

# Using service design thinking to reduce food waste



**FLÓRA SOMOS - MASTER'S THESIS - PROCESS REPORT**

# ***SERVICE SYSTEMS DESIGN***

## **Aalborg University Copenhagen**

**Title**

*Using service design thinking to reduce food waste*

**Semester**

*10th*

**Semester theme**

*Master's Thesis*

**Project period**

*15 February 2018 - 31 May 2018*

**Supervisor**

*Nicola Morelli*

**Copies**

*1*

**Pages**

*123*

**Finished**

*31.05.2018*

**Author**

*Flóra Somos*

*Study nr.: 20141740*

### **Abstract**

This thesis aims to create a service that helps reducing food waste and raise awareness. The thesis uses the case of Foodsharing Copenhagen to get a deeper understanding in the problem of food waste and how communities work to reduce it. After getting knowledge of the problem area the concept Madbroen was co-created by the researcher and some members of the food sharing community. The new concept is an online platform that connects retailers with excess food to volunteers and shelters that are in need for food. During the process of developing the new concept, the service design thinking approach was used.

Keywords: service design thinking, food waste, social innovation

## Table of content

<b>Abstract</b>	<b>2</b>
<b>1. Introduction</b>	<b>5</b>
<b>2. Project framing</b>	<b>6</b>
2.1. Service design thinking	7
2.2. Social innovation	8
2.3. Sustainability	8
2.4. Research area	9
2.5. Initial problem formulation	10
2.6. Learning goals	10
2.7. Methodology	11
2.8. Project timeline	12
<b>3. Discover</b>	<b>13</b>
3.1. Desk research	14
3.1.1. The topic of food waste	14
3.1.2. Movements against food waste	15
3.1.3. Foodsharing Copenhagen	16
3.1.4. Survey on motivations	17
3.2. Benchmarking	18
3.3. Action research	19
3.4. Interviews	22
3.4.1. Volunteers	22
3.4.2. Manager of a night shelter	23
3.5. Summary of Discover phase	25
3.5.1. Limitations	26
<b>4. Define</b>	<b>27</b>
4.1. Organisation structure	28
4.2. Stakeholders Map	29
4.3. Value map	30
4.4. Ecosystem map	31
4.5. Problem definition	33
4.6. Summary of Define phase	34
4.6.1. Limitations	34
<b>5. Develop</b>	<b>35</b>
5.1. Co-creation workshops	36
5.1.1. First workshop	36
5.1.2. Second workshop	38
5.2. Design Brief	39
5.3. Test of the initial idea	40
5.3.1. First test of the idea	40

5.3.2. Second test of the idea	41
5.4. Iteration of the idea	42
5.5. Storyboard	46
5.6. User journey	47
5.7. Platform canvas	52
5.8. Madbroen's stakeholders map	55
5.9. Madbroen's ecosystem map	56
5.10. Motivation matrix	57
5.11. Summary of Develop phase	58
5.11.1. Limitations	58
<b>6. Deliver</b>	<b>59</b>
6.1. Prototyping	60
6.2. Prototype test	61
6.2.1. Volunteer	61
6.2.2. A soup kitchen	64
6.2.3. A shelter	64
6.2.4. Food donors	64
6.3. Ecology map	65
6.4. Service Blueprint	67
6.5. Summary of Deliver phase	71
6.5.1. Limitations	71
<b>7. Reflections</b>	<b>72</b>
7.1. Reflection on service design thinking	72
7.2. Role of the designer	74
7.3. Reflection on social innovation	75
7.4. Reflection on the process	76
<b>8. Conclusion</b>	<b>77</b>
<b>9. References</b>	<b>78</b>
<b>Product report</b>	<b>82</b>
<b>Appendix</b>	<b>106</b>

# 1. Introduction

In the whole world around one third of the food gets wasted, which raises both environmental and ethical questions. When food is thrown out, all the resources that were used to produce that food also go to waste. And while 1.3 billion tonnes of food is being wasted, millions of people around the world do not have enough food on a daily basis („Food waste: the problem in the EU in numbers [infographic] | News | European Parliament”, 2018).

This project aimed to use service design thinking to create a service that reduces food waste. The thesis followed the definition of service design thinking of Stickdorn and Schneider, (2011, p.34) which “outlines the way of thinking required to design services”. Service design thinking is based on five principles - user-centred, co-creative, sequencing, evidencing and holistic.

There are existing movements and grass-root communities that attempted to reduce food waste (see in Chapter 3.1.2.). These movements are a result of social innovation which are “innovations that are both good for society and enhance society’s capacity to act” (Murray, Caulier-Grice and Mulgan, 2010, p.3). Social innovation happens when citizens find new opportunities and ways to solve problems. These new ways could mean new ideas for services or products which aim to meet social needs and challenge the status quo. Social innovation happens not only when citizens create new solutions but also when social capital is ge-

nerated or renewed by new collaborations, interactions and social knowledge. Social innovation deals with issues that are not sufficiently solved by government policy or market solutions such as the issue of food waste (Manzini, 2015). The existing movements about food and food waste created new ideas to solve these problems, and while doing that communities were developed around the movements (Rombac & Bitsch, 2015). This thesis project aimed to create social innovation by bringing people together to collaborate and possibly create a new community.

In the case discussed in this thesis, the social need and the problem to solve was the surplus food at retailers. Service design thinking was used to create new ideas and collaborations to reduce food waste. In order to do that the case of Foodsharing Copenhagen (Foodsharing CPH) was used, which is a grassroot community that redistributes excess food from wholesalers and retailers. The case was used for research for the project which was followed with the development of a new service.

## **2. Project framing**

In this chapter, the main topics of the thesis are reviewed. These themes are service design, social innovation and sustainability. After the literature review, the way these topics are connected in the project is discussed. The discussion is followed with the initial problem formulation which is the starting point of the thesis project and the learning goals. At the end of this chapter, the methodology of the thesis work is presented which will give a structure for the process of the project. Lastly, the tentative plan of the thesis is demonstrated.

## 2.1. Service design thinking

There are several definitions of service design from both academic and agency approaches (Stickdorn & Schneider, 2011). According to Moritz (2005, p.6) "Service Design help to innovate (create new) or improve (existing) services to make them more useful, usable, desirable for clients and efficient as well as effective for organisations. It is a new holistic, multidisciplinary, integrative field". This definition takes both the customers' and the organisations' viewpoints into account. When it comes to the desired outcome, Stickdorn and Schneider (2011) argue that there is no basic definition of service design, therefore they use the term service design thinking instead. According to them, a certain mindset or way of thinking is needed to design services, therefore they use service design thinking as an approach.

Service design thinking has five main principles (Stickdorn & Schneider, 2011, p.36):

- User-centred: In the centre of the service design process is the customer and his/her experiences. The service designer has to understand the customer's motivation, social context, habits and culture.
- Co-creative: During the service design process, the designer needs to include the stakeholders. This allows them to add value to the end service and enhance satisfaction for both the customers and the employees. Furthermore, co-creation can help customers and employees to feel ownership which results long-term loyalty.
- Sequencing: The service is built up from moments which consist of touchpoints and interactions between the service provider and the consumer. These service moments create processes throughout the service

frontstage as well as backstage. In order to provide the best experience for the customers, the service moments has to be prototyped and tested iteratively.

- Evidencing: Intangible services should have a tangible or visual component for the customer to see. Service evidence is created depending on the service story or its touchpoints. Service evidencing can help to create loyalty among customers who will more likely to recommend the service.

- Holistic: While developing a service, the designer needs to consider the context of the service and as many as its aspects as possible. It needs to be kept in mind that there are different ways the customer can go through the journey which can result different service experiences for the customers. When designing the service, the organisation's system, culture, structure and values are also important aspects to take into account.

This thesis used the term service design thinking and applied the principles suggested by Stickdorn and Schneider (2011) in the design process.

## 2.2. Social innovation

One main topic of this thesis is social innovation and communities that wish to challenge the status quo. According to Manzini (2014, p.57), social innovation can be described as *“a process of change emerging from the creative re-combination of existing assets (from social capital to historical heritage, from traditional craftsmanship to accessible advanced technology), the aim of which is to achieve socially recognized goals in a new way.”* Murray et al., (2010, p.3) defines 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.”* Design for social innovation aims to improve the everyday lives of people by generating ideas to meet their social needs and promote collaboration between stakeholders (Irwin, Tonkinwise & Kossoff, 2015). According to both Murray et al. (2010) and Mulgan (2006), social innovation can be services or activities which aim to meet the needs of the people. Based on their definitions, it can be argued that service design and social innovation can be connected.

According to Irwin et al. (2015) design for service is an existing paradigm that is within an emerging paradigm: design for social innovation. The main difference between service design and social innovation is that the aim of service design is mainly profit and business oriented whereas social innovation aims to find new ways of sharing, exchanging and use social resources (Irwin et al., 2015).

Manzini (2014) argues that social innovation is becoming more and more relevant nowadays as many new initiatives start to

solve problems created by the economic crisis and to work towards a more sustainable future. As societies evolve, social innovation is also in a constant change which creates new opportunities that nobody thought of (Manzini, 2014). According to Irwin et al. (2015, p.24), design for social innovation *“challenges existing socio-economic and political paradigms”* in order to create *“alternative economic models”* which generate a favourable social change.

## 2.3. Sustainability

This thesis aimed to discover a topic of sustainability and how a sustainable solution can be provided for a real-life problem. A solution is sustainable if it is able to *“meet the needs of the present without compromising the ability of future generations to meet their own needs”* (WCED, 1987, p.41) In this definition, when talking about ‘needs’, the WCED (1987) refers to the basic needs of the poor. According to United Nations (in Kuhlman & Farrington, 2010, p.3438), the goal of sustainable development is to reach a *“higher quality of life”*. This aim has three dimensions which are economic, social and environmental. In order to achieve sustainability, the dimensions need to be in harmony as they depend on one another. Resources are needed for each generation to produce, enjoy or survive. (Kuhlman & Farrington, 2010). Our generation needs to make sure that *“resources remain at least constant for the foreseeable future, in order that the well-being of future generations does not decline”* (Kuhlman & Farrington, 2010, p.3442).

## 2.4. Research area

In this section the research area of the thesis is defined based on the literature review from the previous chapters (2.1.; 2.2., 2.3.). The aim of the research is not to dig deep in all three topics but to explore the intersection of the three topics (see Figure 1).

The aim is to address a real-life sustainability problem and try to solve it by using service design thinking in a way that it fosters social innovation. This thesis will take the definition of service design thinking from Stickdorn and Schneider (2011) as a base for the project. In order to research the problem area, the issue of food waste is investigated as well as the case of Foodsharing Copenhagen (Foodsharing CPH) which is an organization fighting food waste (see Chapter 3.1.3.). The goal of the thesis project is to create values such as knowledge and awareness in order to solve a sustainability problem.

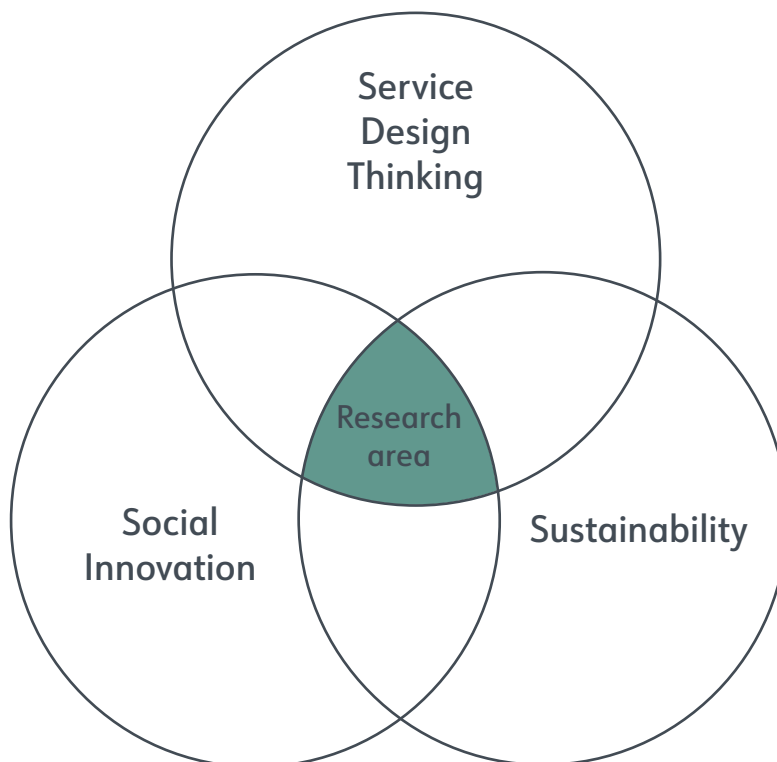


Figure 1 : The research area

## 2.5. Initial problem formulation

According to Irwin et al. (2015), the solutions of design for services exist to create profit and benefits to the service provider and at the same time offer desirable and useful services for the users. Design for social innovation aims to create social change by developing alternative ways of meeting the needs of people (ibid.). These two areas have different perspectives: while social innovation focuses on the socio-economic issues, service design has a business perspective (Manzini, 2014). Despite this difference, the two areas have a common ground as both of them are dealing design with which is about developing something new that does not exist in the real world yet (Nelson & Stolterman, 2003, p.10).

This thesis aimed to explore the processes and tools that link design for social innovation and services. Furthermore the thesis investigated how to use service design thinking in the social innovation process through the case of Foodsharing CPH (presented in Chapter 3.1.3.).

Initial research question: how might we apply service design thinking to support the services of Foodsharing CPH?

- Initiate collaboration between stakeholders and develop a service that create value for all the actors

### Personal learning goals

My personal learning goals is to get experience in how grassroot communities work and to design a possible solution for a real-life problem. The thesis work gives me the opportunity to research a problem area and develop a concept that creates value for a community that is concerned with sustainability. My aim with the thesis work is to create a service that gets implemented and possibly will continue on running after the thesis project is over. Furthermore, I am personally committed to fight food waste, therefore I experiment in everyday life to find new ways to reduce food waste and raise awareness.

## 2.6. Learning goals

### Professional learning goals

The researcher's aim with this thesis is gain a deeper understanding in

- Ways to collect and analyse qualitative data, and use it to develop a service system
- Applying service design thinking in a real-life problem and its solution
- The roles of the designer in creating a new service

## 2.7. Methodology

According to Stickdorn et al., (2017) all of the design processes have a basic pattern. This pattern starts with research activities that are used to generate understanding and insights. This is followed by ideation and decision making process and finally, building the solution through prototyping and implementation.

The Double Diamond is a design process model that visualizes the different steps the designers go through. The Double Diamond has four phases: Discover, Define, Develop and Deliver (Design Council, 2018). At each of the phases, different methods and tools can be used. The tools and methods can be chosen freely by the designer depending on the nature of the project.

The Double Diamond model also illustrates the parts of the process where thinking and opportunities are broad and when these need to be narrowed down in order to focus on the objectives. (Design Council & Technology Strategy Board, 2011)

The Double Diamond design process model was used as a frame for the project. Although this model has phases, the researcher worked iteratively and went back and forth between the stages instead of working linearly.

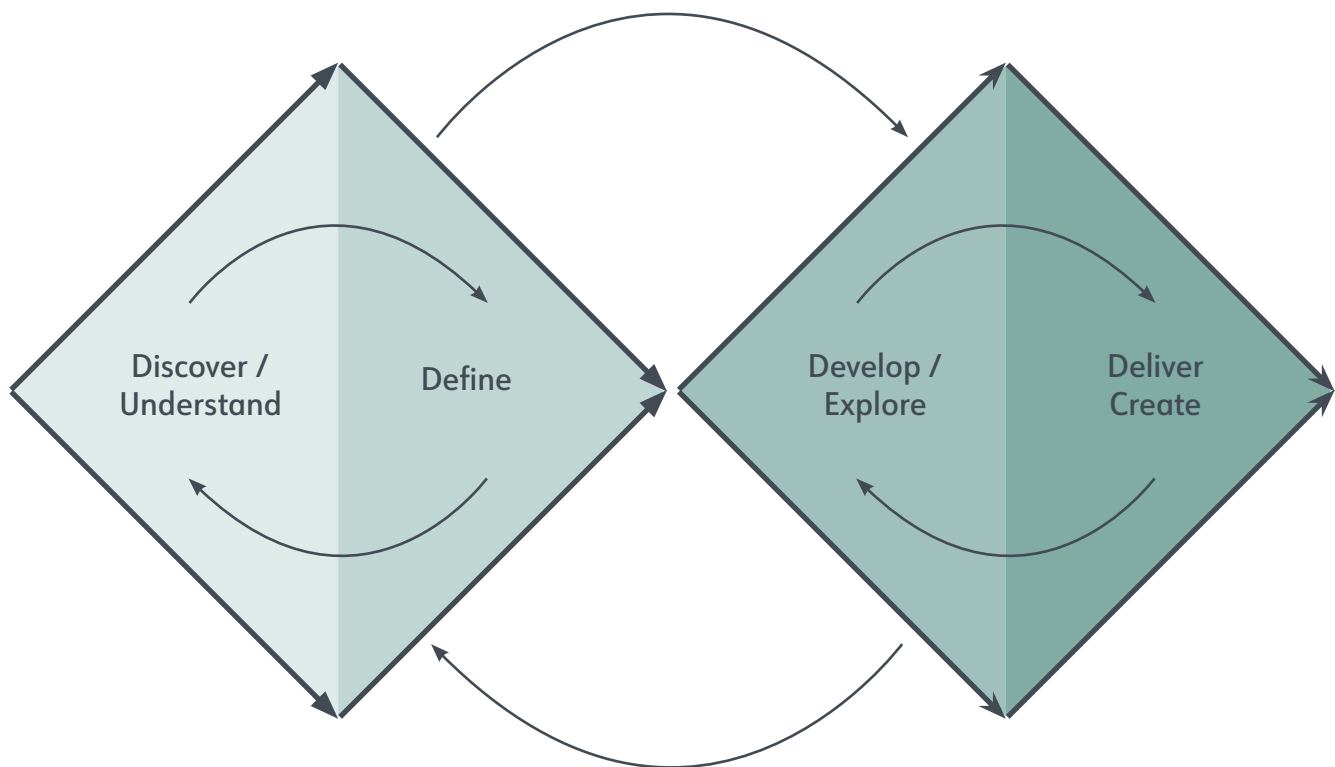


Figure 2 : The Double Diamond (Design Council, 2018)

## 2.8. Project timeline

The collaboration with Foodsharing CPH started at the end of February 2018. The project work started on the 1st of March and ended on the 31st of May, which was the deadline to hand in the master's thesis. The Discover and the Define phases lasted until the first week of April. The Develop and Deliver phases were planned to be carried out during May. Although a tentative plan was created for the project, the process was iterative therefore it was expected to work back and forth between the phases depending on how the process was going.

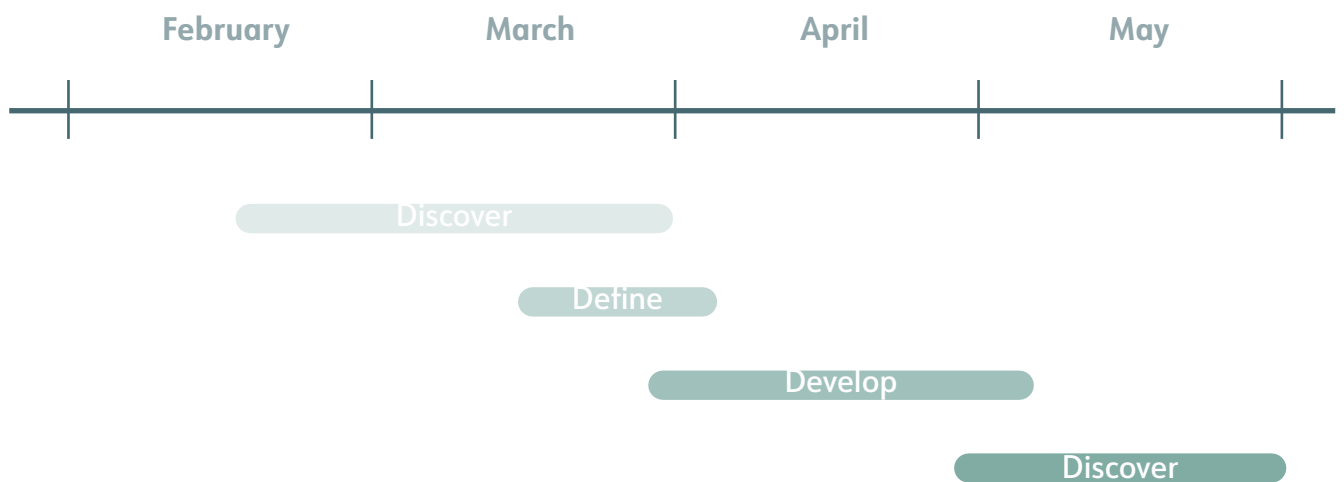


Figure 3: Project timeline

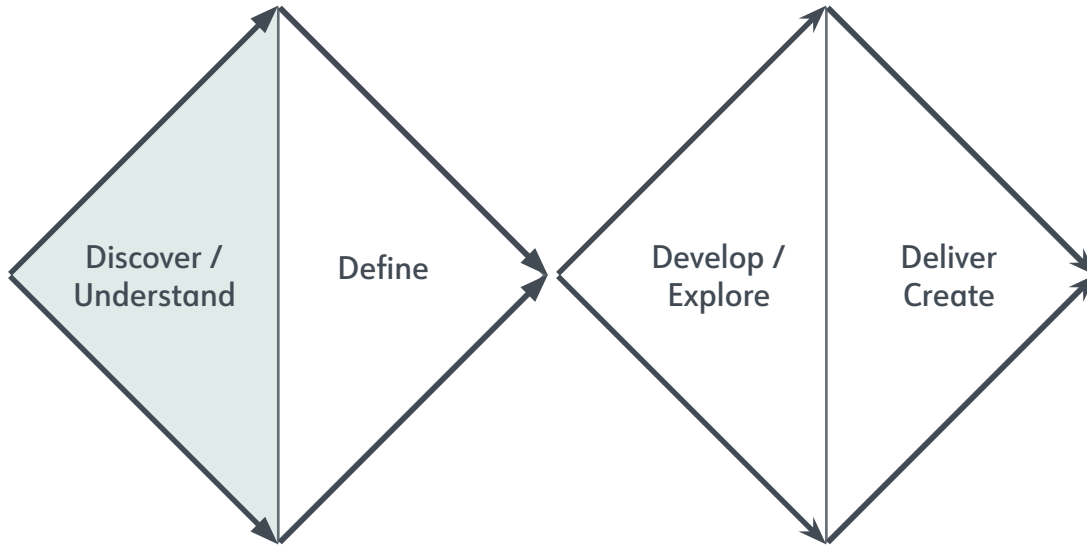


Figure 4 : The Double Diamond (Design Council, 2018)

### 3. Discover

The first phase of the Double Diamond model is Discover. At this stage, a deeper understanding is gained as well as inspiration and insights of the problem area and users. The objective of the Discover phase is to *"identify the problem, opportunity or needs to be addressed through design"* (Design Council & Technology Strategy Board, 2011, p.8). Desk research, interviews and observations are conducted in order to gather information about the problem area.

### 3.1. Desk research

Desk research is also called secondary research, and it is reviewing research that has been done by others. It is done in order to gain more information on the problem area and understand the research field. Desk research helps to explore what has been done before and it helps to prepare for primary research (Travis, 2017). As part of the secondary research, the the topic of food waste is explored, as well as initiatives that aim to reduce reduce it. Furthermore, the organisation Foodsharing CPH is going to be researched, in order to gain a deeper understanding of how surplus food can be redistributed. Lastly, the motivations of the participants of the food sharing movement will be analyzed based on a survey that Foodsharing CPH made with their volunteers and their participants of their events.

#### 3.1.1. The topic of food waste

Every year about 1.3 billion tonnes of food gets wasted or lost in the world, which is about one third of all the food that has been produced. This waste and loss is generated through the entire supply chain from agricultural food production

until the final consumption in households.

There are two aspect of the problem of food waste: environmental and ethical. First of all, food waste has an impact on the environment as resources for example water, energy and soil are being lost since one third of the food that is produced and shipped ends up in the bin. The ethical aspect refers to the fact that while people waste tonnes of food every year, millions are malnourished around the world. In the European Union many people can only afford quality food every second day („Food waste: the problem in the EU in numbers [infographic] | News | European Parliament“, 2018; European Commission, 2017). The problem of food waste is addressed by actors on different levels from policy makers such as the European Parliament to local communities or individuals. Foodsharing or foodsaving movement came to life to help reducing food waste. The movement will be described in the 3.1.2.



Figure 5: Food is getting wasted throughout the supply chain

### 3.1.2. Movements against food waste

In order to fight food waste, individuals and communities started different initiatives which grew during the years. The first movement was called Slow Food and begun in Italy in the late 80's. It aimed to go against the fast food culture and it promoted the preservation of local food traditions. The Slow Food movement advocates sustainable food production therefore one of its goals is to reduce food waste („About us - Slow Food International", 2018; Rombac & Bitsch, 2015).

The next movement was dumpster diving, which always had different forms in developed countries but it became popular and got more attention in the early 2000s. Dumpster diving is about finding the garbage bins of food sellers such as supermarkets to collect those food items that still can be used. This phenomenon is associated with poverty and in some countries it is illegal. Dumpster diving is "considered a form of anti-consumption and as an act to reduce food waste and to oppose current food systems" (Rombac & Bitsch, 2015, p.3).

The foodsharing movement started in Berlin in 2012 and now it is spread all over in Germany, Austria and other countries in Europe. The food sharing happens in an organized way. The food sharing communities are networks of volunteers who collect and redistribute food that food businesses throw out. The food producers and retailers donate the food to the volunteers, who then consume the food products on their own risk (Rombac & Bitsch, 2015).

The aim of the movement is to save surplus or unwanted food in businesses and private homes. Another purpose of the movement is to educate people and to spread the word about sustainability. The German food sharing organization coordinates the community through their online platform where they can create discussions,

events and share information. There are smaller communities that manage the food sharing in different cities or regions. Foodsharing is based on voluntary work and the organization would like the movement to be accessible for anyone. Therefore one of their main rules is that any activities has to be free of charge, independent, non-commercial and ad-free („Willkommen bei foodsharing! foodsharing Deutschland", 2018).

These movements are social movements which are "defined by their shared normative orientation, collective identity, orientation toward change of political or cultural conditions, and shared actions related to their change program" (Rombac & Bitsch, 2015, p.3). Connors & McDonald (2010, p.560) argue that community development is a "political act because it is concerned with changing the status quo through action based on a commitment to human rights and social justice".

