCA: Life Cycle Assessment

LEADER: Links between Activities Developing the Rural Economy

NEF: The New Economics Foundation

NESTA: The National Endowment for Science, Technology and the Arts

OFP: Organic Food Producer

OFS: Organic Food Server

PCS: Production Consumption System

PSS: Product Service System

SLOC: Small Local Open Connected

WCED: World Commission on Environment and Development

CHAPTER 1

INTRODUCTION

1.1. Definition of the Problem

Environmental problems that confront us today are mostly the consequence of the industrialization process. Such a process has been strongly supported by the discipline of industrial design especially in regard to the link between production and consumption. Since design suggested new consumption scenarios it had an impact on transforming society and culture as well as orienting the human activity. Design has been a structural part of the industrialization processes and has inadvertently contributed to the creation of the current ecological problems of the planet. The design discipline realized this and proposed new pathways to develop strategies that would support solutions to the environmental problems. Industrial production processes are now under construction with the help of the tools such as life cycle analysis and cradle to cradle design which aim to reduce energy and material intensity and complete the production-consumption cycle with the least amount of waste. Designers also have had a role to build strategies for corporate social responsibility, which gives companies a broader role in addressing the question of sustainability.

The sustainability challenge however, shows us that we need to plan the economic development with lower material intensity. In an affluent society, product design would have very little or no effect on reducing the consumption rates, whereas a systemic approach could propose different contextual conditions and solutions that would support sustainability. In addition to this, systemic approaches require new sustainable ways of producing and consuming.

Investigating the sustainable modes of consumption behavior is one of the current research areas that emerged within the scope of design discipline. This area is articulated according to different foci: one of them looks at the production side (e.g. replacing products with services, revising the concept of ownership); another one looks at the consumption side (e.g. simplifying lifestyles, focusing on the individual behaviors). Both of those approaches could be supported by service design strategies.

By using service design in the first perspective, initiatives have been proposed that privileged sharing and renting over ownership (such as car sharing schemes, carpet leasing programs, furniture service[1]). By using service design in the second perspective new scenarios of life have emerged that are based on user participation and co-design of innovative solution.

This thesis proposes a systemic approach to the problem of sustainability by investigating the design strategy for systemic change, rather than seeking solutions at the product level.

1.2. Objectives

The main purpose of this study is to understand the relationship between industrial design and sustainability. It proposes solutions based on co-design approach through the use of service design tools.

To achieve the main purpose, the study aims to answer the following questions with the help of literature review and service system approach for sustainability:

- What are the impact areas of design in the general question of sustainability?
- Which approach is suitable to develop a more holistic activity area for design?
- How can design contribute to promote sustainable lifestyles?

In order to answer those questions, the study firstly investigates the term *sustainability* to understand the concepts and roots beside the approaches to sustainable design. This is needed because design is usually considered as a discipline that mostly concentrates on offering material solutions before inquiring the need for materiality. When based on market driven criteria, design mostly focuses on the already defined problems rather than questioning their causes.

Second goal for answering these questions is to learn new approaches that are evaluated for sustainability in design. In many cases, the design discipline re-produces the conditions of the existing socio-economic structures in order to ensure its existence. This is also true for certain cases in which designers are involved in the search for solutions to sustainability problems. Indeed, the approaches based on technological

[1] O. Mont., *Product-Service Systems. Shifting corporate focus from selling products to selling product-services: a new approach to sustainable development.* (Stockholm: Sweedish Environmental Protection Agency, 2000), AFR Report 288, 60-73.

improvements on products are not sufficient for sustainable solutions. [2] This study instead thrives to look at solutions inspired by innovation in the social context.

Thirdly, it focuses on service design tools with a particular co-design approach in order to offer a more holistic solution which is not just based on designing products. The purpose has been to reduce materiality in design while fulfilling needs of local users. Accordingly, this study focuses on developing a local food system which is designed for the city of Aalborg.

The case discussed in this thesis aims at investigating a design approach to offer a solution to access a basic need, taking into account the knowledge and considerations about sustainability and design. The reason why food is chosen is that it has already become an industrial product in the modern way we consume it.[3] During the research, local food system is clarified as an alternative food system for sustainability. This is supported by the field research in the local area that has given insights on user expectations and general food conditions in Denmark. The case study used in this thesis will also provide detailed indications on how methods and tools can be used in a concrete case to address a specific design problem.

1.3. Method of the Study

In this study, the question of sustainability in the design discipline is problematized and alternative solutions are searched. To do that, qualitative research methods have been adopted and the study has been operated with deskwork and fieldwork. I have done a literature review which could be identified as a descriptive research about the actual reasons for which some phenomena such as sustainability and globalization occur. Then I have searched for adequate approaches to address the question of sustainability, which suggest methods and tools that would inspire service

[2] The discussion about the inadequacy of technological improvements to the target of sustainability is summarized by Jansen and by the study of Weterings and Opschoor. For more information see: L. Jansen, "Towards a Sustainable Future, en Route with Technology", in *The Environment, Towards a Sustainable Future*, Ed. Dutch Committee for Long-term Environmental Policy (London, Dordrecht, Boston: Kuwler Academic Publisher, 1994). R.A.P.M. Weterings, and J.B. Opschoor, *The Ecocapacity as a Challenge to Technological Development* (Rijswijk: Advisory Council for Research on Nature and Environment, 1992)

[3] I summarize the discussion in chapter 4.

design and co-design. Finally, I have used a case study focusing on a food system in Aalborg to validate my initial insights.

The structure of my work in Aalborg was based on action research.[4] This is indeed a research approach that is very consistent with service design and co-design practice. I articulated this approach in four different phases.

1. I used my theoretical study to suggest a more systemic change and I focused on service system design. I made interviews with café owners, consumers and food suppliers to collect data on local users as well as to collect data of local food serving places. Group discussions have been used to support the initial consideration of the problem and possible interventions.
2. I devised some scenarios with different actors within the different infrastructures of the local area.
3. I focused on specific actors and detailed my systemic suggestion while using service design tools.
4. I asked the opinions of the actors to evaluate the impacts of the system for future directions.

In synthesis, I have focused on the problem of accessing food in local context and I have offered a practical solution that would become a part of everyday life, which includes social, economic and environmental interventions. In the change process, this study aims to involve the participants. Research, action and evaluation are linked in this study as a characteristic of action research, and in the conclusion reflections and some considerations about future perspectives have been proposed.

The study proposed in this thesis cannot offer a comprehensive overview of the possible approaches to the question of sustainability in the design discipline. In this sense, the strategies analyzed are just what are considered to be the most promising ones on the basis of the literature review presented here.

Indeed service design is not necessarily the best approach to create sustainable consumption patterns. Furthermore, no quantitative evaluation is possible to measure the reduction of environmental impact of such patterns based on service design. However, service design suggests promising consumption scenarios that may motivate different behaviors and lifestyles.

[4] For more details about action research, you may have a look at: Loraine Blaxter et al., *How to Research*, (Berkshire, New York: Open University Press,2010), 68-72.

Designing a food system in Aalborg could have been solved with different approaches (e.g. without the direct involvement of the users). Nonetheless, the case study suggested here represents a very specific application of a design approach to a very specific problem.

Moreover, it should be mentioned that my case in Aalborg could not be verified in real conditions because of time and resource limitations as well as hindrances caused by long distance between Turkey and Denmark. Such a comprehensive research would require higher amount of resource.

Another limitation which is typical of the approach considered in this thesis is the fact that the solution proposed in the case study is very much context-related and cannot be reproduced in different local contexts. Yet, the methodology used in this case can readily be generalized; that is, it could be applied in other cases and in different local context.

1.4. Contribution to Knowledge

This thesis is based on some fundamental theoretical contributions about the question of sustainability and the role of industrial design in supporting sustainable strategies. In this work I have identified a mainstream thinking, which focuses on technological improvements of the existing technical and economic systems, and a new promising area, which focuses on social innovation and users' participation. With respect to the mainstream thinking about the role of industrial design in the question of sustainability my main contributions consist of:

1. Focusing on social innovation, instead of product innovation: while the mainstream thinking is focusing on new products and technologies with less environmental impact, my focus was on social, behavioral and cultural changes; my aim was to propose new scenarios for new socially and environmentally sustainable lifestyles,
2. Working on service design, rather than on product design: service design produces broader and systemic changes in the way we organize our lifestyles, therefore has more chances to produce substantial improvements of social and environmental conditions; my work aimed at acquiring and experimenting with some fundamental design tools for designing services

3. Focusing on users, instead of processes: my work, especially in the case study, focuses on processes, it therefore comes very close to the discipline of industrial engineering, however, unlike industrial engineering, my starting point was the user's experience, and therefore I tried to focus on an approach, co-design, which would increase users' participation and ownership of the design solution.
4. Working with people: the mainstream design practice developed effective tools to work with products and processes, but often referred to the designer as an isolated thinker, which had little interaction with users; by focusing on users instead, I learned new methods and tools to support users' participation, which can be critical for designers, when working on service design and co-design.

CHAPTER 2

SUSTAINABILITY IN INDUSTRIAL DESIGN

In this chapter I will clarify the key concepts of sustainability and also mention the role of design in industrial society to understand the relationship between design and sustainability. I will give an overview of the approaches towards design for sustainability and I will address the boundaries and impact areas of design that will orient the research in a more realistic way.

2.1. Basic Terms of Sustainability

The term *sustainability* in its modern form was first used in 1974. In the perspective of sustainability, Western environmentalists were worrying about environmental conditions and arguing for a different development model, but developing countries were objecting such concerns, with the argument that most parts of the world were suffering from poverty and deprivation[5] and a different development model could increase such sufferance. Economic concerns of developing countries and environmental concerns of developed countries were contradicting until the Brundtland Report combined the two demands; *environmental protection* and *economic development*. As a result, the term sustainability referred to the economic considerations and growth as it is defined in the report. The term was used in relation to 'sustainable development' and popularized in many discussions about environmental concerns and the future of the planet. When the Brundtland Report was published in 1987, the term *sustainable development* was put into the global agenda.

Furthermore, it may be useful to draw attention to the difference between the term sustainability and sustainable development to understand the targets they aimed to

[5] Simon Dresner, *The principles of the Sustainability* (London; Sterling,VA: Earthscan Publications, 2002), 1.

achieve. While the idea of sustainability is primarily about environment, sustainable development firstly gives importance to development.[6]

Sustainable development implies two main concepts; the idea of *limitations* and the concept of *needs* as it is mentioned in the Brundtland Report: "The concept of *needs*, in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of *limitations* imposed by the state of technology and social organization on the environment's ability to meet present and future needs" [7]

The Brundtland Report associates the *needs* of *future generations* and the current *poverty* in some part of the world with the realization of limited *natural resources* and environmental crisis. In this report the focus of research and strategies on sustainability was extended from poverty and livelihood to the needs of the future generations and the economic development. Economic growth had been seen as a fundamental tool for reducing the poverty in developing countries. 3-4 per cent growth in developing countries is considered environmentally not harmful, if industrialized nations continue the shifts toward efficiency in using materials and energy.[8]

On the other hand, some parts of the Brundtland report mostly focus on the economic development rather than the environmental sustainability as it is indicated in the report: "Humanity has the ability *to make development sustainable* to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs."[9]

Parallel with the development idea, the Brundtland Report and the following reports of the UNCEP[10] were following a policy based on the growth of economies while reducing the poverty in developing countries and transforming the destructive

[6] Tim O'Riordan, "The Politics of Sustainability," in *Sustainable Environmental Management: Principles and Practice*, ed. R. Kerry Turner. (London: Belhaven, 1988), 65.

[7] World Commission on Environment and Development, *Our Common Future, (*USA: Oxford University Press, 1987), 43.

[8] *Our Common Future*, 60-61. It is indicated in the 29th, 32th, 33th paragraphs.

[9] *Our Common Future*, 24.

[10] UNCEP (United Nations Conference on Environment and Development) published three documents: 'Agenda 21' (1993), 'Statement of Forest Principles' (1992) and 'Rio Declaration on Environment and Development' (1992). These documents addressed scrutiny of production patterns, alternative sources of energy, growing scarcity of water, congestion in cities and health problems caused by air pollution.

activities of industries with the help of governmental policies and technological developments in developed countries.

While in the Brundtland Report the dominant idea of economic growth was accepted, the same idea was refused by the report of The New Economics Foundation (NEF),[11] published in 2006. This report argues that "growth is not working" and criticizes the economic strategy that relies upon economic growth to reduce poverty. The report states that: "In this system, paradoxically, in order to generate ever smaller benefits for the poorest, it requires those who are already rich and 'over-consuming' to consume ever more."[12] The following report by the same foundation 'growth is not possible' argues that indefinite global economic growth is unsustainable and growth is constrained by the finite nature of our planet's natural resources.[13] It also argues that in developing countries, technological improvements such as reducing the greenhouse gas emissions, energy intensive activities are not enough for sustainability. It points out the need for a new macroeconomic model which does not rely on growth of the big industries. Instead it proposes *dynamic equilibrium*[14] which refers to the balance between nature and economic activities. The GDP (Gross Domestic Product) index, used in modern economies to measure public welfare, is a purely quantitative measure, based on growth that does not show the reality of individuals' economic welfare. The gap between the poor and the rich is huge, the accessibility to the resources is not fair and conditions for fulfilling the basic needs are not the same. This means that the amount of richness in society does not support the ability to *meet the basic needs* or improve the welfare of society.

[11] The New Economics Foundation (NEF) is an independent think-and-do tank that inspires and demonstrates real economic well-being. They aim to improve quality of life by promoting innovative solutions that challenge mainstream thinking on economic, environment and social issues. NEF published two reports named: growth is not working and growth is not possible.

[12] David Woodward and Andrew Simms, *Growth Isn't Working*, ed. Mary Murphy (London: The New Economics Foundation, 2006) , 3.

[13] Andrew Simms, Victoria Johnson and Peter Chowla, *Growth Isn't Possible*, ed. Mary Murphy (London: The New Economics Foundation, 2010), 2-3.

[14] As it is indicated in the report 'Growth Isn't Possible', *dynamic equilibrium* does not refer to steady state economy but proposes the symbiotic; collaborative and co-evaluative approaches that integrate all parts of the society in economy while giving importance to the balance between demand and supply, between nature and production between production-consumption.

In addition to this, the industrial production-consumption system that surrounds us produces its own social condition. In this system[15] natural resources are often seen as a feedstock for the activities of the production system to satisfy humans' needs. In the so called *human centered* (anthropocentric) approaches, the value of nature is measured on the basis of its instrumentality for the well-being of human-beings.[16] On the other hand, nature-centered approaches represent more holistic view for the sake of nature. This approach considers human-beings as a sub-set of the eco-system and do not give more or less value to the other sub-sets. The majority of the discussions for sustainable development privilege the human-centered approaches rather than nature-centered ones.

On the nature-centred side, environmentalist movement has always accepted natural resources as the part of the eco-system in which all living beings sustain their life. According to Ümit Şahin, the idea of leaving the 'richness of nature' to the *future generations* had not been developed before the industrial age. Even if there were sometimes environmental problems and scarcity, these problems were depending on the individual usage of the resources rather than on the production system. He points out the deficiency of the moral responsibility of the industrial logic, which accepts the natural resources as they exist for the development of human-beings. [17]

Tim Jackson mentions the common sense of the lost prosperity with the inequalities in the society and he offers a transition to a sustainable economy. He underlines the importance of establishing limits, fixing the economic model and changing the social logic.[18] He offers tackling systemic inequalities, reducing working hours, strengthening social capital and dismantling the culture of consumerism for the social change and well-being in society in which design discipline has already activated via design for social sustainability.

The current economic system which produces related unsustainable socio-cultural conditions also considered in Robert Hay's article. He highlights the problems of modern Western (dominant) socio-cultural systems as the producer of unsustainable

[15] It is worth noticing that this production-consumption system defines social relationships on the basis of monetary values.

[16] Mark J. Smith, *Ecologism: Towards Ecological Citizenship* (Buckhingham: Open University Press, 1998), 4.

[17] Ümit Şahin, "Truva Atı Olarak Sürdürülebilir Kalkınma", 11. "

[18] Tim Jackson, *Prosperity Without Growth, Economics for a Finite Planet*, (New York: Eartscan, 2009), p.173

conditions. In the framework of sustainability, he finds the technological approaches difficult to implement effectively on a global scale and states that technological approaches do not delve the roots of the unsustainable conditions that faces humanity.[19] Hay states that our technological society mostly seeks for *know-how* versus *know-why.* In his article, Hay, draws attention "to get in *sync* with nature through both personal contact and ethical regard to better address the host of inter-related issues." He proposes his approach, "*becoming ecosynchronous,* which is based on becoming, the unfolding of self and society as we mature on this planet, and on how we personally and collectively relate to time, especially with regard to *synchronicity*."[20]

According to him:

> A technological approach also fails to engage the human spirit, as it is essentially amoral in character. […] We each need to change *ourselves* to be able to make fundamental and lasting changes to the world that we created. The present modern, Western (dominant) socio-cultural system is a reflection of both our own (atrophied) personal development and the expansionist worldview. A few social commentators assert that this system has caused not only global environmental and social problems, but also a cultural crisis in Western society that requires attention.[21]

Ernest Partridge draws attention to the capacity of our technology and the responsibilities to the future generations. Partridge records that:

> The accelerating advances of science and technology have made it compellingly clear that future generations are vulnerable to our acts and policies. Furthermore, through science we have come to understand the long-term consequences of these policies, and through technology we have acquired the *capacity* to affect these consequences, if only through forbearance […] This is a burden of responsibility that we cannot escape, so long as we willingly accept the *enlightenment of science* and *capacities of our technology*.[22]

Our techno-cultural system that is produced by industrial processes created unsustainable socio-economic conditions around the world. To position the design activity in this industrialized system and understand the relationship between sustainability problems and industrial design, I will mention the role of design in the next chapter. Learning from the experiences of previous sustainable design approaches will lead to the new approaches.

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[19] Robert Hay. "Becoming Ecosynchoronous, Part 1. The Root Causes Of Our Unsustainable Way Of Life," in *Sustainable Development* 13 (2005): 311

[20] Robert Hay, 2005, 311-12.

[21] Robert Hay, 2005, 312.

[22] Ernest Partridge, "Future Generations", in *A Companion to Environmental Philosophy*, ed. Dale Jamieson (Massachusetts, Oxford, Melbourne, Berlin: Blackwell Publishing, 2003), 378.

2.2. The Role of Design in Industrial Society

Origins of industrial design lie in the industrial revolution. The discipline became important with the development of mass production techniques. Expansion of industrial production techniques emerged competition in the markets. For product differentiation, industrial design became a challenging tool.

The changing logic of designers from craft based production towards the mass production accompanied the adaptation through the machine aesthetics. While mass production brought uniformity of the products, design was used with the aim of creating differentiation on products and launching brand identity. The opportunities such as promptness, accuracy and precision used to channel companies to focus on design activities to gain competitive advantage. In this sense, the role of an industrial designer was to create solutions for markets, promoting sales through the development of new products, which are designed through continuous technological advances and aesthetic improvements.

A current definition of industrial design could lead the way to enlarge the perception of profession's activity. According to Industrial Designers Society of America (IDSA), Industrial design is a "professional service of creating and developing concepts and specifications that optimize the function, value and appearance of products and systems for the mutual benefit of both user and manufacturer"[23] This definition shows the importance of the contribution of other disciplines such as engineering, aesthetics, ergonomics, marketing and business to the design discipline. Furthermore, it implies that not only the products are designed but also the production system is designed. For that reason, designers have been mostly employed by companies to be the part of a team centrally placed in factories to support production as well as for the distribution, consumption and marketing decisions.

If it is approved that designers' role in the industry bases on giving decisions on materials, form, function, production techniques and user interaction, the aim of the activity of the designer becomes very much focused on the benefits of user and manufacturer. Furthermore, through object production, designer has a role of creating commodities with the aesthetic specifications which determine the quality of the relationship between objects and subjects (users).

[23] IDSA, "Industrial Design Defined", IDSA, http://www.idsa.org/content/content1/industrial-design-defined (Accessed July 26, 2012)

The operations of design do not only affect individuals, they also affect the society. Designers shape the social life through developing usage scenarios and consumption styles. In addition to this, especially in consumer society, design has often been used by individuals to build self-identity and to support life styles. Design produces symbols for brand awareness which is one of the most striking tools for increasing consumption and supporting consumption-based lifestyles.

Design, with its role in production and consumption, contributes to the creation of 'man-made second nature' which is surrounded by the mechanized industry.[24] This man-made second nature which stands on the mechanized industry, paves the way for environmental catastrophe. Industrial design as a discipline which has a fundamental role on production-consumption cycle has literally a big contribution to the acceleration of industrialization which lies behind all systems, including the faults on the usage of resources and energy, on production of toxic materials and on shaping consumption based lifestyles. Contribution of the aesthetically and technically improved products to construct the identities became vital for the modern lifestyles which are based on abundant consumption behavior. Accelerated amount of production and the speed of the technological innovations had been developed independent from the needs. Thus, design has become an agent of technology and innovation through new product developments.

2.3. The Emergence of Design for Sustainability

Design for sustainability first emerged with the criticism of the industrial activities that were seeking growth and refusing any responsibility for the environment and the life in planet. Packard [25], Papanek [26], Bonsiepe[27] and Schumacher[28] drew

[24] John Heskett, *Industrial Design* (New York: Oxford University Press, 1980), 7.

[25] Vance Packard, *The Waste Makers* (Mitcham: Penguin Books, 1963)

[26] Victor Papanek, *Design for the Real World: Human Ecology and Social Change* (New York: Pantheon Books, 1971).

[27] Gui Bonsiepe, "Precariousness and Ambiguity: Industrial Design in Dependent Countries" in *Design for Need, The Social Contribution of Design. An anthology of papers presented to the Symposium at the Royal College of Art, London, April 1976.* ed. Julian Bicknell and Liz McQuiston (London: Pergamon Press, The RCA, 1977).

attention to the different dangers of human destruction on nature and suggested alternatives during the 60s.

In the 1960s, environmental concerns were developed by natural scientists or social groups rather than designers who were just beginning to pay attention to the environmental and social problems of the world. Hippie movement of the 1960s questioned consumerism. Hippies took inspiration from the lives of nomadic people and seek the living forms on 'back-to-nature' themes. Publications such as Do-it-yourself design books, 'The Whole Earth Catalog' were suggesting self-sufficiency. Beside this, 'alternative technologists' emerged to encourage people to apply appropriate levels of technology in developing countries. This approach was based on initially fulfilling the basic needs such as fresh water, sanitation, energy and food. Differentiated from developing countries, using recycled materials and alternative systems had been experienced by the young designers in Europe. [29]

With the emergence of energy crisis in the 1970s technological approaches began to research on products that spend less energy and decrease the reliance on fossil fuels. Life cycle assessment (LCA) has been a rational attempt to reduce the environmental impact of products since that time.[30] It has been developed to examine the longevity of a product, to reduce environmental impacts of the materials used on products and to limit the energy spent in both production and usage periods.

As a designer, Papanek pointed out that '[t]here were professions more harmful than industrial design, but only a very few of them'.[31] In his book *Design for the Real World* he emphasized designers' responsibilities towards the real needs. He also mentioned that it is required to repair social inequalities between developed and developing countries in order to hinder environment destruction created by the manufacturing processes. Beyond Papanek, the dominant sense among designers about the social and environmental responsibility is generally so low because they are very much influenced by business logic. The design idea that is shaped with the aim of

[28] Ernst Friedrich Schumacher, *Small is Beautiful* (New York: Perennial Library, Harper & Row, 1973).

[29] Alastrair, Fuad-Luke,.*The Eco-Design Handbook: A Complete Sourcebook for the Home and Office*. (London: Thames & Hudson Ltd, 2002; 2006), 4.

[30] Fuad-luke , 2006, 5.

[31] Papanek, 1971. Preface to the first edition.

economic growth has not been able to make adequate changes towards sustainability.[32] Questioning sustainability canalized some designers for design for developing world and also designs for fundamental needs to leave which means *Design for the Real World* became more emphasized during the 2000s. [33]

Another important designer who was taking the environmental effect of the design discipline is Fuller, from the 1970s. He was widening the limits of industrial design towards comprehensive anticipatory design science participating in a program aimed at demonstrating efficient systems of industrial production. Fuller and colleagues conceived an electronic display that would provide a continual update of resource availability and use on a global scale.[34] For the first time in the history of the design discipline, those approaches were taking responsibility for the effect of design activities on the natural environment. Papanek and Fuller were weak, though, in convincing producers. Thus their ideas remained as idealistic approaches rather than those seeking collaborations with industrial production.

During 1980s green consumers became a visible force. According to Fuad-Luke, three reasons pushed companies to take the environment into consideration: a) increased public awareness on environmental issues, b) environmental legislations and c) competition among companies. Eco-labeling, energy labels and environmental management standards became the part of the regulations in industry towards the environmentally friendly products.[35] Increased public awareness through environmental concerns shaped a new trend in consumerism and the second wave emerged in the 1980s with respect to *green consumerism.*[36] This motivation influenced some electronic and electrical companies to promote their work in this area. Mainstream designers started to take responsibility and became motivated in improving the environmental and

[32] Margolin, "Victor, Design for Development: Towards a History". *Design Research Society 'WonderGround' Conference* (Lisbon, Portugal: November 2006).