### 3.1.3. Foodsharing Copenhagen

The food sharing movement kickstarted in Copenhagen when some food waste activists founded the German Foodsharing project and Yunity („Story”, 2018). The second organization is a network of smaller projects that encourage people to share their resources and raise awareness for sustainability („yunity”, 2018).

The vision of Foodsharing CPH *“the world where food is valued and is used to nourish people and bring them together. The world where food sharing is part of our natural behaviour. Locally and globally.”* („Story”, 2018)

Their mission is to *“provide everyone (individuals, communities and businesses) with knowledge, tools and power to act, care and share/donate food, without any compromise.”* („Story”, 2018)

Foodsharing CPH has more than 600 volunteers and is the second biggest volunteer-based organization that fights against food waste in Denmark after ‘Stop Spild af Mad’. Foodsharing CPH collaborates with wholesalers and supermarkets (see Figure

3) to collect fruits, vegetables and bakery products for redistribution. During 2016 and 2017 the organization redistributed 120 tonnes of food which fed more than 16.000 people. („Story”, 2018) Their aim is also to promote the movement in Denmark by organizing events such as workshops and campaigns against food waste („Activities”, 2018). They initiated projects such as Folkekøkken where the volunteers cooked food from the collected food and gave it out to people in return for donations.

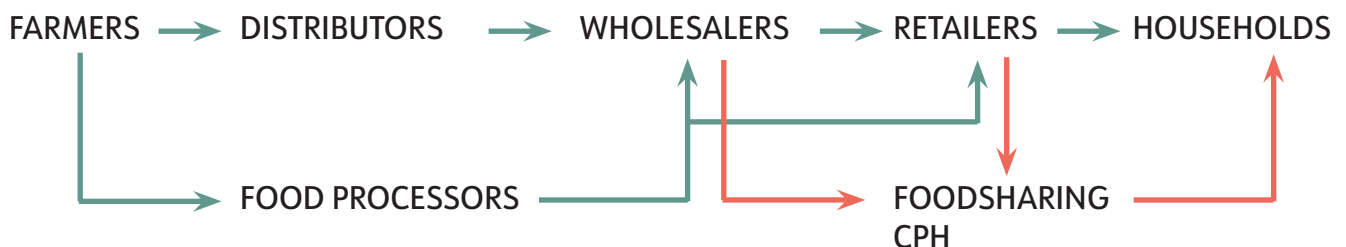


Figure 6: Foodsharing CPH in the system

<sup>1</sup> <https://www.facebook.com/events/373729626373353/> (March 15, 2018)

### 3.1.4. Survey on motivations

Foodsharing CPH conducted a survey (see Appendix 1) in September 2017 to find out more about their volunteers and about the people that participate on the foodsharing events. The survey was answered by 103 event participants and 31 volunteers. According to the results almost 73.8% of the participants are in their twenties. 66% of the respondents are students and 19.4% of are unemployed. The majority of the respondents are highly educated, 78.6% of them have a university degree.

The participants were asked how they take part in the food sharing movement. About half of them contribute by attending the events and 21% support the idea of food-sharing. According to the survey results, only 8.7% of the event participants are those who also volunteer on the events.

The participants were asked “What is Food-sharing Copenhagen for you?” (see results on Figure 4). The results show that there are a high number of people who think that Foodsharing CPH is a food source, which means that many of the people are mainly interested in the free food they get at the events and are not too concerned with the food waste problem. There were

also high number of people that answered “movement”. By this answer they refer to the food sharing movement which aims to fight food waste and raise awareness. These participants could know more about the food waste issue, since they think first of the foodsharing movement when they hear about the organization, and not of the free food that they can get.

According to the results, similarly to the event participants, most of the volunteers are also in their twenties (74%) and more than half of them are students (around 55%). More than half of the respondents, 17 people, said that they would like to engage more in volunteering and team building activities at the organisation.

Conclusively, the main findings from the survey are that most of the event attendees and volunteers are students who are in their twenties. One important motivation for people to attend is the free food that they get on the events. Other motivation for attending the event is to save food from becoming waste and to be part of a community.

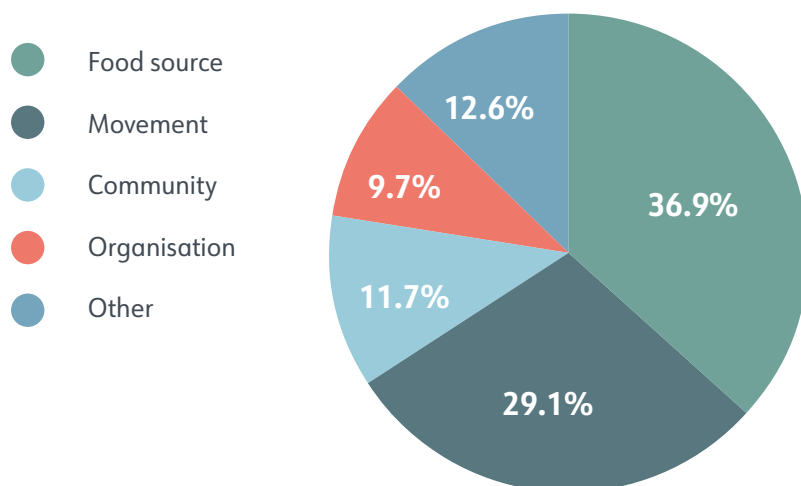


Figure 7: Survey result

Source: Foodsharing Copenhagen customer and volunteer survey results (See Appendix 1)

## 3.2. Benchmarking

Apart from Foodsharing CPH, there are a few other organisations that aim to fight food waste in Copenhagen. The two biggest initiatives that are active in Copenhagen are Stop Spild af Mad and FødevareBanken. In this chapter, these two organisations will be introduced briefly. Getting to know other non-profit organisations that fight the problem of food waste can help to gain a deeper knowledge about how they operate and ideas about what has been already implemented.

Stop Wasting Food (in Danish: Stop Spild af Mad) is the largest non-profit movement in Denmark that fights food waste. The movement started in 2008 and its members collaborated with the EU and UN in order to bring focus on the problem of food waste in the country. The movement has more than 60.000 supporters including politicians and well-known persons from the food industry („Stop Wasting Food”, 2018). Since 2008 there were many projects that meant to raise awareness of food waste such as media campaigns, activities or events. As a result of the movement, retailers made new policies and started to collaborate to promote food waste prevention and reduction („Our Results”, 2018). Some of Stop Wasting Food’s projects were: REFOOD Label, Charity dinner, Leftover Cookbook, Information and Education campaigns („Our Projects”, 2018).

FødevareBanken (in English: The Danish Food Bank) was founded in the beginning of 2008. This organisation is a part of the Federation of European Food Banks which is a network of international stakeholders that work in the food industry. This organisation does not only fight food waste but also food poverty in Denmark. They are

doing that by redistributing surplus food for socially disadvantaged people in Copenhagen, Aarhus and Kolding. They collect food from food producers and wholesalers to give it to shelters. FødevareBanken work with volunteers who help in the logistics, food donors who provide the food and other businesses and private citizens who support the organisation with finances or knowhow.

Fødevare Banken’s vision is *“to fight food waste and food poverty”* and their mission is a *“nationwide distribution of surplus food to benefit socially disadvantaged children, young people and adults in Denmark”* („fødevareBanken | Fra madspild til måltid”, 2018).

Examining the above mentioned organisations shows that although all movements has the same final goal - which is to fight food waste - they do it in three different ways. Foodsharing CPH redistributes surplus food to anyone that is going to their events, FødevareBanken redistributes surplus food to socially disadvantaged people and Stop Wasting Food tries to raise awareness and influence policy making.

### 3.3. Action research

Action research helps to create practical knowledge of how people act in their everyday lives. Through the gained insights, action research aims to improve the quality of life of people, communities and their relations with the planet's environment (Reason & Bradbury, 2008). Collaboration with others is important in order to achieve as much as possible during conducting action research. While working with others, the ability to listen and empathize is key as well as respect for other participants and the understanding and experiences they have (Brydon-Miller et al., 2003). *"Action research is only possible with, for and by persons and communities, ideally involving all stakeholders both in the questioning and the sense-making that informs the research, and in the action which is its focus"* (Reason & Bradbury, 2008, p.2). In action research, the knowledge is gained through participation and "doing" (Brydon-Miller et al., 2003, p.14). Collaborating with other stakeholders can bring changes in the organisation or community as well as it can change the person of the action researcher. Through action research, the researcher gets experiences by being involved with the issues of people and communities. Reflecting on these experiences can change the attitude of the researcher (Brydon-Miller et al., 2003).

In the case of Foodsharing CPH, the researcher got involved in the organisation on as many levels as possible to gain a deeper understanding in the problem area. This meant participation on food sharing events and board meetings, which gave a broad overview of how the organisation operates. In order to gain more insights from other stakeholders, the researcher also participated in food collection as well as visited shelters.

#### Foodsharing events

In order to get a deeper understanding of the foodsharing movement in Copenhagen and to get to know the organization, the researcher became a volunteer and participated on the events. The regular participation on the events gave insights about the volunteers and how they are managed by the shift leaders. Participating on the events also gave knowledge about the people that go to the events are. Participation on the events as a volunteer allowed the researcher to talk and observe the other volunteers to learn more about their motivations.



Figure 8: Food sharing event in Sydhavn



Figure 9: Food sharing event in Nørrebro

### Board meeting:

Foodsharing CPH choose board members who have a monthly meeting to discuss any issues in the organisation and its future. The board meetings are open for anyone who would like to participate more actively in the organisation and would like to influence the decision making about the future of Foodsharing CPH. The researcher participated on the monthly board meetings during the thesis writing period to gain more insights in how the organisation works and gather ideas for the collaboration. On the first board meeting some of the members showed interest in working together with shelters. The researcher decided to research opportunities to redistribute surplus food to shelters.

### Visiting food donors

The researcher visited the wholesale market, supermarkets and a bakery which allowed to talk to the food donors in person. It helped to learn more about who these businesses are as well as their motivations in giving food to the organisation. Visiting these businesses also helped to better understand the problem of food waste from first hand.



Figure 10: Food collection from wholesale market



Figure 11: Visiting a shelter



Figure 12: Foodsharing's Hyggstedet event

### Visiting shelters

One member of the Foodsharing CPH community occasionally collects food and gives it to shelters around the city. The researcher joined this member to visit some shelters to explore new ways of food sharing and to discover what the needs of the shelters are. The researcher also visited a shelter, where the shelter manager was interviewed (see Chapter 3.4.2.). These visitations helped the researcher to empathize with the people working in the shelter and to get a general idea how the some shelter's food services work.

### Co-creation workshop

Although the workshop was originally organized to co-create solutions for the given problem, the participants were talking a lot about the aims of the organisation and the volunteers. The participants were board members and shift leaders who are committed and are part of Foodsharing CPH for a long time, therefore have a lot of experience and information about the organisation and its stakeholders. This workshop gave some insights to about the values of different stakeholders.



Figure 13: Food collection from wholesale market



Figure 14: Collecting surplus food around Copenhagen



Figure 15: People waiting in lines for the event

### 3.4. Interviews

In order to collect data for the thesis, several interviews were conducted with volunteers of Foodsharing CPH and an employee of a shelter. The aim of gathering information to get a deeper understanding of the problem area and to be able to answer the research question. In order to do that, in-depth interviews were conducted. *"Most often, the purpose of an in-depth interview is to ask people with particular knowledge, ask people involved in special events or question about a specific topic"* (Bjørner, 2015, p.70). In-depth interviews can help to gain new insights and big amounts of data from the interviewee as well as details about the problem area. Although in-depth interviews are time consuming, it can provide the project with rich data. During the data collection semi-structured interviews were conducted. This interview technique is flexible, it allows the interviewer to change questions based on the interviewees previous answers and to react to the answers by bringing up new questions. (Bjørner, 2015)

The interviews were conducted with different stakeholders of the organisation such as volunteers and an employee of a shelter. An interview with a food donor was also planned to get a sense of why businesses donate food, but unfortunately the interviewee cancelled the appointment.

#### 3.4.1. Volunteers

A short semi-structured interview was conducted among volunteers with the purpose of understanding their motivations. The interviews took place at the Foodsharing CPH's events. The main aim of the interviews was to learn more about who the volunteers are and why they work for

Foodsharing CPH. The interviewees were all international students who came from all over the world. One reason what most of them mentioned is the free food. In return for volunteering on the events, the volunteers are allowed to pick as much food as they want before the event participants arrive. This means not only that they can get a lot of food, but they are also able to choose first which allows them to select the best quality and/or rare food products. The interviewees were asked about their motivation to join the food sharing events and interviewee nr. 5 (see Appendix 6) participants answered: *"It helps a lot with grocery bill and also like...free stuff right? There's something really exciting about going each week and see what things are there"*.

There are some volunteers that joined because they thought it is a good way to get food for free, but their motivation has changed after a being part of the movement for some time. Interviewee nr. 2 and nr. 3 (see Appendix 3 and 4) are part of the organisation for more than a year and they are taking leader and board member roles. Interviewee nr. 2 said the following about why he joined the organisation: *"Initially, I'll be honest and I would say I joined just to get free food because coming, being a non-EU, living here in Denmark is quite expensive so I started it just for the free food, but as I got involved in the organisation more and more, I got to know that there is really a problem of food waste and lots and lots of food goes wasted and I think if we organise it a bit more and more and more people help out then we can do even more better work and have few more food sharing points and try to reduce the food waste as much as possible. I really think it's a huge problem all over the world."*

Interviewee nr. 3 says about his motivations: *"I joined because I got free food and I stayed because I was of the good cause and also because of the community of the volunteers."* The answers of these volunteers show how the motivation of the volunteers can change once they get to know the organisation and become part of it.

Another reason for volunteers to be part of Foodsharing CPH is the community. One of the interviewees mentioned that she likes how likeminded people come together on the events. As she said: *"there are volunteers with very different backgrounds from mine and it makes sense because we're all there kinda for the same reason."* Another interviewee mentioned the same: *"I think the Foodsharing attracts a certain kind of person I feel like people who come here .... They are open and welcoming"*.

Some volunteers also mentioned that by working at Foodsharing CPH, they get to help out people. An interviewee nr. 4 (see Appendix 5) mentioned her motivation why she joined the movement: *"I heard that it's an amazing opportunity to help other people and also to gain free food and I can volunteer, I don't do a lot of work and it's a win-win situation: I help other people and they help me."* She also emphasized how much she enjoys being with these people when she says *"I remember the first time that I was so happy because of the people and everybody was saying 'thank you' and they were really grateful"*. Interviewee nr. 1 (see Appendix 2) said that she likes to interact with the event participants and get to know more about them. She said about the event participants that *"there's also people who need it (free food from the events) because they don't have sufficient financial resources."* Interviewee nr. 6 (see Appendix 7) said that

participating on the events made him think that it is not just about free food as he said *"I shouldn't take too much food because there are people who might need more than me"*.

### **3.4.2. Manager of a night shelter**

An interview was conducted (see Appendix 8 and 9) with the manager of the night shelter who has been working there for 10 years now. He is responsible for organising the food for the shelter during the evening and managing the volunteers. This shelter only opens for the nights during weekdays and it offers a hot meal, laundry service, shower and a place to stay for the evening for the most vulnerable homeless people. The shelter has the capacity to host 25 homeless people that are old, weak, have different illnesses or just came out from the hospital and have nowhere else to go.

The night shelter is open for the homeless people from 10:00 PM until 7:00 AM. In the meantime when the shelter is closed the homeless hang around in public places. According to the manager: *"normally, they go to the library, over here (there's a library just on the other side of the road). 90% have some problems with alcohol and drugs and they go to a library here and sit inside in the winter time and in summer they are in the park. They go to laundry store here. They can sit inside and it's warm."*

The night shelter is operated by social volunteers who prepare the food and have a conversation with the residents of the shelter.

According to the manager, the volunteers *"are normally here for 2-3 hours from 9 o'clock in the evening til midnight. They talk with the guys who come here, some of them make some food, some tea, some coffee. Just normally social work, just sitting and playing cards or backgammon stuff like that."*

The manager was also asked if he knows what homeless people eat during the day and how big of a problem food is for them. He answered: *"There's a lot of free food in Copenhagen. It's not the food that is the problem for the guys that live on the street ... it's the shelter place. You can eat for free in Vesterbro, in Mandeshjem I think, some Christian organisation make food for free. So you can live here in Copenhagen with free food but no shelters, you have to sleep outside. But you can get something to eat."*

It was asked if the shelter considers the diets that any of the shelter residents may have. The manager answered: *"we ask but they don't care (if they have a special diet), they have bigger problems. Some of the guys who are here, they get a lot of medicine, and we take care of the medicine for them we have it out here in small boxes, so when they get here they get their own box and they take the medicine they need and put it here because if they have it in their pocket in the street they will lose it. But they come in and out from the hospitals."*

According to the interviewee, the shelter receives food from FødevareBanken regularly, once every week. He said *"We make something out of what we have. We don't buy anything. Sometimes we don't get no meat, no veg. Rice, pasta, beans, coconut milk and stuff like that so we can produce some hot meals"*. The food they receive from the organisation is mainly canned, frozen and dried

food that is close to expire. They also have other partners, from where they receive frozen soups, coffee and tea.

The interview with the manager of the night shelter gave information on the needs of the shelter and its residents. The problem is not with the quantity of the food but rather the food's versatility. As the manager said, the homeless people can find ways to get food and the shelter has resources to provide hot meal every evening when they are open, but many times it means frozen soup and canned food. In this case, the shelter only occasionally receives other than conserved food, therefore they are in need for bakery products, fresh fruits and vegetables. The manager confirmed that he would collaborate with Foodsharing CPH in order to receive the foods that they lack. A collaboration would make it possible for the shelter to cook more versatile dishes and by giving fruits and vegetables, the shelter residents would get more nutritious food.

### 3.5. Summary of Discover phase

In the Discover phase, information about the research area was collected. A deeper understanding was gained in the problem of food waste and different initiatives that try to find solutions for this sustainability issue. The Discover phase focused on Foodsharing CPH and the researcher's participation on the organisation's events helped to get more information about the movement. The movement aims to redistribute surplus food and by doing this, reduce food waste produced by the wholesalers and retailers. Interviewing volunteers and different actors also helped to learn more about the motivations of people that are somehow part of the food sharing movement. The findings showed that volunteers participate in the movement in order to get free food, but they would also like to help others and be part of the community of Foodsharing CPH.

Two other organisations that deal with food waste in Copenhagen were also explored. They are all non-profit organisations that focus on different aspects of food waste. Stop Wasting Food is active in different areas, e.g. prevention, household food waste, etc. They work with policy makers and supermarkets to reach their goals. FødevarerBanken redistributes surplus food to the most vulnerable people, by transporting food from food producers and wholesalers to shelters.

The researcher conducted action research and participated in many activities such as events organised by Foodsharing CPH. Participation on the different events and meetings helped to discover the interest of some members in the redistribution of surplus food to shelters. After finding out about this interest, the focus shifted to

the shelters and their needs. It was found that although FødevarerBanken supplies shelters around Copenhagen with food regularly, they mainly provide packaged foods in order to meet the food safety regulations. Because of the regulations, they need to have special equipments (for example a van that keeps the right temperature for the food products while they are being transported) which makes the transportation expensive and the organisation dependent on donations. Although shelters have some food to give to the vulnerable people, the lack of nutritious food such as fruits and vegetables and bakery products. After this discovery, the aim was to design a service that would help overcome this problem as well as reduce food waste.

### **3.5.1. Limitations**

More information would have been collected if there was more time in the project for it. Participation in more meetings and events of Foodsharing CPH before starting the project would have given more initial information. The plan was to make more interviews with different actors but it was difficult to coordinate with some of the stakeholders. It was also difficult to find an interviewee in the shelters. The employees of the shelter mostly refused to answer questions and they redirected the researcher to their supervisors who did not answer any of the emails. The researcher could have approached them in a different way and build a connection before asking the employees of the shelter for an interview.

A survey conducted by Foodsharing CPH was used to gain more information about the motivations of the volunteers and event participants. The survey was filled out by 103 event participants and 31 volunteers. This sample is not big enough to represent what the motivations of these groups are. In the future more research is needed in order to get a clearer picture about who are visiting the food sharing events and why.

Volunteers of Foodsharing CPH were interviewed to find out what their motivations are in helping on the events. Although most of them mentioned that they participate to help people or because of the community, later on when the researcher volunteered on the events and talked to more volunteers casually, it was found that their main motive mostly is the free food. The reason for the different findings could be because as part of an interview the volunteers might not want to say that they participate for the free food, but when the researcher asks them just as volunteers, they were more honest about their motives.

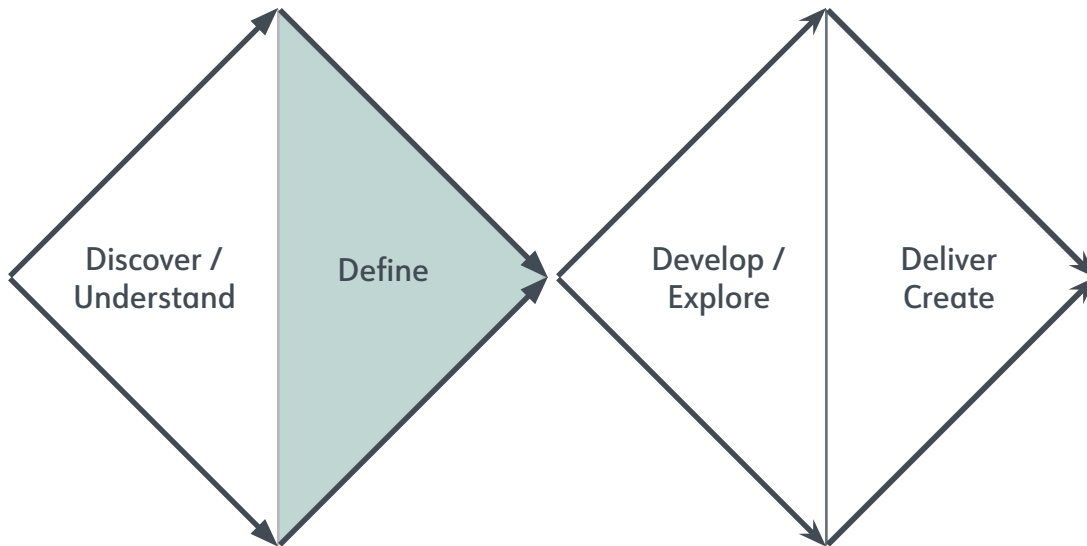


Figure 16 : The Double Diamond (Design Council, 2018)

## 4. Define

The second phase of the Double Diamond is Define. Here, the designer makes sense of the output of the Discover stage. The objective of this phase is to analyse and structure the findings from the previous stage and to define the main issue or challenge of the project (Design Council & Technology Strategy Board, 2011). In this project, value maps, stakeholder maps and ecosystem maps are used to gather insights from the findings.

## 4.1. Organisation structure

Based on the research from the Discover phase and the researcher's participation in the aforementioned events, the structure of the organisation can be defined. As seen on the Figure 17, the organisation is run by the board members. The board members are elected for every half year and they organise the work groups that are Administration, Event team, Food collection and PR & Marketing. There is a board meeting every month, where the members discuss what happened in the last month and how to proceed further. The board meetings are open for anyone, as they would like to be transparent in what they do and anyone can have a saying.

In each working group there are shift leaders, who are coordinating the tasks of the volunteers on the events. The volunteers are the ones that work on the events. On the 20th of April 2018 there were 801 member of the volunteers' Facebook group, but the number of active volunteers is around 150. The volunteers can decide how much they would like to get involved in Foodsharing CPH. If they do not want any responsibilities or they do not have more time, they can decide to just work on the events, but they can also take different roles in the organisation: they can become part of a work group, become shift leaders and/or participate on the board meetings and workshops.

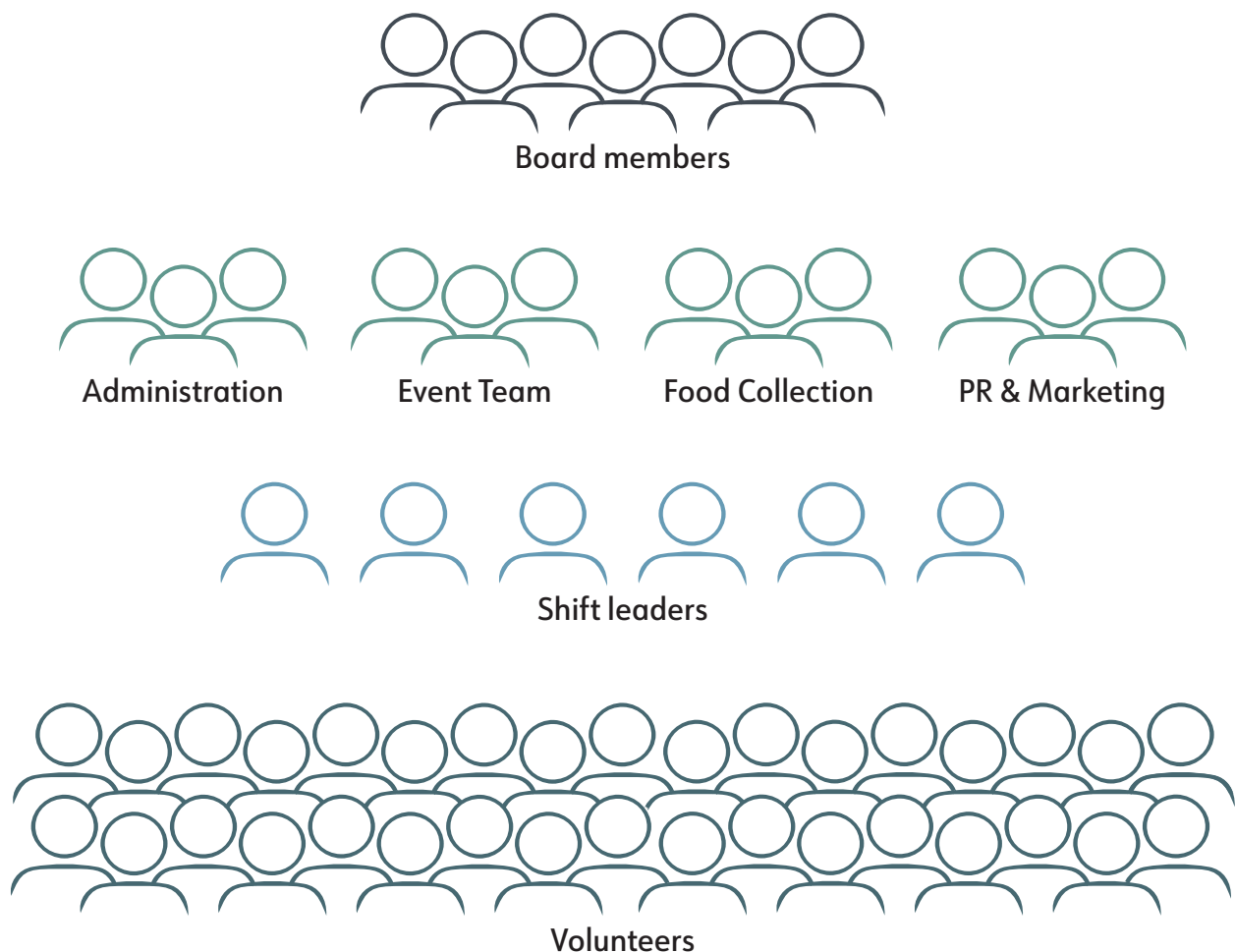


Figure 17: Foodsharing CPH's organisational structure

## 4.2. Stakeholders map

Stakeholders map visualizes all the important actors of a product, service, system or experience (Stickdorn et al., 2017, p.60). The stakeholders map groups the actors based on their interest, importance or influence on the service which helps to get an overview of the relations between the service and the actors (Stickdorn & Schneider, 2011). In the case of Foodsharing CPH (see Figure 18) there are two main groups: the internal and the external stakeholders. The internal stakeholders are those who provide the service such as the volunteers or the shift leaders. They are key actors in the service as they are the ones that organise the events, make collaborations with external stakeholders and redistribute the food surplus.

There are three groups of external stakeholders and all these groups are essential for the service to happen. The suppliers are the ones providing the surplus food for the food sharing events. The hosting places are both culture houses that allow Foodsharing

CPH to organize the events there for free. Users are the actors who take the collected surplus food and this way prevent food to become waste. Since the volunteers and shift leaders of an event also take surplus food as a payment for their work, they can also be considered users of the service.

In some cases when there is food left after the events, volunteers take it to shelters, but this only happens occasionally. The stakeholder map not only helps designers to identify actors that are connected to the service, but it also helps to change the service system by the rethinking relationships between the service and the stakeholders. Visualizing the stakeholder map gives an opportunity to the designers to change the weakening or strengthening relationships between the actors (Stickdorn et al., 2017). On the current stakeholder map, the only stakeholder that has less importance are the shelters that are not a continuous part of the service. Changing this relation can be an opportunity for Foodsharing CPH to find new ways to redistribute surplus food.

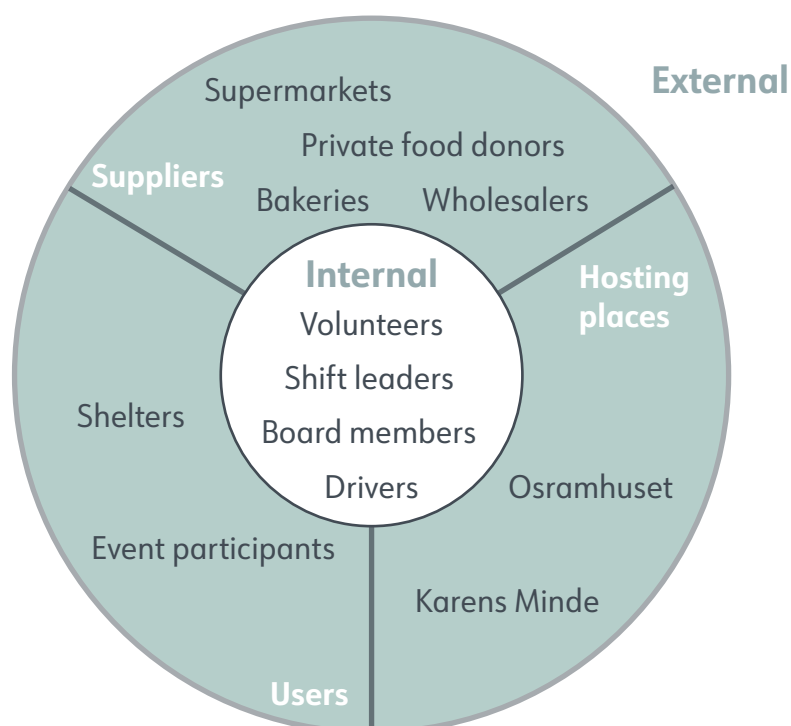


Figure 18: Foodsharing CPH's stakeholder map

### 4.3. Value map

After the stakeholders were defined in Chapter 4.2., the values that they have in the the Foodsharing movement is mapped. The values can be mapped on the value constellation tool which represents the “*network of actors and their relationships that jointly create an offering*” (Patrício et al., 2011, p.182). The value constellation model helps to understand what the organisation is offering to the users (ibid.). Since it is a voluntary non-profit organisation, it is important to understand why the different actors participate in the activities of the organisation. The food suppliers represent the wholesale markets, supermarkets and bakeries where the food is collected from. Food waste cost money for the wholesale or retail businesses as they need to pay for someone to take away their waste. Foodsharing CPH (see Figure 19) helps to get rid of the waste and this way they have to pay less to get rid of the waste. Some of the food suppliers also donate food even though it was not going to waste, as they

would like to help people who are in need. The driver, who helps the food collection gets money from the organisation to cover the expenses. This way it is guaranteed that Foodsharing CPH will have someone to do that job for all the events. The driver can also get food from the collections.

The members of Foodsharing CPH are the board members, shift leaders and the volunteers that are working in the organisation. For many of the members free food is an important value in the movement, but during the interviews people also mentioned that they like to talk to people on the events and this way help to those who are in need. Community is also an important aspect for the volunteers as well as creating awareness for food waste. The event participants mainly see value of the free food that they can get from Foodsharing CPH, but they also see the value of fighting food waste.

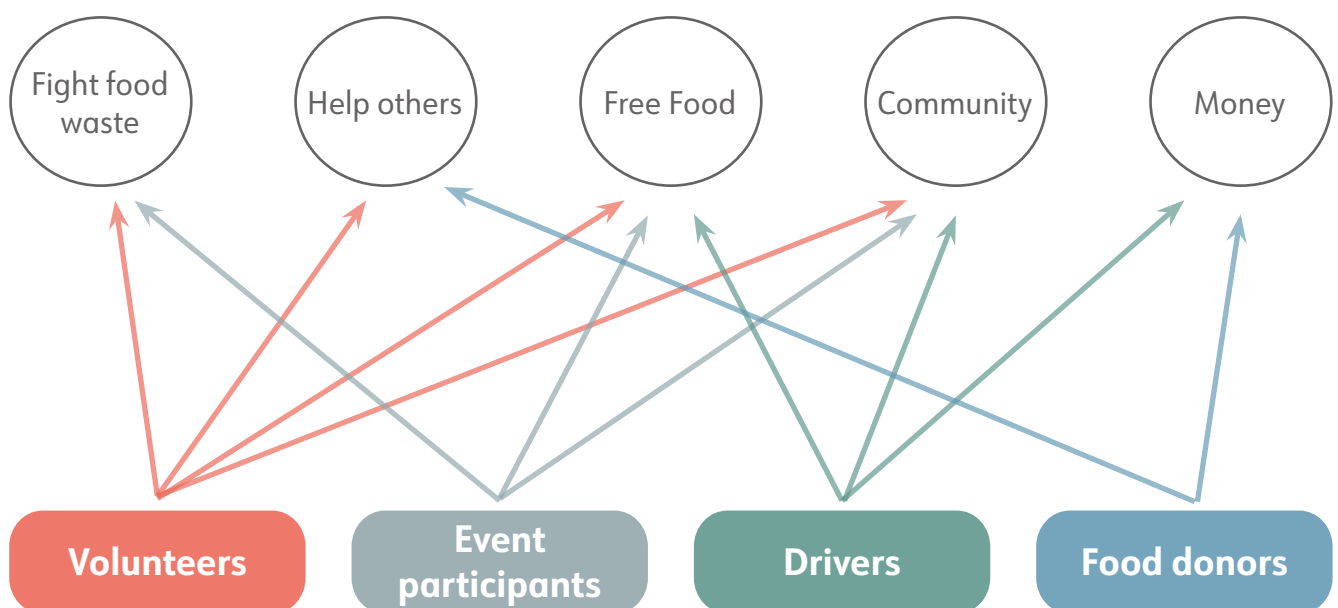


Figure 19: Foodsharing CPH's value map

## 4.4. Ecosystem map

The ecosystem map is similar to the stakeholder map but it does not only include people or organisations but relevant systems, platforms or interfaces as well. The ecosystem map helps to visualize relationships and interactions between human and machine or machine and machine, whereas stakeholder map only shows relations between human and human. *"Nowadays, there is no service or physical pro-*

*duct without additional or connected services or products, whether physical or digital"* (Stickdorn et al., 2017, p.62). Ecosystem maps can be complex, therefore it is not needed in every cases to go into details, instead it is better to zoom out and look at the different levels of the whole system. The ecosystem map shows the actors, sectors and their relationships or value exchanges (ibid, p.63).

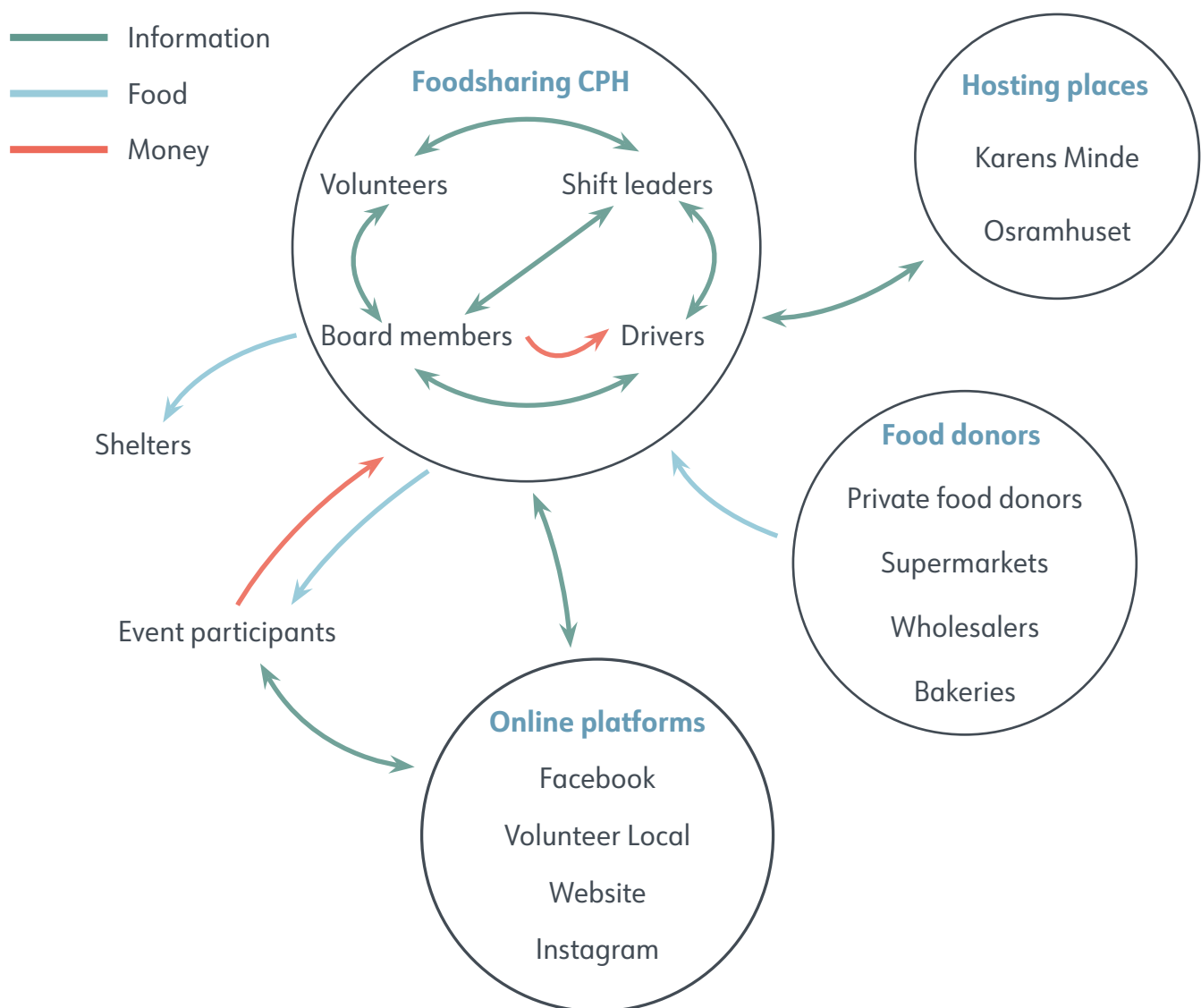


Figure 20: Foodsharing CPH's ecosystem map

In the case of Foodsharing CPH, the ecosystem map (see Figure 20) contains four bigger groups: Foodsharing CPH, Locations, Suppliers and Online platforms. The online platforms are crucial for organising the events and manage the volunteers. Through the online platforms, the board members and shift leaders can share information with the volunteers and the participants of the events.

The value exchange is also visualized on the ecosystem map. There are three values: Information, Money and Food. Information flows between the actors of Foodsharing CPH since there is coordination needed for organising the events. Money flows from the event participants in the form of donations to Foodsharing CPH. The organisation uses the donations to pay a fee for the driver and rent the van for the events. The food is collected mainly from the suppliers, but occasionally Foodsharing CPH receives donations from private people. From time to time surplus food from the events is donated to shelters, but so far there was no information flow between Foodsharing CPH and the shelters to map out the values and the needs of the actors. The ecosystem map shows how one sided the relation between Foodsharing CPH and the shelters has been. Collecting more information can help to discover opportunities for collaboration between the actors.

## 4.5. Problem definition

After the Define stage of the process, the problem area was investigated and the problem definition is more clear than in the initial problem formulation. The initial research question was: How to apply service design thinking to support the services of Foodsharing CPH? During the Discover and Define phases, it was found that there is an interest from some members of Foodsharing CPH to create a service, where the surplus food would be redistributed to people in need. After finding this interest, the project continued on with targeting shelters. Therefore, the research area changed and the final research question was formed:

*How might we use service design thinking to create a service that redistributes surplus food to shelters?*

## 4.6. Summary of Define phase

At this stage, insights were generated based on the findings from the Discover phase. First, the organisational structure of Foodsharing CPH was mapped to visualize the different positions and working groups. In this phase, the stakeholders were mapped out as well as their relations and values. The value constellation showed the motivations of the stakeholders, which helped to understand why each actor participate in the food sharing movement. The ecosystem map tool helped visualizing the roles of the stakeholders and how information, money and food flows between the actors.

This stage yielded a deeper understanding in how a volunteer-based organisation works, by gathering insights about Foodsharing CPH and other services around it. These information can later be used when considering how the new service could be organised and how it could be connected to Foodsharing CPH. The maps used at this phase also helped to gain an overview on how the shelters are connected to the organisation. The shelters do not have a strong connection to Foodsharing CPH, as they only get food from the organisation rarely, if there is any left over after the events. This thesis project aims to change that and develop a service that supplies shelters with food regularly. At the end of the Define stage, the final research question was defined based on the research and the insights.

work. The researcher did not participate in the events or workshops of each of the working groups of Foodsharing CPH, which would give more information on how each part of the organisation operates. Since the researcher did not take a closer look on each of the working parties, while using the ecosystem map tool, the organisation was just broke down into board members, shift leaders, driver and volunteers. If the exact roles of the working groups were defined, the ecosystem map could be changed.

### 4.6.1. Limitations

As it was mentioned at the limitations of the Discover phase, there was not enough time to do interviews with even more stakeholders, which might have resulted in different insights for the rest of the thesis

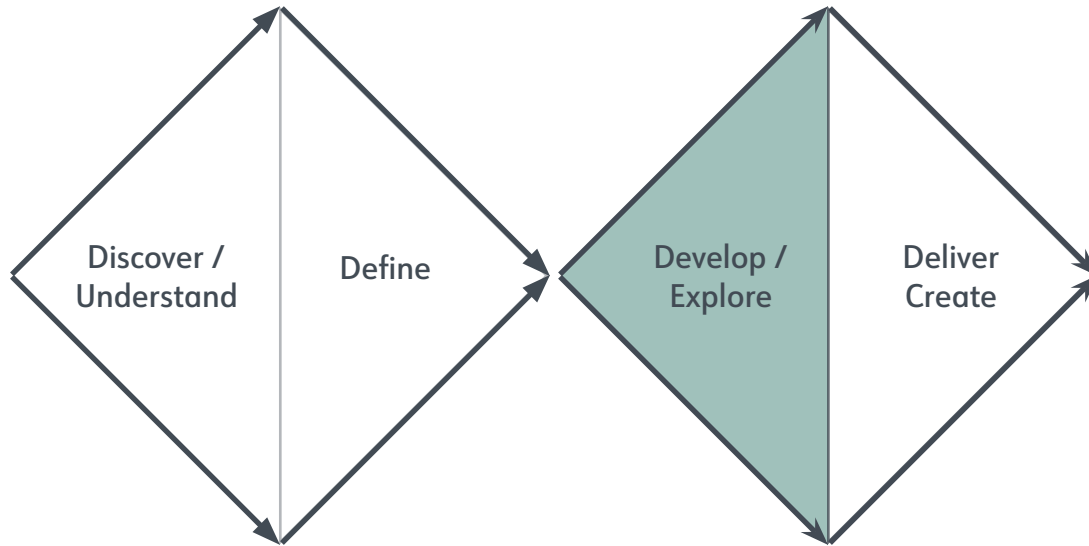


Figure 21 : The Double Diamond (Design Council, 2018)

## 5. Develop

In this phase of the Double Diamond, the objective is to create a solution for the problem and refine it by iterating between testing and prototyping. The iterations give an opportunity to find and correct errors in the service and design the details. The Develop stage also aims to prepare the service for implementation and form the whole experience for the end user. (Design Council & Technology Strategy Board, 2011) In the case of the thesis project many different tools and methods are used such as a co-creation workshop, storyboard, user journey and motivation matrix.

## 5.1. Co-creation workshops

According to Stickdorn and Schneider (2011) one of the principle of service design thinking is that the service design process is co-creative. This means that as many stakeholders should be included during the design process as possible. The aim for co-creation is that the different stakeholders work together “collaboratively in order to examine and innovate a given service experience” (Stickdorn & Schneider, 2011, p.198). By involving many actors in the co-creation, new perspectives and directions can be brought up. During the co-creation session, the role of the designer is to facilitate and moderate the conversation to make sure to get the results that are needed for the design of the service. The ideas generated on the co-creation workshop then will be used as inspiration by the designer who further develop and detail the service (Stickdorn and Schneider, 2011).

### 5.1.1. First workshop

The co-creation workshop took place in the first week of April 2018. There were four participants for the entire duration of the workshop and two other persons who participated only at parts of the session. Three board members were present at the workshop, including the one that is responsible for the food collection in Foodsharing CPH. One other participants is a shift leader and a committed member of the organisation. Another participant was part of the Foodsharing movement since it started in Copenhagen and she is still active on events. A volunteer was also present who participates on the events and has interest in the movement. The manager of the shelter’s night cafe was also invited to participate on the workshop, but unfortunately he could not join.

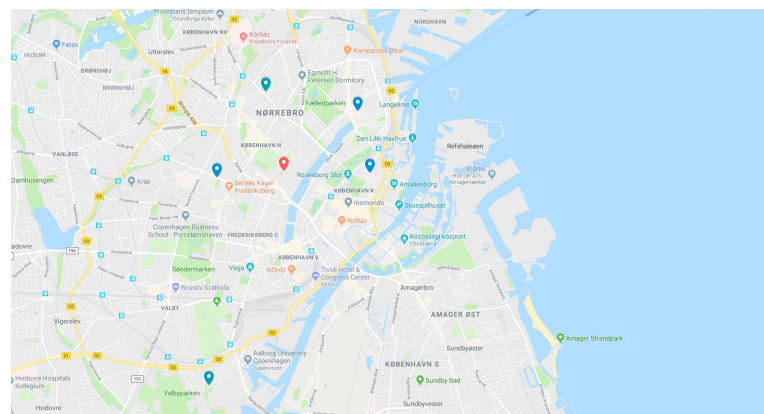


Figure 22: Map with potential food donors and a shelter

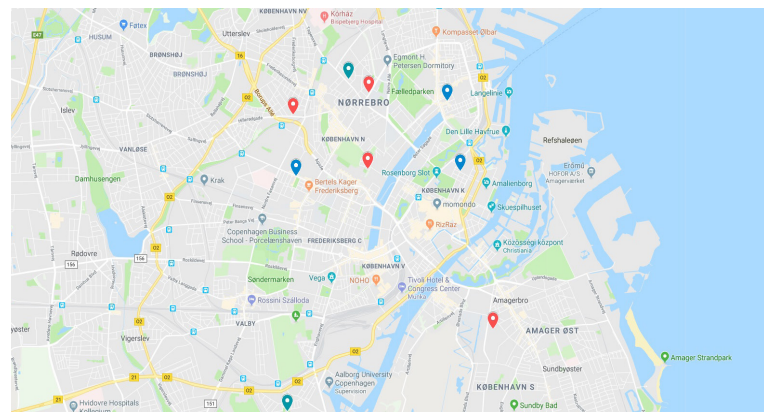


Figure 23: Map with potential food donors and shelters around Copenhagen

The co-creation workshop started with a brief presentation of the researcher. In this presentation information about the shelter was provided to give ideas to the workshop participants about how the shelter and its food supply work. The presentation also contained information about the people that go to the shelter, to give the participants ideas about who they would help with the service. After the presentation, the workshop proceeded to two discussion topics:

- 1) How the Foodsharing CPH could share food with a specific shelter, and
- 2) How Foodsharing CPH could share food with shelters in Copenhagen.

The participants were provided with two maps of Copenhagen which were used to facilitate the discussion. The first map showed the specific shelter and the possible food donors, and the second map showed all the shelters the researcher visited and the possible food donors. The maps helped to visualize the challenge and show the stakeholders that needed to be connected.

The researcher planned to start the co-creation workshop with a brainstorming session, where the participants' task was to come up with a solution that is not necessarily realistic at the moment to implement. The researcher's idea behind this exercise was to get different kind of ideas of how surplus food can be shared with shelters, which then could have been simplified and transformed to be more realistic. However, the participants only wanted to focus on solutions that are already possible to implement and did not want to spend time on ideating on solutions that are unrealistic at the moment.

The workshop was an open discussion about the two questions. Since members of the food collection team were present, they were able to propose new food donors that are located close to the shelter and would probably be up for collaboration. The logistics of how the surplus food would be collected and brought to the shelters were discussed as well as the equipment and volunteers that are needed.

It was also discussed how the volunteers can be motivated to bring food to shelters. The main idea was to give free food to the volunteers as most of them are motivated by that. As one of the participants says: *"Some of them are motivated by deeper causes but most of them are here for the food."*

First it was suggested that the volunteers could get food for free at the Foodsharing CPH events such as the other volunteers that do work outside of the events: *"Lot of people go to the bakery [for bakery collection for Foodsharing CPH] because the next day then they can pick up food"*

It was then suggested that the volunteers could just take food from the food donors while they collect the surplus food: *"You can simply tell the supermarket that we will take food and the volunteers can take whatever they want. They get food, shelters get food, everyone happy"*

It was discussed how the new concept would help Foodsharing CPH to raise awareness about the issue of food waste. The participants of the workshop said: *"It's raising awareness among volunteers because we have even more people involved in basically moving the food waste. This way they will get more insights in how much waste is produced"*

*"They [volunteers] are actually seeing it [the amounts of food waste] first hand as opposed volunteers who come here [to the Foodsharing events] see a big pile of food they don't know where it comes from they don't know how it works, but these guys will see it first hand because they are at the shop "this is all the food that's gonna go in the bin"*

Lastly, the participants discussed how Foodsharing CPH and the food donors could benefit from the new concept. The participants agreed that bringing food to shelters and helping people in need could be used as PR for both the food donors and Foodsharing CPH. Foodsharing CPH could furthermore benefit from the concept since it could be used for raising awareness. At the moment only the members of the Food Collection team pick up the food, and they are the one facing the amounts of food that is being thrown out. The new concept would allow more volunteers to see what is going on at the food donors and how much food is saved by them.

### 5.1.2. Second workshops

After the first workshop, one of the participants - who is a member of the board of Foodsharing CPH - asked all the other board members to vote if they allow the project to run under the organisation. One board member blocked the idea of sharing food with shelters in Foodsharing CPH, because he thought that *"it undermines unconditional sharing of food"*. By this he meant that a service in Foodsharing CPH that only brings food to shelters would not allow anyone to get food because only the residents of the

shelters benefited from it.

Based on the result of the vote, a second workshop was organised to discuss how the project could take form outside of Foodsharing CPH. On the second workshop volunteers and board members of Foodsharing CPH participated. The participants decided that a name should be created for the new service to differentiate from Foodsharing CPH, who would be a partner. *"We need to collaborate with Foodsharing CPH because they have the volunteers and the name. In return, helping shelters could be good PR for them"*.

The workshop ended with a brainstorm session where the concept's name was created. The participants said words that the service can be associated with, and then they ideated together. Finally the participants came up with the name 'Madbroyen', which means 'The Food Bridge' in English. The participants thought that this name would reflect what the project is about: bridging the gap between food retailers who have food surplus and organisations that could use the food to help people in need. This way the surplus food gets saved from going wasted and shelters could provide more versatile meals to their residents.

## 5.2. Design brief

In this section the concept of Madbroen will be introduced briefly. This will clarify the core of the service and its aims.

### What?

Madbroen is a service that organises the collection and redistribution of surplus food to shelters. The surplus food is collected from supermarkets and bakeries by volunteers and brought to shelters where it gets distributed amongst people in need. In return to their work, the volunteers are also allowed to take any surplus food that they find at the supermarkets and bakeries. In order to coordinate the volunteers, a website is made where the volunteer shifts are announce and can be booked.

### Why?

Madbroen's aim is to reduce food waste that is produced by supermarkets and bakeries. The concept tries to fight food waste in a way that it helps people in need, therefore those who might not have enough nutritious food on a daily basis. Madbroen also aims to create awareness of the problem of food waste by bringing volunteers to the food donors where they can see how much food is actually going to waste.