[33] Emily Pilloton, and Allan Chochino, *Design Revolution: 100 Products That Empower People.* (Metropolis Books, 2009). In this book, researchers focused on the products that offer solutions for the social problems of the developing world in a way developed economies alike. Such product examples are safer baby bottles, low-cost prosthetics for landmine victims, Lego-style building blocks for blind children, wheelchairs for rugged conditions, universal composting systems.

[34]Victor Margolin, *The Politics of the artificial* (Chicago: University of Chicago Press, 2002)

[35]Fuad-Luke, 2006, 6.

[36] Nigel Whiteley, *Design for Society.* (London: Reaktion Books, 1993). For detailed information about how green consumers had emerged, look at pages between 50-54.

social effects of the products they produced. Although there is a little evidence that companies gave importance to social and environmental issues, they started to develop environmentally friendly approach to production.[37]

After the Brundtland Report published in 1987, the term sustainable development inspired the collaboration between governments, industry and academia. Sustainable product design emerged with the debates on sustainable development and designers recognized the impacts of products on environment and also started to take the results of their activity into consideration from both a socially responsible and an ethical perspective.

1990s brought emphasis on active research and implementations into design for sustainability. Sustainability-based improvements in legislations as well as the consumer awareness canalized the companies through building corporate social responsibility (CSR). Approaches such as life cycle assessment (LCA), cradle to cradle design[38] are developed in companies to optimize the use of resources and reduce the environmental impact over the whole life cycle of their products including reuse-recycle strategies.

Design does not only have a role in production of goods, but also it has a role in production of life styles, which implies production of consumption patterns. Creating images and promoting the consumption with the aestheticization of everyday life are among the most striking tool of design both for increasing sales and transforming habits and choices.

For that reason, during 2000s, revising the relationship between consumers and products became a key issue for sustainability. On sustainable consumption side, researches focused on questioning the idea of product-based well-being. Such examples for behavioral self-interest motives in case of responsible consumption could be given as simplification of life, preferring more balanced life-style, minimizing consumption for less working hours.[39] Other strategies could be given such as revising the links between individuals and objects and supporting connectedness between them; offering

[37] Tracy Bharma, and Vicky Lofthouse. *Design for Sustainability: A Practical Approach. (*Hampshire: Gower Publishing Limited, 2007).

[38] Salah. M. El-Haggar, *Sustainable Industrial Design and Waste Management: Cradle-to-Cradle for Sustainable Development* . (London: Elsevier Academic Press, 2007).13-18

[39] Anna Marchand, Stuart Walker, and Tim Cooper, "Beyond Abundance: Self-Interest Motives for Sustainable Consumption in Relation to Product Perception and Preferences." *Sustainability* 2*(*2010):1431-1447.

renting or sharing instead of possessing or owning; changing the idea of well-being from efficiency to sufficiency.[40]

With these changes, industrial production's objective became compatible and complementary to sustainable development. In this context, designers are urged to work for major social, cultural, political and economical change, whereas scientists and technologists are asked to improve the physical aspects of social metabolisms. [41]

2.4. Boundaries and Impact Areas of Design

For several years, the majority of designers linked their social role to business strategies. Very small group of designers contributed to the solutions to social and environmental problems.[42] As part of a team in which decisions are given centrally, "designers have far less impact on the final product than they like to think; instead they are part of a team involving others that have done much of the work before the designer begins."[43] Adam Richardson clarifies the exclusion of the designer from the initial decision in company and draws attention to the ideological context that is propagated by the production line. In our consumer society, much of the ideology will concern the justification of marketable values and of wealth. [44] If a particular function or technological innovation is worthy or marketable, an investment of time, money and effort is made. Product should perform the values constructed by the socio-technological mechanism. He gives importance to the awareness of designers and adds: "While the ways in which a culture will react to a particular function are unpredictable,

[40] Anna Marchand and Stuart Walker, "Product Development and Responsible Consumption: Designing Alternatives for Sustainable Lifestyles." *Journal of Cleaner Production* 16(2008): 1163-1169.

[41] Nicola, Morelli. "Social Innovation and New Industrial Contexts: Can Designers "Industrialize" Socially Responsible Solutions?" *Design Issues* 23, no 4 (2007): 4.

[42] Victor, Margolin. "The Politics of the Artificial." *Leonardo* 28 (1995): 349-356.
Ezio Manzini, "Prometeus of the Everyday: The Ecology of the Artificial and the Designer's Responsibility" in *Design Issues* 9:1 (Autumn, 1992), 5-20. Manzini, instead of contrasting industrial production, proposed a chance of intrinsic logic.

[43] Adam Richardson, "The Death of the Designer," in *Design Issues* 9: 2 (spring 1993): 40.

[44] Richardson, 1993, 42.

it is important for designers to be aware of the ideological context within which they operate if they wish to influence it."[45]

Peter Dobers and Lars Strannegard emphasize the matter of intentionality and plan in design discipline and indicate its potential for the solutions to sustainability related problems. In addition to this, they mention the link between the solutions and concealed concerns:

> […] when sustainability is seen as a desired state, design is presented by several societal commentators as a solution. Designing smart transportation, smart housing and smart food is, when cast in a sustainability discourse, presented as well designed solutions to the problem of environmental degradation. When design is seen as a solution, however, ideological, cultural and political concerns come to the surface. Hence, design, defined broadly, is to solve a myriad of problems – everything from employee satisfaction and corporate culture to increased exports and strengthened competitive positions on the world market. [46]

This means that it is necessary to critically examine the design process and relationship between design and consumption besides the design concepts to understand the role of design on sustainability. In addition to this, the critics on high degree of consumption activities lead design research through suggestions for changing the consumption behavior in a sustainable way. People urgently need to go beyond the ordinary perception about their role in nature, society, and production-consumption system. So far, current design, advertising and marketing activities have aimed at promoting growth in consumption. In that case, design has a role not only in the production system but also in encouraging people to revise their abundant consumption behaviors and encourage them to change their consumption-based lifestyles. [47]

Beside improvements in production line, more holistic approaches were needed to evaluate the whole production system in case of sustainability. On that stage, business mentality based on increasing productivity started to change. Product/service system design has emerged which give initial importance to the user demand rather than selling products.

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[45] Richardson, 1993, 40.

[46] Peter Dobers and Lars Strannegård. "Design, Lifestyles and Sustainability. Aesthetic Consumption in a World of Abundance," in *Business Strategy and the Environment* 14 (2005): 327.

[47] The new research area is improved by designers and academics on sustainable consumption strategies which is linked with consumer culture theories. A historical review of such approaches has been made by Ann Thorpe in her article; Ann Thorpe, "Design's Role in Sustainable Consumption". In *Design Issues* 26: 2 (2010): 3-16.

CHAPTER 3

ALTERNATIVE SUSTAINABLE DESIGN STRATEGIES FOR SYSTEMIC CHANGE

3.1. A Systemic Perspective to Sustainability

The change required by sustainability is systemic and cannot be limited to technological improvements of existing products. In this chapter I will provide an overview of innovation perspective in system, highlighting the implications for social change and suggesting elements of change (such as service design and co-production) that can inform innovation. In the second part of this chapter I will outline a design perspective to such change, which includes the link between production and consumption and imply a different role for users, business companies and communities. Finally I will address the issue of what is the new role for designers and what are the tools designers can use to support such change.

3.1.1. Importance of Systemic Change for Sustainability

In the previous chapter, I have investigated that some approaches already had been tried to bring solutions to the sustainability problems. However, these approaches were inadequate to make noticeable changes through the sustainable society. Technological improvements of production system do not bring about significant changes for the solutions to sustainability. It has been estimated that the CSR approach has been implemented by only 5 percent of the companies around the world[48] which means it did not succeed to become widespread enough to transform the production in a sustainable way. In addition to this, researches on changing consumption behavior influence the consumption habits towards green consumerism and do not make an effect on reducing the amount of consumption. Mainstream conventional production models

[48] Alastrair Fuad-Luke,"Redefining the Purpose of Sustainable Design: Enter the Design Enablers." In eds. J. Chapman and N. Gant, *Designers, Visionaries Other Stories. (*London: Earthscan, 2009), 21.

are continuing to promote the affluent consumption models. On the contrary, the transparency of interactions between objects and subjects are needed to be re-built.

In current situation, design policies support the subject-consumer models which is isolated from the living context and reduced to a single consumer role. Consumption based lifestyles and product based well-being minimizes the personal involvement in the solutions of problems in daily life as well as eliminates the immaterial solutions. Passive consumerism relieves people's problems rather than enabling them to solve these problems. Idea of comfort entails people to spend least physical effort, attention and time to achieve the goals in daily life. [49] Reduction of personal involvement in daily life brings the minimization of the individual skills which supports to gain problem solution ability. As a result supplying the demands in the easiest way with already produced solutions causes unsustainable ways of living.

Moreover, understanding the shifts that occur in global context is important for both investigating the role of individuals in society and generating the idea of sustainability in society. The idea of having simple, solid and limitless world is on the decline.[50] With sustainability concerns, we realized that we have a limited world. The fragmentation on market, rapidly changing geographical positions and flexible working conditions break the routines of individuals. We saw that we live in a fluid world rather than stable or solid one. The enlargement of the communication areas around the world brings the diversity and complexity in systems. Rapid changes in socio-technical system, internet revolution and increased individual participation led us to participate in these complex interactions of the society.

The world's production centers move through developing countries in which the wages of labor are low; while affluent consumption patterns are widespread in developed countries. There are growing social diseases such as obesity, diabetes, cancer in developed countries, in contrast with the scarcity and suffering from the lack of food in underdeveloped countries. Problems vary depending on the well-being level of societies. Inequalities of the conditions to develop solutions in the different parts of the world come to the surface, which points out the systemic problems of the world.

[49] Ezio, Manzini, Stuart Walker and Barry Wylant. *Enabling Solutions for Sustainable Living.* (Calgary: University of Calgary Press, 2008), 13.

[50] Manzini et al, 2008, X.

With the affect of globalization, economical activities of the global companies become more inclusive for the activities of small companies in all over the world. [51] This means the centralization of the capital on the big global companies, rather than geographically positioned places or countries. While growing companies making investment to the production centers in which the labor force is cheaper, the separation of the consumption and production processes creates unsustainable conditions.

Changing production mode from mass production to mass customization requires extreme consumer satisfaction for competitiveness between companies. With the development of CAD/ CAM [52] techniques, business companies make it possible to produce highly individualized solutions for the market. With the effects of extreme customization; common marketing segments and consumer group definitions disappear. Mass production was letting the products and processes to be standardized, simplified and the decisions were being given centrally. With the mass customization, complexity is carried through the margins of the system such as local producers and consumers.

One of the frameworks for sustainability which has been called *Factor 10* suggested that a 90% reduction of the global ecological impact be needed by 2040 to preserve significant amount of resources for the next generation. The *Factor 10* debate also issued a strong warning against expanding development model of the western countries which is highly resource intensive.[53] Because of the reason that expanding development model aims more productivity in the industry, it produces more waste and spends more energy and material. Thus expanding this model through developing countries is not appropriate to reach the aim of sustainability.

Later in 1995, von Weiszsäcker et. al suggested the more moderate *Factor 4* which advocates efficiency must be profitable.[54] The proposals were based on energy and material efficiency, while drawing attention to a system perspective according to which the volume of the outputs of the anthrop sphere must not be reduced whereas the "input locks" are left open. The factor 10 and factor 4 concepts have attracted

[51] Nicola Morelli. "Social Innovation and New Industrial Contexts: Can Designers 'Industrialize' Socially Responsible Solutions?" *Design Issues* 23:4 (2007): 5.

[52] CAD (Computer Aided Design). CAM(Computer Aided Manufacturing).

[53] Nicola. Morelli. "Design as a Problem and Design as a Solution for Sustainability.**"** *International Journal of Innovation and Sustainable Development* (2012): 266.

[54] Ernst Ulrich von Weiszsäcker. "'Factor Four' and Sustainable Development in the Age of Globalization" in *The Future of Sustainability* ed. M. Keyner (Netherlands: Springer, 2006), 179-192.

international attention and created remarkable resonance with politicians as well as industrial decision makers. The main reason has been reconciliation of economic and ecologic al requirements. The task is to provide better services and continuous welfare with less resource consumption.

In the current context of globalization and production-consumption system the question of how industrial designer could contribute to the sustainability led me research for more systemic changes. Sustainability requires larger changes than technological innovation. This means that innovation cannot just be limited to the system of production, but should also invest in the way the outputs of the production system are used. We have to decide which output of the production system will support sustainable lifestyles to make changes on production level. The output of the production system that could support sustainable lifestyles is more often a service than a product. Systemic changes at the consumption system imply a radically different way of thinking of our lifestyles and the way we interact with the technological system, with the economic system and with the system of social interactions.

I will explore innovation types, shifting economy through services and co-production approach in the following chapters to understand the capabilities of these alternative strategies for systemic change.

3.1.2. System Innovation

One of the approaches for systemic change is revising the term innovation for the systems. Highlighting the term *innovation* is important for design discipline because keeping the competitiveness in the market depends on the newness of products as well as innovations that produce new ways of using the products. Competitiveness in general comes to the fore with technological developments in most of the cases. While the newness of the products provokes the consumption, system innovation may have possibilities to reduce environmental effects of industrialized systems. Tischner points out the *system innovation* as she considers it being a decisive factor in the sustainable

transition of modern societies.[55] She distinguishes innovation types into four different categories.

- *Incremental innovations* are relatively small changes of processes and products. They are not the result of directed researches and developments but rather the results of learning by doing and learning by using in the industry. Such examples are, airbag acceleration sensor, wireless local area network etc.
- *Radical innovations* are a result of targeted research and development activities. As an example development of nylon and nuclear energy are radical innovations that are used over time.
- In *System Innovation*, changes occurring in technological systems that affect several industries can lead to new industrial sectors. They are based on the combination of the radical and incremental innovations connected to organizational and managerial innovation. Such examples are magnetic levitation trains, energy efficient homes, photovoltaic cells.
- In *Behavioral innovation,* usage patterns and behaviors change, like in bike-sharing schemes, employee mobility systems. According to Tischner, *sustainable system innovations* connect organizational transformations, social innovations and the intelligent use of new technologies. It creates changes in knowledge, technology and organizations and generates the relationship between market and actors.[56]

System innovation constitutes a major part for this research, in particular for the devised case study, in the sense that it emphasizes the potentials for a sustainable solution. System innovation requires a synthesis of behavioural innovations and radical innovations for a permanent and effective transformation of individuals' consumption habits and attitudes.

[55] Ursula Tischner, and Martijn Verkuijl,. "Design for (Social) Sustainability and Radical Change." In *Perspectives on Radical Changes to Sustainable Consumption and Production* ed. Maj Munch Andersen and Arnold Tukker (London: Greenleaf Publishing, 2008), 161-164.

[56] Tischner, and Verkuijl, 2008, 161-164.

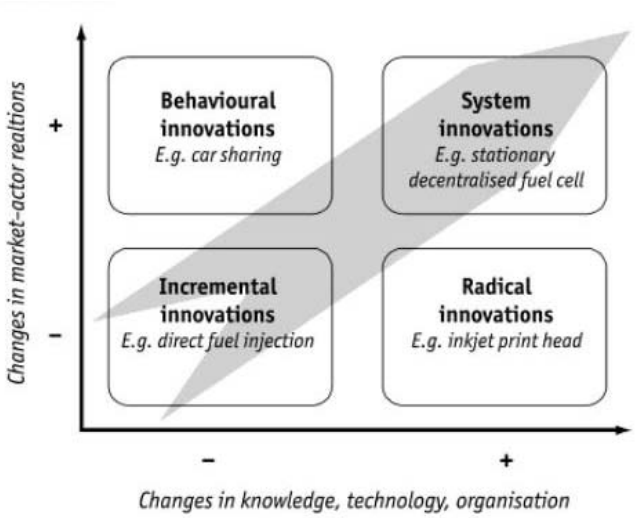

Figure 3. 1. Differentiation of innovation types and their sustainability potential (Source: Tischner, 2008)

3.1.3. Social Innovation

Ordinarily, designers are not able to operate on complex socio-technical systems to encourage innovation. Instead, they are able to offer simple solutions for systemic changes. Innovation that interests us here is a social occurrence of a desired phenomenon which is greater than the already existing ones.

Technological developments and innovations (e.g. social networking, peer to peer systems and open source platforms) increase the participation of individuals in social decision-making process. Sharing the common knowledge through the networks makes the information more accessible. In the transitions towards network society and knowledge society, design processes tend to be increasingly distributed between numerous different actors in the context of culture, motivation and professional development.[57]

Social innovation that also points out differentiated interactions between the subjects and the objects is one of the approaches that support alternative ways of doing and acting. It requires transforming the physical, social and cultural quality of places and supports alternative ways of living. In a network society, unlike the preceding ones, individuals and communities have ability to interact in the process of social learning and

[57] Manzini, 2008, 8.

innovation. Social innovation could be seen as a significant step towards sustainability.[58] Knowledge sharing also supports higher communication within local contexts and may support alternative exchange channels at the local level. Innovation towards shorter food chains, shared residential services, and bottom-up urban improvements requires the contribution of different actors in what could be defined as a co-creation process. Actors could be producers, service providers, institutions as well as single groups of potential users. Technological innovation and new communication channels can reinforce the link between these actors.

Social changing process offers new ways of doing and thinking. According to Murray et.al there are two themes that shape the social innovation. One of them is the spread of networks, global infrastructures for information and social networking tools. The other one is emergence of change brought about by individuals and democratic voice for alternatives even before changing systems and structures.[59] Social changes in the way we solve problems in daily life generate social innovation. Social innovation as a widely debated issue has been developed by different people and institutions. According to Phills et. al. social innovation is:

> […] novel solution to a social problem that is more effective, efficient, sustainable, or just than existing solutions and for which the value created accrues primarily to society as a whole rather than private individuals. A social innovation can be a product, production process, or technology (much like innovation in general), but it can also be a principle, an idea, a piece of legislation, a social movement, an intervention, or some combination of them. [60]

Social innovation is a spontaneous process that starts from people and escapes any attempt of planning. Considering the complexity of the individual-society relationship, it is not easy to plan the processes on social decisions. NESTA[61] offers six phases for social innovation. According to the NESTA team, social innovation aims to generate a systemic change and requires diagnosing the problem first. Secondly, the *idea generation phase* appears to see available options. The ideas get tested by the prototyping phase in which some implementations should be made in the real life. Sustaining and scaling up the implementations are the other phases after evaluating the

[58] Ezio Manzini, "New Design Knowledge." *Design Studies* 30: 1(2009): 6.

[59] Robin, Murray, Julie Caulier-Grice, and Geoff Mulgan, *The Open Book of Social Innovation. (*Young Foundation, the Lab, NESTA, 2010), 5.

[60] James Phills, Deiglmeir, Kriss and Miller Dale T. "Rediscovering Social Innovation." in *Stanford Social Innovation Review* 6(2008): 3.

[61] The National Endowment for Science,Technology and the Arts (in UK).

experiences in daily life. Finally, systemic change, involves the interaction of many elements such as social movements, different business models, laws and regulations, infrastructures.[62] NESTA defines the social innovation idea explicitly for the social and public good and develops this idea as follows:

> It is inspired by the desire to meet social needs which can be neglected by traditional forms of private market provision and which have often been poorly served or unresolved by services organized by the state. Social innovation can take place inside or outside of public services. It can be developed by the public, private or third sectors, or users and communities – but equally, some innovation developed by these sectors does not qualify as social innovation because it does not directly address major social challenges.[63]

Murray et. al. defines social innovation as follows:

> Specifically, we define social innovations as new ideas (products, services and models) that simultaneously meet social needs and create new social relationships or collaborations. In other words, they are innovations that are both good for society *and* enhance society's capacity to act.[64]

In addition to this, social innovation may indicate new kinds of economy, which are different from economies based on the production and the consumption of commodities. The economic models are based on an intensive usage of distributed networks to sustain and manage with the support of communication technologies. It requires collaboration and repeated interactions, care and maintenance rather than one off consumption.[65]

3.1.4. Service Economy

Industrial economy was highly technology-focused, and was comparing the quality with monetarized values. A sustainable society means taking into account the non-monetary values such as social and cultural ones and integrating the economic values while focusing on the results. Main objective of the service economy is

[62] Murray et al. 2010, 12-13.

[63] Murray et al. 2010, 10.

[64] Murray et al. 2010, 3.

[65] Murray et al. 2010, 4-5.

increasing the monetary and non-monetary assets of society over long periods of time for the wealth and welfare of the society. [66]

Stahel states that the industrial economy with regard to its per capita material consumption is not sustainable. He offers to develop and use alternative systems to measure sustainable competitiveness such as GPI and ISEW rather than GNP.[67] GPI, developed by the extension of ISEW, inquires about the link between the country's economic growth and improvements of welfare. GPI stresses real progress of the society and specifically seeks to monitor welfare and ecological sustainability of the economy. Beside economic issues, social and environmental issues in monetary terms are included in these economic measurement systems. The ISEW and GPI highlight economic welfare while GDP and GNP put economic output into account. Fuad-Luke takes the lid of GDP-design relationship and criticizes designing for just economic profit as it is supported in the consumerist design strategies.[68]

Dematerialization of the economy requires a shift from the industrial economy towards a service economy in which the importance is given to wealth (stock) and its usage value, rather than throughput and its exchange value.[69] The idea of service economy involves changes from a dichotomy (ecology versus economy and state versus industry) towards a form of cooperation between ecology and economy (and state with enterprises). [70]

3.1.5. Co-production

According to Morelli, even if the mainstream industrial production poses social, economic and environmental problems of globalization, there is a leeway to transform the dominant business logic in case of sustainability.

> Competitive advantages for companies consist of generating innovation at the local level, and for individual people. Furthermore, it is based on a different interpretation of the relationship

[66] Walter Stahel, "The Service Economy: 'Wealth without Resource Consumption'." *Philosophical Transactions: Mathematical, Physical and Engineering Sciences* 355 (1997): 1310.

[67] Stahel, 1997, 1317.

[68] Fuad-Luke, 2009, 19-20.

[69] Stahel. p:1309.

[70] Stahel, p.1316.

> between industry and customers, according to which the customer is no longer a passive receiver (a *consumer*) of the output of industrial production, but rather an active co-producer of his/her own values. When shifting the perspective in this sense, new opportunities emerge which also are supported by existing methodological contributions from research projects and academic activities that may help designers play a central role in innovation processes with relevant social implications.[71]

Morelli remarks the shifts in value creation which is suggested in Norman and Ramirez's works.[72] Value co-production offers an alternative views on value which is differentiated from the industrial era.[73] These two views of value creation is summarized in Table 3.1.

INDUSTRIAL VIEW	**CO-PRODUCTIVE VIEW**
Value creation is sequential, unidirectionally transitive, best described in 'value chains'	Value creation is synchronic, interactive, best described in 'value constellations'
All managed values can be measured in monetary terms	Some managed values cannot be measured or monetized
Value is added	Values are co-invented, combined and reconciled
Value a function of utility and rarity	Exchange the source of utility and rarity
Values are 'objective' (exchange) and 'subjective' (utility)	Values are 'contingent' and 'actual' (established interactively)
Customers destroy value	Customers (co-)create values
Value 'realized' a transaction only for supplier (event)	Value is co-produced with customer over time-for both co-producers(relationship)
Services a 'separate' activity	Services a framework for all activities considered as co-produced
Consumption not a factor of production	Consumers managed as factors of production
Economic actors analyzed holding one primary role at a time	Economic actors analyzed as holding several different roles simultaneously
Firm and activity are units of analysis	Interactions(offerings) are units of analysis

Table 3. 1. Two views of value creation from the perspective of Ramirez (Source: Ramirez, 1999)

[71] Nicola Morelli, "Social Innovation and New Industrial Contexts: Can Designers Industrialize Socially Responsible Solutions?" *Design Issues* 23, no 4(2007): 3-18.

[72] Richard Normann and R. Ramirez, "Designing Interactive Strategy: From Value Chain to Value Constellation", *Harvard Business Review*, 71:4 (1993), 65-77.

[73] Rafael Ramírez, "Value Co-Production: Intellectual Origins and Implications for Practice and Research" in *Strategic Management Journal*, 20: 1 (1999), 49-65.

This table shows us the changes in industrial logic in which recently values are co-invented by a network of actors rather than added by a single producer. This appears with the openness of the value creation process to the contributors from all stages including users, designers, researches, product-service providers. To organize the co-production of value, the position of designer changes in the firms as well as the firms' condition changes from value creators through value organizers. Prahalad and Ramaswamy draw attention to the shifts on the firm-centric value that responds to the consumer demands with the centrally created products. Designing personalized consumer experiences with the activated, informed, networked and empowered consumers is the new way for co-creating the values with the firm[74]

3.2. A Design Perspective to Systemic Change

3.2.1. System Design Strategies for Sustainability

As seen in the previous chapter the change needed for sustainability involves offering solutions not only in production but also in consumption patterns. The mainstream approaches based on technological changes on products were not able to make significant changes because they were separating the production and consumption processes and focusing on just one part of the system (the production side). The evolution of design for sustainability shifts from environmental management to system design. System design approach can focus on how to gain specific results or how to meet needs which can- but does not necessarily have to- be fulfilled by products.[75]

Production and consumption systems need to be linked and the social interactions of the system should be emphasized when considering any systemic perspective. Through this perspective, Lebel and Lorek make a definition of the production consumption systems (PCS) as:

[74]Coimbatore K. Prahalad and Venkat Ramaswamy, *The Future of Competition: Co-Creating Unique Value with Customers.* (Boston: Harvard Business School Press, 2004).