### WHO?

Madbroen is operated by volunteers and it is bringing food for shelters in Copenhagen. At the beginning Madbroen will collaborate with one shelter as a pilot project but the aim is to discover the needs of other shelters around the city and bring surplus food to as many of them as possible.

### When?

The food collection and redistribution depends on the availability of the supermarkets and bakeries, and the needs of the shelters. Ideally, the volunteers of Madbroen bring food to shelters once every week.

## 5.3. Test of the initial idea

The owner of a bakery close to the shelter was contacted by one of the volunteers who donates food from time to time and therefore has a good relation with the workers of the bakery. The owner of the bakery agreed that Madbroen can take bread on Mondays for the shelter and the volunteers who comes to pick up the bread are allowed to take food for themselves. After the agreement was made, the researcher went to pick up surplus bread from the bakery on two Mondays in a row to then bring it to the shelter.

### 5.3.1. First test of the idea

On the 23rd of April, the researcher went to the bakery 5 minutes before closing and there were already two other persons who were waiting for the bakery to close so they could take the surplus food. While waiting for the shop to close the researcher had the chance to talk to these volunteers.

One of them was a local who lives close by and he goes to the bakery regularly to pick up bread and brings it to a shelter in the area. He knew about other bakeries where no one goes to to pick up surplus food and he also knew about shelters in the area that would be happy to receive that. He had useful knowledge in food donation, possible food donors and shelters in the area. Although he donates bakery products regularly, he brings the food to different shelter every time therefore the shelters do not know if they are going to receive any bread that day or not, and when is the next time they will receive food. The other volunteer who came to the bakery to pick up surplus food was a volunteer of a shelter that brings

bread from the bakery to the same shelter regularly (every Monday and Wednesday).

Although there were three persons picking up bread, there were more than enough surplus bakery products for all of the volunteers. There were even some buns and bread that had to be thrown out, because the volunteers did not have the capacity to take all the food. It seemed that there are some people that already do what Madbroen would do, but not in a coordinated way. After the bakery collection, the question emerged: what if more volunteers bring bakery products to the same shelter because of lack of coordination? In this case the shelter might end up throwing the surplus food out anyways, because they would receive way more than what the shelter residents could consume.

Another question also emerged during the test of the first idea. One of the volunteers mentioned that he is doing the bread donation unofficially. He explained that if he would transport the donated food officially then he has to meet the requirements of Fødevarestyrelsen (Danish authority that controls businesses that deal with food). This is something that Madbroen needs to take into account if the service is about the transportation of the food.

### 5.3.2. Second test

The researcher went to the bakery again on the next Monday (30th of April) to pick up surplus bread to bring to the shelter. The researcher met the other two volunteers again, but this time there was just a little bread left to take and it was already given to an event on the 1st of May. This meant that there was nothing left for the shelters that day, while according to one of the volunteers, although there was too much left the day before and no one came to pick it up. The same volunteer told the researcher that the shelter has enough bread at the moment. After learning about that there was not enough bread left for the shelters, the other volunteer started to call bakeries in the area if they have any surplus that could be picked up by her. The shelter she brings bread to was counting on her delivering the donated food, therefore she had to find another food donor at the last moment.

This shows that there is a lack of coordination between food donors and volunteers as well as among volunteers that collect the surplus food. There are already organisations (for example Foodsharing CPH) or communities that take the surplus food from bakeries on a given day, but the quantity of the surplus food is never guaranteed, it always depends on how much food the bakery can sell that day. The conclusion from the second test round was again that there is a need for information about the amount of food at the donor, information about the actual needs of the individual shelters and some sort of communication between the volunteers before they go to pick up the food. With better information flow the surplus food around the city could be redistributed more efficiently.



Figure 24: Bread delivery to the soup kitchen



Figure 25: Bread delivery to a shelter

## 5.4. Iteration of the idea

Based on the information that was gained during the two test rounds of the initial idea, changes had to be made in the concept of Madbroen. From the results of the test rounds it was found that there is a need for a tool which would allow information to flow between the actors and would make the coordination more efficient. As part of the original concept, Madbroen would have a website where the volunteers could sign up for shifts and this way the food supply of the shelter could be regular. At this point the way the volunteers are organised is similar to the way Foodsharing CPH does it. What the participants of the workshop did not take into account is that unlike the food donors of Foodsharing CPH, the places that would donate to Madbroen have different amounts of surplus food. The need of the shelters can also change from week to week. They do not know what kind of food they are going to receive from their donors. For instance the shelter sometimes receives bread from FødevareBanken, but they never know when and how much. If the volunteers are organised to bring bakery products once a week, but the shelter also receives bread that week from other food donors, then some of the food might end up thrown out. Madbroen fights against food waste, therefore the concept needs to make sure that the donated food gets to the people who need it and will be used instead of go to waste. The concept of Madbroen therefore was changed to focus on the website, which can be used as a platform where food donors and shelters could share information about their availability and accessibility.

The improved concept of Madbroen is more user-centred. Through the test rounds more information was gained about the

experiences of users which should be in the focus throughout the service design process according to the principles of service design thinking (Stickdorn & Schneider, 2011).

During the test rounds it was also found that there are different regulations that would apply for Madbroen if it would transport food products. This was not taken into account when creating the concept. The concept should focus on the interaction between the actors instead on the transportation of the surplus food. This way Madbroen would provide information about where the surplus food is and where it is needed but the actual transportation would be externalised, therefore the regulations would not apply.

The figures below visualize how the platform would work. Figure 26 gives an overview on what information would be provided from the food donors and the shelters and how the information would be processed. The figure also shows that the platform uses the information to create shifts that the volunteers can choose. This way the volunteers get information about their shifts and can transport the food from the food donors to the shelters. Figure 27, 28, 29 and 30 show how the information is processed by Madbroen and how the shifts are created.

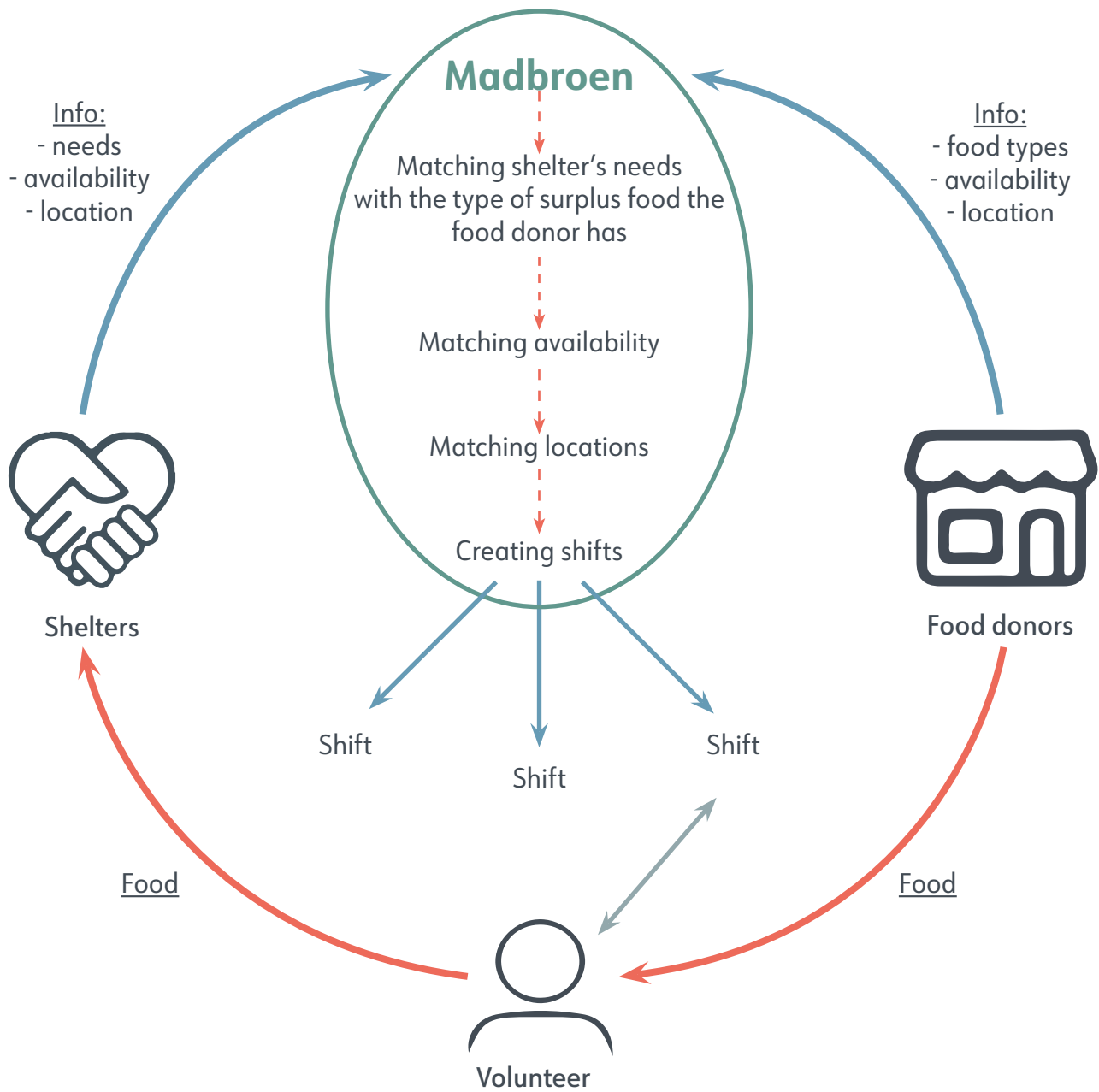


Figure 26: Mapping how Madbroen's work

1. Matching shelter's needs with the type of surplus food the food donor has

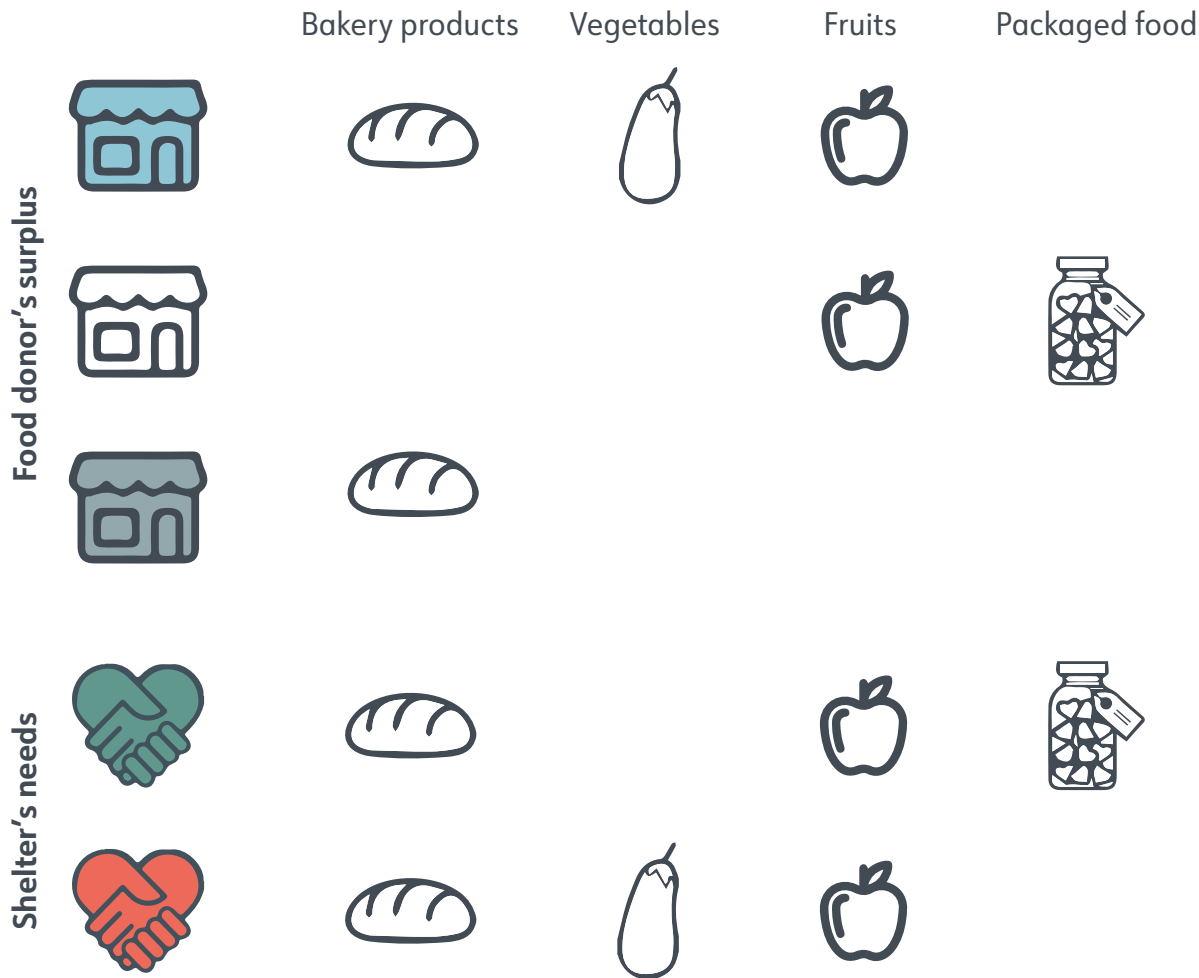


Figure 27: Matching needs with types of surplus food

2. Matching availability

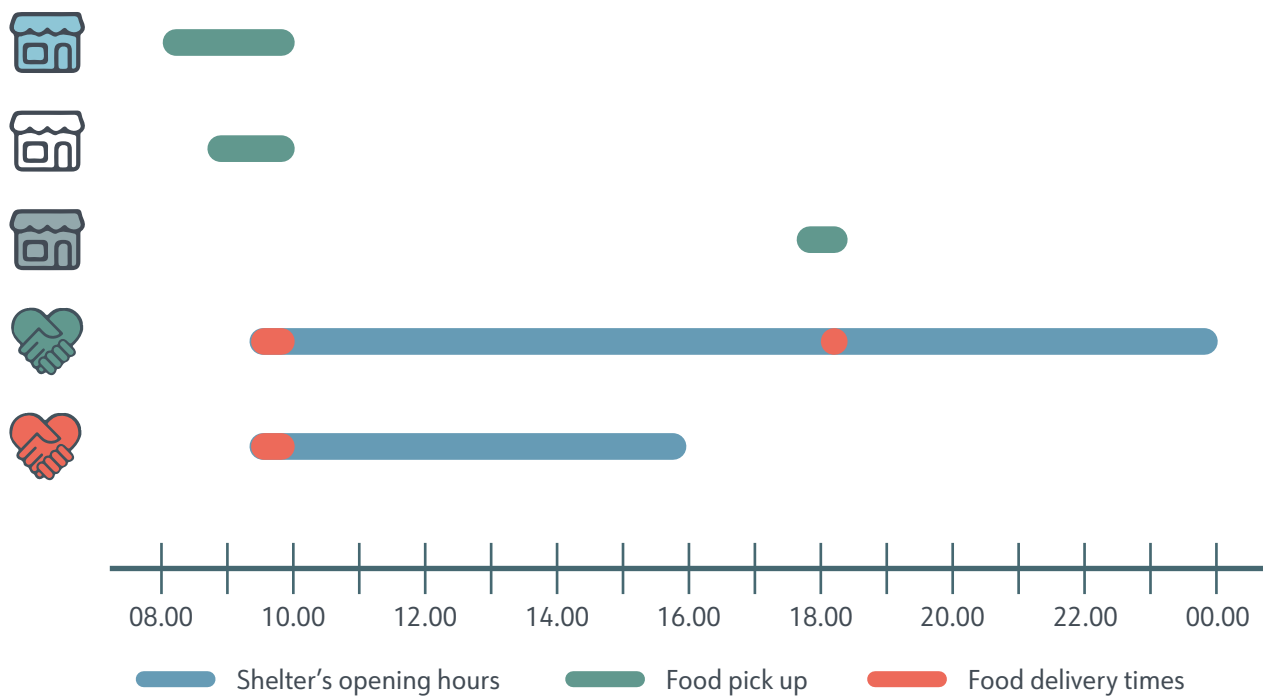


Figure 28: Matching availability

### 3. Matching locations

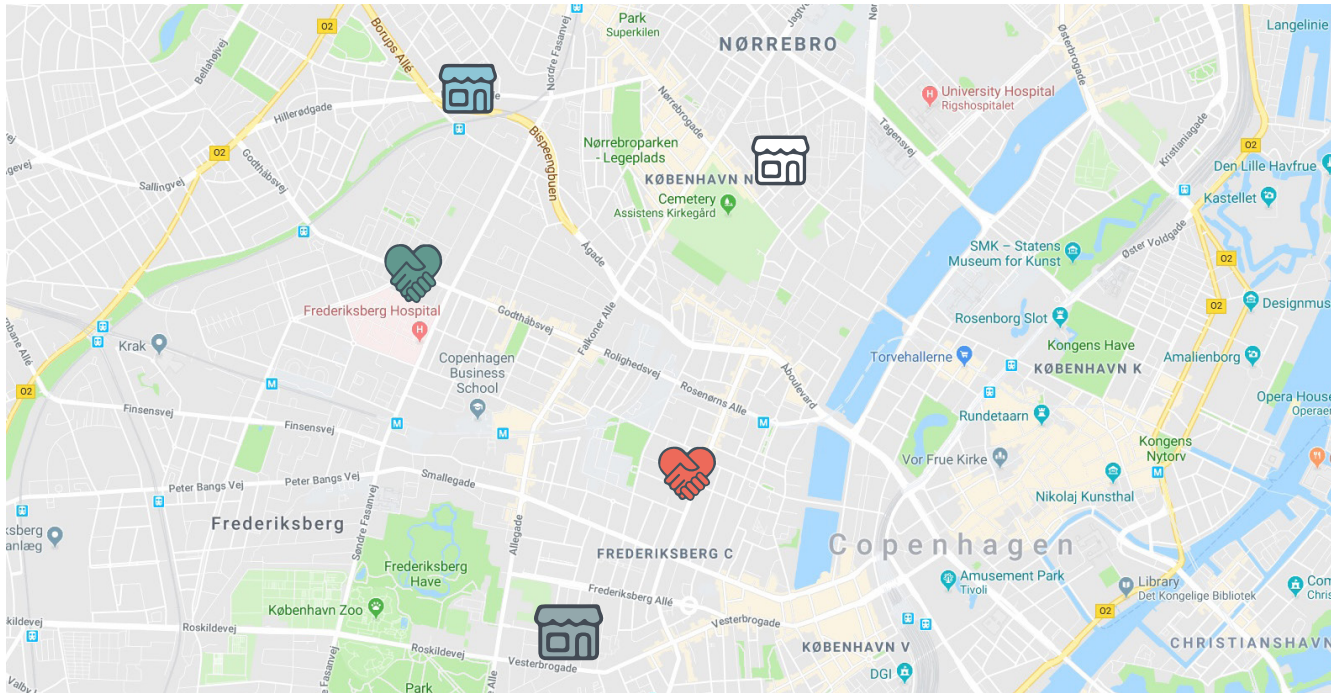


Figure 29: Matching locations

### 4. Creating shifts:

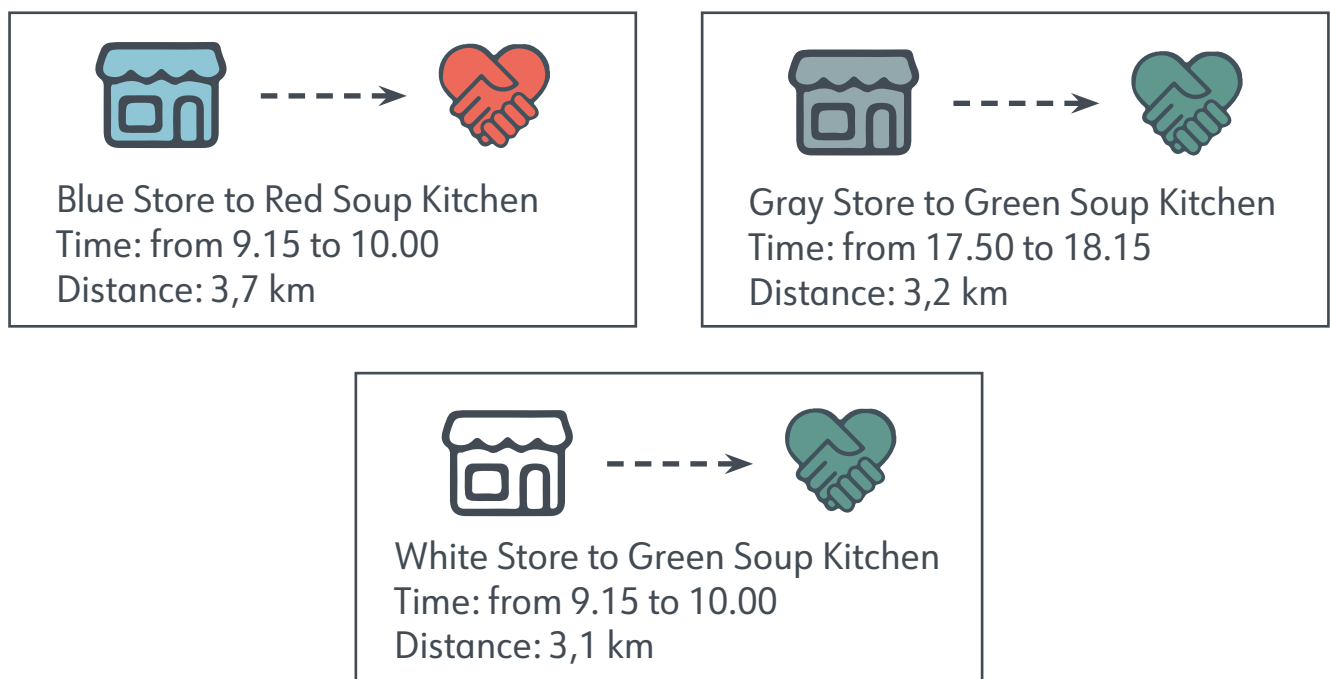


Figure 30: Creating shifts

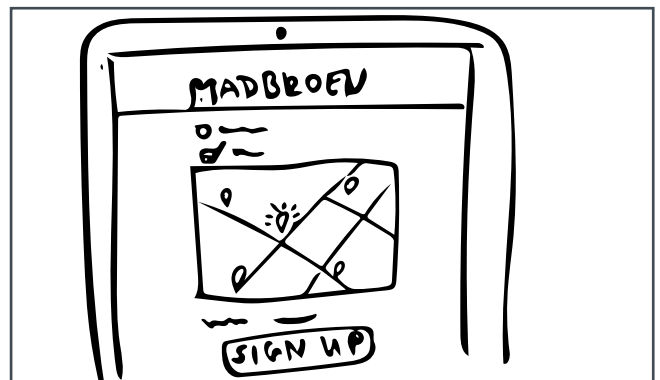
## 5.5. Storyboard

A storyboard is created for Madbroen which is a set of “drawings or pictures that visualise a particular sequence of events” (Stickdorn & Schneider, 2011, p.186). In this thesis, the storyboard is used for illustrating some of the common service moments. The storyboard tells stories and important aspects of the user experience. It can be used as a tool for discussions about the service but it

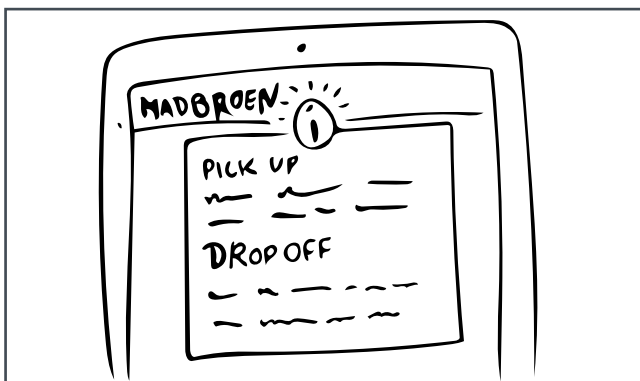
also helps the designer to imagine how it is to be the user of the service. (Stickdorn & Schneider, 2011) A few stories were sketched for the service of Madbroen (see Figure 31) to specify some of the aspects of the concept. The sketched service stories are used as a base for the user actions in the user journey tool (see Chapter 5.6.).



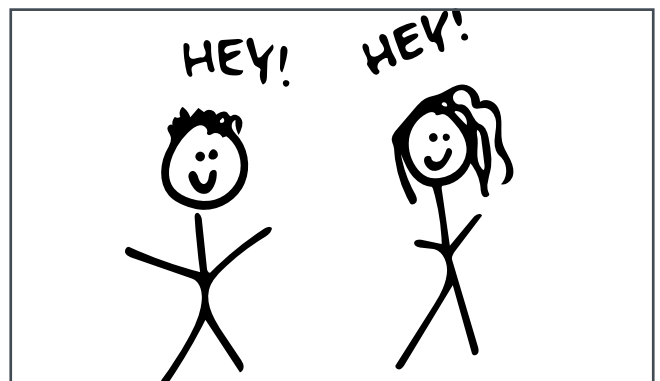
Finding the flyer of Madbroen at the bakery



Signing up for a shift on the platform



Getting information about the shift



Meeting the other volunteer at the food donor



Transporting the food to the shelter



Dropping off food at the shelter

Figure 31: Storyboard

## 5.6. User journey

The user journey tool is used to illustrate the steps the main actor is going through, while using the service. The main actor of the service can be customers or employees of the service provider. In the case of Madbroen, the main actor is a volunteer who signs up for a shift to pick up surplus food and bring it to a shelter. The user journeys can visualize both existing or future experiences and it is used for identifying gaps in these user experiences and to discover potential solutions. (Stickdorn et al., 2017) In the case of Madbroen, a future-state user journey is made to *“help people to imagine, understand, and even experiment with the potential experience and context of use”* (Stickdorn et al., 2017, p.50). On the user journey of a volunteer of Madbroen (see Figure 32), the experience starts from the moment in which the volunteer discovers the concept of Madbroen and signs up for the first time for a shift. The user journey follows the volunteer through the whole experience of finding out about the service until after the service ended.

The user journey contains six rows which are the Stages, Actions, Channels, Thoughts, Stakeholders and Emotional journey. Furthermore, the user journey visualizes when the actions happen. The first row contains the stages of the service that are used for structuring the user journey (Stickdorn et al., 2017). Madbroen's user journey contains four main stages: Information, Sign up, Use and Follow up. Each of the stages contain several steps that are visualized in the “Actions” row. These actions are a *“sequence of steps from the perspective of the main actor”* (Stickdorn et al., 2017, p.46). The different steps represent an experience the user has with the service which can be through digital interface or talking to a person. (Stickdorn et al., 2017) After the actions, the channels are visualized on the user journey. The channels refers to the communication that happens

during each step of the journey and it can be for example apps, websites, face-to-face conversations or printed materials. (Stickdorn et al., 2017) On the user journey of Madbroen the channels are the online platform, printed materials, text messages and face-to-face interactions.

After the Channels, the Thoughts row represents what the user would say about the actions that were carried out. This helped to imagine how the users would react at the certain steps of the service. In the user journey of Stickdorn et al. (2017), the stakeholders were also visualized on the model, and since all actors (volunteers, shelters, food donors) are equally important for the service to happen, they were included in the next row of Madbroen's user journey. The stakeholders are visualized at the steps where they interact with the user through different channels. Lastly, in the next row, the emotional journey of the users was visualized. At each step the satisfaction level of the user was illustrated in order to identify any issues with the experience. (Stickdorn et al., 2017)

The user journey tool helped detailing the service and defining how each step would happen. It was also used for identifying at which steps the volunteer would need information from which stakeholder. The user journey helped exploring how the potential volunteers could learn about the concept. Madbroen could be advertised among the volunteers of Foodsharing CPH, but to get volunteers besides that, some printed materials at the food donors can be a solution. As the user journey begun to detail the service, it will later be used as a base for the blueprint in Chapter 6.4.

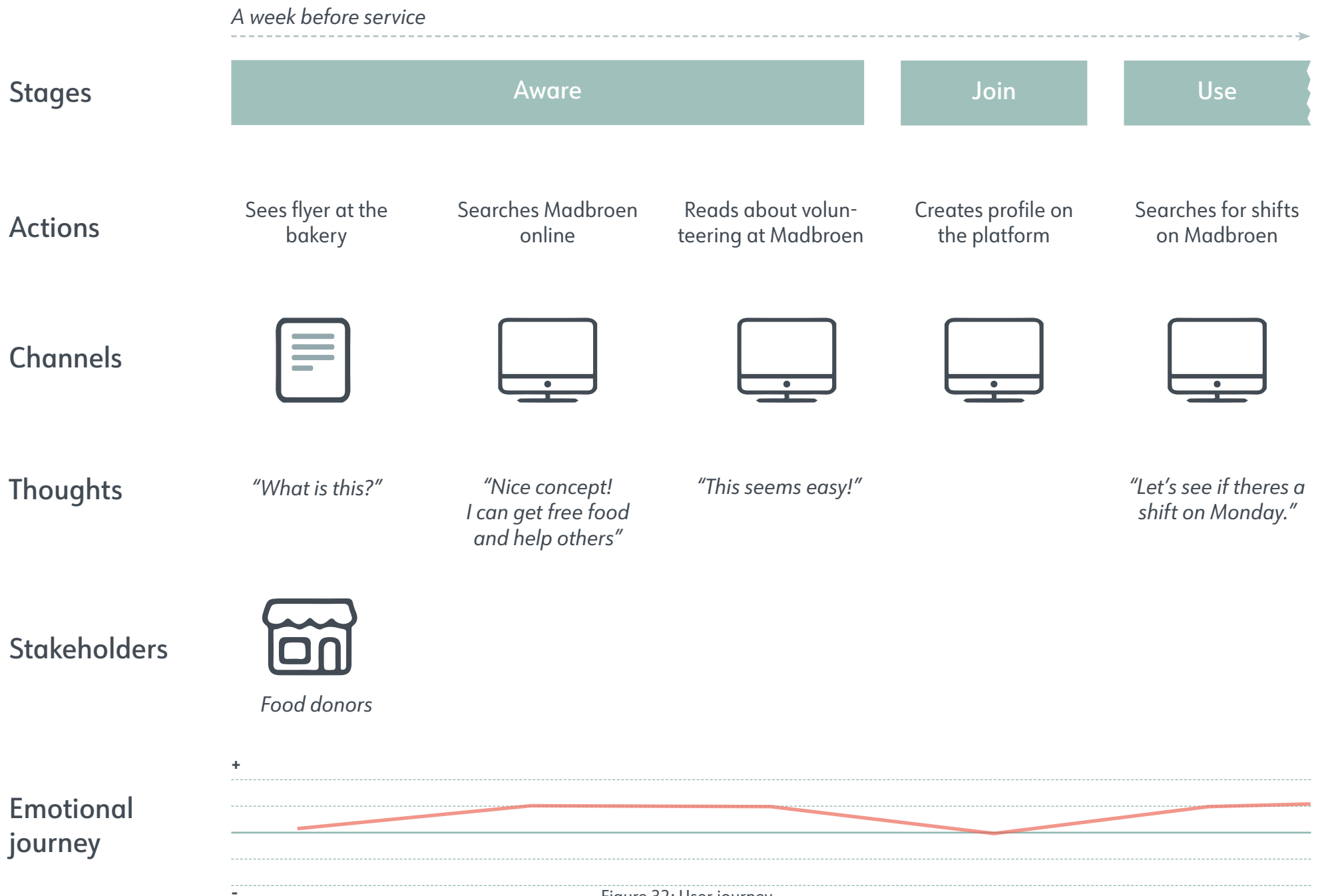
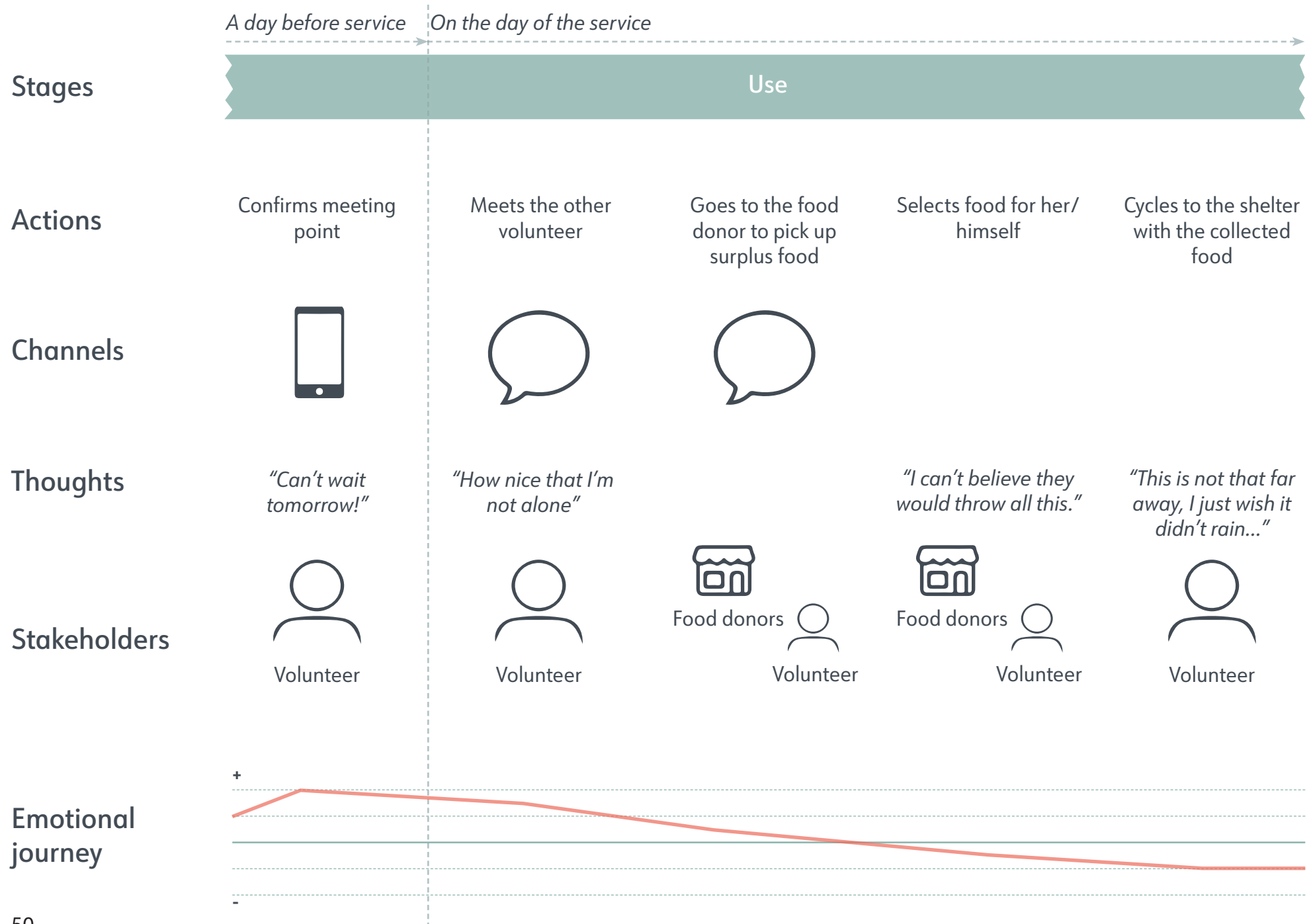
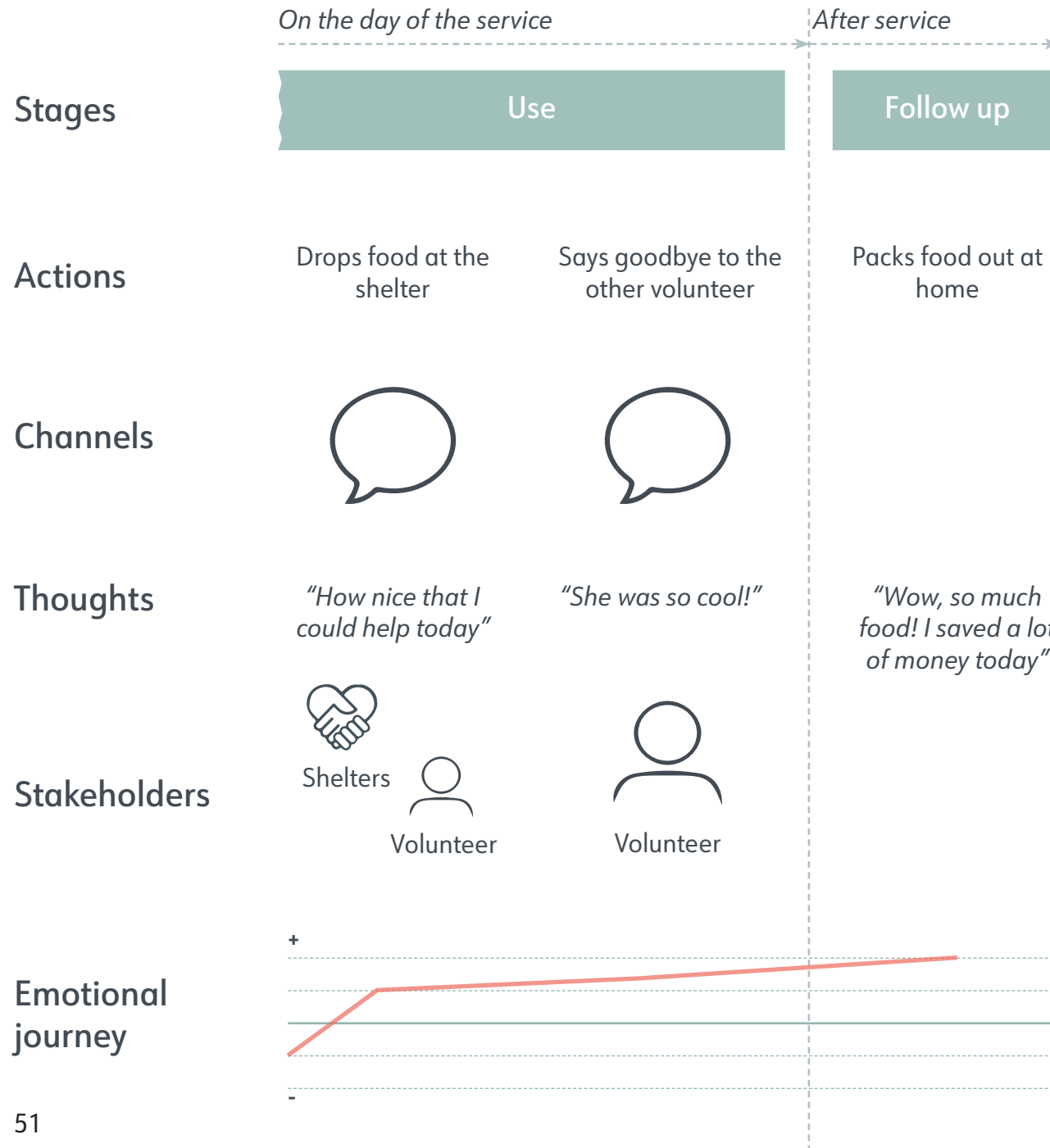


Figure 32: User journey







## 5.7. Platform canvas

Online platforms are those that bring *“people and/or businesses together. They help facilitate social and commercial exchanges of goods, services and information which would not otherwise happen.”* (Oxera, 2015, p.8) The platform of Madbroen is analysed by using the Platform Canvas which is a tool that proposes a structure for the platform. The platform canvas was developed by Choudary, Parker and Alstyne (2015, p.137) and it helps to build *“interaction-first platform businesses”*. These platforms are based on interactions therefore they need to be developed in a way that they become desirable for the users to participate in the interactions that these platforms enable. On these platforms the value is co-created by the producers and the consumers so these actors need to be able to join the platforms easily. (Choudary et al., 2015)

According to Lusch and Vargo (2011) value is always co-created and defined by the beneficiary of the service. The necessary resources for the service are integrated by both the beneficiary of the service and the service provider (Lusch & Vargo, 2011). In the case of the platform of Madbroen, the value is created for the actors if all the actors participate in the service. If the food donors do not participate, then there would be no surplus food for the volunteers to take. The volunteers are needed in the redistribution of the surplus food and the shelters are needed to take the surplus food in order to reduce the food waste and help people in need.

Since these interaction-first platforms are open to anyone, they are open to misuse, therefore the platform need to manage the participation of the actors by filtering and curating content and actions of the users. The interaction based platforms can

enable multiple interactions, but they must have one main interaction and all the other interactions are strengthening the core interaction. Because of the importance of the main interaction, the design of the platform starts by building the core interaction (Choudary et al., 2015). The core interaction in the case of Madbroen is volunteers booking shifts. More specifically the volunteers can see information about food surplus and needs of the shelters in their area and according to this information they can sign up to go to the food donors and take the surplus to places where it is needed. Aside from this interaction, there are other ones for example food donors can update the amount of surplus food they have for the day and what time it can be accessed. Another interaction is that the shelters can update their needs for food on the platform. For example if they are out of bread, they can let the volunteers know on the platform. The shelters can also give information about the times when the food can be delivered. The food donors and the shelters are providing resources (information) for the volunteers and based on this information the core interaction (signing up for the shifts) can happen.

*“The platform provides an infrastructure for the creation of value and enables the transfer of value from producers to consumers”* (Choudary et al., 2015, p.139) Based on the platform canvas by Choudary et al. (2015), the different aspects of Madbroen were defined (see Figure 33). The creation of a platform canvas starts with defining the value that the core interaction will provide for the consumers. In the case of Madbroen, the value is information about the availability of food products that are up for donation and information about needs of those food products.

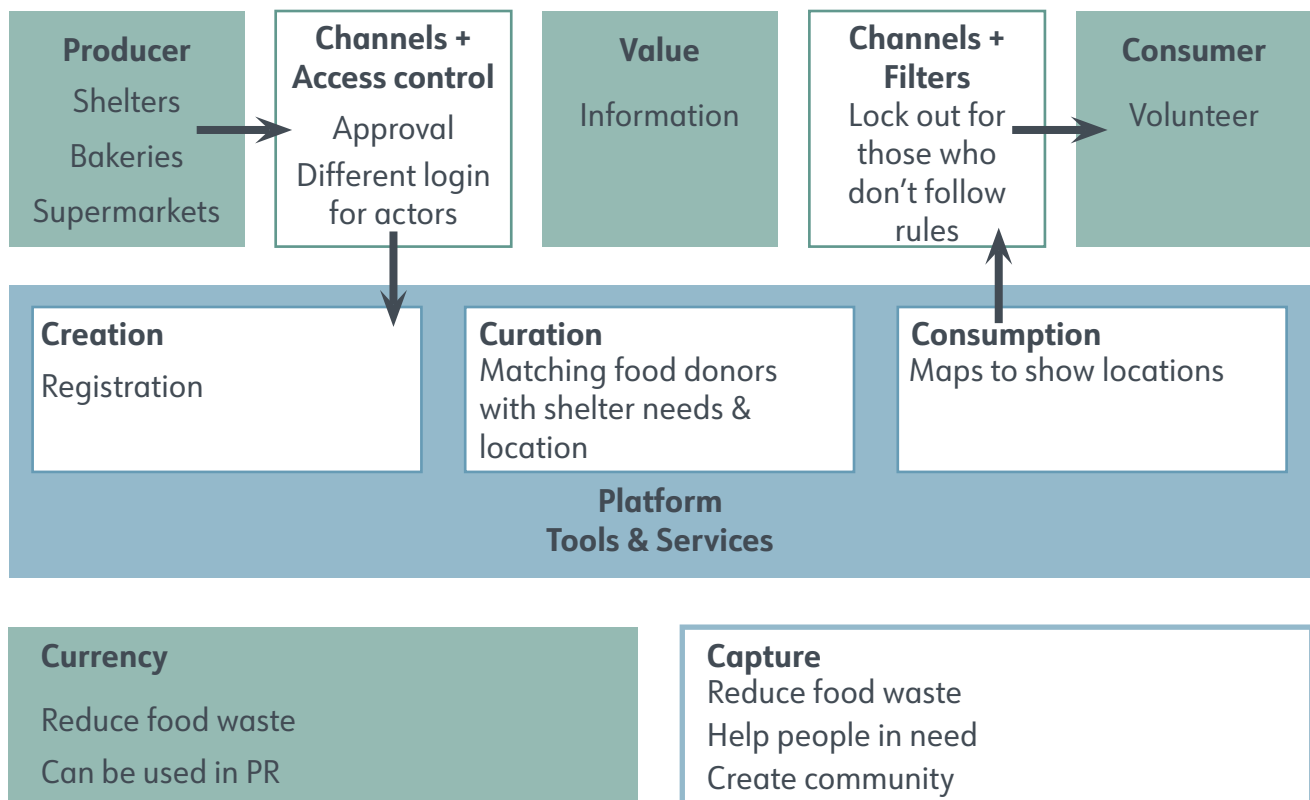


Figure 33: Platform canvas

The producers of the platform are the food donors (supermarkets, markets, bakeries, etc.) and the receivers (shelters, student dorms, etc.). The consumers of the platforms are the volunteers who sign up on the website to bring the food from the food donors to where it is needed.

In the next stage of the platform creation, the channels, the access control and the filters are defined (Choudary et al., 2015). These are necessary in order to *"balance the creation of an open, participative system with the need for quality control and relevance"* (Choudary et al., 2015, p.140). The channels represent the form of a platform which enables the interaction between the producers and the consumers. For Madbroen, the platform is a website where the producers and consumers can create a profile and interact with each other. Through access control, the platform can define what kind of producers are allowed to use the platform and how they can

use it (Choudary et al., 2015). In the case of Madbroen, all the food donors should be approved before they can start donating food. Not all kind of food donors would be able to donate food products for safety reasons. For instance meat and dairy products might not be safe to consume, as the food receivers can not know how the food was stored before. Only bakery products, packaged foods, fruits and vegetables can be donated through the platform.

The platform also need to create filters for the consumers to ensure that they get is relevant for them (Choudary et al., 2015). Madbroen can filter the information provided to the consumers based on their location and their needs for food products. Location filter means that the nearest food donors and receivers could be shown first for the consumers. The volunteers that bring the food from the donors to the receivers are also allowed to take from the surplus food.

The consumers can filter the information based on what kind of food they would like to get. For example if they need bakery products, the platform can prioritize the food donors that have surplus of bakery products, therefore the volunteers would get the kind of food that they need.

In order for the platform to provide the interactions, it needs to give tools and services for the producers and the consumers. These are creation, curation and customization, and consumption. Creation tools and services could be softwares and interfaces that enable the content creation. (Choudary et al., 2015) For Madbroen, the content creation happens through filling out a spreadsheet where all information is specified by the producers. This information could be the sort of surplus food the donor has, the needs of the receivers, the availability of the food (when it can be picked up and dropped), etc.

The Curation tool *“details the features, functionalities and services that enables curation and customization on the platform”* (Choudary et al., 2015, p.143). Madbroen takes the information from the food donors and the receivers that need the surplus food, and matches the information by the needs and the locations. In order to match the information by location, Google maps can be used. Consumption tools are those that *“serve value to the consumers”* (Choudary et al., 2015, p.143). On the platform of Madbroen, the information can be viewed through the user interface which consist of a map that shows suggested routes for the volunteers based on their locations and/or needs.

Lastly, the currency and capture should be defined on the platform canvas. The currency represents the way the consumer pays to the producer during each interaction that happens on the platform. (Choudary et al., 2015) On the platform of Madbroen the currency is that the volunteers help the food donors to lower their food waste and at the same time help people in need which could be used by the food donors in their public relations.

Capture refers to the way the platform captures value from the interactions. This can happen through charging either the producers or consumers of the platform, but it can also happen by charging a third party. (Choudary et al., 2015) Since Madbroen is a non-profit project, it does not charge the producers or consumers for using the platform, as the aim of the platform is to help to reduce food waste and charging any of the actors may result in the users quitting the platform. The platform canvas proposed by Choudary et al. (2015) is for platform businesses that are profit oriented. Madbroen's aim is not to get profit but to create social values such as reducing food waste, help people in need and bring people together.

Developing the platform canvas for Madbroen helped to understand how the interactions between the different actors will happen and how the value will be created. It helped to make a draft of how the platform is going to built up and focused on the core interaction.

## 5.8. Madbroen's stakeholders map

Since Madbroen is a new service, a new stakeholder map is created (see Figure 34) to demonstrate the actors and their influence. As it was discussed before in Chapter 4.2., stakeholder maps are intended to visualize the most important organisations, groups or persons that are *"somehow connected to or has an interest in a project, organisation or product"* (Stickdorn et al., 2017, p.63). Similar to Foodsharing CPH's stakeholder map, the stakeholders are in four groups: users, suppliers, volunteers and partners. Each stakeholder on the map is equally important to the others as there would be no service if even one of them would be missing.

The new stakeholder map helped to identify the important actors in the service. Based on the stakeholder map, the ecosystem map and the motivation matrix can be created which will help to demonstrate the service in detail.

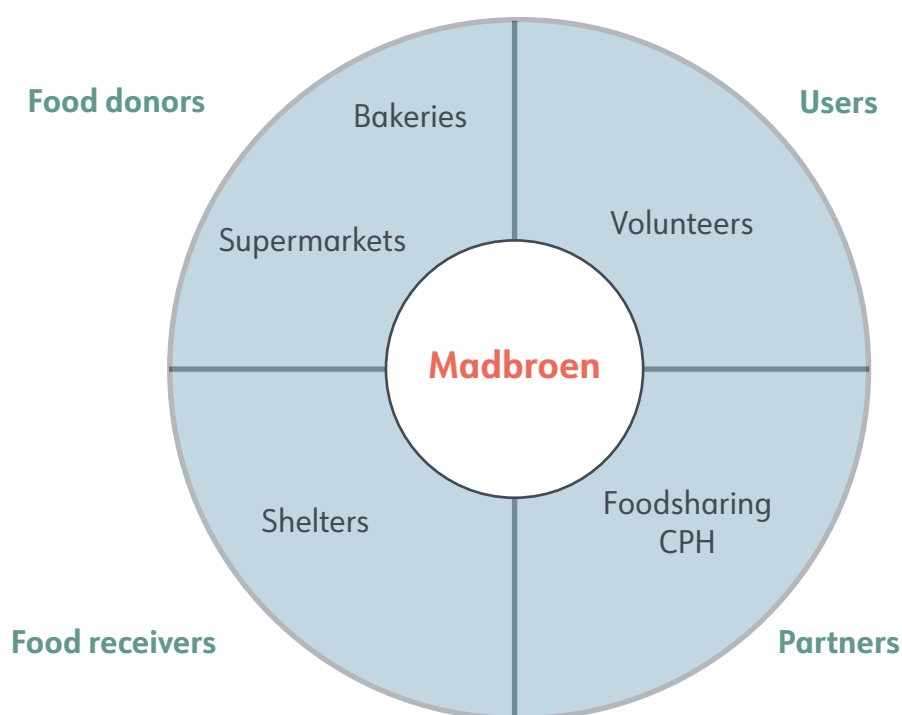


Figure 34: Madbroen's stakeholder map

## 5.9. Madbroen's ecosystem map

As it was discussed in Chapter 4.4., the ecosystem map is based on the stakeholder map but it includes other important aspects such as interfaces, systems, platforms, etc. (Stickdorn et al., 2017, p.61). Madbroen's ecosystem map (see Figure 35) also visualizes how the information and food will flow between the stakeholders.

The ecosystem map shows that there is an information flow between the suppliers, the shelters and the platform. While on the ecosystem map of Foodsharing CPH there was no information flow between the food donors and the organisation, the platform of Madbroen collects information from the food suppliers. This will help to optimize the food collection from the donors. The same way, there is an information flow between the food receivers and the platform which helps to map out the needs of the receivers and find the kind of food that they lack.

There is an information flow between the employees of Madbroen, and the shelters and food donors. This is because the shel-

ters and the suppliers need to be authorized before they can appear on the platform. This is necessary in order to make sure that the food suppliers are not butchers for example from where it would not be safe to take the food waste. Food receivers also need to be authorised in order to avoid private persons signing up as food receivers. Food receivers are preferably shelters to begin with, but it could also be student dorms in the future, where bigger amount of food is needed.

The ecosystem map shows how the food will get from the food donors to the receivers. The volunteers are the ones who redistribute the food surplus and they are also some sort of receivers of the food as they are able to take from the surplus food as much as they like as a payment for the redistribution. Since the private volunteers are the one that transport the food, based on the information that the platform provides, Madbroen does not need to meet the food safety regulations.