[75] Louis Lebel and Sylvia Lorek, "Enabling Sustainable Production-Consumption Systems. " *Annual Review of Environment and Resources* 33 (2008): 2008, 251.

A system that links environmental goods and services, individuals, households, organizations, and states through linkages in which energy and materials are transformed, utility is derived, and relationships (for example, transactions of money or information and exercise of influence, and social control) take place.[76]

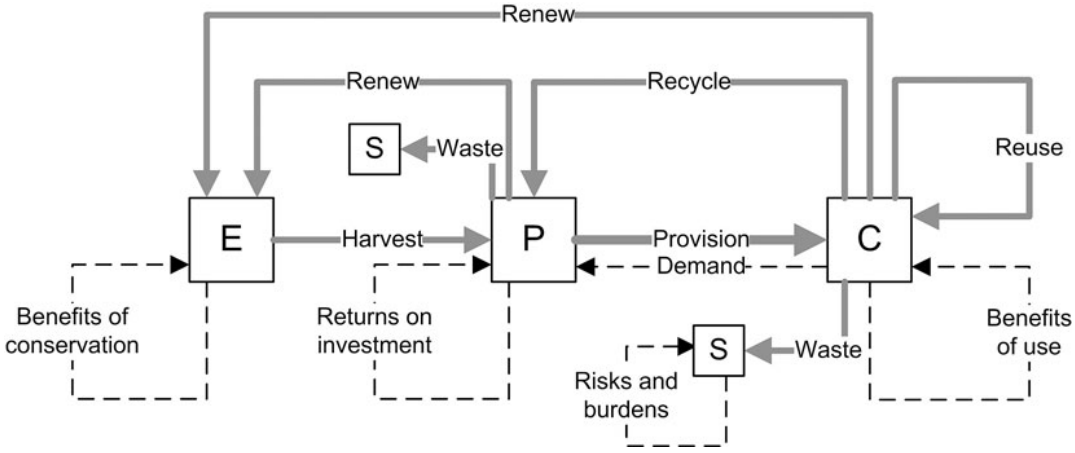

Figure 3. 2. PCS. Production (P), consumption (C), energy (E) and material flow,waste sinks(S). (Source: Label and Lorek, 2008)

A sustainable perspective for PCS involves strategies such as producing with less, green supply chains, co-design, service provision rather than product sale, certifications and labeling, ethical marketing, buying responsibly, reducing material intensity[77].

According to necessity, PCS targets the possibility of alternative leverage points of the demand and supply processes. Its perspective is interdisciplinary, taking into account material and energy flows but also embracing sociological insights of the relationships among the actors. [78]

The business strategy of selling services rather than just products is the basis for PSS (product service system) strategies that would increase the sustainability of production-consumption systems. The preference for services in those strategies is justified by the opportunity for dematerialization of supplies and based on the principle

[76] Lebel and Lorek, 2008, 243.

[77] Lebel and Lorek, 2008, 245.

[78] Louis Lebel and Sylvia Lorek, (eds.). "Production-Consumption Systems and the Pursuit of Sustainability." In *Sustainable Production Consumption Systems*. (London: Springer, 2010), 3.

of asset use rather than asset ownership.[79] Tukker categorizes the product-service systems in eight different types beginning from the pure product to pure services.[80]

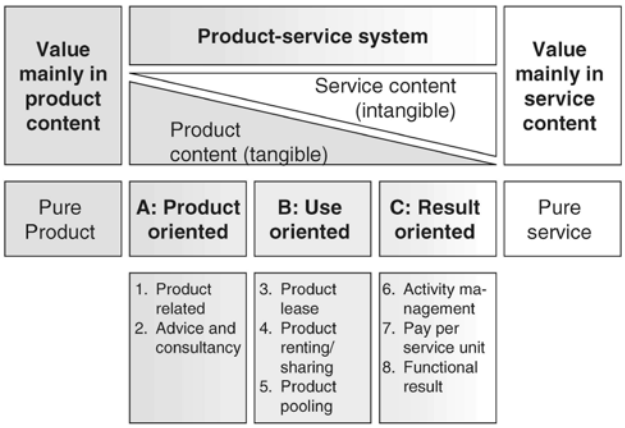

Figure 3. 3. Main and subcategories of PSS
(Source: Tukker, 2004)

Even if green technologies, green production techniques and green usage styles are developed by sustainable PSS strategies, they do not address the need or demand for a product or service. The main activity of this research area is preparing the sustainable conditions for the continuity of the economic activities of business companies. Thus the impact area of PSS is limited with the last decision giver, business companies.

Fletcher et. al. emphasize a number of strategies addressing the need for sustainable consumption and the role of design as a solution-oriented discipline. From the consumption side, he distinguishes between

- strategies that concern "*redesigning* what is consumed (consuming greener);
- strategies that *reorganize* the way consumption takes place (consuming differently); and
- strategies that *rediscover* the nature of needs and associated satisfiers (consuming appropriately)."[81]

[79] Lebel, and Lorek, 2008, p 251. In addition to this, product service systems are a very wide research area that I just mentioned briefly.

[80] Arnold Tukker, "Eight Types of Product-Service System: Eight Ways to Sustainability? Experiences From Suspronet" in *Business Strategy and the Environment.* 13 (2004), 246–60.

[81] Kate Fletcher, "Sustainable Consumption by Design." *In Exploring Sustainable Consumption: Environmental Policy and the Social Sciences*, eds. Murphy Joseph. (Oxford: Emerald Group Publishing Limited, 2001), 215.

In addition to this, they point out three different foci for sustainable consumption: product focus, result focus and need focus. Making the existing products more resource efficient is product focused improvement while producing the same output in a different way is result oriented. Need focused approach questions the need for the object, service or system and how it is achieved to fulfill the needs.[82]

3.2.2. Co-Design

Co-design has its roots in participatory design and user-centered design both of which incorporates the human expectations in the design process. User-centered design is an approach since the 1970s in the USA which approves the human as a *subject.* It is based on the understanding the needs of users and provides the contribution of the users to the informing, idea generating, conceptualizing activities in early design process.[83] Likewise co-design, the participatory design approach developed in Northern countries,[84] puts human expectations in the spotlight and includes different people as participants of the design process.

Co-design refers to collective creativity of the designers and the people who were not trained in working together in the design development process. It has a 'fuzzy' front end which inspires open-ended questions and does not specified whether the outcome of the design process will be a product, a service, an interface, a building and etc. The aim of the fuzzy front end is considering what is to be designed and what should not be designed or manufactured. The traditional design processes such as concept developing and prototyping follows the resulting ideas to have a feedback from the users first. After feedbacks the end product comes to surface[85]. As it is explained in the picture below, co-design has not a linear process during the product development process:

[82] The shift from products towards needs oriented me through to think about accessing food which is a fundamental need to sustain a life.

[83] Elizabeth B. N. Sanders and Pieter Jan Stappers, "Co-creation and the New Landscapes of Design." In *CoDesign* 4:1 (2008): 5.

[84] Sanders and Stappers, 2008, 5.

[85] Sanders and Stappers, 2008, p 6-7.

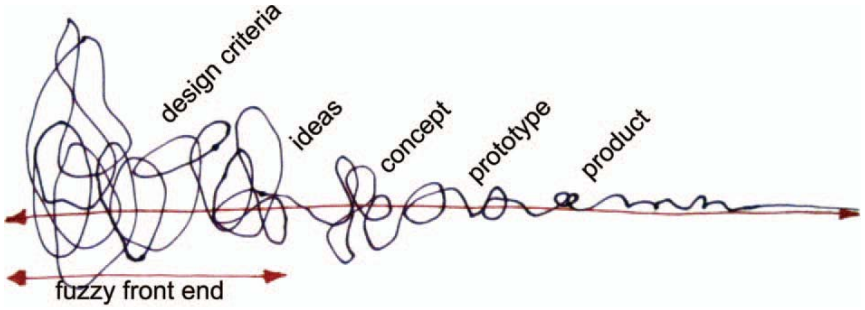

Figure 3. 4. Co-designing
(Source: Elizabeth et al. 2008)

Different factors such as changes in business logic, changes in user expectations and changes in the logic to make innovation on products brings the co-design foreground.

From these factors, changing logic of business companies is the first factor. In the past the value creation was centrally planned in *top down* fashion in the production centers, according to existing hierarchy and power structures. Co-designing involves different parts of society as researchers, designers, clients. Co-designing threatens the existing power structures by relinquishing the decisions to potential customers or end-users. Sharing the control and ownership, becoming stakeholder is also possible when it is easier to access to the producers. Consumer voice and rights come into prominence for the corporate identity thanks to information technologies.

The second factor is the growing critical masses for the sustainable consumption movements. Movements such as simplicity in lifestyles[86], synchronization with the nature[87] are raising trends; they also propose an active and creative approach to life as opposed to lifestyles those themselves through passive consumerism. Those movements, whose relevance is increasing, want a balance between passive consumption and the ability to actively choose what kinds of more creative experiences to engage in and how.[88] Co-design supports the consumers who are seeking the

[86] Deirdre Shaw and Terry Newholm "Voluntary Simplicity and the Ethics of Consumption" in *Psychology & Marketing* 2002 19:2 (February 2002): 167–185 in this article, writers investigate the behaviors of a group of ethical consumers and discuss the affects of voluntary simplification on consumption levels.

[87] Robert Hay. "Becoming Ecosynchronous, Part 2. Achieving Sustainable Development via Personal Development", in *Sustainable Development* 14 (2006), 1–15.

[88] Elizabeth B.-N. Sanders, (2006b) "Design Serving People", In: (Eds.) E. Salmi and L. Anusionwu, *Cumulus Working Papers Copenhagen*, (Helsinki, Finland: University of Art and Design), 28-33.

alternatives of the passive consumerism through embodying their contribution in the design process.

The industries and universities look to each other for collaborative explorations in innovation. Thus, companies started to give importance to participatory design for the competitive advantages. Reasonably by, the increase in knowledge intensity of product development requires co-design that could be shown as a third factor.

Finally, the relationships between new technologies and future human experiences have just recently become very complex and integrated. This means that producing more is not a ground for competition as it was in the early ages of industrialization. Thus, the integration of users' knowledge and experience in the design process represents a critical competitive factor.

According to many writers co-design has the makings on the transformation of the living conditions that are generated by the idea that well-being depends on passive consumerism.[89] As an example Fuad-Luke in his article conceptualizes the co-design approach as a desired model for well-being with the comparison of the service design and sustainable design.

Sustainable design approaches seek for the environmental, social and economic well- being of the society but does not mention the individuals' personal well- being. The main improvement in sustainable design contains the changes through the ways of producing or consuming which does not have the aim for activating people for the solutions as well as taking their individual problems into consideration for sustaining their life. Service design is an approach that creates stronger bridges with individuals

[89] Such problems; loosing spirituality, interconnectedness between human and nature, losing the harmony in ecosphere has their roots in industrialization processes.

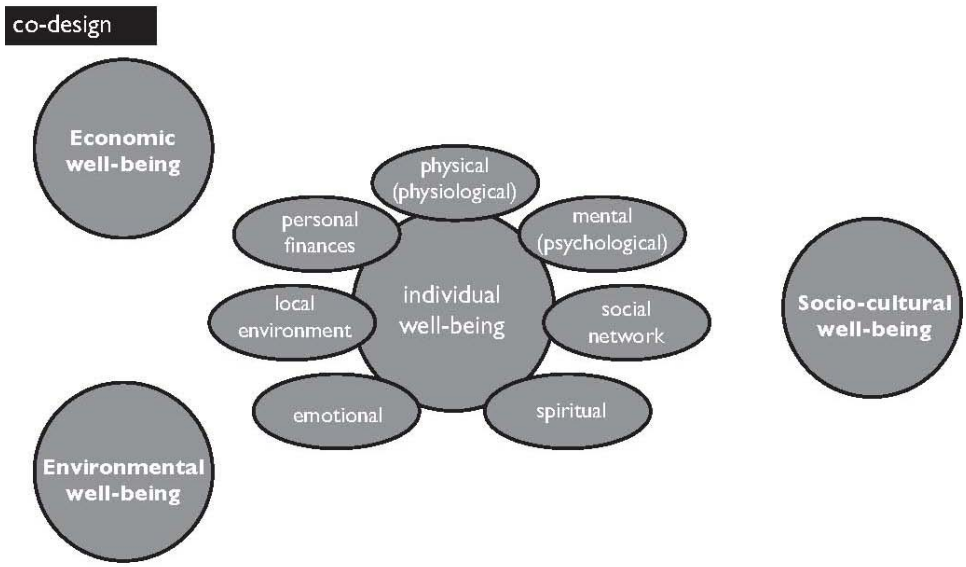

Figure 3. 5. The desired design model for 'co-design'. Grey spheres are primary focal point, white spheres are secondary focal point. (Source: Fuad-Luke, 2009)

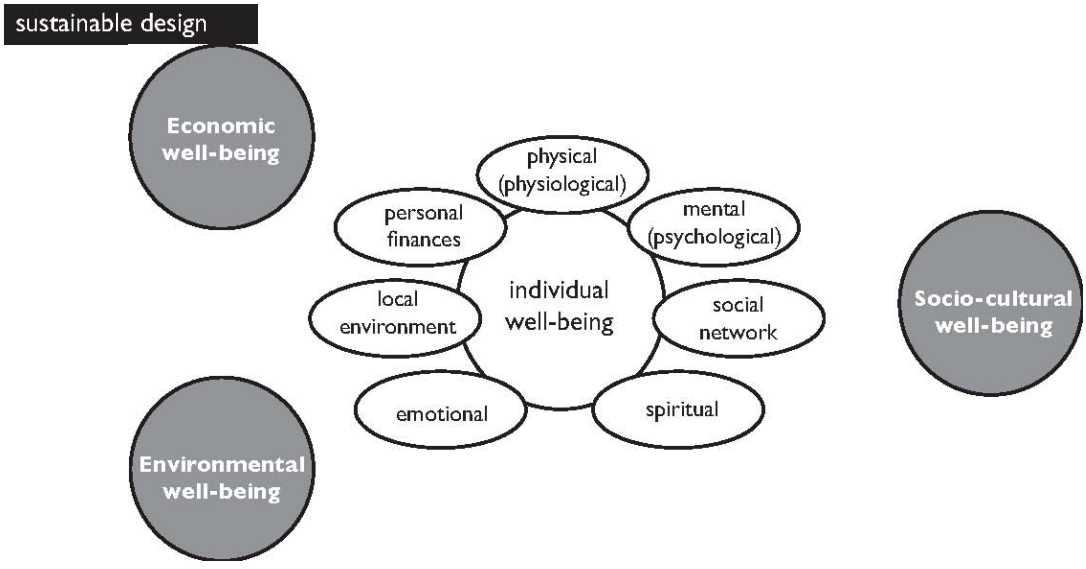

Figure 3. 6. The current model of 'sustainable design'
(Source: Fuad-Luke, 2009)

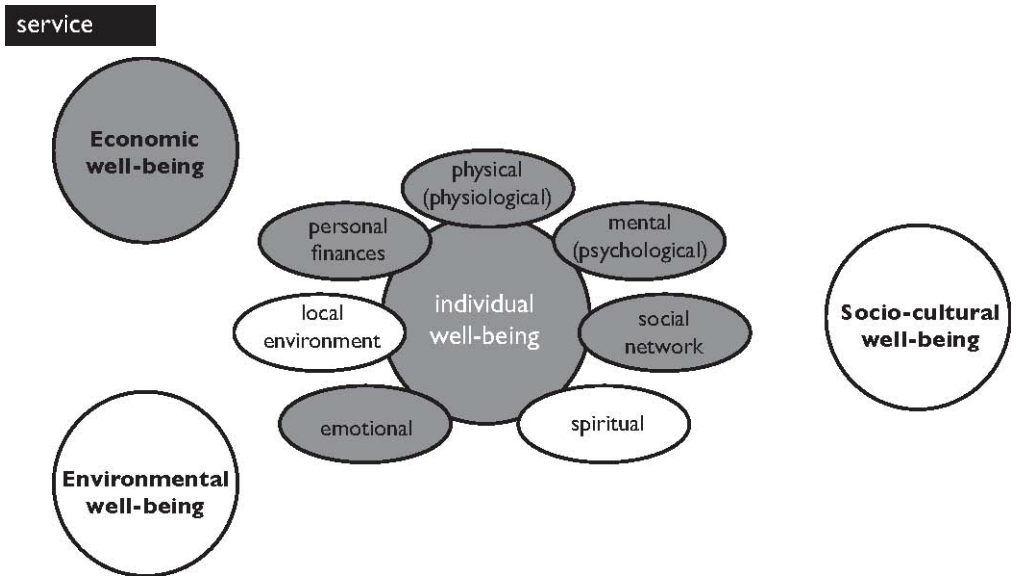

Figure 3. 7. The current model for 'service design'
(Source: Fuad-Luke, 2009)

approach offers a promising case for sustainability because differently from the others, It is concerned about the well-being of individuals. The impact area of design is getting wider with co-design approach because the source of the problem as well as the solution comes from the individuals who are imposed upon sustainability problems.

Co-design may be a promising strategy for sustainability because consumers are involved in design of products and services to fulfil the needs with less environmental impact. Producers and consumers work together to meet specific needs in co-design approach which may create sustainable options that are both competitive (profitable) and useful.[90]Consumer's involvement in idea generation phase provides a wish list of service requirements. From business perspective, consumers' role is very important for the reason that they state their needs, problems with existing services, and possible solutions. On the stage of service or process design, they help to develop blueprint techniques. After designer prototype the simulated delivery process, users suggest final improvements. [91]

[90] Label,lorek, 2008, 250

[91] Ian Alam. "An exploratory investigation of user involvement in new service development", *Journal of the Academy of Marketing Science,* 30 (2002): 250–61.

3.2.3. The Shifting Role of Business Companies

In the context outlined in this thesis, value creation in business sector is not a centrally planned process anymore. Rather than being top-down, the value co-production process is a more holistic way to create value that all consumers, designers and local producers can share. The importance of co-production of value appears with highly personalized demands that centralized companies cannot reach without having local perspectives. In this context, small and local companies have currently been entrusted with a task to transmit the local demands to the global level to supply it in a cheaper way.

Morelli remarks that the changes in value creation will not change the link between industry and designers but will change the social role of business companies.[92] He points out the changes in business logic depending on the affects of globalization and fragmentation of market segments. The importance of local and contextual solutions is increasing in case of globalization which requires organization of the local networks and stakeholders. Personalized demand pattern depending on mass customization requires the provision of semi-finished platforms rather than provision of finite solutions. He draws attention to the condition that business companies become organizers of value creations while the designers become producers of the scenarios, platforms and operative strategies to enable the users to create their own solution.[93]

3.2.4. The New Role of Communities

Ezio Manzini moves the focus from individual creativity to the collective intelligence. In many of his research projects on social innovation he focuses on *Creative Communities*[94], i.e. people and groups who act outside the dominant thought and behavior patterns to define and solve their own problems. These communities focus on the goal they want to achieve and organize them according to their needs. To do that there is need for new ways of thinking and putting new forms of organization into

[92] Morelli 2007. 7-8.

[93] Morelli, 2007, 7-8.

[94] Anna.Meroni edited, *Creative Communities. People Inventing Sustainable Ways of Living.* (Milano: Polidesign, 2007), 14.

action. Instead of starting with technical innovation and proposing products and services directly as a solution to the users, Manzini's approach introduces enabling solutions that are forms of collaboration between people to propose new combination of products and services to support everyday life. For designers, it is important to collaborate with the members of those communities in the generation of promising endeavors and the evolution of the cases towards more efficient, accessible and sustainable systems.

Figure 3.8. Micro-nursery. It is a line of work which is created to look after the kids together with the care worker's kids. A child-care center is created in one's home. System stands on collaboration with mutual trust. The women who give birth recently but at the same time who do not want to be out of the economy get involved into this system as a career. (Source: Jégou and Manzini, 2008)

From the socio-economic perspective, the co-production approach changes the linear process of mass production, which ends with the retail purchases. Process becomes circular because consumers become re-producers of products and services. This could be particularly relevant in everyday functions, such as cooking, caring, nursing, and gardening that were not included in the formal economy in the past. Changing life styles and re-organization of personal and family life often require those functions to be performed outside the domestic sphere, as paid services. This implies the recognition of the economic value of the domestic sphere and in some case inspires new forms of customer's activation[95].For example service projects such as micro-nursery

[95] Robin Murray, 2010, 5.

(figure 3.8.), home-laundry (figure 3.9.), family take-away (figure 3.10.) shows that domestic production could be transformed into a new type of local business.[96]

Figure 3. 9. Home-laundry service. It is a service solution for a single person or elderly people who do not have a washing machine or a place to dry clothes. The family who possesses the tools for laundry provides service. According to the users of the service, the system's better point than regular laundry service is having informed by the service provider if clothes are not useful or damaged. This means the relationship between service provider and user is more sincere. (Source: Jégou and Manzini, 2008)

Figure 3.10. Family take-away service. It is based on the preparation of the 3 or 4 extra portions of the meals to deliver to several single, elderly or sick people in the neighborhood. Reducing dependence on kitchen equipments and economizing the work are the key reasons of this system. (Source: Jégou and Manzini, 2008)

[96] François Jégou, and Ezio Manzini, *Colloborative Services, Social Innovation and Design for Sustainability* (Milano: Polidesign, 2008), 54-59.

3.3. The Designer's Role in Systemic Change

3.3.1. What Should Designers' Do in a Perspective of Systemic Change?

Role of designer in systemic change embodies the works that will generate the ideas and propose the solutions. Designers use operational tools to conceptualize, visualize and develop sustainable scenarios. This would be particularly relevant within a framework of co-design. Designer becomes a part of community while arguing the multi-faceted scenarios which are visually presented. Activating the people and building the networks between each other as well as encouraging the users to participate in design process are the designer's strong strategies in co-design process.

Morelli emphasizes the designer's working environment with respect to the co-production of value with the networks of small companies, local institutions, associations, cooperative groups and individual customers. He highlights that designers will not offer finite solutions in those processes but will create scenarios, semi-finished platforms and operative strategies to enable small companies, local institutions, cooperative groups, association and individuals to produce their own solutions.[97] This means that designers become facilitator, enabler, and mediator of the processes that are socially desirable.

Ursula Tischner is another supporter of co-design in sustainable production-consumption systems. As she stated: "Designers must become facilitators between producers and consumers or create new systems of co-production and co-design that fulfill needs and solve the real problems with the maximum benefits for consumers, producers and the natural environment."[98]

Sanders and Stappers highlight the emerging design disciplines which focus on the purpose of both individual and societal needs. New approaches towards designing purposes, experiences or interactions require larger scopes of inquiry rather than giving shape to the end products. Designers become facilitator of the processes for the desired experiences or situations, rather than focusing on designing brand identities, interior

[97] Morelli, 2012, 270.

[98] Tischner 2008, 159.

spaces, buildings, consumer products. The new perspective for the design discipline is outlined in the following table:[99]

The traditional design disciplines focus on	. . . while the emerging design disciplines focus on
the designing of 'products' . . .	**designing for a purpose**
visual communication design	**design for experiencing**
interior space design	**design for emotion**
product design	**design for interacting**
information design	**design for sustainability**
architecture	**design for serving**
planning	**design for transforming**

Table 3. 2. A snapshot in time of traditional and emerging design practices. (Source: Elizabeth, 2008)

In the classical user-centered approach, user is a passive object of the study. Researcher brings the data from interviews, observations and put knowledge from theories. Designer passively gets this knowledge and information from the reports and generates ideas and concepts by him/herself. In co-design process, roles are mixed up. The experience of the user, who is the *expert of his experience,* plays an important role in idea generating, concept and knowledge development. Since every person has different levels and types of creativeness, the designer's role is to bring this creativeness to the surface. This means leading, guiding, providing supporting and finally offering a ground to encourage people to create their own solutions.[100]

In this context, designer is able to provide solution-oriented thinking and to build interdisciplinary connections. [101] Significant examples of this approach come from case studies about delivering healthcare for diabetics, delivering food for elderly people or enabling people to move without owning transportation vehicle. On those projects designers are needed also because of their abilities on visual thinking, finding missing information, and giving necessary decision to conduct the creative processes.

[99] Sanders and Stappers, 2008, 11.

[100] Sanders , 2008, 14.