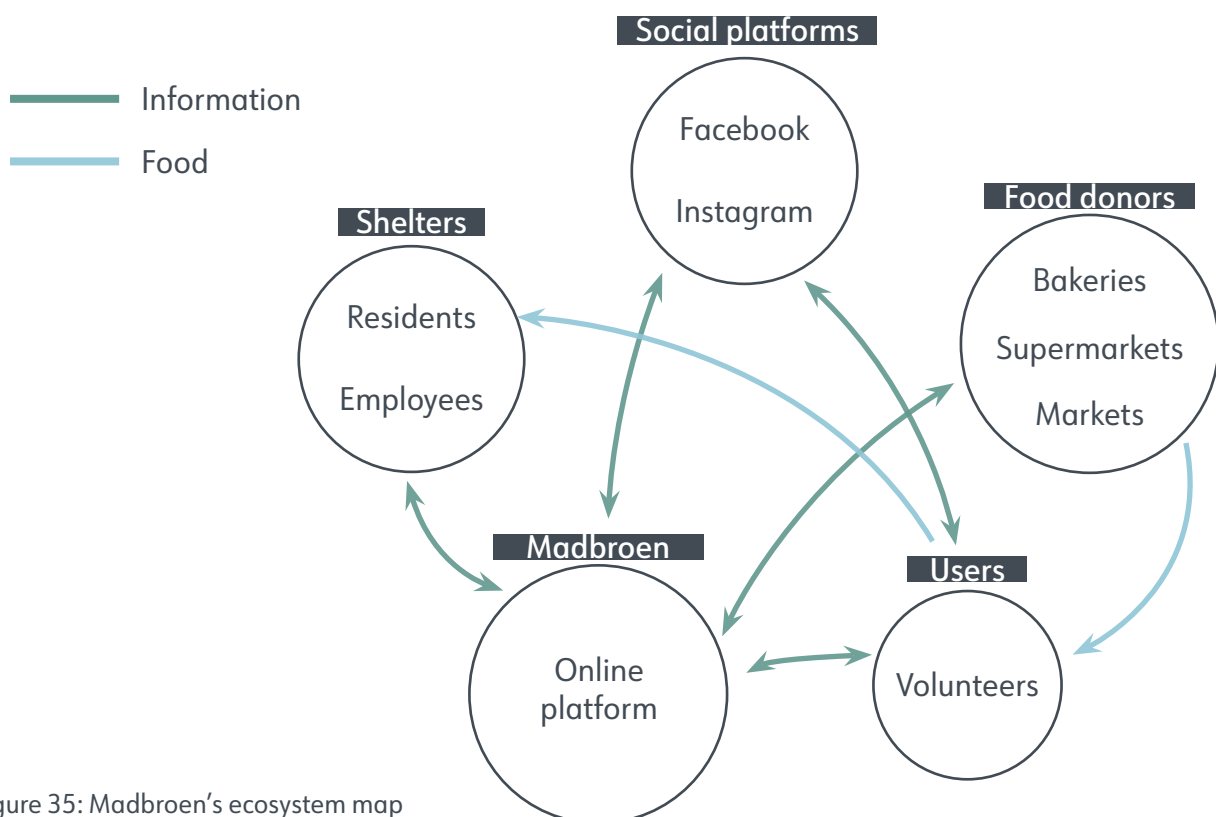


Figure 35: Madbroen's ecosystem map  
56

## 5.10. Motivation matrix

The motivation matrix is a tool that helps to understand the relations between the individual actors. The matrix shows the needs and expectations of the actors in relation to the service. Using this tool can give a deeper understanding in why the individual actors participate in the service and how the service benefits them. The motivation matrix is created by assumptions of the interests and views of the actors (Service Design Tools, 2018). On Figure 36, the motivations of each actors that are related to Madbroen can be seen.


<b>Gives to</b> 	<b>Volunteer</b>	<b>Madbroen</b>	<b>Shelter</b>	<b>Food donor</b>
<b>Volunteer</b>	Community	Keep the concept alive	Bringing food	Logistics of surplus food
<b>Madbroen</b>	Access to food resources Be part of community Opportunity to: - fight food waste - help others		More versatile, nutritious food	PR Reduce food waste Reduce costs
<b>Shelter</b>	Appreciation	PR		PR
<b>Food donor</b>	Free surplus food Access	PR	Ability to offer more versatile food	

Figure 36: Madbroen's motivation matrix

## 5.11. Summary of Develop phase

The tools at this stage helped creating the service concept. After generating insights of the problem area, the initial version of the concept was co-created by some of the members of Foodsharing CPH. On the workshops, the concept of Madbroen was created which is a service that redistributes excess food to shelters. During this stage, the concept was tested, improved and detailed in order to make it more usable and desirable for the potential users. The tests helped to iterate the initial idea of Madbroen and refine it by using tools such as design brief, platform canvas, storyboard, user journey and new ecosystem map.

While the initial concept of Madbroen focused on the logistics of the redistribution, the results of the tests showed that there is a lack of information flow between the different actors which causes problems. After the tests, the focus was on the coordination of information between the stakeholders, for which a platform was created as a solution. The platform canvas tool helped to visualize how the platform would work and how the value will be captured for all actors. The user journey and the storyboard tools helped to detail and visualize the service, and to understand the actions the volunteers will need to take while using the platform.

Participants could think of service solutions that seem impossible to implement at the moment. The participants refused to do the brainstorming session because they did not think it was needed. The workshop took place right after one of Foodsharing CPH's event and the participants were all volunteers that day, therefore they were tired and not willing to do all the planned exercises. The manager and volunteers of the night shelter were also invited for the workshop, but could not join. The participation of other stakeholders then the member of Foodsharing CPH could have resulted in a different concept.

### 5.11.1. Limitations

On the co-creation workshop brainstorming activities were prepared for the participants in order to get many distinct ideas and make the participants think in a different way. The researcher tried to facilitate a brainstorming exercise where the parti-

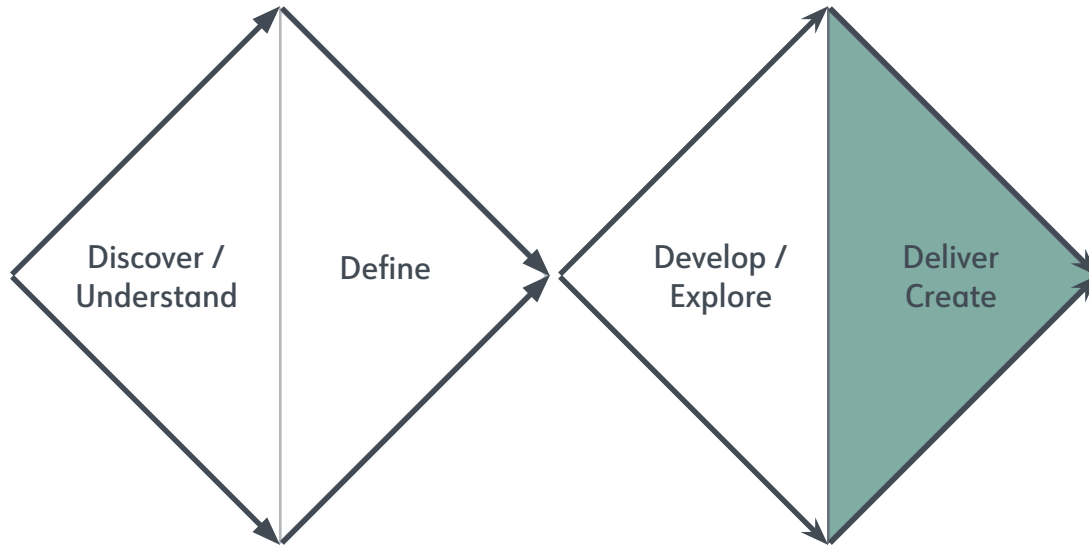


Figure 37 : The Double Diamond (Design Council, 2018)

## 6. Deliver

At the last stage of the Double Diamond the aim is to finalize the service which then be ready to launch. After developing the final concept, in this phase the final tests are done and evaluated which allows the designer to evaluate and integrate user feedbacks. At this stage, the service provider organisation can share knowledge that was gained from the development of the service (Design Council & Technology Strategy Board, 2011). At the Deliver phase, prototyping, ecology map and service blueprint are used to finalise the service.

## 6.1. Prototyping

In order to test the new concept, a prototype of the platform is created. *“Service prototypes are staged experiences and processes that replicate any chosen part of a service from frontstage to backstage”* (Stickdorn et al., 2017, p.65). The prototypes can help to identify important details of new services and test how they would function in reality. The prototypes of digital services can help to get feedback from the potential users on the service concept, the functionalities, the content elements and the structure. (Stickdorn et al., 2017). In the case of Madbroen, the service is a digital platform but it also has physical aspects. The volunteers can get information about the places with surplus food and where that food is needed, they can sign up for shifts to redistribute this surplus food. Although Madbroen does not include a transportation service, the volunteers have to deliver the food from the food donors to the shelters, therefore without the actual delivery, Madbroen would not exist. Therefore, the physical part of the service will be tested along with the prototype of the digital aspects.

<p>Enter your name and phone number (so we can sms you the details). The Rema1000 collection is at 8:30AM and the collection leader will contact you with details. It takes max 2 hours. The bakery collection is at 18:00 and takes about 30 minutes to an hour depending on the bakery. Please only sign up if you have equipment to carry the surplus food with you (car, cargo bike, bike bags, etc.)</p> <p>Additional collections maybe added in the future as we expand. So remember to double check what you're signing up for!</p>				
<b>How it works:</b>				
<b>Madbroen volunteer schedule</b>				
<b>Shelter:</b>	<p>Needs: vegetables, bakery products, fruits From bakery: Take 2 bags of white bread, buns and pastries. NO RYEBREAD!</p>			
<b>May</b>	<b>19th Saturday 16:50-17:20</b>	<b>20th Sunday 16:50-17:20</b>	<b>26th Saturday 16:50-17:20</b>	<b>27th Sunday 16:50-17:20</b>
	<b>Bakery</b>	<b>Bakery</b>	<b>Bakery</b>	<b>Bakery</b>
Collection volunteer	Flora	Vicky	Carla	-
Phone nr.	31322124	61676156	8925691	-
Collection volunteer	Vicky	Flora	Denis	-
Phone nr.	61676156	31322124	1024599	-
<b>June</b>	<b>2nd Saturday 16:50-17:20</b>	<b>3rd Sunday 16:50-17:20</b>	<b>9th Saturday 16:50-17:20</b>	<b>10th Sunday 16:50-17:20</b>
	<b>Bakery</b>	<b>Bakery</b>	<b>Bakery</b>	<b>Bakery</b>
Collection volunteer				
Phone nr.				

Figure 38: Prototype for soup kitchen

In order to prototype the service, the different aspects of the platform were replaced by other services that are already available. The information flow was prototyped through different channels such as Google Drive, text messages, Facebook messages and phone calls. The core of the prototype (see Figure 38 and 39) is a spreadsheet on Google Drive.

The sheet provides some basic introduction, information about the time and date of the shift, the phone numbers of the other volunteers, the needs of the shelters or soup kitchens. The volunteers can sign up for the shifts by writing their names and phone number on the sheet. After they are signed up, they were contacted via text a few days prior to their shifts to give more information about the meeting time, food pick up and drop off and exact addresses of the places.

<p>Needs: vegetables, fruits, bakery products. From bakery: Take 1 bag of white bread, buns and pastries. NO RYEBREAD! From supermarket: veggies, fruits mixed. You can take pastries but don't take too much bread, because there's a bakery collection the same day.</p>						
<b>Shelter:</b>						
<b>May</b>	<b>14th</b>	<b>21st</b>	<b>28th</b>			
	<b>Supermarket</b>	<b>Bakery</b>	<b>Supermarket (22nd)</b>	<b>Bakery</b>	<b>Supermarket</b>	<b>Bakery</b>
Collection volunteer	Emilia	-	Thomas	-	Emilia	Rita
Phone nr.	-	-	50413345	-	-	8472982
Collection volunteer	-	-	-	-	-	-
Phone nr.	-	-	-	-	-	-
Collection Leader	Flora	Flora	Flora	Flora		
Phone nr.	31322124		31322124			
<b>June</b>	<b>4th</b>	<b>11th</b>	<b>18th</b>			
	<b>Supermarket</b>	<b>Bakery</b>	<b>Supermarket</b>	<b>Bakery</b>	<b>Supermarket</b>	<b>Bakery</b>
Collection volunteer						
Phone nr.						
Collection volunteer						
Phone nr.						
Collection Leader						
Phone nr.						

Figure 39: Prototype for shelter

## 6.2. Prototype test

In order to test how the platform would work, the information flow was tested as well as the physical part of the service. The researcher tried to test the service with all the main stakeholders of Madbroen which are the volunteers, the food donors and the shelters.

### 6.2.1. Volunteer

A volunteer from Foodsharing CPH was approached and asked to do a test of the service. The test started with signing up for a shift to collect and deliver excess food to a shelter. The volunteer was contacted via Facebook Messenger and received all the necessary information about the shift (see Figure 40).

The information contained the time of the collection, the location, the equipment that they will need, the duration of the food collection and transportation. The aim was to give the most important information just as how it would work if the volunteer signed up on the online platform. The volunteer was registered on an excel sheet on Google Drive where all the volunteers who take shifts and their contact information will be registered in order to organise the shifts. The online platform would furthermore give contact information to Madbroen in case they have a questions, but also to the other volunteers so that they can coordinate the food collection and transportation themselves. In the case of the prototyping the researcher did not leave contact information as the volunteer could already contact the researcher through Facebook Messenger.

On the day of the test, the researcher met up with the volunteer at the supermarket.

The researcher and the volunteer went through the store's food surplus and selected those food items that were still in good condition. During the food selection the researcher offered the volunteer to take whatever food she would like, but the volunteer refused to take a lot saying: *"I'm not going to take food from homeless people"*.

first of all I wanted to thank you for volunteering 😊  
[redacted] mentioned that you have bags for the bike, so it would be great if you could bring those.  
We are going to a Rema 1000 in Valby to collect the food and then cycle to Nørrebro to a shelter called Kirkens Korshær to give the food.

we can meet at the Rema in Valby at 9 and the whole thing should take about an hour. You are able to take food for your self from the surplus food rema will have 😊

Hi Flora, I am happy to help. Cya on monday

Figure 40: Prototyping the information flow

Hi Flora,  
Thank you for the info, all's clear, will be in touch should any issue arise.

Today 14:40

Hey [redacted]  
Thank you again for yesterday.  
Did everything go well with dropping off the bread?  
Have a nice day,  
Flora

Hey Flora, thank you for the message. It was my pleasure, it went fantastic and we had a great time all the while :)

Figure 41: Getting feedback from a volunteer

After the food was selected, the researcher and the volunteer cycled together to the shelter to deliver the food. The test ended with a short interview (see Appendix 11) with the volunteer who was asked to answer a few questions about her experience with Madbroen.

When the volunteer was asked what she thought about the experience, she replied: *"In general it was a good experience. If you have a lot of time you have a good feeling afterwards. It was actually interesting to see the backside of the supermarket: what they toss away and how they treat food. Would be nice how people react on what you bring them but its not a waste of time."*

The volunteer only took the food that would have been too much for the shelter, therefore the free food was not a primary motivator factor. For the volunteer the

main motivating factor to participate was to help other people and she would have liked to meet the ones she helped out. The shelter the volunteer delivered food to was a night shelter, therefore at the time of the delivery, the residents of the shelter were not there, only the employees of the shelter's office.



Figure 42: Surplus bread at a bakery



Figure 43: A volunteer selecting surplus food at food donor



Figure 44: The researcher collecting surplus food at food donor  
(Retrieved 29 May 2018 From: <https://www.facebook.com/madbroen/photos/a.2118454804838185.1073741828.2112850822065250/2118454684838197/?type=3&theater>)

On the first co-creation workshop (see chapter 5.1.1.), the participants discussed how the concept could help raising awareness about the issue of food waste. The participants thought that showing the actual amounts of food that is meant to go to waste from the food stores could be a good way to make the volunteers think about the problem. The volunteer of Madbroen mentioned after the test that it was interesting for her to see the surplus food in the supermarket. During the food collection, only half of the surplus food was taken because the rest was already gone bad. The volunteer is used to food collections and seeing the surplus food at the food donors because she volunteers regularly for bread collection in the bakeries for Foodsharing CPH. It would be interesting to see how other volunteers who are not familiar with the concept of Foodsharing CPH and has never seen a bigger amount of food waste before would react to the food waste.

She was asked about if she thought she received enough information prior to the food collection.

*"I think for me it was enough because of the experience with Foodsharing in general but ... I don't know. Maybe if its a bigger organisation it would be a little bit tricky. If there are more people involved there can be improvements in the communication"*

Based on her answer the amount of information was enough for her during the test. She mentioned that it might be different for people that volunteer for the first time. Since she volunteers with Foodsharing CPH for bakery collection, she more or less knew what to expect whereas a person who never volunteered for that organisation might need more information.

When she was asked if she would volunteer again for Madbroen, she simply answered: *"Yeah if I have time, sure!"* For the volunteer, one of the reasons for volunteering was that she had free time at the time of the shift and she wanted to help. At the moment she is unemployed and studies, therefore her schedule is more flexible which allows her to volunteer. Based on her answer Madbroen should also mainly target students that might have time in the mornings for collecting food from the supermarkets.



Figure 45: Shelter's meal made from surplus food (Retrieved 29 May 2018 From: <https://www.facebook.com/madbroen/photos/a.2118454804838185.1073741828.2112850822065250/2133794096637589/?type=3&theater>)



Figure 46: Volunteer transporting surplus food to shelters

## 6.2.2. A soup kitchen

A volunteer of a soup kitchen in Copenhagen found out about Madbroen and soon a collaboration started. The soup kitchen caters around forty homeless people for a meal six days a week but they lack resources. As a start, Madbroen was able to find a bakery that usually has excess food during the weekends. At the first weekend (on the 19th and 20th of May) the researcher and a volunteer collected surplus bakery products from the bakery and delivered it to the soup kitchen. The aim was to bring a huge variety of breads and pastries and asked for feedback from the employees of the soup kitchen. *"We don't need this [points at the ryebread], the people don't like it, but you can bring more of these [points at the pastries]"*. The employees also specified the amounts they need for next time. After the test, the platform was updated with the needs of the soup kitchen. The soup kitchen sometimes gets bread from private donors, but the employees did not know when. In the future, a way should be developed for the shelters and soup kitchens to easily notify Madbroen about the exact amount of food that they need. This information could help avoiding situations where the soup kitchen ends up with a huge amount of the same food that they can not use.

## 6.2.3. A shelter

The employees of the shelter gave feedback when the food was delivered to the shelter. According to one of the employee, they can use anything in their kitchen as they rarely receive fresh food from other food donors. One of the employee added: *"the volunteers working in the kitchen are very creative, they can make good meals from for example cauliflower which isn't that popular..."* The employees also added, that they do not have

that many people to feed there, so if they have surplus food, they give it to the other shelter that belongs to the same organisation. *"We for sure don't throw food out here. We always find a way to use it."*

## 6.2.4. Food donors

The food donors were contacted prior to the food collections, but unfortunately the researcher was not in direct contact with them. The contact persons were the members of Foodsharing CPH who have a good relations with the food donors. After each food collection, the researcher and the volunteer told the employees of the supermarket about the time of the next collection, but there was no communication besides that. In the future, an easy way to communicate should be developed and tested so that Madbroen could notify the supermarket about the times of the collection and the supermarket could notify Madbroen if they have a bigger amount of food waste.



Figure 47: Dining room of the soup kitchen

### 6.3. Ecology map

The ecology map is *“takes a systems approach to describe and understand the dynamic relationships between people, products, social activities, and the context that surrounds a system”* (Forlizzi, 2013, p.3). Ecology map provides an overview of the space the service will operate in and it aims to identify the actors and stakeholders, investigate their relationships that are connected to the service and explore new service ideas by rearranging the relations between the actors. The ecology map can also help the designer to imagine how the service would work and focus on the details (Polaine, Løvlie & Reason, 2013).

In the case of Madbroen the ecology map (see Figure 48) has four levels: User, Information provider, Other volunteers and Community. The map illustrates six aspects of the service:

**WHO?** - the actor who is involved in the service,  
**WHEN?** - the timing of the service,  
**WHERE?** - the location,  
**WHAT?** - the tools used during the service,  
**HOW?** - the way the service is used,  
**WHY?** - the reason for the service.

These aspects are mapped out on each level of the service starting from how a single volunteer is using the platform until how it can create a community. The Ecology Map helped to understand how the different actors are connected by the service. For example, although the people in need do not use the service directly, they are the ones that benefit from the service and they have an important part in Madbroen's mission to fight food waste.

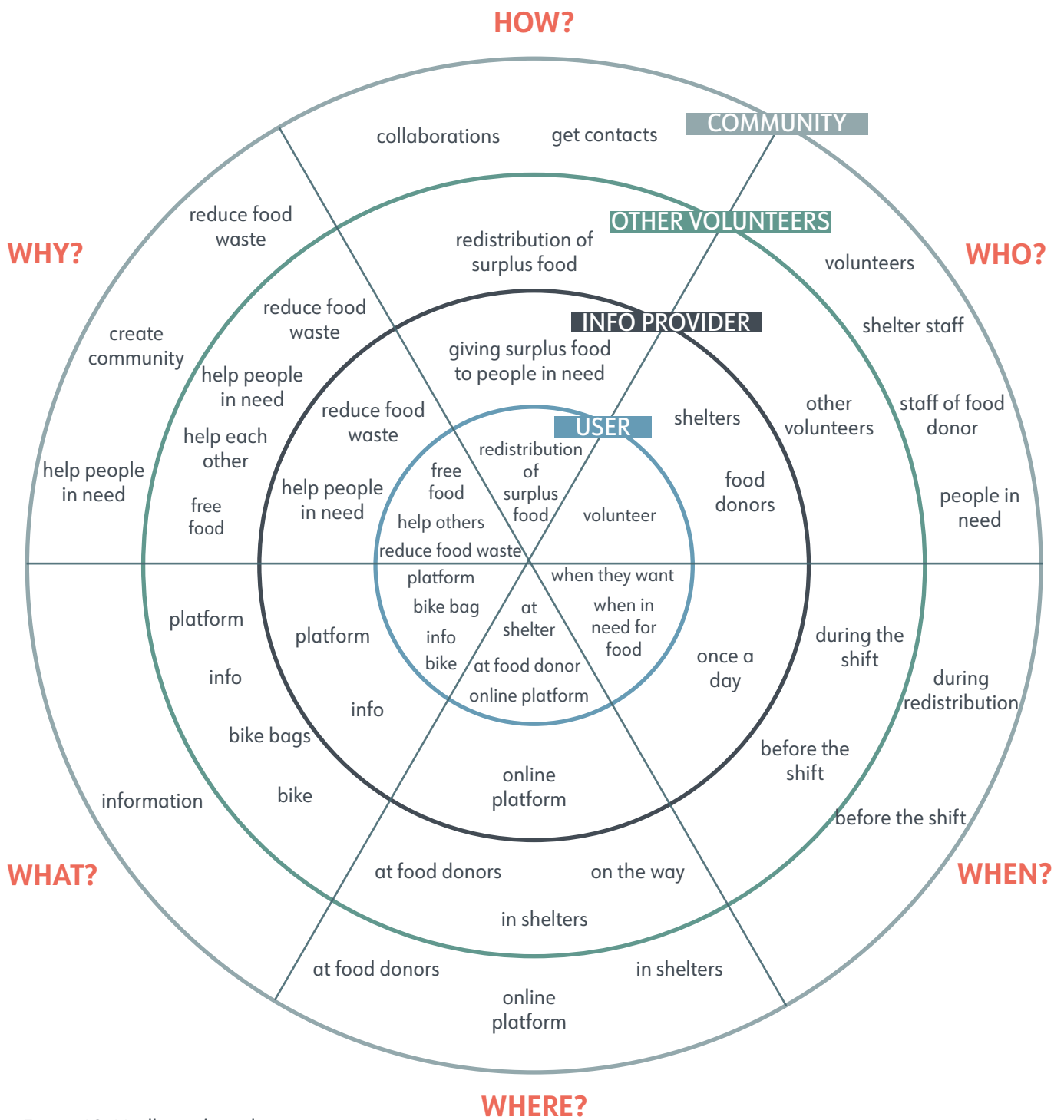


Figure 48: Madbroen's ecology map

## 6.4. Service Blueprint

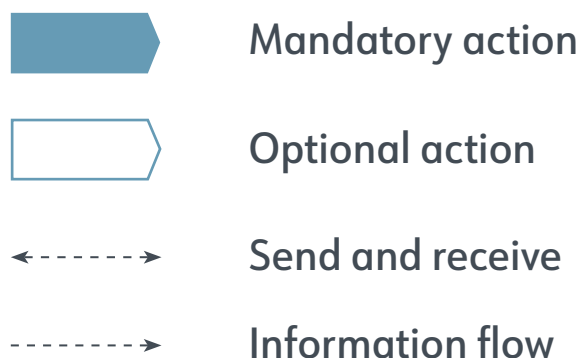
Service blueprint connects the user experience to the actions that the service employees take both frontstage and backstage and all the support processes (Stickdorn et al., 2017). *“Frontstage” refers to people and processes with which the user has a direct contact, “Backstage” represents people and processes that are invisible for the user* (Stickdorn et al., 2017, p.54). Support processes are those actions that are executed by the rest of the employees of the organisation or the other external partners (Stickdorn et al., 2017).

The service blueprint of Madbroen (see Figure 49) has three stages: Aware, Join and Use. Under the stages the user's actions can be seen that represent the journey the user is going through while using the service. The user actions are followed by the frontstage actions and the two parts are divided by the line of interaction. Across the line of interaction the connections between the user and the frontstage employee are visualized (Stickdorn et al., 2017). In the case of Madbroen, the frontstage activities can be face-to-face as the service has a part where the actors meet each other: volunteers meet with the employees of the food donor, employees of the shelter or other volunteers. The user's interaction with the service can also be analogue, if the user learns about the service by seeing flyers at the food donor or at a shelter. The main interaction with the service is on Madbroen's online platform where the users can see all the information about the shifts and can sign up for collecting and delivering excess food to shelters.

The next section on the service blueprint shows the backstage actions. The backstage and the frontstage actions are divided

by the line of visibility. If the employee interacts with an employee of backstage or support, the interaction goes through the line of visibility (Stickdorn et al., 2017). In the case of Madbroen, the backstage actions can be carried out by the platform processing or an employee of Madbroen. After the backstage actions comes the line of internal interaction that divides the backstage actions and all of the support actions carried out by the rest of the organisation or external partners (Stickdorn et al., 2017). For Madbroen, the support processes are done by the employees of the food donors and shelters who update the information on the platform. The database provider also belongs to the support as it provides the space for the user and location data for the platform.

The service blueprint was based on the user journey (see Chapter 5.6.). The user journey tool helped mapping out the steps the user will have to go through while using the service which is used as a base in the service blueprint. The service blueprint helped to define the different actions that needs to be carried out by the employees of Madbroen or the external partners in order for the user to be able to go through the service. The blueprint also helped to define what information is needed from the external partners for the service to run.



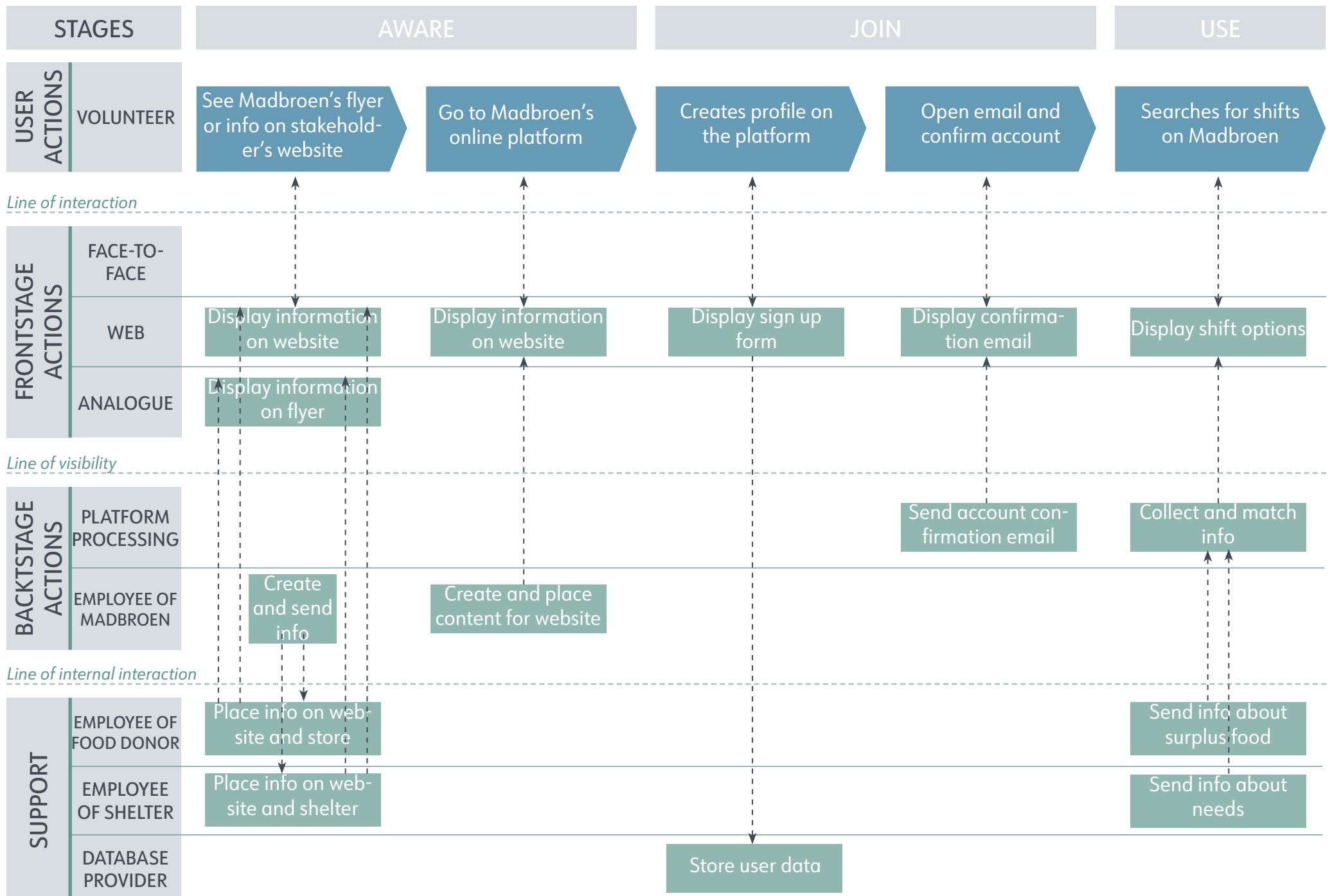
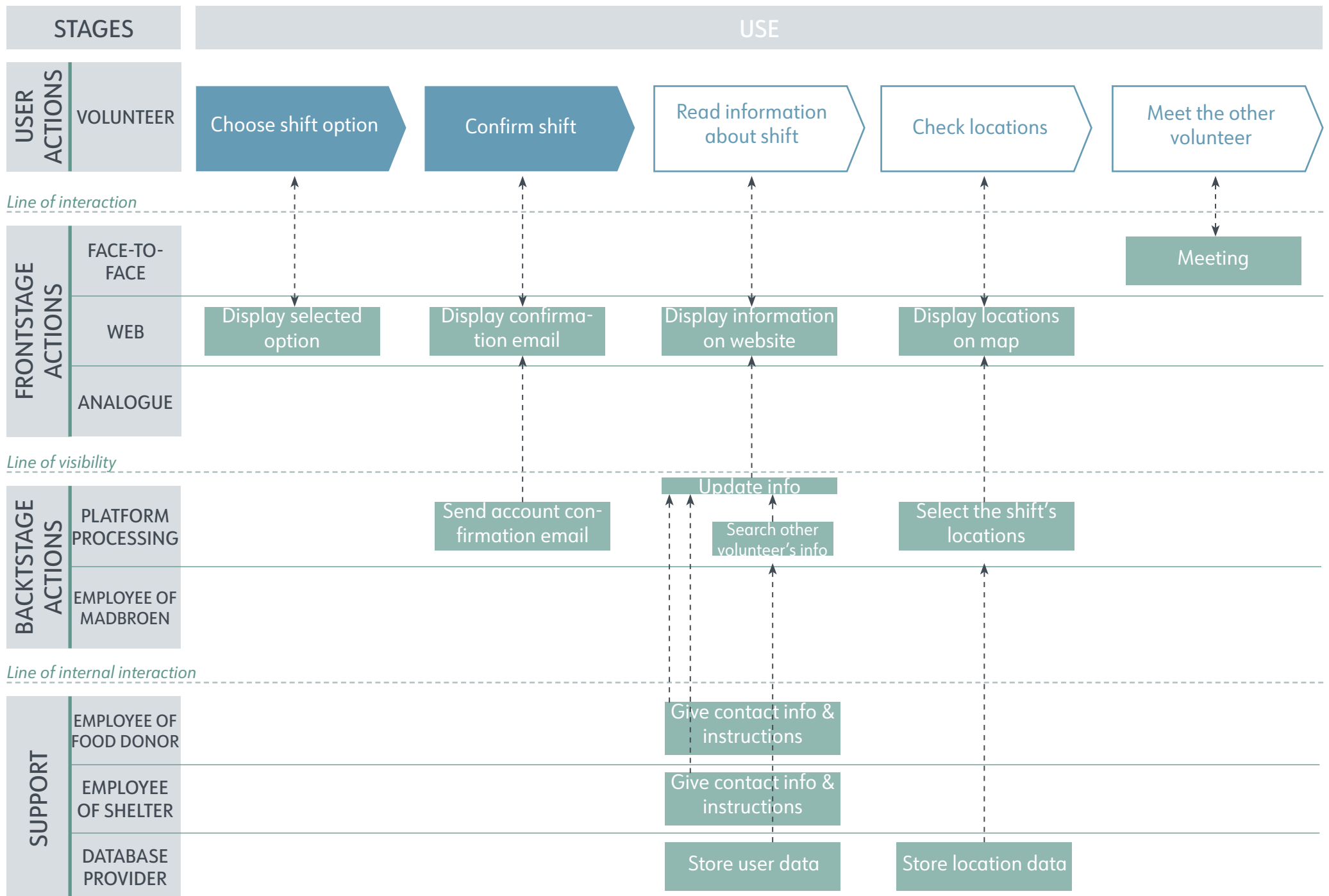
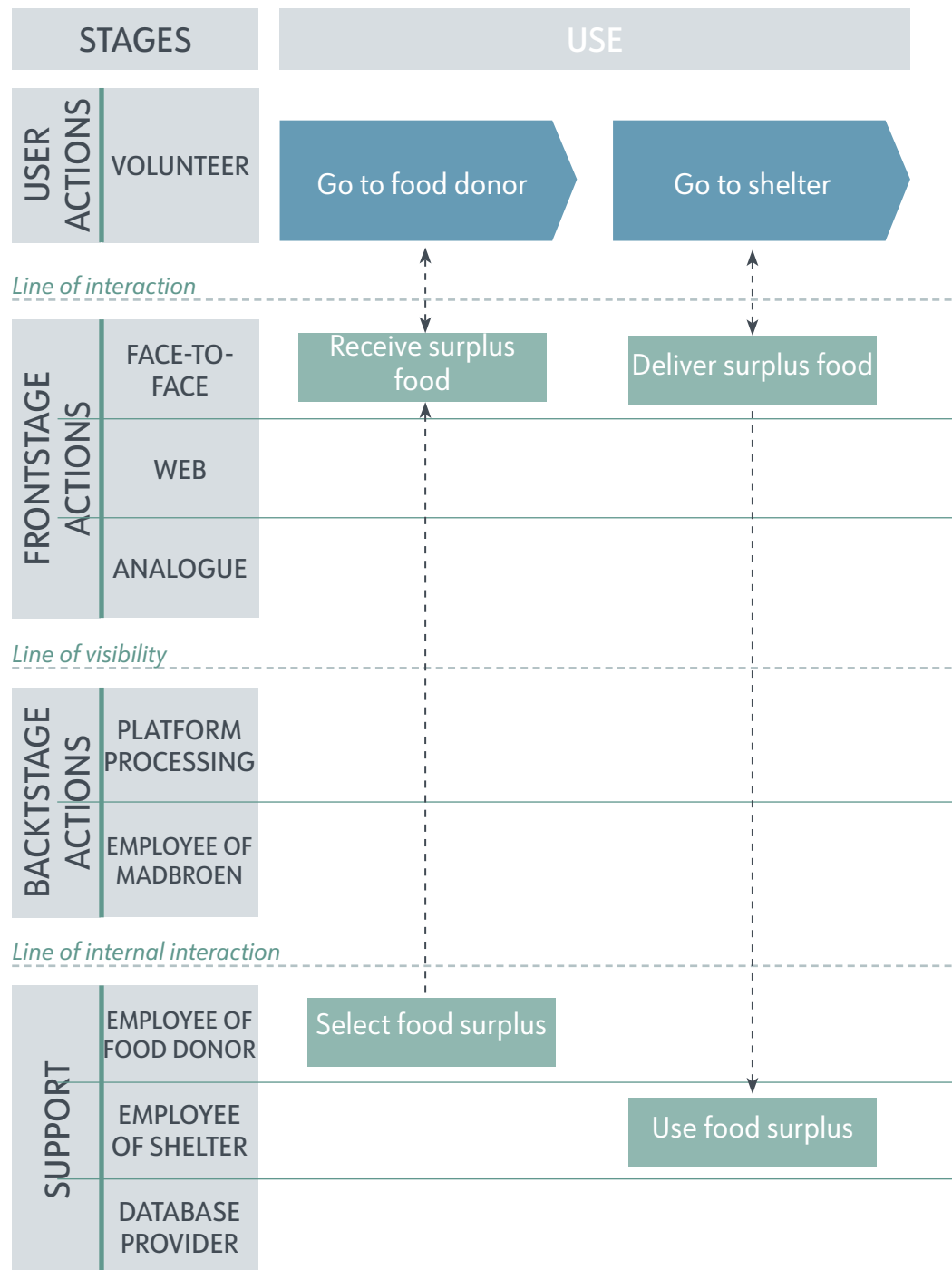


Figure 49: Service Blueprint





## 6.5. Summary of Deliver phase

In the last stage the service was detailed by prototyping and testing and with the tools of ecology map and the service blueprint. The prototype and tests helped to discover that the motivations of the volunteers might be different from the motivations of the volunteers of Foodsharing CPH. While the volunteers of Foodsharing CPH are highly motivated by the free food they get at the events, the volunteers of Madbroen during the test were mainly motivated by the fact that they are helping others. During this phase the Ecology map tool was used which gave a holistic overview on the service. It shows how the service is going to create a community through making it possible for the volunteers to meet and the interaction between the volunteers and employees of the food donors and shelters. The service blueprint helped to identify the tasks that the external partners need to do in order for the service to operate. These tasks are to update information on the platform and giving or receiving the food to or from the volunteers of Madbroen.

on the platform the shelters would let the volunteers know beforehand about their needs. This function will make sure that the shelters get the right food products which can help them to avoid having surplus food which ends up being wasted.

### 6.5.1. Limitations

Due to lack of time not all parts of the service was prototyped and tested. During the test runs, it was agreed with the bakeries that they notify the researcher if they do not have any surplus bakery products at the end of the day, so the volunteers can not go that day. While testing the concept, this never happened as the food donors always had surplus. It needs further testing to figure out what would happen if one food donor do not have surplus food. The way the shelters provide information also needs further testing. Feedback from the shelters about the received food was only provided after the food delivery, although

## 7. Reflections

In the following the researcher is going to reflect on some aspects of the thesis work. First of all, the role of the designer will be discussed in the process of creating the concept of Madbroen. Then it will be argued whether the concept created social innovation and lastly the process of the project will be discussed.

### 7.1. Reflection on service design thinking

This thesis used service design thinking to develop a new service that helps to reduce food waste and raise awareness. The five principles of service design thinking was used in the process of developing a new service to redistribute surplus food from retailers to people in need. The project started with a research on existing movements that aim to fight food waste and the focus was on the Foodsharing movement in Copenhagen. The movement created a community of volunteers who are working together to reduce food waste. In order to understand why people become members of the community, their motivations were investigated through interviews and by participation on the events to observe the volunteers. It was found that the volunteers are part of the movement because they can get access to free food, they like to be part of a community and they would like to help others. Participating in Foodsharing CPH's activities helped to gain a deeper understanding in how the community work and how the events are organised. While participating on board meeting of Foodsharing CPH, it was found that there was an interest from some of the members to develop a way to help people in shelters with the surplus food that is collected. After these findings, the focus was on including

the shelters in the new service, therefore an interview was carried out to learn more about how the shelters get food currently and what their needs are.

In order to develop a new service, the members of Foodsharing CPH and employee of a shelter were invited for a co-creation workshop. The service design thinking principles include that the service should be co-creative (Stickdorn & Schneider, 2011), which allows the users to create and add value to the service proposition. Unfortunately, the employee of the shelter was not able to participate on the workshop which could have been changed the outcomes, but the members of Foodsharing CPH that participated on the workshop created the initial concept of Madbroen. The initial concept was about redistributing surplus food from retailers to shelters but throughout tests, it was found that there is a need for coordinating the information flow between the food donors, shelters and volunteers. The final concept therefore is a platform that collects information from food donors and shelters to filter it and provide it to the volunteers. Evidencing is a service design thinking principle which is about making the service more tangible for the users. A service evidence can help extending the experience as the users get something tangible during the service that stays with them after using the service. Service evidence can potentially increase the loyalty of the user and encourage them to recommend it to others (Stickdorn & Schneider, 2011). In the case of Madbroen, although the service is in the form of a digital platform, the volunteers can get free food from the collected surplus food which can remind them of the service even after they delivered the food and went home.

When the new service concept was created, a prototype was developed that can demonstrate the information flow. The core of the prototype of the platform was a spreadsheet on Google Drive where the volunteers could get information about the needs of the shelters and could sign up for the shifts. According to Stickdorn and Schneider (2011), one of the principles of service design thinking is that the service has to be user-centred, therefore a volunteer was followed to test the prototype and the service experience and then an interview was carried out to understand the volunteer's social context and motivations. In the future more tests are needed to gain a deeper understanding of the motivations and context of the users which will help improving the service to be more user-centred.

Another service design thinking principle is sequencing. All services are a sequence of touchpoints and interactions which need to be well orchestrated in order to offer a good service experience for the users (Stickdorn & Schneider, 2011). The different tools to detail the service were used for example user journey and service blueprint. These tools helped specifying what happens at each step of the service. Although the service is an online platform, physical interactions also have to happen (volunteers collect and deliver surplus food) in order for the service to function. Therefore all the volunteer's offline and online interactions were considered throughout the service. In the future more iterative tests are needed to further refine the different interactions and touchpoints in the service.

The last service design principle is a holistic view on the service. According to this principle, the designer should consider the environment of the service and all the actors

involved at each touchpoint and interaction (Stickdorn & Schneider, 2011). To get a holistic view on the service, all the stakeholders involved in the service were mapped out and the ecosystem the service is placed in. The ecology map and service blueprint also helped mapping out all the aspects that needs to take into account. For example as the service has a part where the volunteer interacts with the employees of the food donor or the shelter. This interaction has an effect on the experience of the user, but the service provider of Madbroen has no influence on how the employees of the food donor or shelters will interact with the volunteer. The experience of the employees of the retail stores and the shelters also need to take into account. If they have a bad experience with the volunteers, they might end the partnership with Madbroen, therefore in the future, more research is needed about the interaction between the different actors in order to ensure a pleasant experience for both the users and all the other actors involved in the service.

## 7.2. Role of the designer

The role of the researcher or designer will be reflected in this section. Manzini (2015) argues that everyone has the ability to design, but not everyone is an expert of design, therefore he differentiates between diffuse design and expert design. *“Diffuse design is put into play by “nonexperts,” with their natural designing capacity, while design experts are people trained to operate professionally as designers”* (Manzini, 2015, p.37). According to Morelli and de Götzen (2016, p.135) the role of expert design is to develop an infrastructure that enables co-creation between the actors but interaction and value creation happens on the level of diffuse design. The designers can create value propositions, but value is created when the service is used by the users (Morelli & de Götzen, 2016). In the case of this thesis project, the researcher designed a platform that proposes value to the potential users, but value will only be created if the service is used by all the actors: the food donors, the shelters and the volunteers. The platform serves as a space where the interactions between the actors can take place. In the case of Madbroen, the researcher had the role of the expert designer who created the platform by going through the different “planning activities” that could be research, analysis, blueprints and organising time sequences. Throughout these activities the interaction was designed by the researcher, but the success of the interaction depends on the participation of the actors and their co-production of value (Morelli & de Götzen, 2016).

After the concept development, the researcher “infrastructured” the interactions between the actors by building prototypes that were tested continuously. Infrastructuring is described by Hillgren, Seravalli and Emil-

son (2011, p.180) as *“continuous process of building relations with diverse actors and by a flexible allotment of time and resources. This more organic approach facilitates the emergence of possibilities along the way and new design opportunities can evolve through a continuous matchmaking process.”* The researcher was looking for potential collaborations with shelters and food donors and tried to get volunteers for the shifts to test the prototype of the service. By creating the prototype for the platform, the researcher was able to start testing if the concept and apply some improvements in the information flow.

### **7.3. Reflection on social innovation**

Social innovation was one of the topic of the research area of this thesis and was discussed in Chapter 2.2. One aim of the project was to see if it is possible to create social innovation by designing a service that responds to a social need.

During the research phase of the project, the case of Foodsharing CPH was investigated and it showed that while people were working on making the food sharing events possible, a community was created. A community of like-minded people who came together to solve the problem of food waste at retailers and raise awareness. The board members of Foodsharing CPH organise events and workshops for the volunteers to keep the community alive and to engage people in their activities. This way Foodsharing CPH creates new social relationships that is part of social innovation.

Madbroen similarly to Foodsharing CPH is a service that aims to reduce food waste and it also help people in need therefore it meets a social need which is an aspect of social innovation. Madbroen already got some volunteers during the thesis writing period, but it is still a young initiative that is still not known in a wide range of people. The concept so far is a functional improvement in the existing system that has the potential to create social innovation as it gives people the opportunity to do something good for society. In the future, when Madbroen is more known and has more volunteers, different events and activities could be arranged for the users which would enable new social relationships to be created.

### 7.3. Reflection on the process

Throughout the thesis project the Double Diamond process model was used by. The model has four stages: Discover, Define, Develop and Deliver. (Design Council & Technology Strategy Board, 2011) Although these phases follow each other in a linear way, the researcher was going back and forth between them depending on how the process was going. The Double Diamond was used for mapping out tools and methods for each stage of the project in order to get the desired outcomes.

At the Discover phase, a deeper understanding of the problem area was gained which was the topic of food waste and examples of how communities try to solve this issue. Interviews were conducted with volunteers of Foodsharing CPH to learn about their motivations and social context. Action research were used, where the knowledge is created through participation (Brydon-Miller et al., 2003, p.14). The researcher participated on all kind of events organised by Foodsharing CPH to learn about how they operate, how the excess food is redistributed and it also gave the researcher the opportunity to observe the actors and get more information from them through casual conversations. The researcher found out about the interest in helping shelter while participating on the board meeting of Foodsharing CPH which became the focus of the project.

The Discover phase was followed by Define, which proposed tools that help to make sense of the collected information. At this stage, the findings were analysed and structured through the tools of value constellation, ecosystem map, stakeholder map. Mapping the relations and values of the stakeholder provided the project with

useful insights. At the end of this stage the problem definition and the research question were finalized.

At the next, Develop phase a co-creation workshop was organised for the members of Foodsharing CPH to ideate on a concept that could help shelters to get surplus food from retailers. The creation of the concept was followed by quick test rounds that helped improving the initial concept. The aim at this stage was to eliminate errors and detail the concept (Design Council & Technology Strategy Board, 2011). The initial concept was refined by using the tools of user journey, stakeholder map, ecosystem map, motivation matrix and platform canvas.

Finally, the Deliver stage, a prototype was built for the online platform through which the information flow between the actors was tested. Ecology map and service blueprint were used to further refine the service. In the future more tests are needed to improve the concept and to finalise the online platform.

## 8. Conclusion

This thesis used service design thinking to develop a new service that would reduce food waste produced by retail stores. Secondary research, interviews and action research was used to get qualitative data about the problem area and the actors related to that. The data was used to get insights of the problem area and it was analyzed through different mapping tools, that helped to identify the stakeholders, their values and the ecosystem they are placed in. The findings were used for designing the concept of Madbroen. During the project, the principles of service design thinking were utilized to solve the issue of food waste. Service design thinking suggests that the service design process should be user-centred, co-creative, sequencing, evidencing and holistic (Stickdorn & Schneider, 2011). These principles were taken into account throughout the entire process.

While working on the project, the researcher took the role of the expert designer, who carried out all the planning activities, i.e. researching, analysing findings, facilitating the workshops, creating prototypes and testing. The researcher took a leading role in designing the interaction between the actors, but the continuous success of the platform depends on the participation of the users, as they are the ones that co-produce the value by using the platform.

During the thesis period, the researcher got in contact with several stakeholders such as bakeries, supermarkets, shelters and volunteers to initiate collaboration. As part of the projects several test rounds were carried out where volunteers signed up for picking up surplus food at a retail store to bring it to a shelter or soup kitchen. Although the platform only proposes value for the users, value was created by volunteers signing up for shifts and transporting the surplus food to people in need.

## 9. References

About us - Slow Food International. (2018). Slow Food International. Retrieved 7 March 2018, from <https://www.slowfood.com/about-us/>

Activities. (2018). Retrieved 28 April 2018, from <http://foodsharingcph.org/activities/>

Bjørner, T. (2015). Qualitative methods for consumer research. [Kbh.]: Hans Reitzel.

Brydon-Miller, M., Greenwood, D., & Maguire, P. (2003). Why Action Research?. *Action Research*, 1(1), 9-28. <http://dx.doi.org/10.1177/14767503030011002>

Choudary, S. P., Parker, G., & Alstyne, M.V. (2015). Platform scale: How an emerging business model helps startups build large empires with minimum investment. *Platform Thinking Labs*.

Connors, P., & McDonald, P. (2010). Transitioning communities: community, participation and the Transition Town movement. *Community Development Journal*, 46(4), 558-572. <http://dx.doi.org/10.1093/cdj/bsq014>

Design Council (2018). The Design Process: What is the Double Diamond? Retrieved 20 March 2018, from <https://www.designcouncil.org.uk/news-opinion/design-process-what-double-diamond>

Design Council & Technology Strategy Board. (2011). Design Methods for Developing Services - An introduction to service design and a selection of service design tools (pp. 1-23). Retrieved from <https://www.designcouncil.org.uk/sites/default/files/asset/document/Design%20methods%20for%20developing%20services.pdf>

EUROPEAN COMMISSION. (2017). EU guidelines on food donation. Brussels: EUROPEAN COMMISSION. Retrieved from [https://ec.europa.eu/food/sites/food/files/safety/docs/fw\\_eu-actions\\_food-donation\\_eu-guidelines\\_en.pdf](https://ec.europa.eu/food/sites/food/files/safety/docs/fw_eu-actions_food-donation_eu-guidelines_en.pdf)

Food waste: the problem in the EU in numbers [infographic] | News | European Parliament. (2018). [europarl.europa.eu](http://www.europarl.europa.eu/news/en/headlines/society/20170505STO73528/food-waste-the-problem-in-the-eu-in-numbers-infographic). Retrieved 1 March 2018, from <http://www.europarl.europa.eu/news/en/headlines/society/20170505STO73528/food-waste-the-problem-in-the-eu-in-numbers-infographic>

Forlizzi, J. (2013). The Product Service Ecology: Using a Systems Approach in Design. *Proceedings of the 2nd Conference on Relating Systems Thinking and Design (RSD2)*. Oslo, Norway, 1-27.

fødevareBanken | Fra madspild til måltid. (2018). fødevareBanken | Fra madspild til måltid. Retrieved 10 April 2018, from <https://www.foedevarebanken.dk/english>

Hillgren, P.-A., A. Seravalli and A. Emilson (2011). „Prototyping and infrastructuring in design for social innovation.” *CoDesign* 7(3-4): 169-183.)