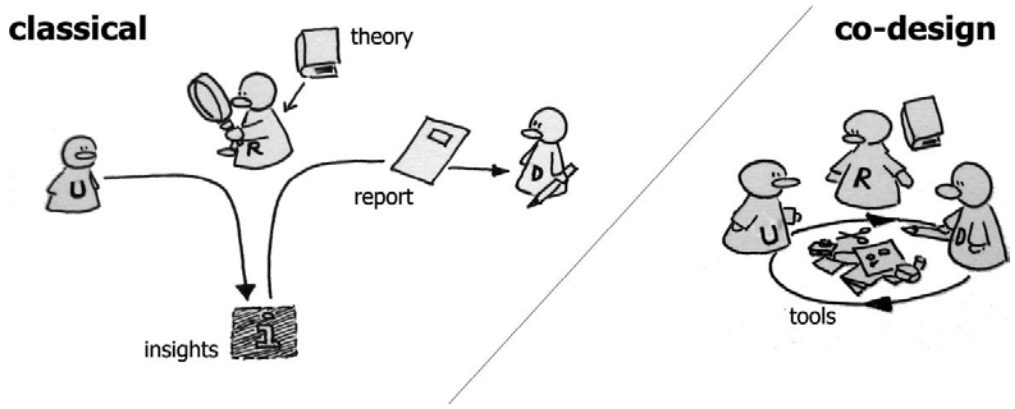

Figure 3.11. Difference of classical user-centered design and co-design (Source: Elizabeth, 2008)

The other role that designer can play is creating tools for non-designers and explore the potential tools and methods for generative design thinking. In that case, the knowledge and methods of interior designers, interaction designers, graphic designers, will not be replaced by users/co-designers, it will rather integrate user's creativity. Further competences designers can offer concern their knowledge of existing solutions, emerging technologies for production processes and business strategies. This knowledge will still be relevant throughout the design development process context that other stakeholders do not have.

3.3.2. How: What Tools and Methods can Designers Use to Manage the Process of Change?

The design discipline is not always equipped to face the big challenge brought about this new perspective. Therefore it needs to develop a new *toolbox*, i.e. a set of methods and tools to analyze, design and represent ideas, scenarios, roles and innovation opportunities. Such a toolbox can also import tools and methods from other disciplines and appropriately adapt them to a *designerly way* of thinking and working.

Examples of new tools for the design discipline are:

Cultural probes, a method that consists in proposing rapid ethnographic exercises with the direct involvement of users.

Use cases, used in information technology and imported in the design discipline by Morelli to describe the details of sequences of events in services. Use cases also inspired *customer journey* that are an accurate description of the user experience in services.

Storyboard and scenarios, i.e. narrative techniques used to visualize new perspectives and ideas, borrowing techniques from animation and often using video sketching.

CHAPTER 4

A PROPOSAL FOR SYSTEMIC CHANGE THROUGH SUSTAINABILITY: LOCAL FOOD ACCESS SYSTEM IN AALBORG

4.1. Introduction

4.1.1. Aim of the Study

As I widely mentioned in chapter three, systemic change through sustainability requires acting out of the dominant thought and behavioral patterns. In that case it is important to define new ways of living and consuming. Designers encourage people and collaborate with them in generation of the cases towards more sustainable systems.

Food system, which concerns everyone around the world, is already industrialized system with the focus of efficiency and modern production techniques. The processed food, ready-meals, fast food diets are the reality of the modern ways of consuming food which shows that we have already started to lose the connection with food. Food size and production are getting standardized. Nowadays, we handle packaged food on the market shelves with the same condition we handle any other industrial object. Furthermore, there are big environmental impacts not only during the processing side but also during the production side. Agricultural areas as well as food security are decreasing all over the world due to the environmental crisis. All these concerns led me to seek for alternatives to currently conventional food systems under the terms of sustainability both in social, environmental and economic issues. I chose to work on local food system also because several literature references I read were indicating local strategies as an intrinsically sustainable alternative to present globalized production.[102]

[102] Strategies that support local development are suggested by several authors including: Morelli, Nicola. "Active, Local, Connected: Strategic and Methodological Insights in Three Cases" *Design Issues* 27: 2 (2011): 90-110; Jégou, and Manzini, 2008; Meroni, 2007.

A project on local food system could give me a chance to have hands on experience in this area.

4.1.2. Objectives

This project aims at searching for information about local food conditions in Aalborg and uses this information to design a service concept for accessing local food. Under the terms of sustainability, the project concerns the following objectives:

- Questioning alternative food systems in the perspective of sustainability.
- Learning service design tools and use them in the project.
- Proposing a service design concept that is developed in cooperation with users.

Initial question of the project is:

How to create a sustainable food system that is based on the co-production of value?

4.1.3. Approach and Methodology

Approach:

My aim was to conduct a research with co-design approach which is based on generating ideas with users because "people, in all their complexity and unpredictability, can never be reduced to data".[103] Thus, supporting the demands from the social participants' perspective requires a deeper work than making interviews. This is possible by using a value co-production approach based on bottom-up value creation. As it is indicated below, we need to focus on co-design approach which requires more individual contribution than mass customization tools:

> By starting with people themselves, not organizational norms or institutional parameters, and by focusing on engagement at the interface, service design shapes an agenda for personalization that is about co-design and co-creation rather than mass customization.[104]

[103] Sophia Parker and Joe Heapy. *The Journey to the Interface.* (London: Demos, 2006), 14.

[104] Parker and Heapy, 2006, 20.

Furthermore, co-design approach transforms the organizational forms of the global companies as well as the role of the users for companies as it is mentioned below:

> A different approach is emerging, which focuses on logical (and business) connections between global and local actors, in order for them to co-produce a new kind of offering. This approach is also generating new forms of *value co-production*, transforming industrial companies into *organizer of value creation* and users into active co-producers of highly individualized offering.[105]

The collaboration within networks of local actor is a useful strategy to get a better picture of potential users. The importance of networks emerges when knowledge on the alternative food systems is accumulated and shared, because the value produced by networks of local initiatives/individuals, may transform the current models of food systems through improving local economy. According to Manzini:

> […] with the new networks it becomes possible to operate on a local and small scale in a very effective way. Moreover, these networked systems indicate the one and only possibility to operate in the complex and fast changing environment generated by the present crisis and by the double transition towards a knowledge society and a sustainable society.[106]

Considering the current ecological crisis and social health which is related with what we eat, in this project I have followed co-design approach which is based on the contribution of local people's shared knowledge.

Methodology:

Service design tools were useful from the beginning of the problem definition to work towards the solutions. At the initial stage, scenarios and actor maps through system interaction were used to formulate the solution platform. In conjunction with interviews, elements of the system were clarified and motivation matrix, system organization map, use cases were utilized during the concept development phase. Getting feedback from the actors of the system demonstrated the scenarios and the system design. These analytical methods were attached with SLOC scenarios to understand local needs and to connect the actors. As Manzini explains:

> […] SLOC Scenario, where SLOC stands for small, local, open, connected. These four adjectives, in fact, synthesize very well the socio-technical system on which this scenario is based: a distributed production and consumption system where the global is a "network of locals". That is, it is a mesh of connected local systems the small scale of which makes them comprehensible and controllable by individuals and communities.[107]

[105.] Nicola Morelli, **"**Service as Value co-production: reframing the service design process*"* in *Journal of Manufacturing Technology Management*, 20:5 (2009).

[106] Ezio Manzini, "Small, Local, Open and Connected: Design Research Topics in the Age of Networks and Sustainability," in *Journal of Design Strategies*, 4: 1 (2010), 9.

[107] Manzini, 2010, 7.

To gain different perspectives, interviews mostly conducted as open discussions. Initially, I contacted with twenty people, half of them were potential users and half of them were potential providers of the system. They responded my suggestions through scenarios and also noticed me what is possible or not on the local area. Later on, I focused on four personas to specify the possible users of the system.

4.2. Questioning Food Systems

4.2.1. Questioning Alternative Food Systems

The debate about the sustainability of food systems generally compares two different approaches: 1) Conventional food systems that maximize efficiency. 2) Alternative food system that prioritizes food quality and sustainable considerations.

Conventional food systems which also do not hesitate on the usage of modern chemicals for protection, aim at maximization of efficiency in order to reduce costs and increase overall production.[108] This system is criticized because it causes environmental damage and fails to provide food security and to the high environmental impact of transportation. Costs of food production in modern food system have decreased due to the industrialization of agriculture. More effort to gain profits with easier production brought GM (genetically modified) foods in daily life which has not gained the trust of public. Easier transportation and rapid production techniques expedited food export.

On the other hand, present concerns about the sustainability of food have led the way for alternative food systems. Alternative food systems are of different types including organic production, local food initiatives and community based agriculture or all of them in various combinations due to the differences of production types, utilization, quality and relevance to the users or places.[109] Local food systems are based on shorter chains from production to consumption and support the local economy, thereby involving local social structures rather than the global. Organic food system

[108] Polly J. Ericksen "Conceptualizing Food Systems for Global Environmental Change Research." In *Global Environmental Change* (2007): 2-3.

[109] Clare Hinrichs, "Embeddedness and Local Food Systems: Notes on Two Types of Direct Agricultural Market." in *Journal of Rural Studies* 16:3 (2000): 297-200.

takes over the approaches to grow food without chemical inputs as antibiotics, fertilizer, pesticides and support the transparency of food production. Community based agriculture is a form of food network in which producers and consumers make an agreements to share the risks and benefits of food production. For the understanding of the components of the food systems in case of activities and outcomes, figure 1 shows the interactions in the food system.[110]

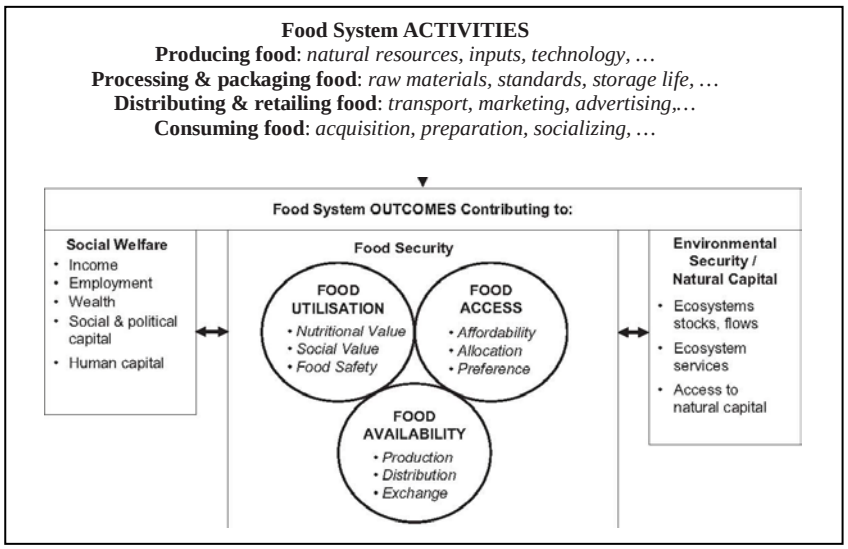

Figure 4. 1. Components of food system
(Source: Ericksen, 2007)

From the activities side, local food systems have opportunity to offer more transparent production with less packaging and transportation. The contribution of activities in local system aims to support food availability and security which also aims environmental security and social welfare in local area.

Another reason that I wanted to search for local food is that, global food systems have integrated vertical models that increase the profits and development while decreasing the numbers of farms. Local food systems instead, make it possible to reduce vertical links between the different actors of the system. Improving the networks between horizontal links is better for social sustainability to give chance to the local or small scale initiatives to sustain their work-force. Importance to build the local food system is stated below:

[110] Ericksen, 2007, 6.

> The local food system is an alternative to a globalised system with regard to the channel of distribution. By introducing a local and short connection between the production, distribution and consumption of food, a horizontal alternative is created as opposed to the conventional, vertically-structured food chain. [111]

Thus, for the initial research area, I decided to get information about local food conditions in Aalborg where I studied service design and experienced conducting a local project.

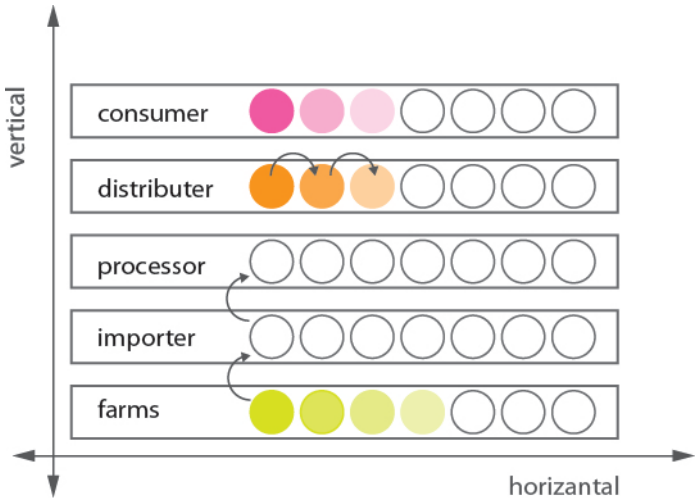

Figure 4. 2.Vertical and horizontal sides of food systems.

4.2.2. Situation of Alternatives in Denmark and Other Possibilities

To understand the alternative food condition in Denmark firstly, I searched for the market condition of the organic food sector. (Appendix A) It has become well-established by the support of governmental policies and economical incentives. Also organic foods' prices has been in competition with the prices of conventional foods. Directly altering this system is difficult because it requires contact with policy makers. As it is indicated in the statistics (Appendix A), organic food production- consumption systems has converted itself to follow to vertical global market rules thus it is creating its own social sustainability problems. In addition to this, the agent of Danish

[111] Marko Nousiainen et al. *Social Sustainability of Alternative Food Systems viewed through Actor Argumentation, chapter in report: Approaches to Social Sustainability in Alternative Food Systems,* in *Approaches to social sustainability in alternative food systems*. Ekologiskt lantbruk, no. 47, edited by Sumelius, J. and Vesala, K. M. . (Sweden: Sveriges lantbruksuniversitet, Centrum för uthålligt lantbruk, 2005): 40-69.

Agricultural Advisory Service has come up with the questions that "*if Danish export increases too much, what will local consumers do"*. [112]

This question indicates the rising concern on self-sufficient food system. Creating local alternatives could be seen as underpinnings of food systems. As alternative food system, local food production-consumption systems have small impact areas and they embrace local solutions for specific areas. In addition to this, creating local food system has the possibility to transform the conventional production-consumption chain in a way that can serve as a model for local initiatives. The transformation of conventional food systems into local and local as well as organic ones is possible as well as setting an example for the food business sector.

In that case, a solution should:

- Suggest a more horizontal economic model, rather than vertical one.
- Create a food system independent of the commercial organic food chain. On the other hand, it is not mean that the system will be detached from organic food.
- Involve participant's views to create more inclusive solutions.
- Be observing local conditions
- Consider the opportunities of active networks of local.

4.3. Clarifying Local Requirements and User Profile

In this chapter, I investigate the problem area on its own local conditions in the city of Aalborg. Surveys involving organic food users make up the local research so as to respect the users' perceptions about organic foods as an alternative to conventional/industrial food systems. Through the interviews and observations, actors of the system had been clarified and a more specific question was defined.

4.3.1. Alternative Food Condition in Denmark

Local Food Conditions Around Aalborg:

In order to obtain general information on the conditions about local food; organic farms, cafes, markets and allotment house areas were visited and asked in which way

[112] Country overviews Denmark: "Organic Denmark.", http://www.organic-world.net/denmark.html (accessed in May 2011).

they access alternative foods. In the initial parts of this phase, the term 'local' contains both alternative foods as organic, not imported, and produced locally. The places are all marked on the maps below.[113]

Interviews with local actors:

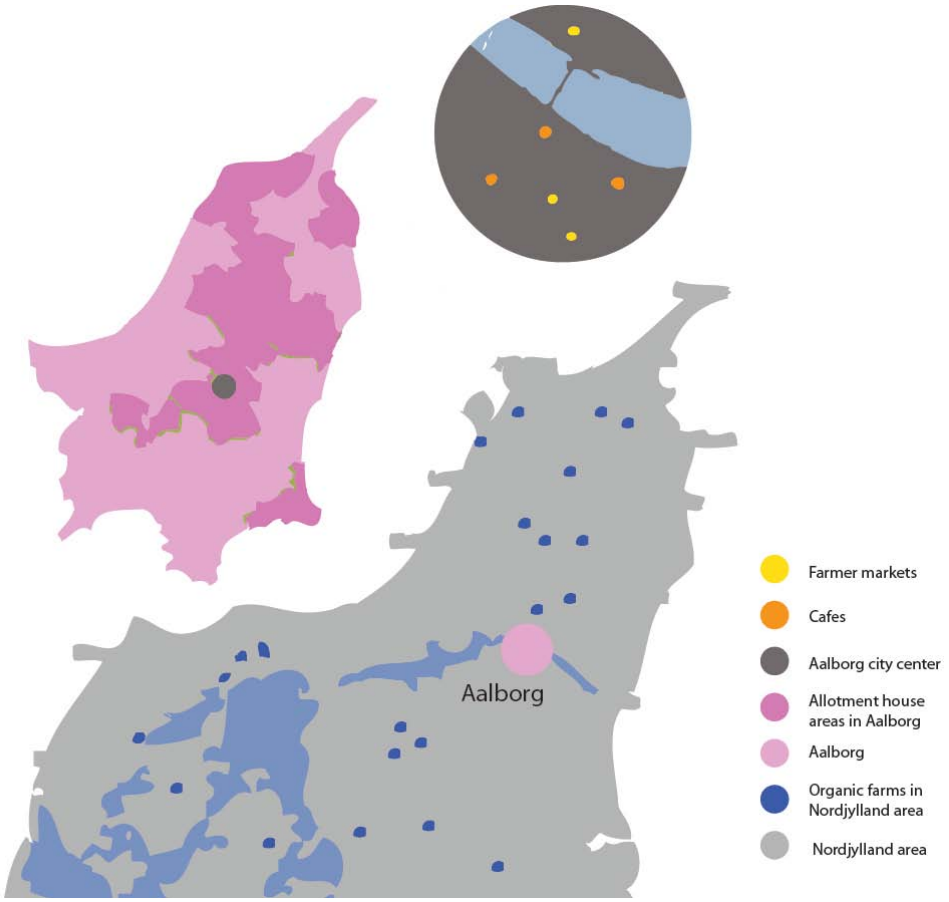

Figure 4. 3. Possible places to see local food production-consumption process around Aalborg

In order to gain information about where the alternative food comes from and which local food serving places use it, four different places are visited in the city center. Open-ended interviews had been conducted on accessing organic/local/healthy food for seeking the alternative options. From the places for food, 1000 FRYD is a social center

[113] The information of possible food production areas are gained from the resources below:

- Organic farms in Nordjylland region: "Nordjylland, Økologiske gårdbutikker og stalddørssalg", http://www.ecoweb.dk/gaardbutik/jyl-nord.htm (accessed July 26, 2012).
- Farmer's market: "Happy Cow the Healthy Eating Guide": http://www.happycow.net/europe/denmark/aalborg/ (accessed July 26, 2012).
- Allotment houses: "Kolonihave portal.dk" http://www.kolonihaveportal.dk/kolonihaver-salg.shtml http://2.106.159.42/khf/60.htm (accessed in May 23, 2012).

and venue owned by the 1000 FRYD community itself. There was a possibility to hear that they use alternative food because they organize Vegan soup dinner every Tuesday. On Husets Café's webpage it is written that this Cafe was the first vegetarian café in Aalborg. There is a vegetarian buffet for lunch and dinner every day. I interviewed the chef, Dragon, to learn their food resources and how they connect with distributers.

Kim's Kitchen serves fresh food with seasonal products. Aalborg Helsekost, is the oldest healthy food store in Aalborg. This store has a wide selection of organic foods, juices, herbs and gluten-free products. To understand what the possibilities for producing local food are, I also interviewed with local producers in Farmers Market.

Results of Interviews:

.vegan kitchen .super-market products .shared payment .not organic	.vegan buffet .super-market products .not organic .not local	.home-made buffet .ordinary food supplier .not organic	.organic food brands .not local	. mostly imported food .organic .local food in spring&summer

Table 4. 1. Results of the initial interviews with local market and cafes.

Through the interviews with local producers, I got information about main food distributers in Denmark. One possible way to access to local food is shopping in supermarkets. Two of the main food retailer company is Coop [114] and Dansk Supermarked. [115] In Denmark these two retailer companies collect local foods and distribute them to supermarket chains. The chain markets that obtain foods from them are below:

[114] "Om Coop" https://om.coop.dk/Om%20Coop.aspx (accessed July 26, 2012).

[115] "Dansk Supermarked" http://www.dsg.dk/da/Kaederne/Pages/kaederne.aspx (accessed July 26, 2012).

Coop	Dansk Supermarked
• Kvickly	• *Føtex*
• SuperBrugsen	• *Bilka*
• Dagli'Brugsen	• Netto
• Irma	• Salling
• Irma City	
• Fakta	
• Nettorvet	
• Irmatorvet	

Table 4. 2. Two main food retailer company in Denmark

Growing local food in Denmark is limited to autumn and winter because of climate conditions. Thus, mostly imported foods take place in supermarkets. Organic food mostly appears through organic food companies in supermarkets of Denmark. In addition to this, the company www.Aarstiderne.com which produces, purchases and sells organic and seasonally food has succeeded to establish a direct distribution chain with 45,000 customers in Denmark and Sweden. The company has different suppliers from different countries to satisfy the food demand. The customer contact is based on a remarkable online sale system. Food-boxes are distributed in a specific day of the week to different cities in Denmark. Their food policy is based on traceability so that consumers could visit the farm they buy their food from. This makes them reliable as well as transparent. Furthermore, their products are certificated by Danish food and agriculture authority. A negative aspect for producers is that Aarstiderne became like a food chain: farmers outside this chain are excluded by this important distribution channel. Furthermore, with the growth of company, service providers started to distribute the food through longer distances which implies higher environment impacts.

4.3.2. User Research

Networked Alternative Food Users:

I put messages on Facebook Aalborg Group [116] (Appendix B) and Aalborg Couchsurfing Group[117] (Appendix B) to contact the potential users of the system, to get information about the locally produced food and to learn the places that are supported by alternative food retailers/producers.

Facebook as one of the largest and popular free internet communities with more than 600 million active users is a useful tool to get initial information. Couchsurfing is an international non-profit network that connects travelers with locals in over 246 countries with more than 2.7 million members from 80,021 different cities. Members respond to couch-requests as well as discussions in many different group categories about people, places, ideas and organizations to share knowledge and experiences. The initial reason why I chose those networks was that they gave me a chance to reach local groups. Secondly, they were a part of extensive global network in which many discussions about alternative foods were conducted. In that case, I contacted people who responded my questions on the websites.

Figure 4. 4. Logos of Couchsurfing and Facebook.

In a one week period, while I could not get response from Facebook Aalborg group, I got responses from the Aalborg Couch surfing group. At the end of discussions, an organic-local dinner was arranged to share experiences and to get new points of view

[116] "Facebook Aalborg Group" http://www.facebook.com/#!/group.php?gid=2300019912 (Accessed May 15, 2011).

[117] "Couchsurfing Aalborg Group" http://www.couchsurfing.org/group.html?gid=11640 (accessed June 2012).

from possible users of alternative food systems. The aim of this part was to connect people on networks and use the networks to gain co-produced values. [118]

Collaboration with Couchsurfers:

The primary reason why I collaborated with couch surfers was the co-produced value in that network. Under different groups and categories, this network supports interaction between many people globally on different aspects and the creation of common values. The other reason was the members' willingness to participate in groups and share and discuss their ideas about local communities as well as global ones. The following reason was their respond to my call and relevancy of the individuals for group participation. Some screenshots are added (in Appendix CA, 3B, 3C,3D,3E).

Couchsurfing Alternative Food Dinner:

To get observations from possible users of an alternative system I would have liked to learn more about their choices and approaches to the alternative food systems. The event was useful to get closer in ascertaining what they are concerned about when it comes to food. The participants' connection with Aalborg, their expectations, choices and concerns on food, comparing with their own countries could be found in Appendix D. Photos of the open-discussions in the dinner could be found in Appendix E.

The main topics of open-discussions were focused on the need to access healthy food and how people reach them. Healthy food perception is occurred during the sustainability discussions under the term of individual welfare, social health and ecologically concerned production of food. Couchsurfers were concerned about the negative impacts of modern food systems. Some of them were willing to have an organic food on their diet; some of them were willing to have natural, fresh, seasonal food. Producing and drying their own food was another alternative that one of them was practicing. Some of them were giving importance to connectedness to farmers and nature; some of them were trusting labeling system. They were using mostly super-markets and rarely farmers' market to buy food. Taking general information about what the users' trends on the alternative foods are and what the local conditions to access healthy food are led me through clarifying the system requirements.

[118] During the research of this case, Couchsurfing was a non-profit, voluntary organization that is based on the collaboration, idea sharing and exchange. In the following dates, it became a socially Responsible B Profit corporation. After that change, organization started to employ people and build business-based relationship with different communication sectors. This could be interpreted in a way that the high degree of coproduced value is absorbed and transformed the non-profit organization towards a business sector. On the other hand, the communal spirit of couch surfers who believe that they can share and exchange without money is now broken on that network.

4.3.3. Market Research

Target Group Definition:

The target group could be defined due to different aspects such as:

- geographic segmentations (their location)
- demographic/socio-economic segmentation (gender, age, income occupation, education, sex, household size, and stage in the family life cycle)
- psychographic segmentation (similar attitudes, values, and lifestyles)
- behavioral segmentation (occasions, degree of loyalty)
- product-related segmentation (relationship to a product) [119]

This project took into consideration the co-production of value in local area. Thus defining a target group could be restrictive rather than spreading the idea. On the other hand, it could be useful to consider them under the segmentations below:

Socio- economic segmentation is also important for financial considerations of system as well as for the ability of the users to reach the food. On the other hand, the cost of the system could easily change with the number of initiatives, number of users, shared costs etc. With economical considerations of the system, the price segment could change. Also the users' willingness to pay and motivations could override their economical conditions.

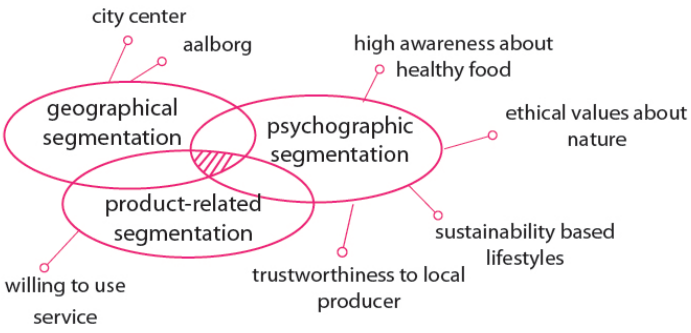

Figure 4. 5. Target group definition of new system

In order to define consumer profile, I used the definitions of the customer profile researched by Organic Denmark, a non-profit association that aims at increasing

[119] Cohen A. Wiliam. *The Marketing Plan.* (John Wiley & Sons, 2005), 12.

knowledge about ecology amongst Danes.[120] They describe their criteria for customer segmentation according to the following considerations:

> Today traditional segmentation whereby the market is categorized according to demographic data often falls short of the task of accurately defining consumer needs. This is because we are seeing an ever growing diversity in relation to consumer choice and a growing tendency towards individualization in terms of consumption and demand.[121]

The vision of Organic Denmark points out the highly individualized demands in the market. Even if the organization believes that the demands are highly individualized, they created five different consumer profiles (figure 4.7) to define the diversity of their personalities.

As indicated in the research of *Organic Denmark,* 'the *idealist* consumer's grocery purchases take the highest points (16%) for organic grocery purchases. Also, their choices with 'Bon Vivants' are more adaptable to local food systems than those of the other groups. They generate 39% of the total users in the organic market. The target group of this project will share the similar values acquired with the "Idealist group" due to their precise ideas about climate-friendly, healthy products and confidence in local producers. However, since this research just gives the information about organic food users, the other groups that could be interested on local food cannot be identified from this research.

In a similar way, a survey about organic costumers' conceptions and practices by Danish and Norwegian subscribers related to local organic food-systems revealed the following:

> The results of the study indicate that when box schemes are multi-functional, that is when they focus not only on food distribution but also on providing an arena for situated food-system learning and facilitating actual changes in food practices, they have a potential to support the development of local and organic food-systems, resisting and influencing the trends of food-system globalization and the industrial organic model.[122]

Transformation of organic food systems to local ones or local ones to organic ones is possible. The important thing is that how we design the systems with user conceptions in mind. In that case, some of the user conceptions on the same research strengthen my reason to choose consumer segmentation from organic consumers:

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[120] Organic Denmark, "Design, Taste, Attitude", http://www.organicdenmark.dk/Vision--Strategy.101.aspx (accessed July 26, 2012).

[121] Organic Denmark, "We know Consumers", http://www.organicdenmark.dk/We-know-consumers.94.aspx (accessed July 26, 2012).

[122] Hanne Torjusen, Geir Liebein. and Gunnar Vitterso. "Learning, communicating and eating in local food-systems the case of organic box schemes in Denmark and Norway", in *Local Environment, the International Journal of Justice and Sustainability* 13:3 (2008), 224.

[…] “Locally produced organic food is the best ecology. When the food is transported over long distances (south of Europe and further away) I question whether the limits for sustainability are overstepped because of the transport.”
“My priority as a consumer would be to buy locally produced organic food to a largest extent possible. Until this is possible, I prefer to buy organic products that have travelled, before non-organic local.”
“I want to support organic farming, but I think that much of the point is lost when the vegetables are transported the long distance from Spain or France. Such transport should be avoided for environmental reasons. I prefer vegetables from the region.” […][123]

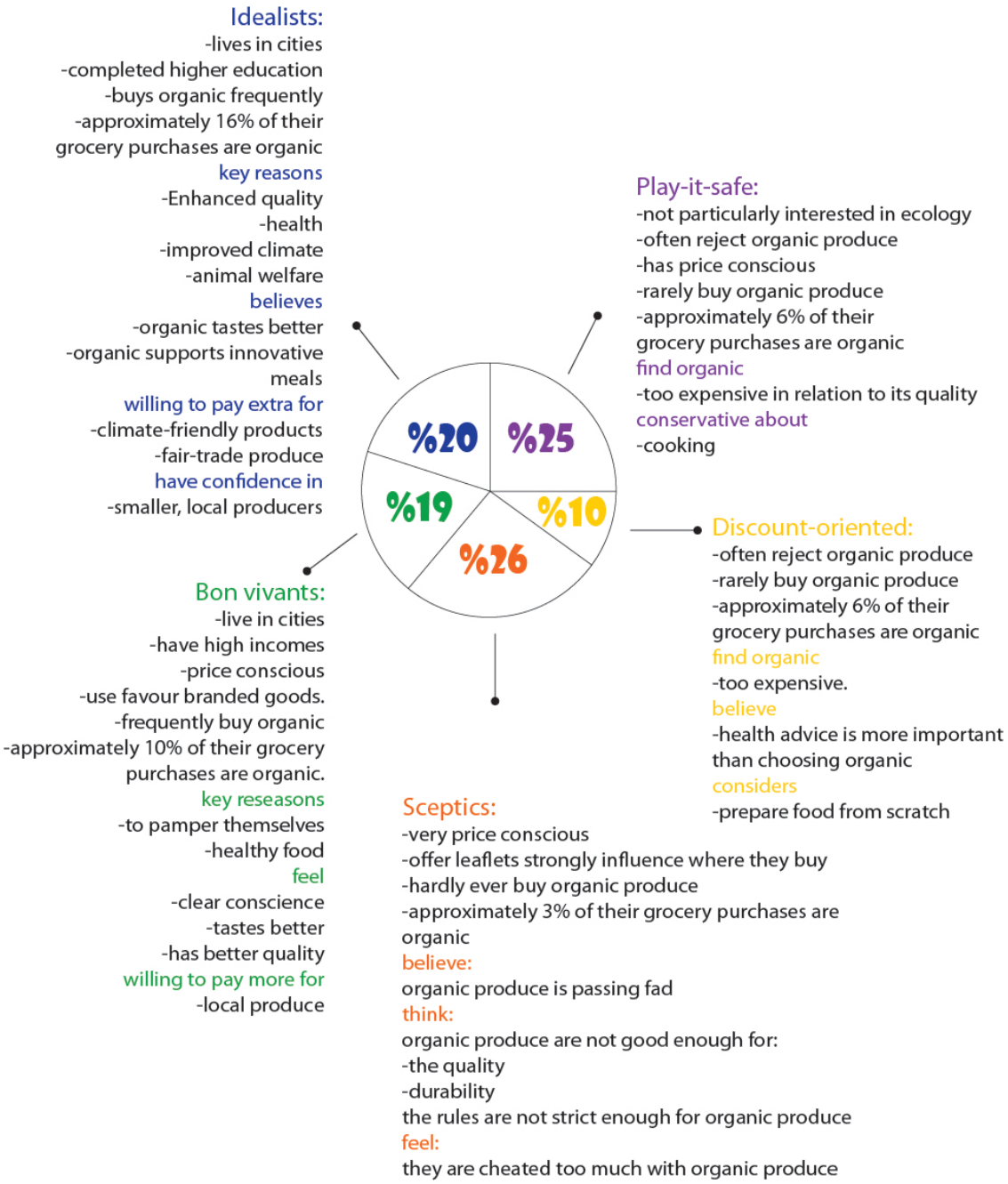

Figure 4. 6. Danish consumer profiles on organic market

[123] Torjusen, Liebein and Vitterso, 2008, 224-30.

Price Comparisons:

In order to ascertain the users' willingness to pay for alternative foods, I visited supermarkets and compared organic prices with same amount of local and imported food prices (Appendix F). In addition to this I had food-box prices from the local farmer to compare with the box-schemes of the company www.aarstiderne.com.This information was then used to ask my Personas' opinion on prices and to discuss the price comparison with them.

Reflections:

As public food servers, no cafés or restaurants serving organic food were found in the local area. Cafés and restaurants were willing to use more healthy foods but economic obstacles were hindering their wish to do so. Their attempts have mostly been based on preparing vegan buffets, using seasonal food and avoiding processed food. Their interests in healthy food are based on the preparation process that is related directly to their work rather than the process of food production and distribution that seems less so. In addition to this, they lean toward an access to local or organic products.

Interviewees were concerned about health problems, taste, freshness as well as environmental damages. These ideas gave me general impressions about the users' values. Users have confidence in organic products and are mostly willing to use organic. The common view was that the organics' price was too high. The production-consumption chain was another concerning issue that reflects the wish to pay attention to social relations. The idea to re-define the social relations could support the attempt to get attraction to local food. In some cases, a direct relationship between the producers and consumers could be preferable rather than using mediators.

Local food is an overlooked point that users have an idea about but do not have many opportunities to reach. Common consuming behavior is to use the markets. On the other hand, statements that interviewees used such as 'fresh, seasonally, healthy, less impact to environment' could easily refer to local food systems.

In the vertical economical model case, retailer companies are successful in spreading on the market. From the users' point of view, this chain is useful and also gets them lower prices. On the other hand, the users' perceptions and knowledge about the local systems are limited. In that case, any offered small, local and connected food

systems have a chance to be accepted if someone offers a suggestion. System Requirements

After researches in the local area, both in Aalborg and Denmark, new system requirements came out. Any solution should;

- Suggest economic model which considers horizontal, rather than vertical chains, to be an alternative for local producers.
- Create a food system independent from organic food chain. Quality of food may be organic
- Involve participant's views to create more inclusive solutions.
- Consider the opportunities of active networks.
- Be developed for Aalborg
- Connect local actors with shared values.

Secondory problem definition of this project is below:

How to co-create a local food system with local initiatives in Aalborg?

4.4. Proposing a Service System Design

4.4.1. System Thinking

In system thinking phase, the focus was on developing ideas for local food system. The aim of using methods such as scenario writing and system interaction maps was to offer suggestions to potential actors of the system. To practice with system design tools as well as to set up interactions I wrote nine different scenarios and converted three of them to a storyboard. Interview questions are available in Appendix G. System interaction map was used to understand the motivations of the different actors of the system.

4.4.1.1. Scenario 1: User Starts the System

Preconditions of System:

Users are concerned about sustainability. They experienced health problems, bad taste of foods, informed about health problems of unsustainable conditions in the world.

Users know each other from daily life, neighborhood, work life, school, social networks.

Action:

Two or more users come together to search for OFP (organic food producer).

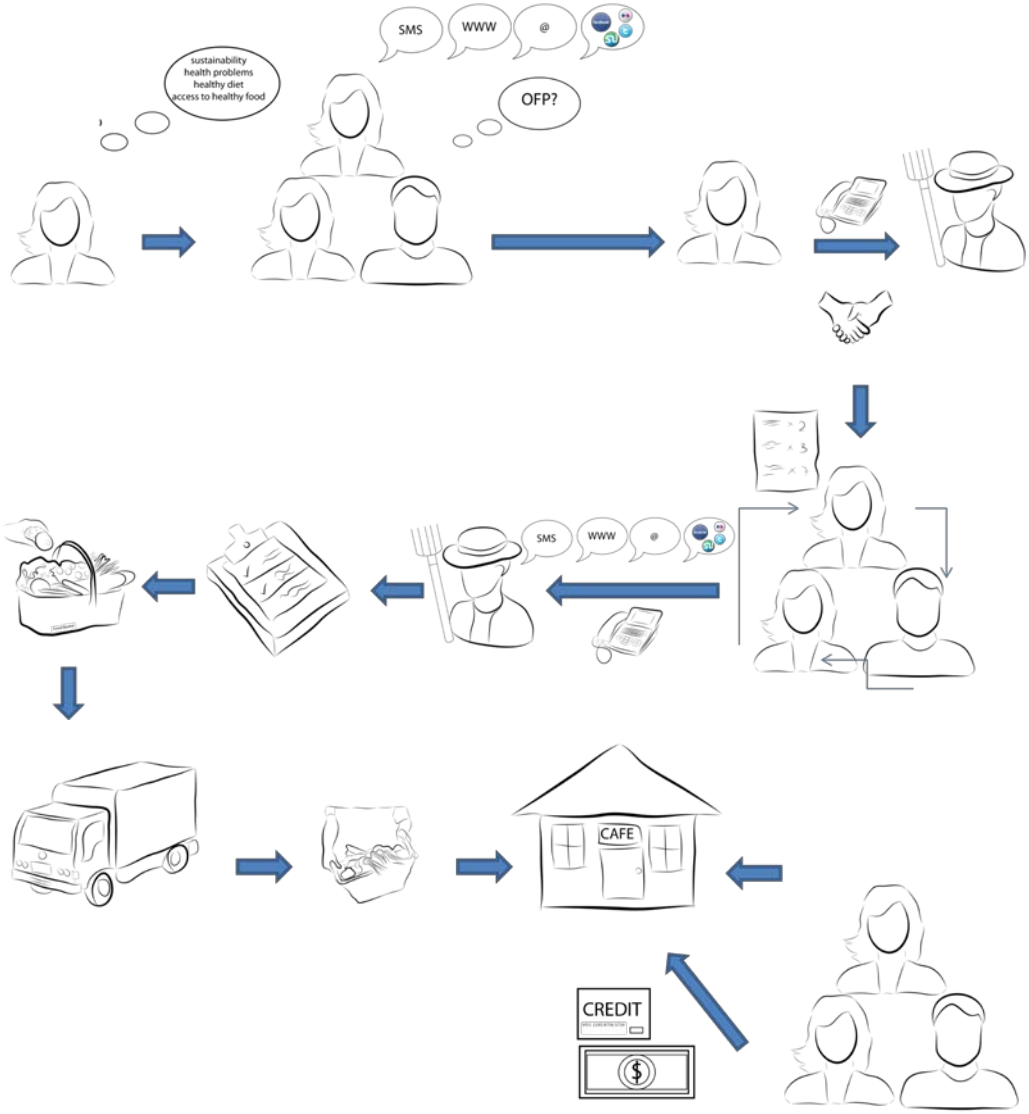

Figure 4. 7. Scenario 1

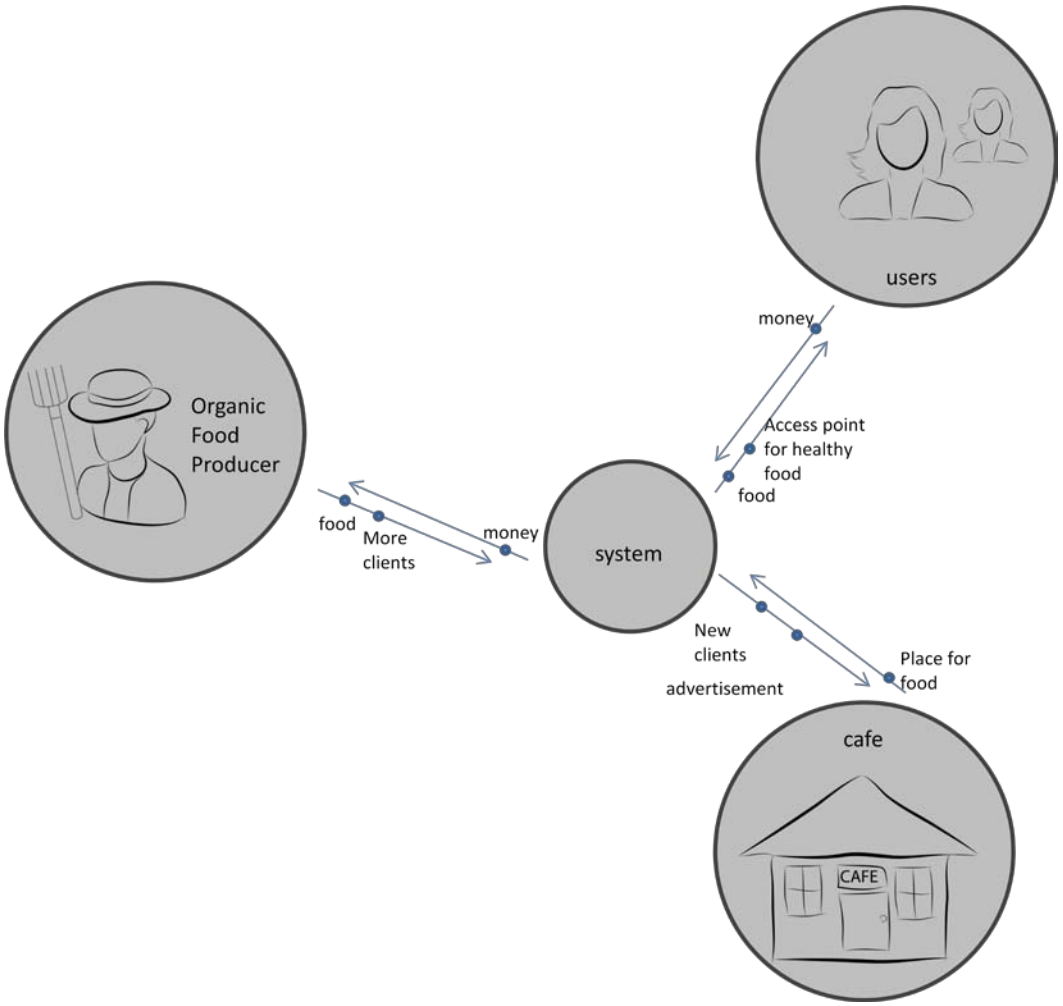

Figure 4. 8. System interaction map 1

4.4.1.2. Scenario 2: Allotment House Holders Start the System

Preconditions of System:

People in allotment houses produce more food than they need. People in AH know each other

Action:

AH People meet and decide to sell overproduction of food.

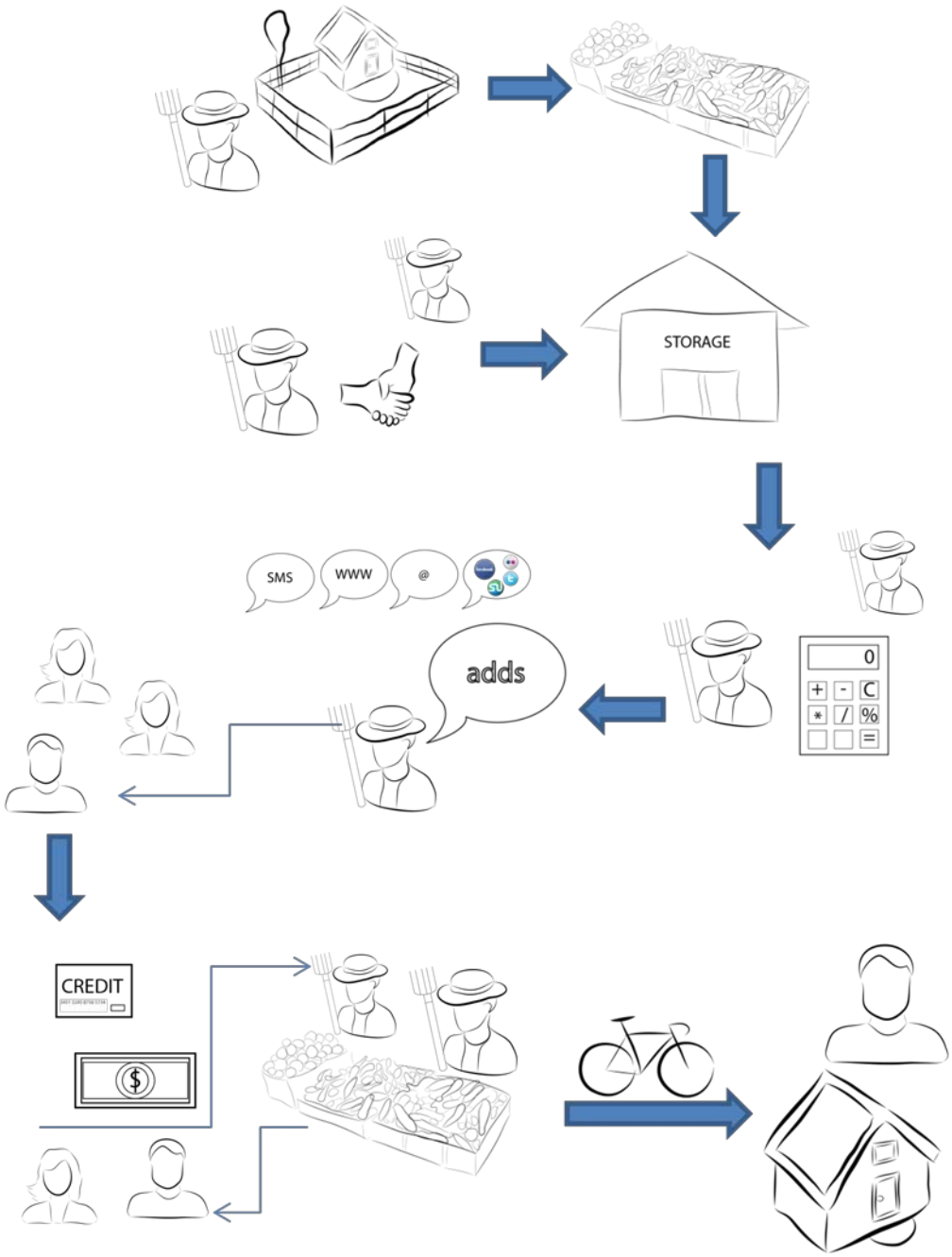

Figure 4. 9. Scenario 2

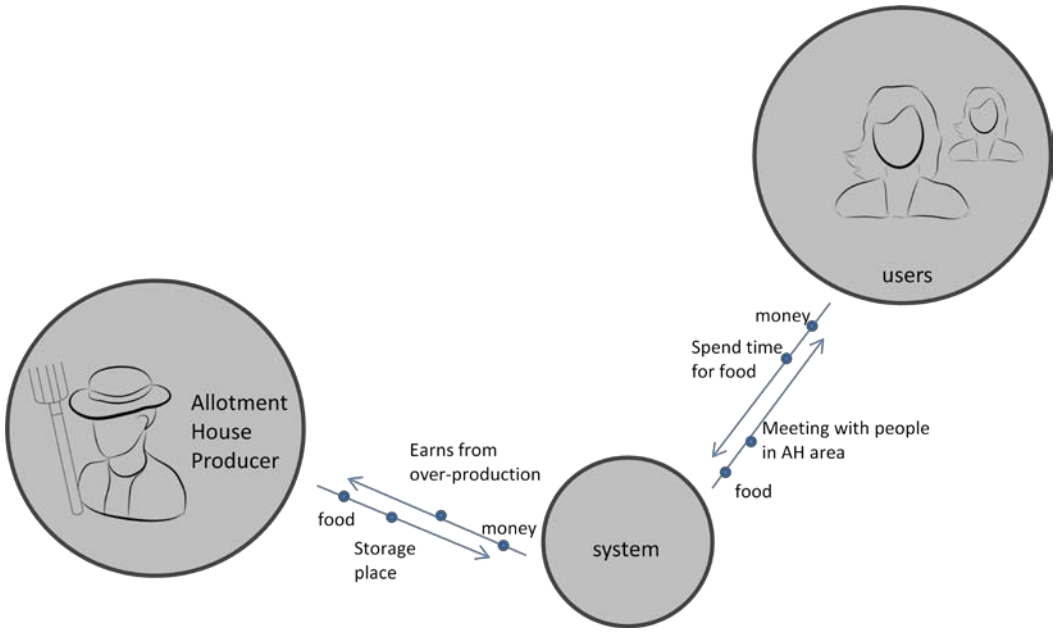

Figure 4. 10. System interaction map 2

4.4.1.3. Scenario 3: Cafes/ Restaurants Start the System

Preconditions of system:

Some cafes want to serve healthy foods for their clients.

They want to search for the organic/local food. (OFS) is a procurement platform for fresh local food. (OFS) collects food from producers and puts them in a pool.

Action:

Café owner (CO) search for organic food supplier (OFS)(organic farms, organic food shops, distant distributers)

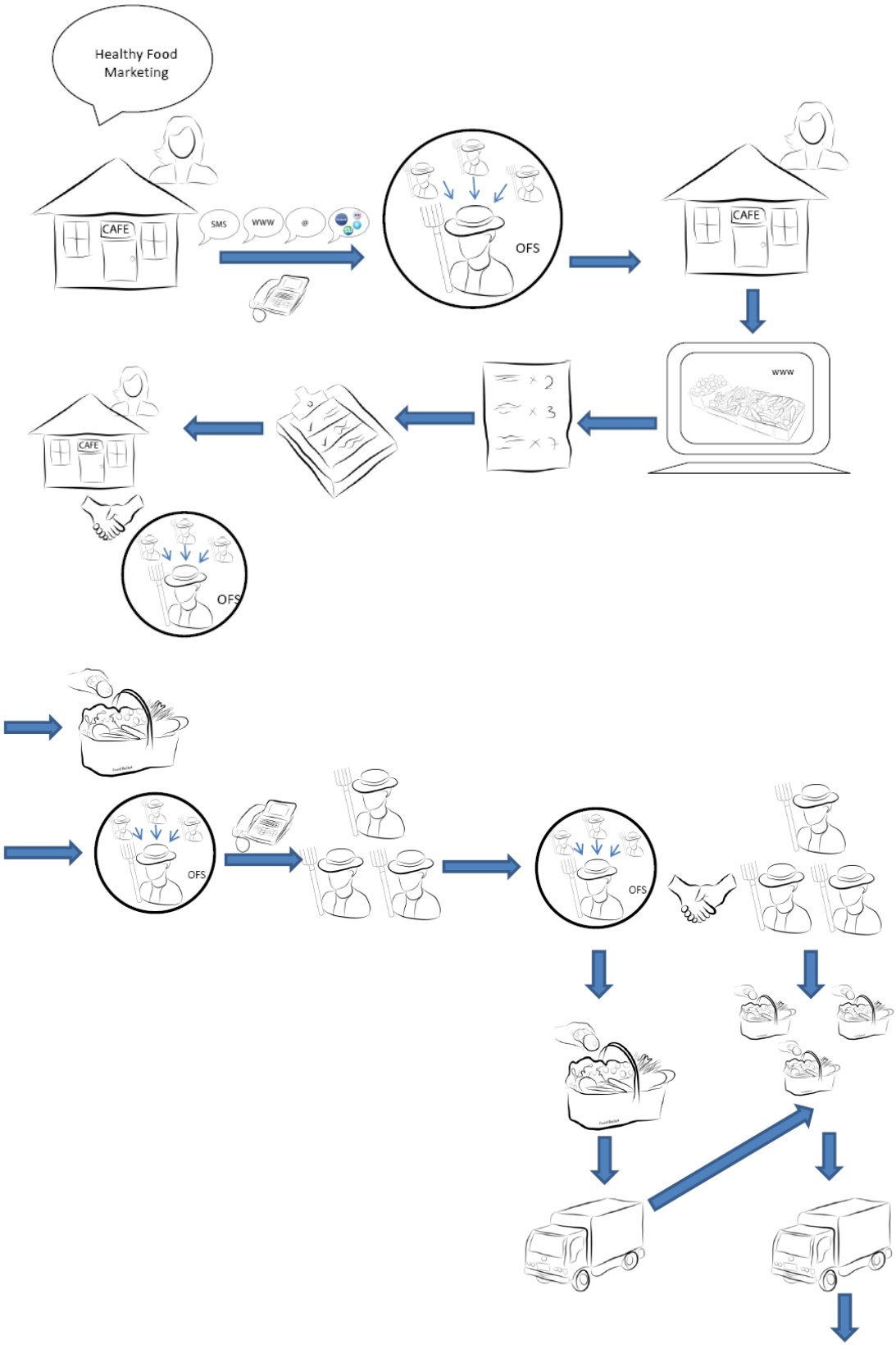

Figure 4. 11. Scenario 3

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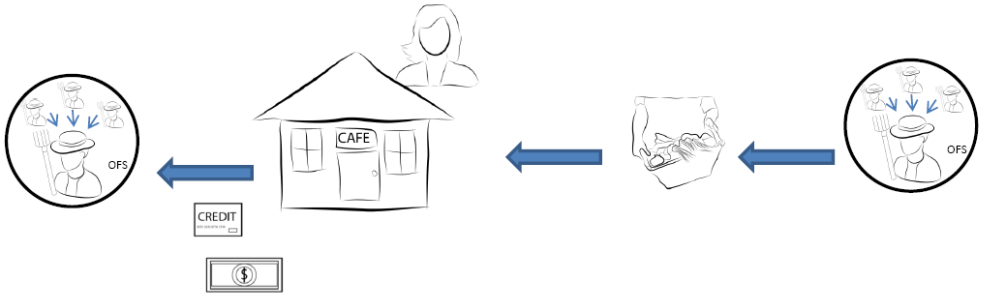

Figure 4. 11. (cont)

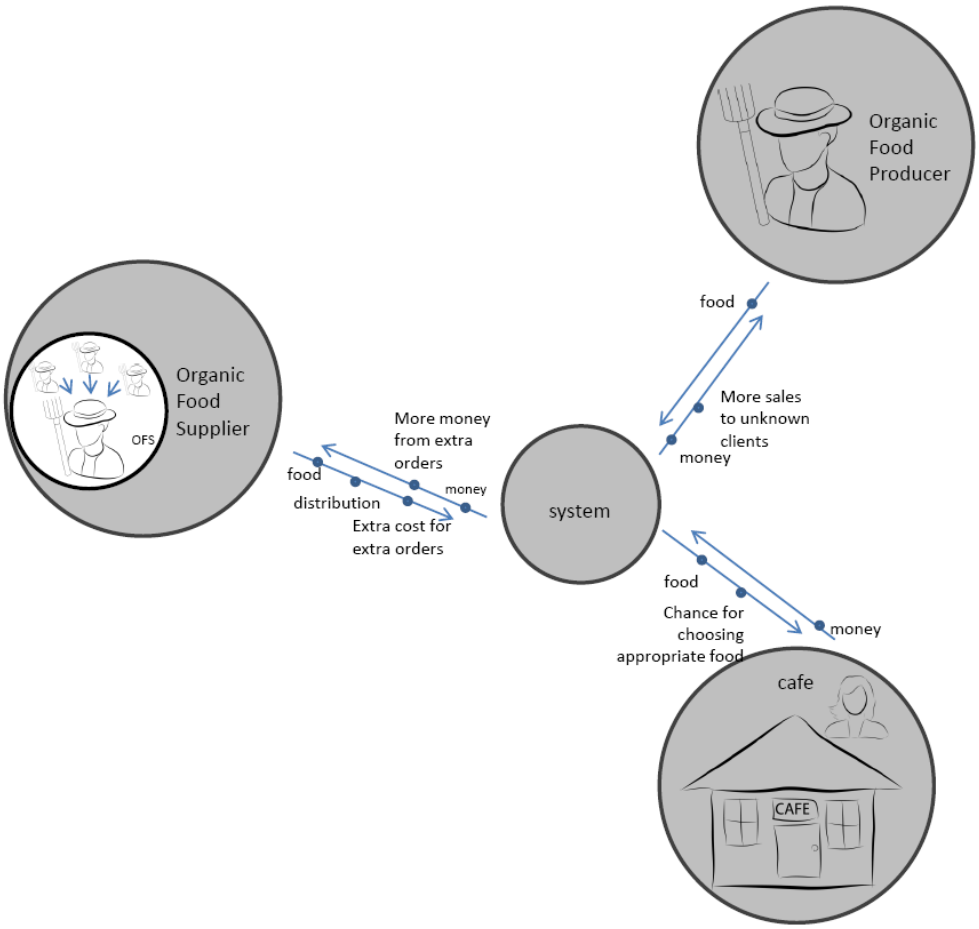

Figure 4. 12. System interaction map 3

Reflections:

In this phase, scenario writing was useful to locate people that could become actors in the system. Based on my conversations with local people and their feedback on my proposals, I selected three scenarios and visualized them. Later on, I left out the system idea about the allotment house and café initiatives. I was interested in Allotment

houses because of their small amount of production, prevalence and reliability of food but the food produced there was just enough for the self-sufficiency of the owners. Café initiatives were useless in real life at least for the café Huset, because of their congestion of work. Finally, I chose the scenario that contains Huset, the Farmers, and the Users as actors and detailed the system organization through their reality and desires.

4.4.2. System Design

In system design phase, I focused on four different personas that are willing to use this system. Their intents generated the actors of the system. To clarify the users' expectations, elements of the system are identified and motivation matrix is created

Personas:

Categorizing individual behaviors under a single group is difficult and requires more knowledge about consumer studies. After I became more informed about market segmentation, I found some similarities between the idealist organic consumer segment and the people that I interviewed. On the other hand, to focus on more specific actors and to define them as actors of system, different personas have been chosen from real life.

	
Kim: Self Employed. Lives in city center. He produces his own food and makes them ready for subsequent use. The food he produces is not enough for his demand however. Thus, he buys organic products weekly from the super-markets. His reason to consume organic products is environmental and health concerns as well as taste. He thinks positively about picking-up his food and meets with farmers. He is willing to support a local system which means improving local economy.	**Anna:** Manager of Huset. She organizes cultural events as well as different events to activate the café. She is willing to use good quality products and serve fresh food for vegan buffet. She thinks positively about supporting local producers and to make a place to represent them.

Table 4. 3. Personas; Kim and Anna

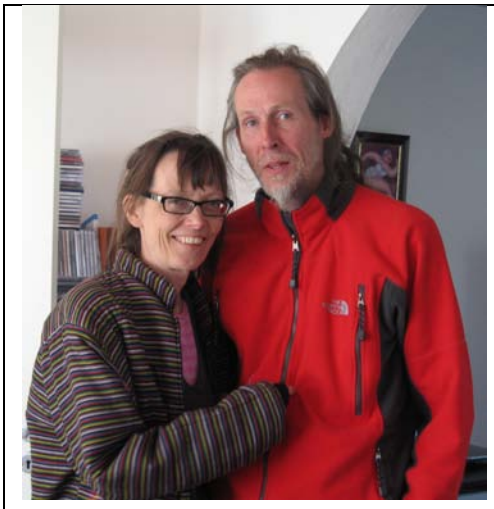	
Paul & Pirkko: Academics. Live on the outer edge of the city center. They produce organic foods in their garden but it fulfills their demand for only one month in a year. They think we as humans are connected to what we eat and how we grow. In the past they were buying mainly produce from a local farmer and organic/biodynamic shops downtown. Due to a lack of interest from the local producer in deliveries and following withdrawal, they turned to the food delivering system: www.aarstidern.com They get one box of organic fruits and vegetables that are as local as possible one time per week as they do not have time to go city center for shopping.	**Trevor:** Farmer. Lives in Nibe. He grows foods and sells them in farmers' market three days per week. He pays the municipality to have place in Market. He has some difficulties in selling his products to the Retail Companies because they want to get 40% of his products free. He has a positive look to delivering the foods to specific meeting point.

Table 4. 4. Personas; Paul,Pirkko and Trevor

	Wants	Doesn't Want
Huset	.organizing fresh dinner event .give storage place to producers .publish a link in their web-site .buy fresh food from local pro-ducer .share mail-list of people who are interested in this event and food	.give new employment .buy expensive food
Local Producer	.getting more clients .reduce time for delivering	.spend too much time to take away food from other places
Users	. take their food from specific meeting point .get fresh and local food .pay more than conventional food	.pay extra for distribution .high prices to access fresh food

Figure 4. 13. Expectations of personas

Actors:

To define the system with real actors, I collaborated with Huset and specific farmer. In addition to this, collaborating with Huset, brought about choosing specific group from the clients of Huset.

The particular details of actors below:

For Huset: Huset is a good example of a café as being a cultural center at the same time. They organize different social activities and events to activate people. The café has sitting capacity of 65 people in a closed area and 500 people in an open area. On average 200 clients use the vegan buffet daily which means that they have a large interaction area to connect with people.

During the interviews, the manager of Huset offered to make contact with their clients on their mail-list who are concerned about healthy food. They have 20 different email-lists that nearly consist of 3000 people's mail addresses. Also, they were willing to give a link on their web-page to farmers. The Manager of Huset was interested about meeting days with farmers and accepted to give place for storage in the garden.

For the Farmer: Trevor, mostly manages his works on his farm with his wife. He was preparing food boxes for his 50 different clients in past. The picking up point was left because of economical reasons. He sells his products in farmer market three times in a week instead. He pays 4500 DKK for each m^2 of usage place and 8000 DKK for cleaning the place in 3 months. He thinks that this project could reduce his expenses.

Also he encounters a problem with selling his products to retailers. The Retailer companies wants to get 40% of his products free and this rate is too high for him. So he stopped his contacts with the retailer companies. His truck has the capacity to carry 12 full of pallets and each of these have capacity to involve 48 food boxes. He has a positive view of joining this project for the reason that he does not need to deliver food-boxes directly to addresses. He opens his farm's doors to clients to let them pick up fresh foods and this is a good point to get trustworthiness of consumers.

For the Users: Users who are interested in using local, fresh and seasonal food may join this system. Living in a closer area to Huset, connecting with people on shared interests could have positive effects to make the decision to participate in this system.

Elements:

Elements and requirements of the system have been defined in Figure 4.14. Although requirements show that the system needs more specialized actors for different process, I limited the actors and I chose to consider only the processes those actors were willing to perform in real life."

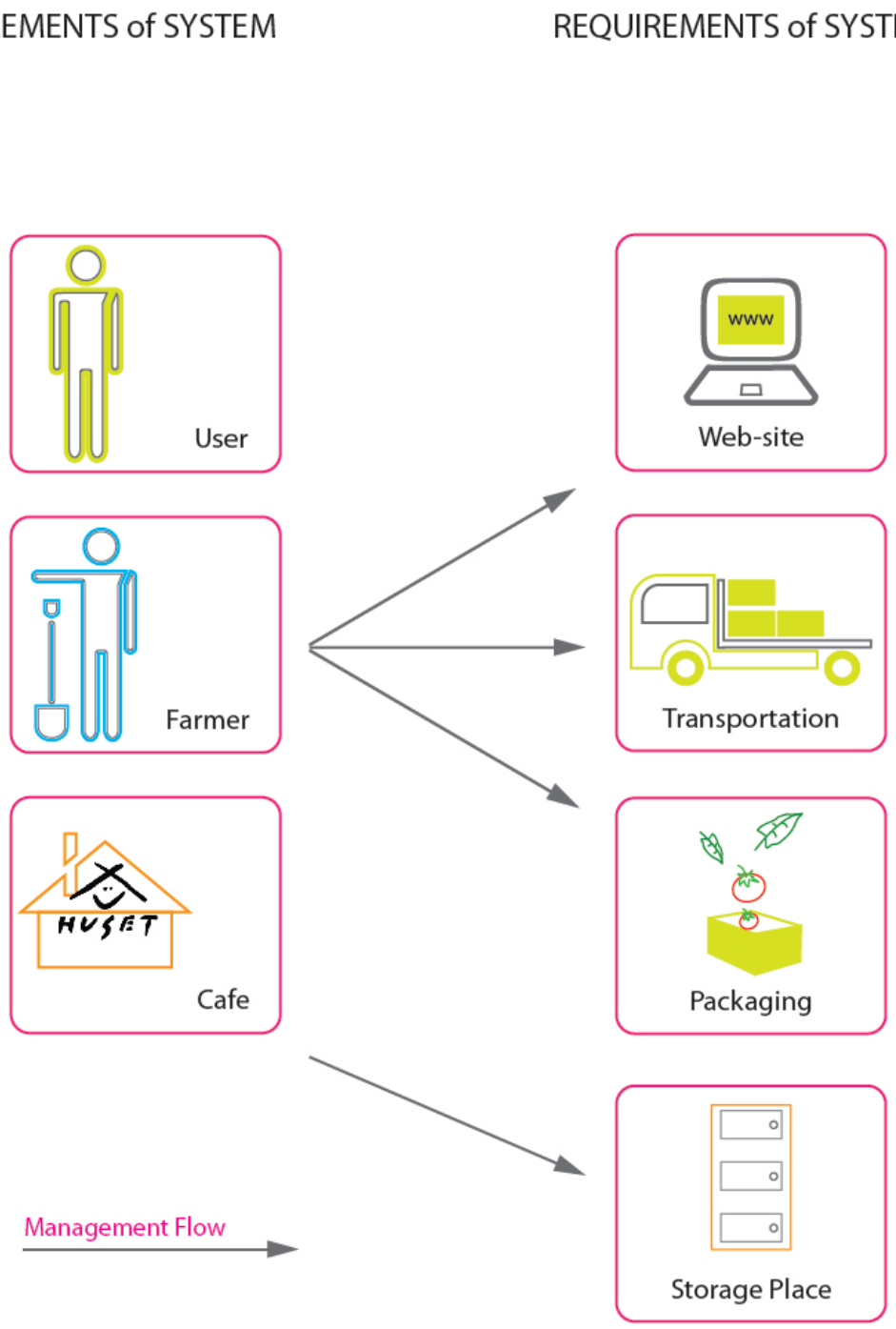

Figure 4. 14. Elements and requirements of the system

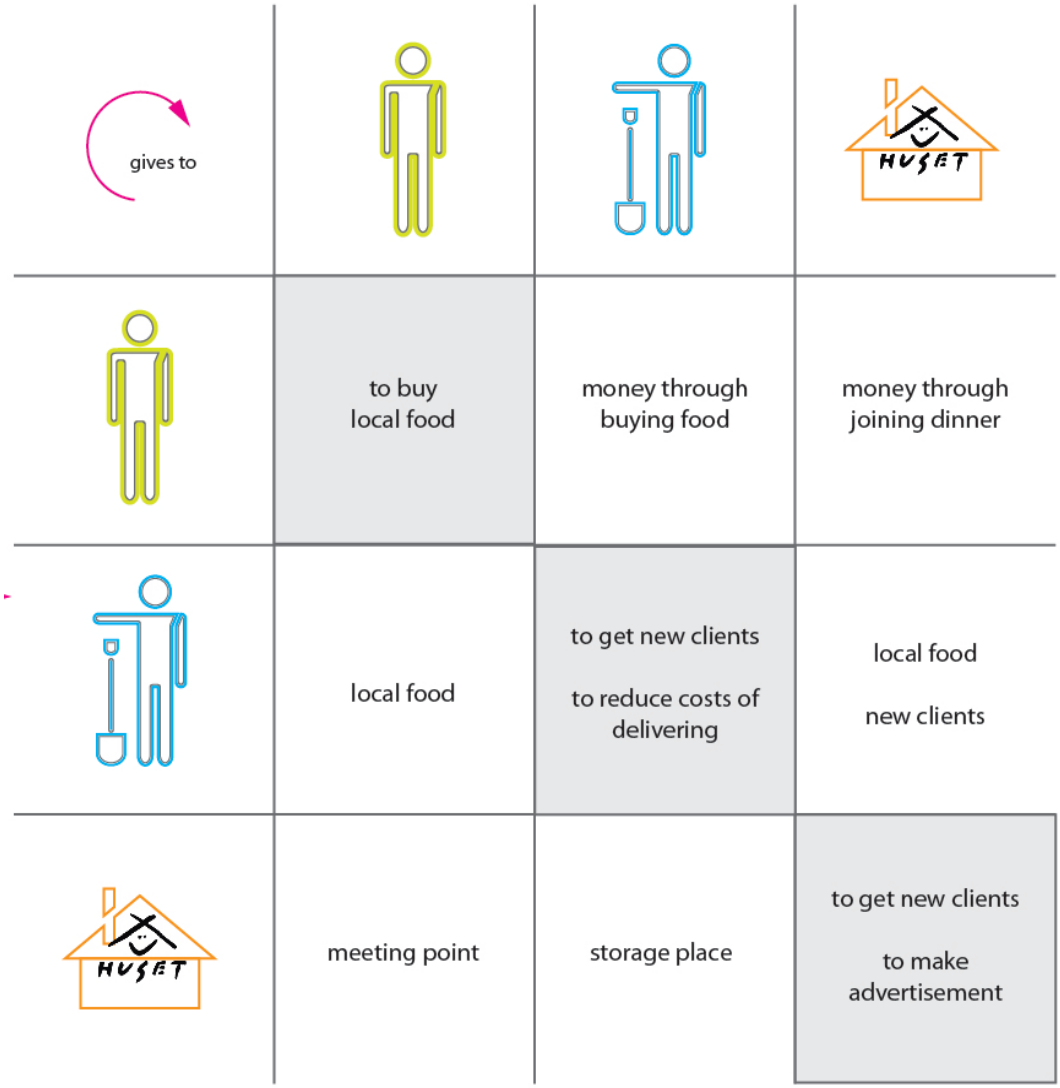

Figure 4. 15. Motivation matrix. It shows the inputs of each actor to the system. Gray squares in the diagonal show the motivation for each actor to take part into the system. White squares show the contribution each actor (in rows) to other actors (in colums).

4.4.3. System Detailing

System detailing phase, aims to present the system with the help of use cases and touch points. I was not able to decide financial considerations but I added some addresses for the capital that is required.

4.4.3.1. Use/r Cases

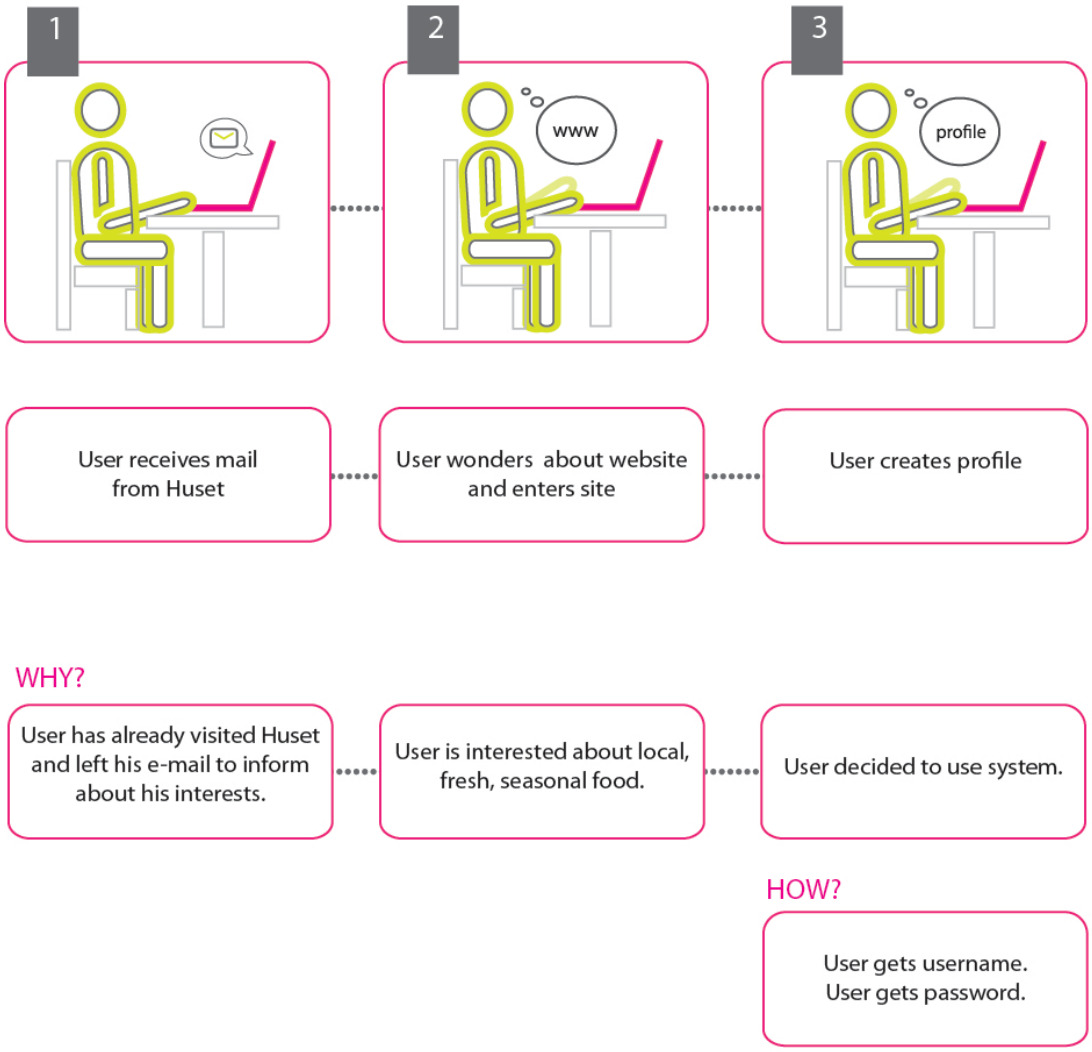

Figure 4. 16. User Case before System Starts. Represented pictograms show the flow of action before becoming member of the website that is designed to buy local food.

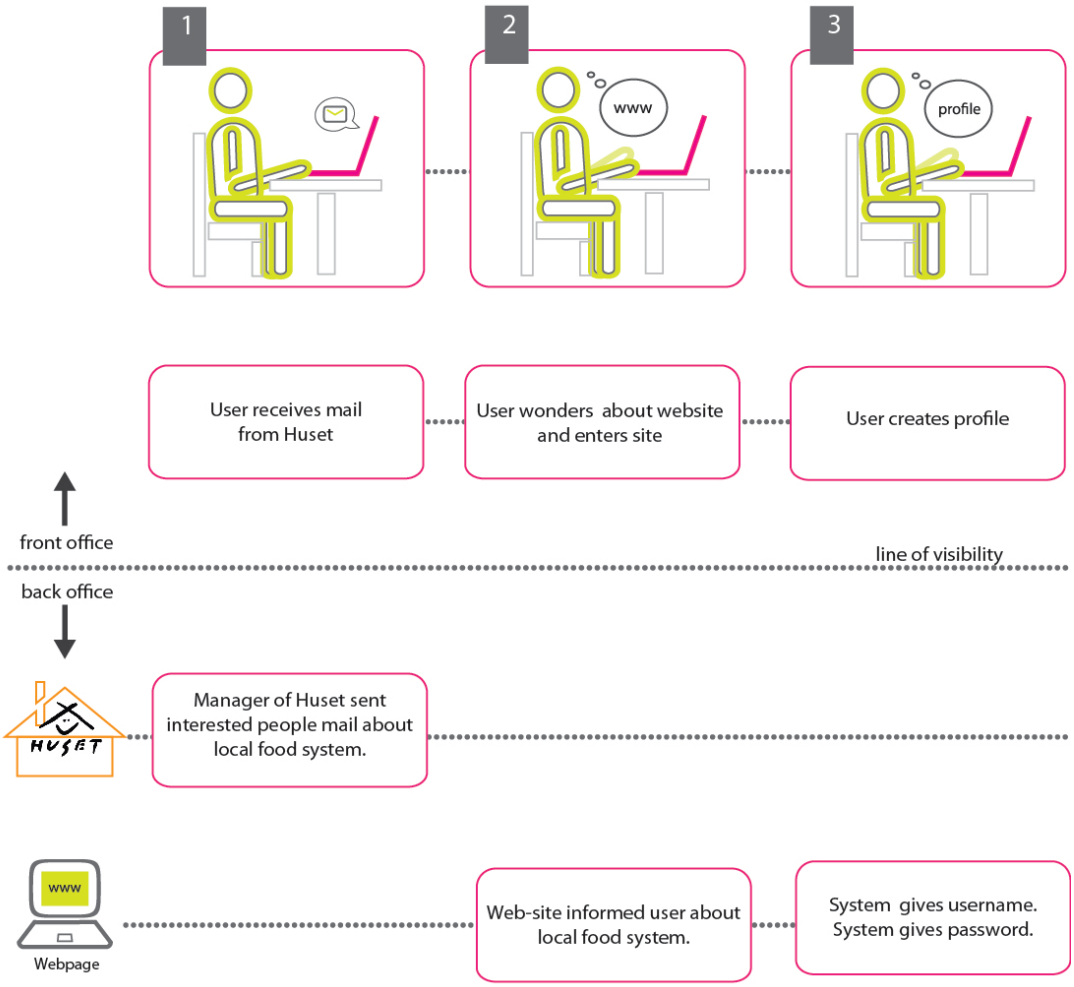

Figure 4. 17. Use Case before System Starts. This figure represents what occurs in the back office for each instance of the flow of events represented in the previous figure, i.e. when user is creating the profile on the front office. Line of visibility separates the back office and front office activities.

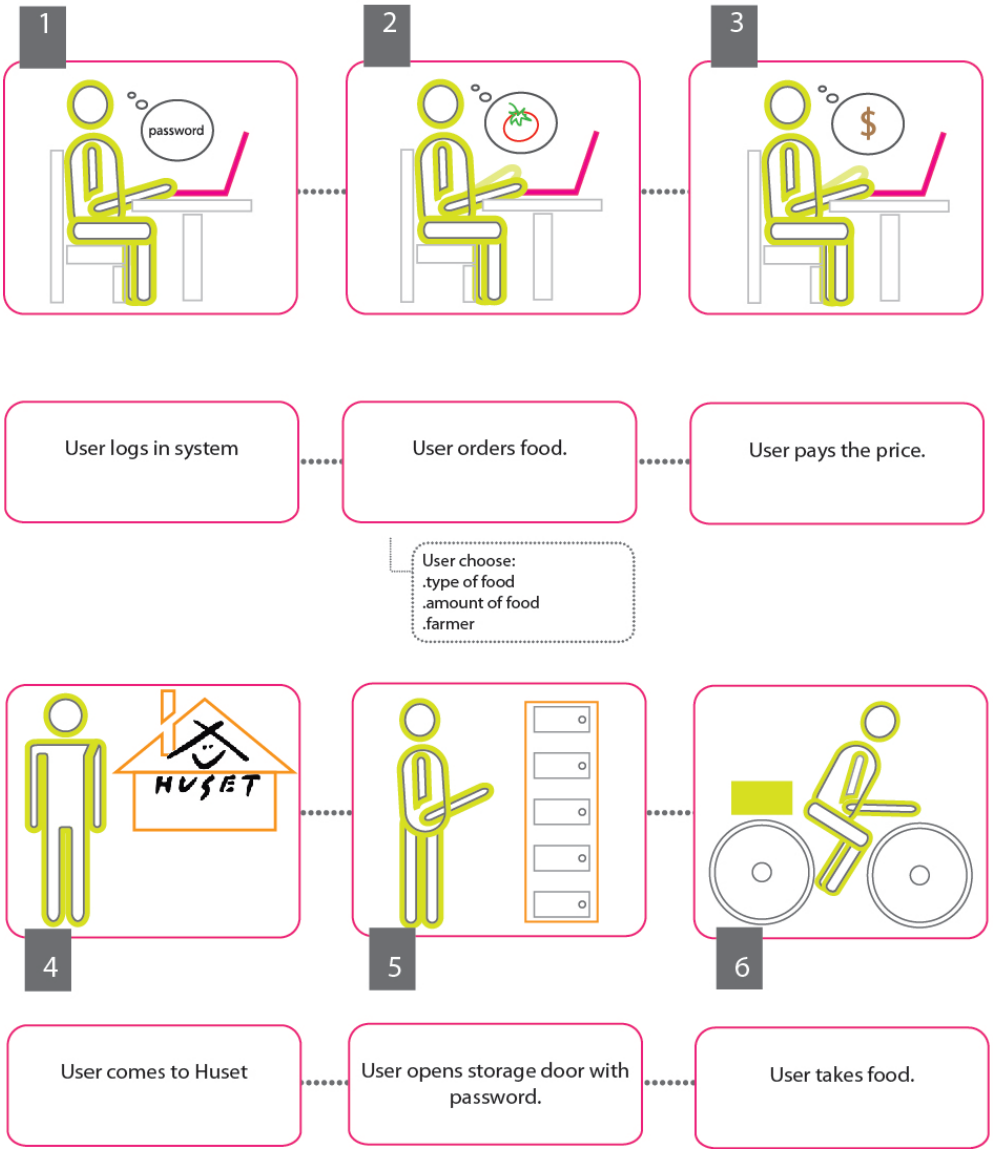

Figure 4. 18. User Case of the System. It represents how user uses the system.

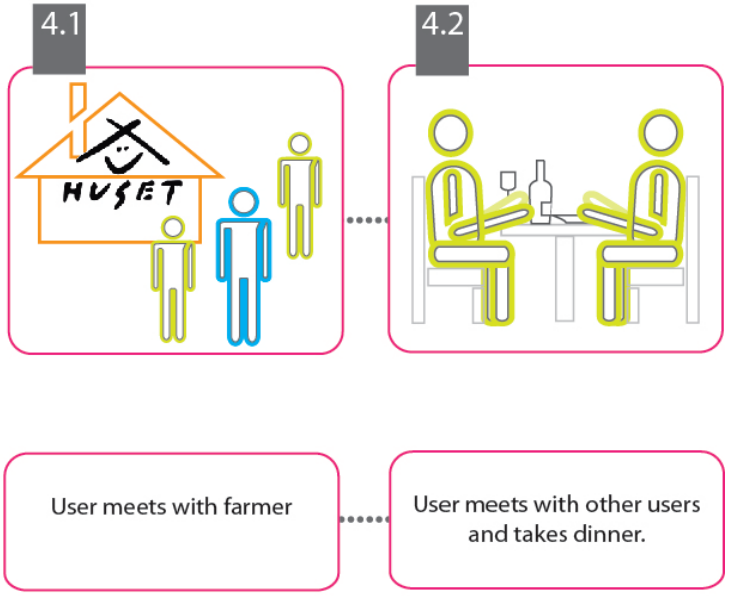

Figure 4. 19. Optional Frames. It shows unpredicted actions of the users. These frames are not compulsory for the system flow but acceptable for the motivation of users and service providers.

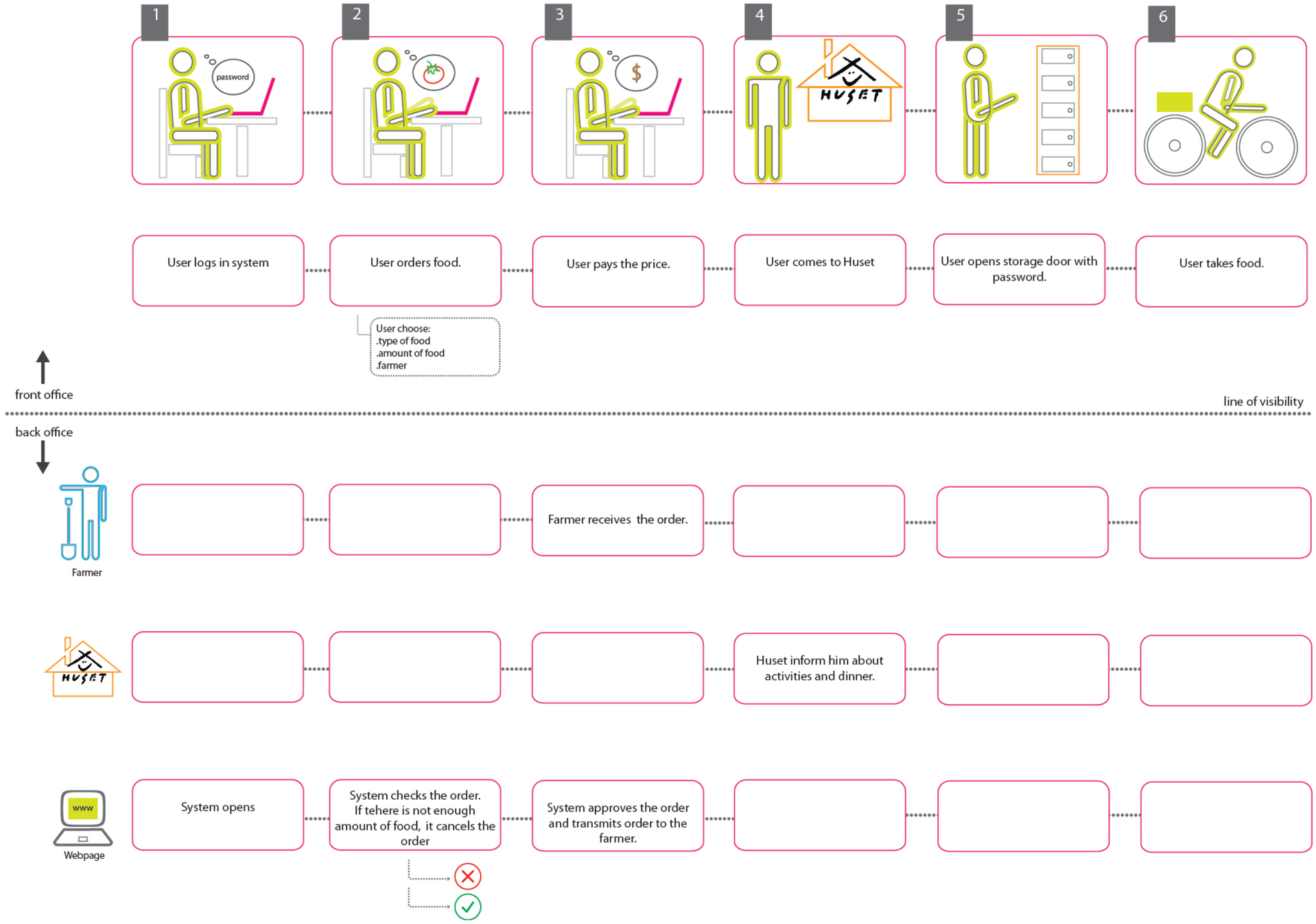

Figure 4. 20. Use Case of the System. It represents what occurs in the back office while user acts beginning from the ordering process to picking up. Line of visibility separates the activities back office and front office activities occurring at the same time. This graphical representations has been created to explain the user how s/he will use the system.

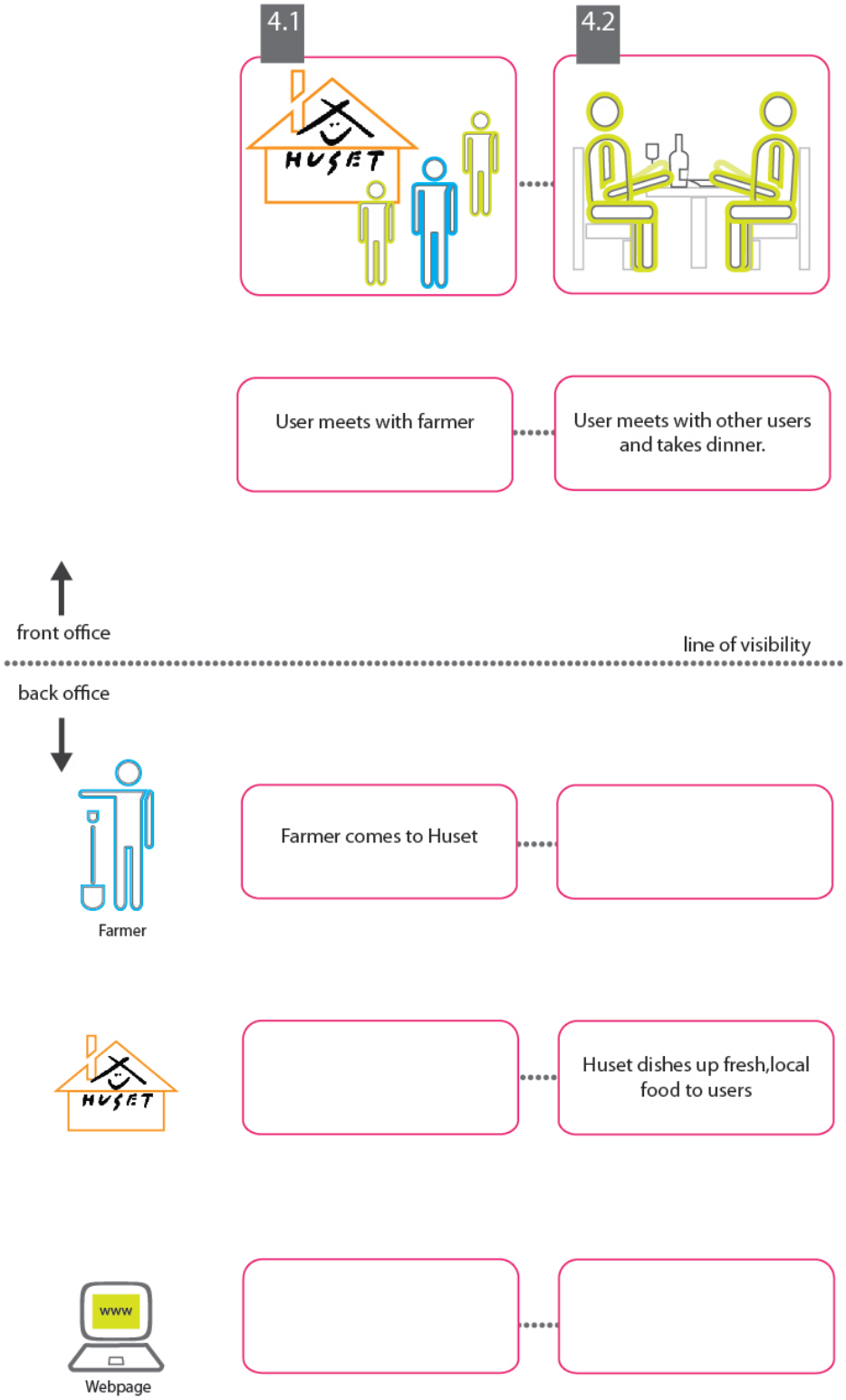

Figure 4. 21. Use Case for frame 4.1 and 4.2. It represents what happens in the back office, if the actors of the system socialize within each other.

4.4.3.2. Touchpoints of the System

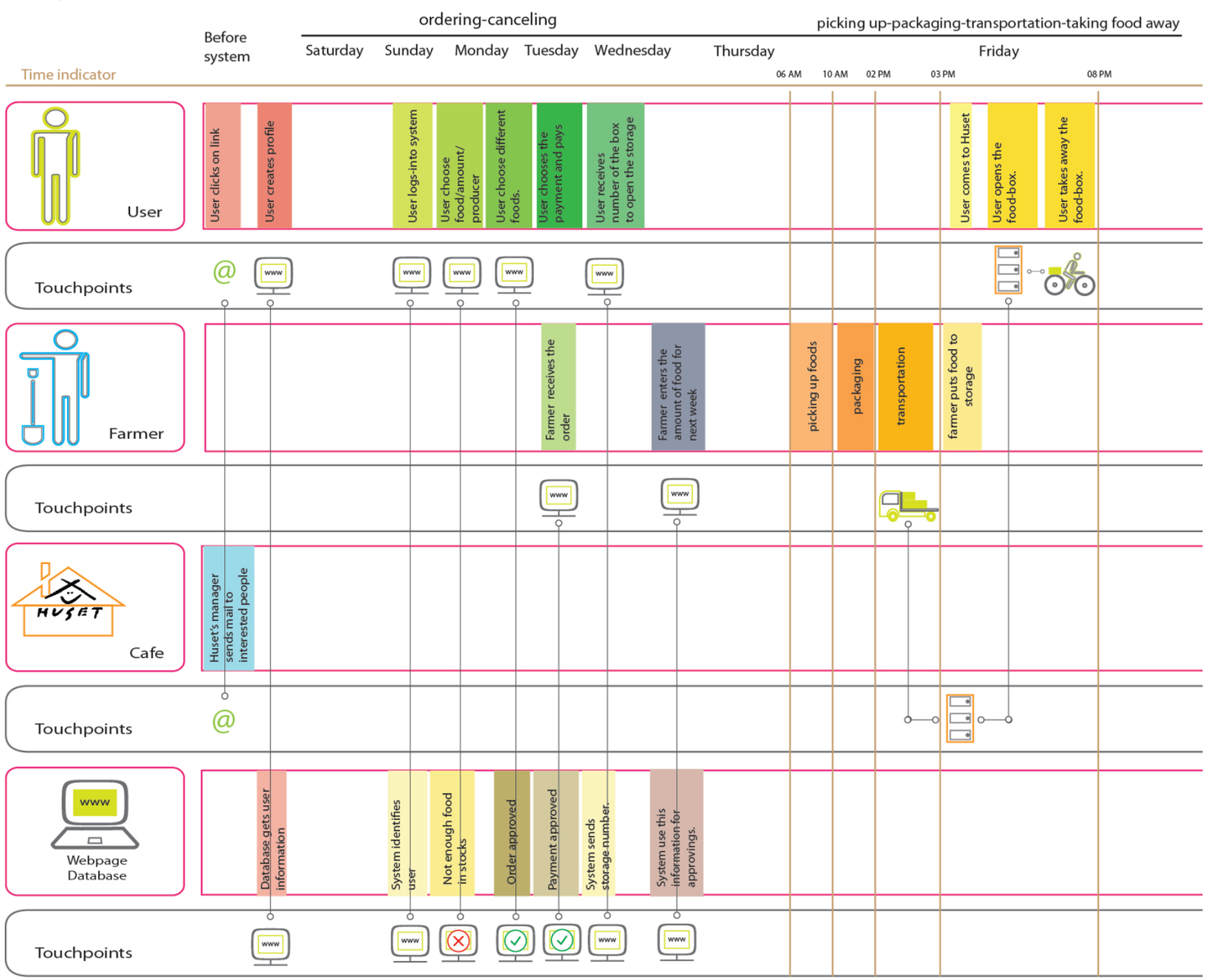

Figure 4. 22. Touchpoints. It helps to see what happens at a specific time for different actors and elements. With the help of time indicator, interactions may be followed step by step.

4.4.3.3. Financial Considerations

This system is mainly developed to build a direct interaction between the producers and the consumers. Although there will be some expenses to start the system, it does not have too many extra expenses in the longer run. The expenses could also change depending on the amounts of delivered food, number of actors and size of system.

Due to the system requirements, the total expenses of system could be met by local farmers. Since farmers would like to get economic profit from the system, they would have liked to be the investors of the system. The farmers also could solve this problem by the help of local investors. This system would create its economical value separately from the business sector but this value could be transformed to a business model. Options to facilitate this interaction are available such as meeting entrepreneurs, making an application to 'Concito', the Danish green think-tank which creates bridge between investors and relevant trade associations.[124]

Collaborating with 'Ministry of Food, Agriculture and Fisheries' is another alternative. The ministry supports local farmers under Local Actions Groups (LEADER groups) projects.[125]

4.4.3.4. Reflections

In system detailing phase I have focused on creating the system's details. Although I have defined the system through limited actors for the specific area, there are opportunities to spread similar structures to the whole city.

One of the emerging questions I came to face through the feedback process was why the farmers were charged with variety of tasks rather than being responsible for only one designated job. I conducted the project in this way because the farmer's working and economic conditions necessitated it. On the other hand, in real life, different processes such as packaging, delivering, operating the system could give new job opportunities to different people.

[124] "Concito" http://www.concito.info/en/hvadgorconcito.php (Accessed May 15, 2011).

[125] "Local Action Groups" http://ferv.fvm.dk/local_action_groups_%28leader%29.aspx?ID=43623 (Accessed May 15, 2011).

Another comment that surfaced through the feedback process was the project's tendency to improve the food qualities in local cafes. As noted before, there were not any cafés serving local or organic food in Aalborg detected through my research. Integrating *Huset* in this system has therefore given them the opportunity to introduce them to local and fresh foods.

CHAPTER 5

CONCLUSION

As stated in Chapter 1, the questions this study has aimed to address were:

1. What are the impact areas of design in the general question of sustainability?
2. Which approach is suitable to develop a more holistic activity area for design?
3. How can design contribute to promote sustainable lifestyles?

The initial focus of this study (the first question) was to understand the relationship between industrial design and sustainability.

Considering the impact design has on sustainability requires a synthesis of the debate on sustainability and the role of design in industrial society. The concept of sustainable development targets the environmental protection and economic development at the same time. On the other hand, the current ecological crisis we face today is one of the results of the developmental models based on an industrial logic focused on economic rationality and quantitative growth. The idea of building a new economic developmental model for sustainability should take into consideration the wellbeing of the society rather than the amount of the economic growth. In addition to this, high rates of GDP do not necessarily show the wellbeing of the individuals in society. Thus, sustainable economic theories define alternative indexes to calculate the welfare of the individuals and advocates more equitable conditions. Inequalities observed in the process of meeting the needs of people in a society, and inequalities in the access and use of natural resources between developing and developed countries contribute to increase the problem of sustainability. Those problems imply the question of limitations, carrying capacity of the planet and require new strategies for an efficient usage of resources.

The main reason for the collaboration between designers and companies is to create added value through design. Related with this reason, the role of designers such as developing new products via applying rapid changing technological and aesthetic trends is the key factor for the competitiveness between companies. Even if the product-oriented solutions are not sufficient for sustainability, industrial design could be seen as complementary to sustainable development strategies with its role in both economic

development and also production of non-material solutions to the usage of products. The role of industrial design and the aim of sustainable development could be complementary as far as design's domain is extended beyond the limits of product design.

The ideological, social and economic context of the industrial design discipline is based on propagating the production line via provoking consumption, making it more efficient, reducing cost but increasing sale figures. The present environmental crisis is mainly caused by a quantitative expansion of industrial production with a disproportionate use of natural resources. Because of its function to support quantitative industrial production and its link with material production, design could be considered as a cause of the present environmental crisis. However, the discussion about the conversion of present production and consumption systems is articulated in different strategic perspectives whereby design can also play a role in improving the existing system towards sustainable scenarios.

Having investigated the term *sustainability* I aimed at exploring the different approaches designers can consider to address the question of sustainability. Some of these approaches were focusing on improvements during the production phase and some of them were targeting the shifts on consumers' consumption habits. In synthesis two strategic approaches can be identified among others, in which design can play a crucial role:

1. Adapting design discipline through the technological improvements such as invented ecological materials, LCA, cradle to cradle design, improving efficiency on production system.
2. Revising the social conditions of the users, developing strategies for the well-being of the individuals and developing social visions for sustainability. This strategy also includes better information on products for to users, a better focus on what real needs could be, more attention to the problems of consumer culture. Focus point in these studies is the design's impact area on society while proposing a culture, a habit, a way of using or living.

The first strategic approach is more product-oriented and is based on technological solutions. This strategy, in which design can have a substantial role, has not been considered as sufficient to achieve the enormous reduction in resource consumption that has been considered as necessary for sustainability.

The second approach is more systemic and holistic. This approach has been considered as the most appropriate to achieve sustainable development. Although design can have a substantial role in these strategies, the implications of these strategic approaches on the design discipline include the research for new tools and methods to handle cultural, immaterial and systemic factors that are not usually part of a designer's most traditional activities. At this point, the second research question is revisited with the aim of supporting social innovation through a more holistic design approach.

Unlike the technological improvements of existing products, systemic change highlights the social change and implies different links between production and consumption chains. In particular I have focused on the systemic changes that would imply substantial innovation in both our lifestyles and the production system.

My research on systemic change has led me towards designing a service, which has offered opportunities to reduce product-based wellbeing and to redefine the relations between user and needs. I have followed a co-design approach, which is the ground for a promising case for the transformations through the social sustainability. In co-design indeed, the user needs become more dominant than marketing considerations. In my opinion, shaped by the literature review presented here, co-production of value has more potential to build stronger ties within society and with nature and environment. After gaining insights of the designer's role in systemic change, I orientated my research through the service design approach (third question) to promote a local food system which offers a more sustainable way of supplying food demand. Healthy food as well as local food becomes increasingly more difficult to access because we prefer consuming food mostly in processed and standardized ways; this is particularly evident within city-based lifestyles. In addition to this, industrial design supports the industrialization of food via many processes we do not notice in daily life. Design has a role in producing the relationship between processes and users, in which case the designer has clear roles and responsibilities varying from transportation design to packaging, and from creating alternatives to offering solutions. Another reason why I have focused on local food is that localization of economies is often linked with the notions of building or strengthening communities. Local strategies have been articulated as a desirable alternative to the changes brought by globalization.[126]

[126] Lebel lorek, 2008, 261.

As illustrated in Chapter 4, I have developed a local food system which is designed for the city of Aalborg, Denmark. The choice of local food as a sustainable solution was not predefined at the beginning of the case study. This choice has emerged as a feasible and sustainable solution during the research on food systems and interviews with the users. Chapter four synthesizes my research project in Aalborg city and the solutions that I proposed as a designer. I have considered the role of designer as an enabler for alternative ways of living with the aim of balancing human needs with ecological problems.

The combination of service design with a co-design has generated the case study because this approach fulfills a need of the user and encourages their involvement and their sense of ownership of the solution. This project was based on the idea of co-creating a local food system with local initiatives. Through the interviews and observations, I searched for local possibilities and have therefore sought to build the system on co-produced values that already existed. The producers of the value were the different people I interviewed, who had already some ideas about alternative food systems.

This represents a contribution to knowledge in the field of design in so far as the methods and tools used in the case study can be replicated in different local context. It is worth stressing that the replicability of such knowledge relates to methodological aspects, because the specific solution developed in Aalborg contains elements and conditions that cannot be replicated in different locations.

Because of the limited time I had in Aalborg, I could not experience prototyping and modeling techniques that could have supported the co-creation of value, but instead I tried to understand what they thought and how they acted via the logical maps and scenarios I created. As an approach, the SLOC scenario idea was a key concept in this project. On this backdrop, I designed a small scale system with local actors. The system creating process was open to different people to get ideas to reach the local and also global knowledge about food systems. Couchsurfers and local interviewees helped building my scenario ideas. During the interviews we were also interacting with different people and exchange ideas and knowledge about how local food system could be built.

At the end of the project I addressed my initial questions about the role of design for sustainability from three different perspectives. From social perspective, I defined different relations around social actors, which offers a new way of accessing and

supplying food. From the economic perspective, I supported local producers to sustain their work as well as to support diversity of food suppliers. A shorter food chain reduces the production costs and also gives a chance to other actors to exist in the system. By doing this the new food chain creates the scope of an economic condition that is more self-sufficient. From the environmental perspective, I reduced transportation, steps of processes and packaging, which mean less pollution and less waste.

This was just a case that did not include all the possible strategies designers can propose to support sustainable development; however, the case study gave me a hands-on experience in which I had a chance to use some service design tools and methods in local area.

Working on a real case was also a good opportunity for me to verify the feasibility and the acceptability of the strategies I mentioned in the first part of this work, which were based on a different role of designers in supporting new lifestyles, rather than product or technological change. This hands-on experience covers just few aspects of the problem of redefinition of designers' role and tools to support sustainability, nevertheless this has been a good opportunity for me to work on different scales and operational levels, from theoretical reflections to concrete problem solving activities in the area of sustainability.

The originality of this study lies in the use of service design tools together with the co-design approach in order to answer the specified research questions regarding the local area. The information gained by interviews is particular to the city-dwellers and also composed of the local conditions in Aalborg. Thus, the local food system proposal is specific to Aalborg city. The local conditions such as food suppliers, food serving cafes, alternative food consumers as well as the users' conditions such as dwellers' style to consume food, their interaction points with the producers, their intention to use the proposed system contributed to the originality of the work. Another original part of the thesis is the construction of it. I did not pre-define sub-topics for my research but the sub-topics (e.g. local food systems, co-design, and social innovation) became clear when I wanted to find the most suitable approaches. The pathway I used to develop the thesis is based on seeking the alternatives, developing ideas, evaluating them and redefining the conditions for specific area.

My contribution to the study area of Industrial Design is based on a critical view of the mainstream design approaches to sustainability, based on technological improvements on products. Starting from this view, I explored different ways and tools

to design sustainable life-styles. My point of view has led me towards new solutions, beside the technological improvements and product-based innovation. Indeed, they should focus on social innovation based on behavioral change and propose solutions to encourage people to act in a different way. Therefore, my work has also contributed to the production of knowledge about accessing local food and also offered solutions for an alternative food system.

Further research may be based on the investigation of the demands of the users together with their contribution to the design process. Offering healthy food boxes schemes and/or supporting sustainable food consuming styles may encourage the usage of the system. Embedding new local actors and producers may strengthen the system if it could be connected to the other small local networks on the other sides of the city. Improving the website for knowledge share and also transforming it as a common ground for producers could be further aims of the system. At this point, further studies require implementations in real life as a part of action research and after evaluating the implementations, new research areas could be produced.

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APPENDIX A

FACTS ABOUT FOOD IN DENMARK

In this phase I looked at the country statistics[127] as well as the food policy by the interview with the substitute of the Danish Agricultural Advisory Service. Following summary can be made to understand the organic food condition in the country.

Food Policies:

- The Danish government discouraged conventional farming by levying high taxes on chemical products such as insecticides and pesticides. All EU countries are subject to the same rules for converting a conventional farm into an organic one.

- Substantial government support has led to increased organic production through area-based payments and further support schemes. In addition to heavy financial support to organic farmers. As mentioned, the Danish government also discouraged conventional farming by levying high taxes on products such as insecticides and pesticides.

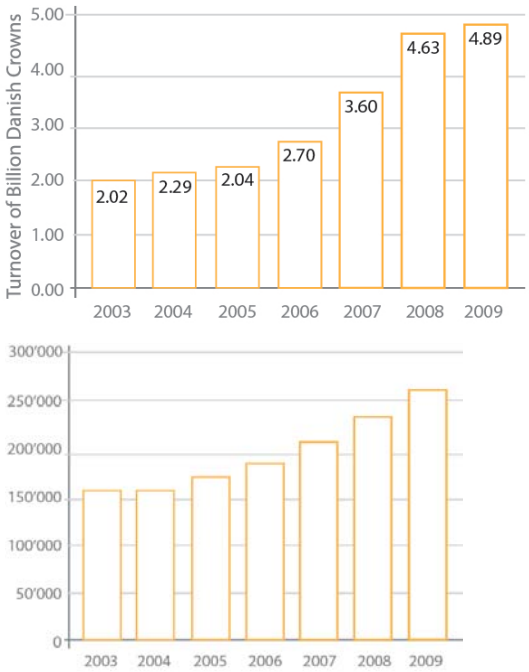
Market Conditions:

- Denmark is one of the leading countries in Europe in the field of organic agriculture.

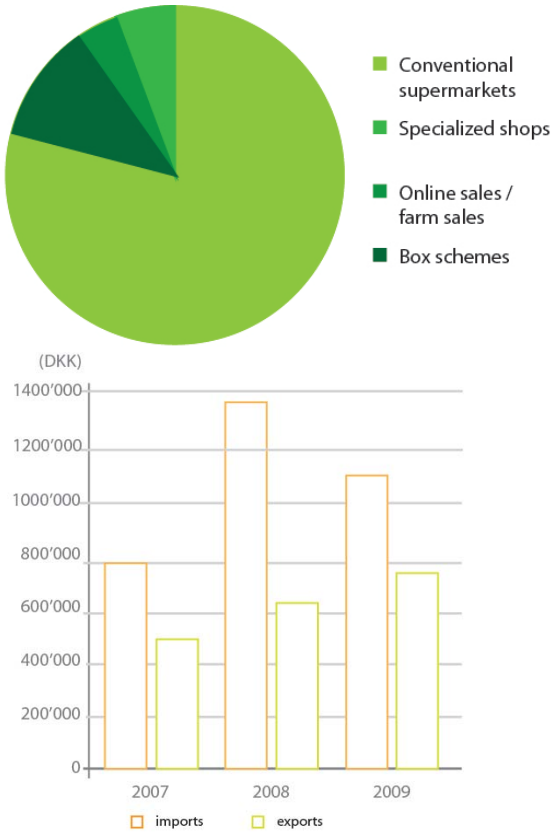
- Regarding the market, Denmark is a world-wide leader with a share of organic products of the total market of more than seven percent and an annual per-capita consumption of almost 140 Euros in 2009.

- In 2008, the general retail sector, excluding direct marketing or the sales through specialized retailers, had grown to more than 600 million Euros. It is generally assumed that the retail sector covers 80 to 90 percent of all organic sales in the country.

[127] www.organic-world.net



- Until the beginning of the 1990s, most of the organic products in Denmark were sold at the farm gate, markets or from health-food shops. Today 80 percent of all organic products are sold in the supermarkets.



- In 2007, Denmark had a turnover with organic products of almost 600 million Euros, and it was the country with the highest per capita consumption in Europe

- More than 13 percent of the Danish organic production is exported. Danish exports of organic food products totaled DKr 653 (88 million Euros) in 2008, compared to DKr 468m (62 million Euros) for 2007.

Consumer profile:

As mentioned above, Denmark has the largest per capita consumption of organic products within Europe. Important motives for buying organic products are concerns for the environment and animal welfare but egoistical motives like one's own health and food quality are increasingly important.

The typical Danish organic consumer is:

- Well-educated
- Living in urban areas
- Having children younger than seven years
- Higher income, can afford to spend a larger part of budget on food
- Older than 40 years
- Being environment-conscious
- Being health-conscious woman

Inspection and Labelling:

The Danish organic label, the 'Ø-mærke:

Maintaining confidence in organic production is dependent on the adherence to and the strengthening of the organic label. The production standards on which the symbol is based must satisfy the standards of both consumers and organic producers as to respect for the environment, health, livestock, welfare etc .The Danish island mark on our boxes indicates that there is a certified organic product. This means that the Ministry at least once a year check the contents of the boxes is grown / processed in accordance with EU regulations for organic farming or the Danish rules for organic livestock. Foreign commodities / food can only get the Danish ø brand if they are tested and packaged in Denmark.

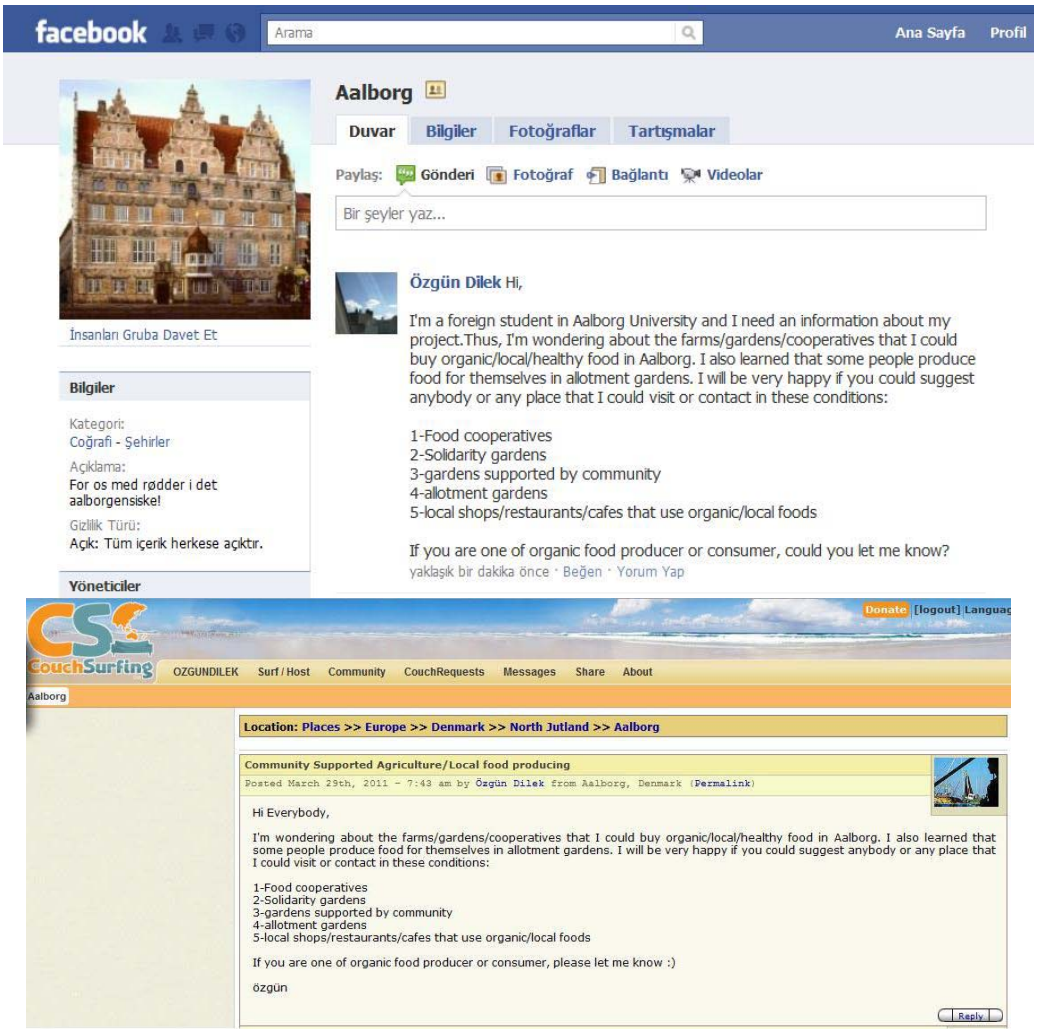
Logo of eu and Denmark:http://www.organic.dk/market/import/label.htm

The European organic logo:

This logo on the boxes the products are shipped or transported to indicate that the products meet EU requirements for organic agricultural production. The mark is valid in all EU countries and is used both in food and unprocessed agricultural products. The contents of boxes marked with this logo are checked annually by the national authorities.

APPENDIX B

INITIAL QUESTIONS THAT IS PUT ON FACEBOOK AND COUCHSURFING



APPENDIX C

COUCHSURFING REPLIES

Posted March 29th, 2011 - 6:18 pm by Kim [redacted] from Aalborg, Denmark (Permalink)

Report !

Hi Guys,

Interesting talk. - I might have some input. - As local "gourmet and connoisseur" I'm very much into organic foods and local products. - And might have a few pointers here and there. - I'll warn you up front though - it's a very expensive "hobby" - good organic produce in Denmark is unreasonable expensive - and quite hard to come by.

Good places in Aalborg is - as you mentioned the market on Wednesday and Saturday - "Jacob" this older guy first on your right hand is local farmer only with organic in season produce. - Great guy!
Opposite Jacob - Organic bread sale - quirky guy - but great bread (if you're not into baking yourself!)
Irma in Hasseris (as long as it lasts) has great organic foods - not very local - but Danish and so...
Salling Super is quite good as well - especially on local meat (not really for students but still!!) :-P

Also http://www.okologi.dk/ has great lists of producers of organic produce. (long live google translate!)
As well http://www.ecoweb.dk/ will give you great hints to farm shops (gårdbutikker) and more...

And then - there's a few of us whom gets together in our spare time and produce and make local produce of a wide selection - apple cider - all sorts of pickled veggies, marmalade's, sausage etc...

If you're serious about dinner - and some local foods - my dinner table comfortably seats 16 people. If we're no more than that - I'd be happy to host an organic get together - you can taste mine - if I can taste yours! :-P

Hope this have been of some help - if you need more information - say about allotments, all of them have a chair person whom normally is happy to answer any questions - just go there, look at the notice board (they all have one right by the entrance) here you'll normally find contact information about the Chair and board.
I'm not entirely sure the season has started yet though - it might not be until next month (that is - this Friday)

Have fun being organic
/k.

Reply

Posted March 29th, 2011 - 1:20 pm by Deepak [redacted] from Aalborg, Denmark (Permalink)

Report !

ozgun...

great idea...i also remember and now also i discuss with my parents about the vegetables grown in the gardens...

i am always in for dinner and then we can make a plan to see the present situation of aalborg

i suggest to visit few family houses with or without garden to know their thinking now.

I am also working on little bit related project. have few ideas.

We can discuss in dinner.

Cheers
Deepak

Reply

Posted March 30th, 2011 - 10:31 am by Jesper [redacted] from Aalborg, Denmark (Permalink)

Report !

Hey,

My best friend Morten, and I have two summer allotments in Aalborg - Just across the bridge in Nørresundby.

In the summer we grow our own vegetables, we also have greenhouses where we grow tomatoes. Everything we grow is organic of course.

We like to be in our allotments where we also have our own small cottages so we can stay there overnight, make dinner or party :). Usually we're there in the spring and summertime. So we havent really opened up out there yet. But you're welcome to come visit us in the summer/spring time. But now it's still pretty grey looking out there.

At the moment we're the only young people in our allotment-organization Brixlund in Nørresundby. It's really a great alternative to go out there in the 'nature' have your own little playground garden and produce your own vegetable, when you need some sparetime from the citylife in your appartment in the middle of Aalborg.

A very good place to eat in Aalborg would be Kim's Kitchen, i'm certain they could prolly make your something 100% organic :) Also there's veggie nights @ 1000fryd.

all the best,

Jesper

Reply

Posted April 15th, 2011 - 12:09 pm by Kim [redacted] from Aalborg, Denmark (Permalink)

Report !

Hi Everybody...

Time to take action! - I've had a hint that Tuesday the 19th. would be a good day for a "put-luck" at my place. Say at 19.00 hours.??

As I mentioned we easy can fit 16 people at the dinner table - let's just say "first dips"?! - drop me a personal massage if you'd like to come - and I'll let you know where to show up...

The idea is - as we talked about - bring your best - offset is organic - local if possible - home made of cause! :-)
And let's just see what happens...

Hope to see you all to a great evening!

All the best
/kim.

Reply

Posted March 29th, 2011 - 9:10 am by Martin [redacted] from Aalborg, Denmark (Permalink)

Report !

oh, there is a health/organic shop on a small street of danmarksgade, i think on the corner of netto. i used to go there for certain things, cereals and flour the foremost. i think i by chance saw a similar shop on bourlevarden. but its expensive.

there is also www.aarstiderne.dk, i think thy provide you with a basket of organic veggies one time pr week, buts its based of sjælland. even if denmark is small, its not really local, its 200+ kms.

Reply

APPENDIX D

PARTICIPANT VIEWS ON ALTERNATIVE FOOD

"Linda: Comes from Canada-visitor. Organic means without chemicals which gives you a certainty about what you eat. I prefer organic because of health reasons. I don't have alternative to chain-markets. "

"Filipe: comes from Portugal, lives in Aalborg. "I couldn't find good tasting organic foods when I compare with the foods in my country. We have fresh foods in every season. In Denmark it's difficult to produce fresh foods so I prefer imported products. Organic foods are so expensive."

"Kim: Lives in Aalborg." Modern foods are not in my life because of health reasons. I produce my own food in summer time and can and dry them but this is not enough for whole winter. I prefer supermarkets to buy organic."

"Martin: Lives in Copenhagen, lived in Aalborg. "Buying organic is in most cases still part of the global food system where food is produced rather than grown, and social relations are still related to production-consumption, not growers and eaters. Local food has the potential of social relations that could go beyond producer/consumer"

"Antonio: Comes from Italy, lives in Aalborg. "I would prefer organic products if their prices are closed to conventional ones. Local products could be alternative against damages to environment."

"Pedro: Comes from Spain, lives in Aalborg. "I prefer seasonally food because of its taste and freshness. Also the place where the food comes from is important. I feel happy when I see farmers and foods with soil on them. "

"Adolfo: Comes from Mexico, lives in Aalborg. "Organic is more trustworthy because of labeling system. My idea about suspicion could change if I meet with farmer. I would like to buy local food, it is fresh and seasonal. "

APPENDIX E

PHOTOS OF OPEN-ENDED INTERVIEWS

APPENDIX F

FOOD PRICE COMPARISONS

Aarstiderne Dogmekassen (for 3-5 people) 208 dkk	Local market price	Import market price	Organic price	Farmer's price
Potato 2 kg	16	20	20	16 (fresh one-80)
carrots kg	11	5	12	10
jordskokker kg	18	16	18	18
leeks kg	17		40	15
cucumber	7	5	13	5
radishes 2 pack	10-12	17	16-18	14
ramson 100 gr		17	20	7
vinrabarber 1pack		16	25	20
Salad	14	10		10
broccoli 0,4 kg	6	7	15	5
lemon 3 stk	-	10	13	10
banana 8stk	-	25	30	16
apple 1,5 kg	25	25	25	20

APPENDIX G

INTERVIEW QUESTIONS TO THE POSSIBLE ACTORS OF THE SYSTEM

Questions for **Huset**:

Preface:

Nowadays people are concerned about healthy food and your place is one of the important meeting points for supporting vegan people. You have open buffet containing vegetable dishes, you are preparing good recipes. I have a project for supporting local food and so I wanted to get your comments about this project.

1. Which channels do you use for getting food? Do you use supermarkets or do you have special producer?
2. Would you like to use seasonally/fresh/local produced food in your kitchen? Why? Why not?
3. Would you like to support a local food producer, in condition that serving more healthy food, seasonally/fresh/local produced food?
4. Would you like to support local producer in condition that getting more clients?
5. I'm planning to create an access point for local food consumers to delivering their food. I wanted to ask if you could give a storage place to producer, in case getting more clients.
    - It is possible to create a special evening for consumers to integrate them in this system through organizing a 'healthy cook nights' weekly in your place. First, Clients come for taking their food basket and then they couldn't succumb the smell of recipes coming through the kitchen. They want to look into café to understand what's going on. When they understand that there is a special meal day in your place, next week it will be possible to make them joining this meeting.
    - After a while later, more people will know you and get contact with this event. It is possible that food producers will attend this evening too. I think producer would like to attend this evening for meeting with clients.

- This event bases on transparency in meal preparing process starting from farm to fork. Do you have a positive look on this kind of relationship between consumers & producers and also getting more clients/profits for your café?

Questions for **Local Food Producer**:

Preface:

As you pointed out, local food producers have some problem with selling their products to retailers or wholesalers...The amount of portion that you give to wholesaler is nearly %40 of your products. I'm working on a project for supporting local producers and also consumers who wants to buy fresh/seasonally food. Is it possible to ask you some questions?

1. You have clients who give order weekly and you set up your own stand in market.
   - How many days you set up market?
   - Does it have some difficulties when the weather is snowy/sunny?
   - Do you have difficulties like terms of use this place/taxes?
   - Have you ever experienced a problem with your clients?
   - How many box does your van contains? How many kilos of vegatables/boxes you could put in it?
2. Would you like to get more clients and sell your food in a better condition in case that transporting other foods that are not yours?
3. I'm planning to connect consumers with producers that are in your condition. This project supports local producer living in AH and local farmers as you. Clients give order on web-page and you get orders. Then you prepare your orders and you will stop at AH to bring their food basket once a week to a place in city center. You will share the same web site and choice of producer depends on consumer. If you prefer to deliver food except this specific day, it is possible.
   - Do you have a positive look on this kind of relationship with AH?
   - Do you have a positive look on this project for reducing your cost?
   - Do you have a positive look on reducing working days and reducing costs for place with this project?
   - People will be organized for buying AH and local farmer's products. Do you think that project increase your sales?

- Do you have a computer and could you manage the orders by yourself?
- Under what conditions do you want to attend this project? Comments?

Questions for **Users**:

Preface: Today, much more people are worried about future of their family, their children and also the world. One term, under sustainability of our life is that accessing healthy food. In Denmark, organic food industry has been developing day by day but on the other hand there are some missing points in this situation. So, what about local/fresh/seasonally food possibilities in Denmark?

1. How do you buy your foods in your daily life? (Market/ delivering service/ web-page)
2. How often do you buy organic food? Why?
3. Have you ever order a food basket from web-site? How was your experience? Were you satisfied?
4. Have you ever been informed about local food?
5. Local food means that local farmers produce food seasonally and clients buy it fresh. Using local food has lots of advantages like reducing carbon footprint, reducing cost of transportation, consuming the food in a right season and fresh, supporting local economy, developing new jobs for local area...

   Would you like to use local food?
6. Do you know ways of searching local food?
7. Have you ever wondered about the place that foods grew and who is the producer?
8. If you have a chance for choosing your own producer for fresh food, would you like to order food on web-site? Or which way you would like to use for accessing producer?
9. Would you like to have a meeting with other people who are mindful about their food and join an event for eating fresh food once a week?
10. Would you like to connect or meet with producer on that place?
11. Would you like to be client of a café that will cook fresh food?
12. If you were searching for a local/fresh/seasonally food, would you like to order it to home or to go to a meeting point and take the food?

Questions for **Allotment House Producer**:

Preface:

I'm working on a project that will support local/fresh/seasonally produced food and also satisfy the needs of consumers about healthy/local food. I learned that people who have AH are producing their own food and I wondered that if you have ever had over-production.

1. What do you do if you have more food than you need?
2. What amount of food you produce? Do you have more place/ energy/ desire for producing more food or it is as a kind of hobby for you?
3. Do you want to sell your over-produced food to interested people?
4. Under what conditions, do you want to sell your food?
5. I'm working on a project that will supply needs of people who wants to buy local/fresh/seasonally food. Also I want to support this project with over-produced foods of AH holders.
    - Would you like to come together with other AH holders and sell your over-produced products?
    - Would you like to take charge in an organization that you prepare/ distribute food to the clients?
    - Would you like to be a volunteer for checking the food stock?
    - Would you like to go with transporter that will put your food in a stock?
    - Would you like to work for delivering food and collecting the fee of food? The turn will change among AH producers and maybe you will work for it only twice in a season…
6. Would you like to put your specific amount of foods in a package for getting ready to sell it?