Initiative to improve the food supply chain. (2018). European Commission - European Commission. Retrieved 4 April 2018, from [https://ec.europa.eu/info/consultations/initiative-improve-food-supply-chain\\_en](https://ec.europa.eu/info/consultations/initiative-improve-food-supply-chain_en)

Irwin, T., Tonkinwise, C., & Kossoff, G. (2015). Transition Design: An Educational Framework for Advancing the Study and Design of Sustainable Transitions. In *International Sustainability Transitions* (pp. 1-36). University of Sussex in Brighton (UK): School of Design, Carnegie Mellon University. Retrieved from [https://www.academia.edu/15283122/Transition\\_Design\\_An\\_Educational\\_Framework\\_for\\_Advancing\\_the\\_Study\\_and\\_Design\\_of\\_Sustainable\\_Transitions\\_presented\\_at\\_the\\_STRN\\_conference\\_2015\\_Sussex\\_](https://www.academia.edu/15283122/Transition_Design_An_Educational_Framework_for_Advancing_the_Study_and_Design_of_Sustainable_Transitions_presented_at_the_STRN_conference_2015_Sussex_)

Kuhlman, T., & Farrington, J. (2010). What is Sustainability?. *Sustainability*, 2(11), 3436-3448. <http://dx.doi.org/10.3390/su2113436>

Lusch, R. F., & Vargo, S. L. (2011) It's all B2B...and Beyond: Toward a systems perspective of the market. *Industrial Marketing Management*, (40)2, 181-187.

Manzini, E. (2007). A laboratory of ideas. Diffuse creativity and new ways of doing. In A. Meroni, *Creative communities : People inventing sustainable ways of living* (1st ed., pp. 13-15). Milano: Edizioni POLI.design. Retrieved from [http://radar.gsa.ac.uk/697/1/emude\\_book.pdf](http://radar.gsa.ac.uk/697/1/emude_book.pdf)

Manzini, E. (2014). Making Things Happen: Social Innovation and Design. *Design Issues*, 30(1), 57-66. [http://dx.doi.org/10.1162/desi\\_a\\_00248](http://dx.doi.org/10.1162/desi_a_00248)

Manzini, E. (2015). *Design, When Everybody Designs: An Introduction to Design for Social Innovation*. MIT Press.

Morelli, N., & de Götzen, A. (2016). Service Dominant Logic. Changing perspective, revising the toolbox. In *ServDes Conference 2016* (pp. 132-142). Copenhagen: Aalborg University Copenhagen.

Moritz, S. (2005). *Service Design: Practical access to an evolving field* (M.A. Thesis: Köln International School of Design. Retrieved 19 March 2018, from <https://uploads.strikinglycdn.com/files/280585/5847bd6a-e928-4f0f-b677-ed7df26fa1df/Practical%20Access%20to%20Service%20Design.pdf>

Mulgan, G. (2006). The Process of Social Innovation. *Innovations: Technology, Governance, Globalization*, 1(2), 145-162. <http://dx.doi.org/10.1162/itgg.2006.1.2.145>

Murray, R., Caulier-Grice, J., & Mulgan, G. (2010). *The open book of social innovation*. [Great Britain]: NESTA.

Nelson, H., & Stolterman, E. (2003). *The Design Way: Intentional Change in an Unpredictable World*. Englewood Cliffs, N.J.: Educational Technology Publications.

Our Projects. (2018). Stop Wasting Food. Retrieved 10 April 2018, from <http://stopwasting-foodmovement.org/our-projects/>

Our Results. (2018). Stop Wasting Food. Retrieved 10 April 2018, from <http://stopwasting-foodmovement.org/our-organization/our-results/>

Oxera. (2015). Benefits of online platforms. Oxera Consulting. Retrieved from [https://www.oxera.com/getmedia/84df70f3-8fe0-4ad1-b4ba-d235ee50cb30/The-benefits-of-online-platforms-main-findings-\(October-2015\).pdf.aspx?ext=.pdf](https://www.oxera.com/getmedia/84df70f3-8fe0-4ad1-b4ba-d235ee50cb30/The-benefits-of-online-platforms-main-findings-(October-2015).pdf.aspx?ext=.pdf)

Patrício, L., Fisk, R., Falcão e Cunha, J., & Constantine, L. (2011). Multilevel Service Design: From Customer Value Constellation to Service Experience Blueprinting. *Journal Of Service Research*, 14(2), 180-200. <http://dx.doi.org/10.1177/1094670511401901>

Polaine, A., Løvlie, L., & Reason, B. (2013). *Service Design: From Insight to Implementation*. Brooklyn, New York: Rosenfeld Media, LLC.

Reason, P. & Bradbury, H. (Eds.) (2008). *The SAGE Handbook of Action Research*. SAGE Publications Ltd.

Rombac, M., & Bitsch, V. (2015). Food Movements in Germany: Slow Food, Food Sharing, and Dumpster Diving. *International Food And Agribusiness Management Review*, 18(3), 1-24.

Service Design Tools. (2018). [Servicedesigntools.org](http://www.servicedesigntools.org). Retrieved 20 April 2018, from <http://www.servicedesigntools.org/tools/20>

Stickdorn, M., Hormess, M., Lawrence, A., & Schneider, J. (2017). *This Is Service Design Doing* (1st ed.). Oreilly Media, Inc.

Stickdorn, M., & Schneider, J. (2011). *This is service design thinking*. Hoboken: Wiley.

Stop Wasting Food. (2018). Stop Wasting Food. Retrieved 10 April 2018, from <http://stopwastingfoodmovement.org/>

Story. (2018). Retrieved 28 April 2018, from <http://foodsharingcph.org/story/>

Travis, D. (2017). Desk research: the what, why and how. [Us-erfocus.co.uk](http://www.userfocus.co.uk). Accessed 7 May 2018, from <http://www.userfocus.co.uk/articles/desk-research-the-what-why-and-how.html>

What is Transition? | Circular Model & Reconomy. (2018). Transition Network. Retrieved 27 February 2018, from <https://transitionnetwork.org/about-the-movement/what-is-transition/>

Willkommen bei foodsharing! foodsharing Deutschland. (2018). Foodsharing.de. Retrieved 7 March 2018, from <https://foodsharing.de/#wilkommen>

WCED (World Commission on Environment and Development), (1987). Our Common Future. Oxford University Press, Oxford

yunity. (2018). yunity. Retrieved 7 March 2018, from <https://yunity.org/en>



## Madbroen

- a platform that helps surplus food redistribution for people in need

## **Table of content**

Abstract	3
Project context	4
Issue of food waste	4
Needs of shelters and soup kitchens	4
The concept	5
Target group	8
Prototype	9
Test	10
Storyboard	11
User journey	12
Service Blueprint	17
Ecosystem map	21
Ecology map	22
Future Improvements and steps	23
Prototype improvement	23
Promotion	23
New collaborations	23
References	24

## **Introduction**

This report aims to present the concept of Madbroen which was created as a master's thesis project in Service Systems Design. The project is based on the issue of food waste and the goal was to use service design thinking to create a service that could reduce food waste that is produced by retailers. The concept is an online platform where volunteers are provided with information about where the surplus food is and where that food is needed. The volunteers can sign up for shifts to collect the surplus food from supermarkets and bakeries and bring it to shelters and soup kitchens to help people in need. This report is going to show how Madbroen was developed and detail how the concept would work. The report will also introduce the how the concept was prototyped which demonstrates how Madbroen would be used.

## Project context

In this section the context of the thesis project is presented. The context consists of two parts: the problem of food waste and the needs of shelters and soup kitchens.

### Issue of food waste

Every year all around the world about third of the produced food gets wasted or lost throughout the supply chain. Food waste raises both environmental and ethical questions. With food waste, resources such as water or energy also going to waste. The ethical aspect of food waste is about the fact that while about 1.3 billion tons of food is wasted every year, millions of people are do not have enough food on a daily basis. („Food waste: the problem in the EU in numbers [infographic] | News | European Parliament”, 2018) Communities and movements emerged that aim to reduce food waste. One of these movements is called Foodsharing and its members collect excess food from retailers and wholesalers to then redistribute it to people for free. The Foodsharing movement is a volunteer network in which people are motivated by free food, the community and helping others. The movement started in Germany but it spread all over the world (Rombac & Bitsch, 2015) and reached Copenhagen. Foodsharing Copenhagen (Foodsharing CPH) collaborates with wholesale markets, supermarkets and

bakeries around the city to collect their surplus. The surplus food then gets redistributed two times a week on food sharing events that are organised by the community.

### Needs of shelters and soup kitchens

During the research phase of the project, it was found that some shelters lack fresh fruits, vegetables and bakery products. Although most of the shelters are supplied with food by private donations, volunteer organisations and companies, due to food safety regulations, most of the food they receive is canned, dried or frozen food that are safe to consume even if it is expired. If the shelters and soup kitchens received fresh food and bakery products, they could offer more nutritious and various meals for people in need.

## The concept

The concept of Madbroen was developed on a co-creation workshop where members of Foodsharing CPH participated. Since Foodsharing CPH already have collaborations with retail stores and the members of the movement have knowledge in how food redistribution work, therefore they can contribute to the creation of the concept.

The concept is an online platform where information is collected from shelters and food donors which information is then filtered and provided to the volunteers. The information helps the volunteers to know where they can find excess food and where is a need for that food. The volunteers then can collect and deliver the surplus food from supermarkets or bakeries to shelters or soup kitchens.

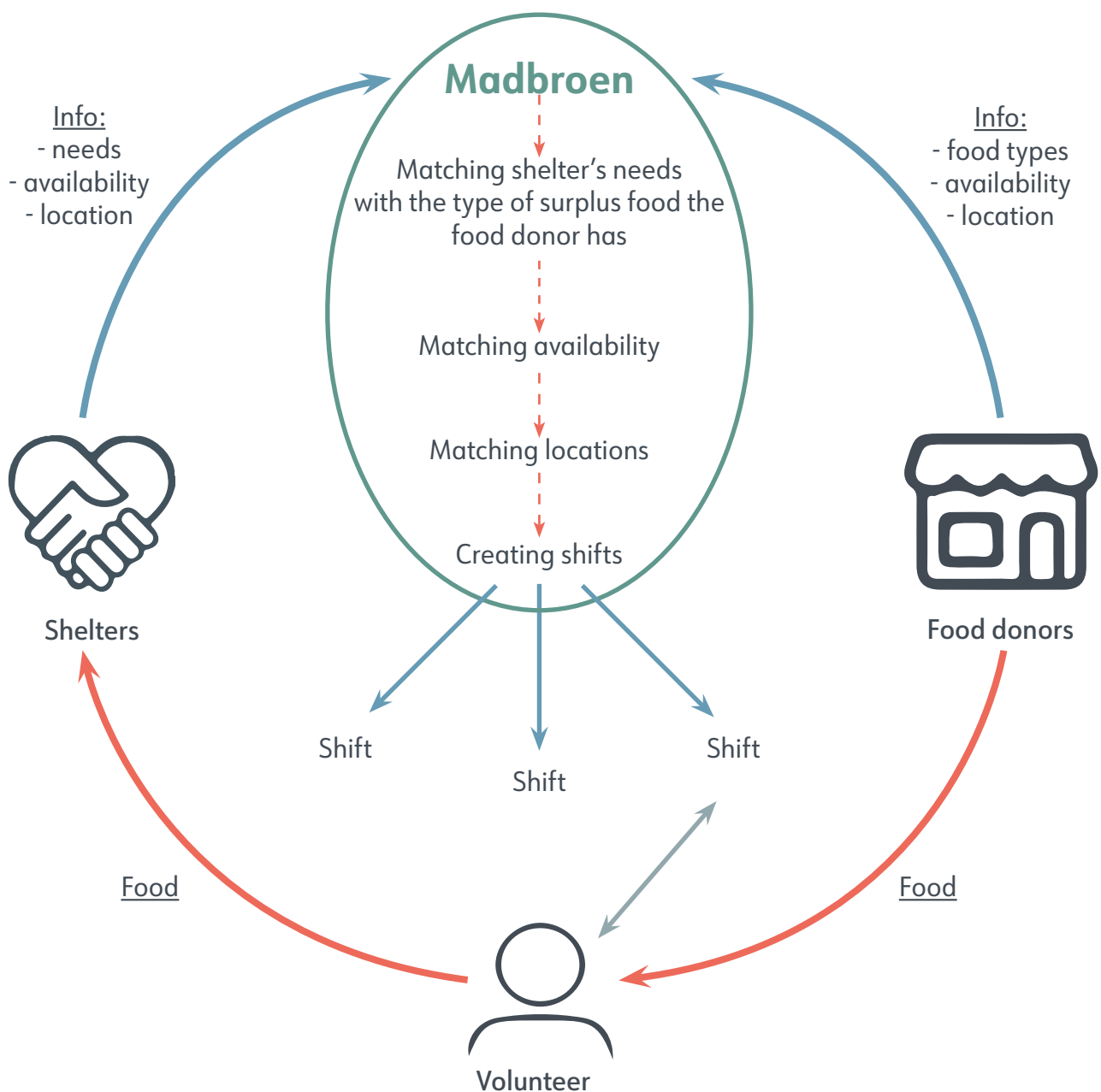


Figure 1: Mapping how Madbroen's work

The concept aims to reduce food waste at retailers in Copenhagen and to raise awareness about the issue of food waste. By bringing the volunteers to the stores, they can see the amounts of food that is being wasted. On Figure 2, 3, 4, 5, the way the platform works is illustrated. First, information is collected from the food donors and the shelters which is then matched and used for generating shifts for the volunteers. The shifts are created based on the needs of the shelters, the types of food the food donor has, the times the food can be picked up and delivered to the shelters, and locations of the actors.

## 1. Matching shelter's needs with the type of surplus food the food donor has

		Bakery products	Vegetables	Fruits	Packaged food
Food donor's surplus					
					
					
Shelter's needs					
					

Figure 2: Matching needs with types of surplus food

2. Matching availability

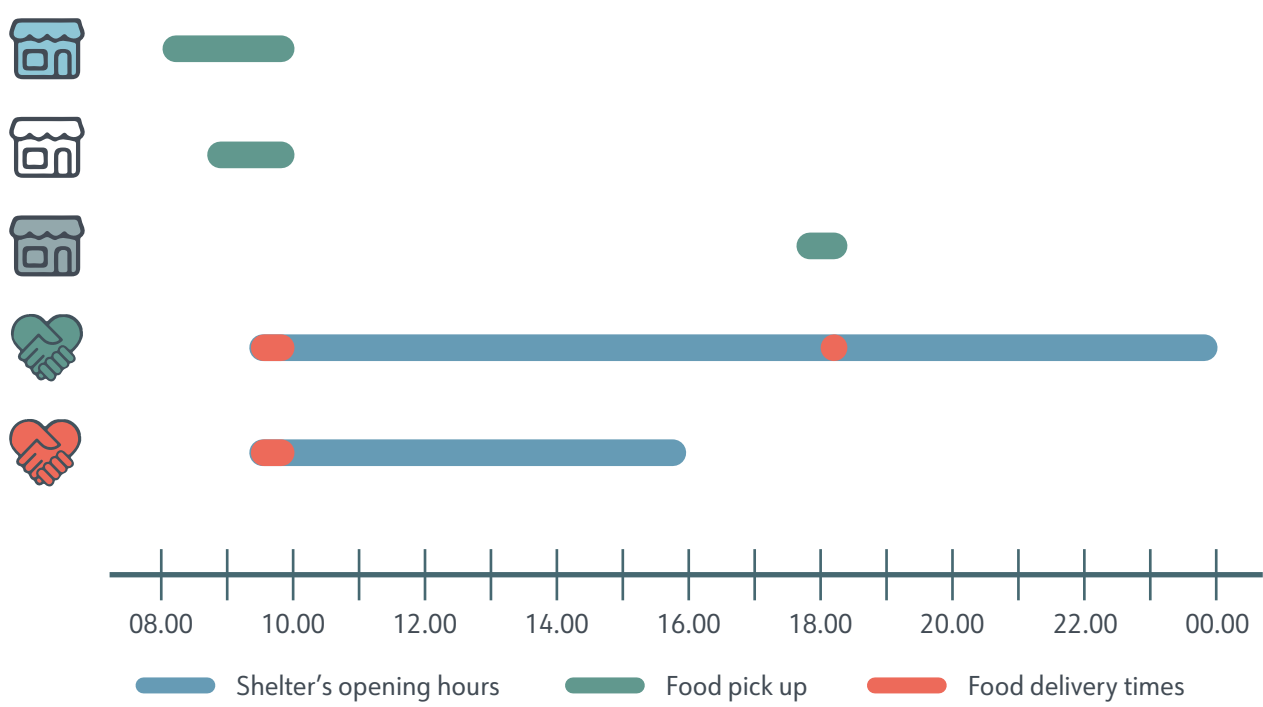


Figure 3: Matching availability

3. Matching locations

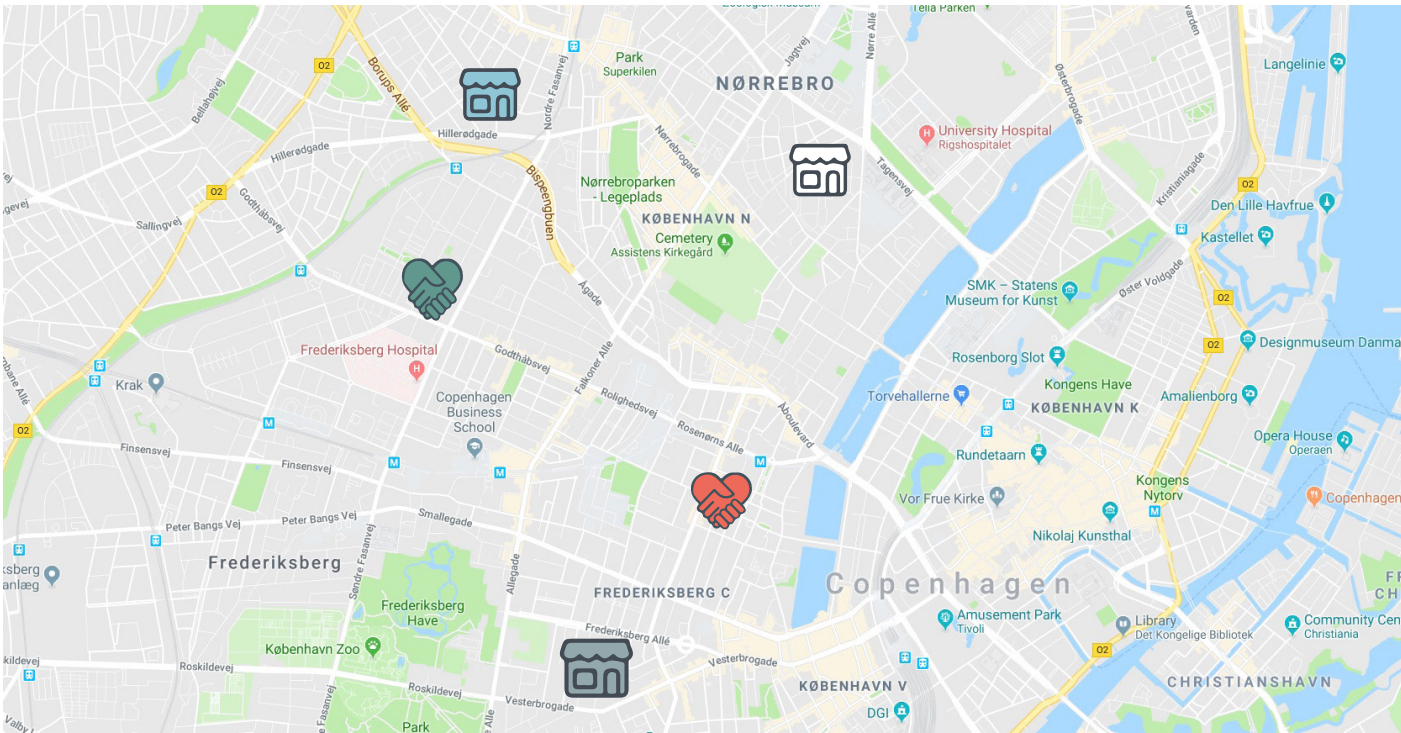


Figure 4: Matching locations

#### 4. Creating shifts:

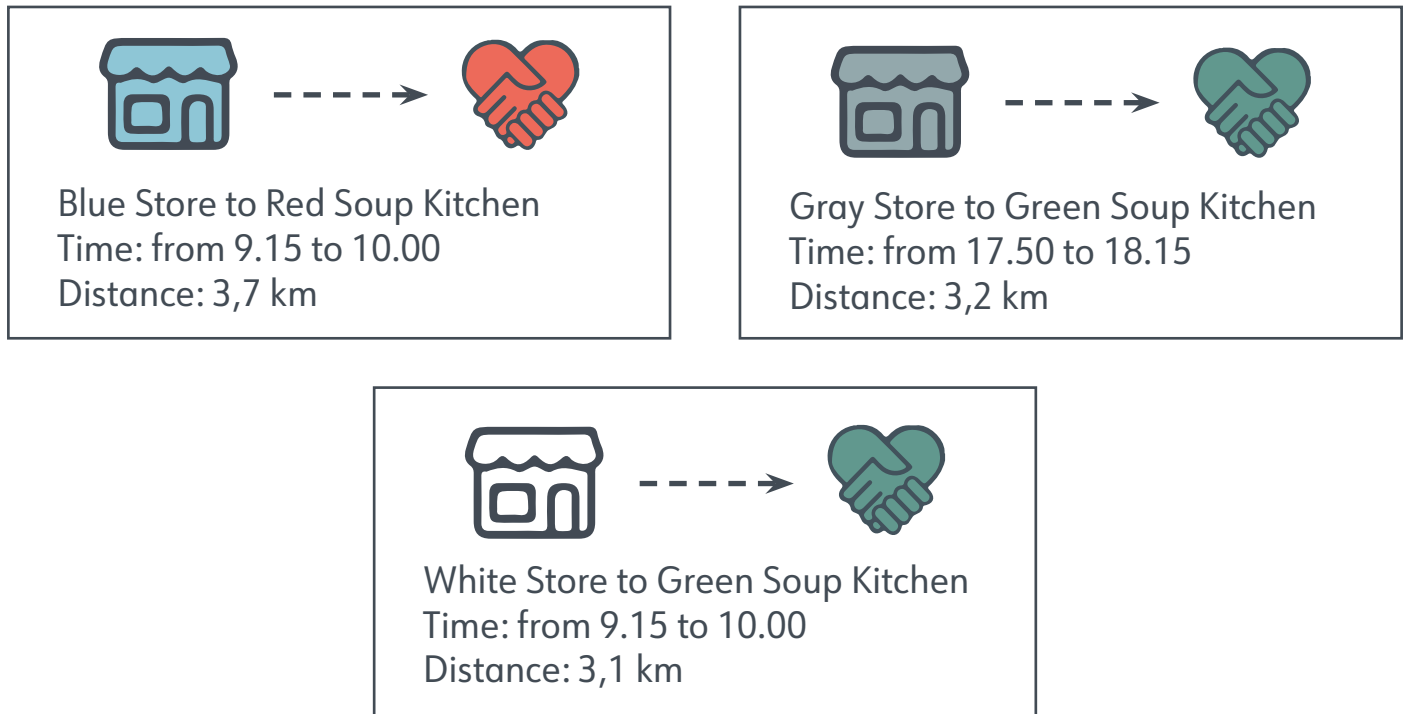


Figure 5: Creating shifts

### Target group

The target group of Madbroen are students and unemployed people. The volunteer shifts take about 30-90 minutes depending on the distance between the location of the food donor and the shelter. The food collection in supermarkets is in the morning as the supermarket is not allowed to store the surplus food after 10 AM. This requires the volunteer to be flexible, what might be difficult if the volunteer is a full time employee. The volunteers of Madbroen are also able to pick food for themselves while collecting the surplus food. The free food can be a motivating factor for students or unemployed people as it is a way to reduce their expenses.

The concept targets people who are motivated to help people in need. While redistributing the surplus food, the volunteers help people in the shelters to receive a more versatile foods. It can also motivate the volunteers, that they are reducing food waste by taking the excess food from retailers and saving it from being thrown out.

## Prototype

In order to test the concept and some of the platform's functionalities, a prototype was built. The prototype's aim was to test how the information will flow on the platform. The platform was prototyped by using other services such as Facebook or phone companies for contacting volunteers, shelters and food donors. The core of the prototype was a Google Drive spreadsheet where all the necessary information about the volunteer shifts was provided. The spreadsheet allows the service provider to manage the volunteers as they can sign up for shifts by leaving their name and contact information. After the volunteers signed up for a shift, the service provider

sent specific information about their shifts that include locations, timing, the necessary equipment, the kind of food they should take and the amount of food that the shelter or soup kitchen needs.

The prototype focused on the volunteers. As a next step, the prototype should be expanded and shared with the employees of the shelters and food donors, to make sure that the information is up to date. By using the prototype, the shelter could let the volunteers know if their needs change before the shift starts, so the volunteers can deliver the right kind and amount of foods.

Shelter:	Needs: vegetables, fruits, bakery products. From bakery: Take 1 bag of white bread, buns and pastries. NO RYEBREAD! From supermarket: veggies, fruits mixed. You can take pastries but don't take too much bread, because there's a bakery collection the same day.					
	14th		21st		28th	
May	Supermarket	Bakery	Supermarket (22nd)	Bakery	Supermarket	Bakery
Collection volunteer	Emilia	-	Thomas	-	Emilia	Rita
Phone nr.	-	-	50413345	-	-	8472982
Collection volunteer	-	-	-	-	-	-
Phone nr.	-	-	-	-	-	-
Collection Leader	Flora	Flora	Flora	-	Flora	-
Phone nr.	31322124	-	31322124	-	-	-

Figure 6: The prototype spreadsheet

first of all I wanted to thank you for volunteering 😊  
[redacted] mentioned that you have bags for the bike, so it would be great if you could bring those.  
We are going to a Rema 1000 in Valby to collect the food and then cycle to Nørrebro to a shelter called Kirkens Korshær to give the food.

we can meet at the Rema in Valby at 9 and the whole thing should take about an hour. You are able to take food for your self from the surplus food rema will have 😊

Hi Flora,  
Thank you for the info, all's clear, will be in touch should any issue arise.

Today 14:40

Hey [redacted]  
Thank you again for yesterday. Did everything go well with dropping off the bread? Have a nice day, Flora

Hey Flora, thank you for the message. It was my pleasure, it went fantastic and we had a great time all the while :)

Hi Flora, I am happy to help. Cya on monday

Figure 7: Providing information for a volunteer

Figure 8: Getting feedback from a volunteer

## Test

The prototype was tested with volunteers. The spreadsheet was shared with a volunteer group in Copenhagen and a few people signed up for shifts. They have left their contact information therefore a text was sent to them with details of the shifts. One of the volunteer was later on followed through the food collection and delivery. After the experience the volunteer stated that the amount of information she received prior to the food redistribution was enough for her, but she also pointed out that if the organisation grows, providing the right information for the right actors can get complicated, therefore the communication need improvements. Further tests are needed to find out how to change the communication to be more effective when the number of volunteers grow.



Figure 9: A volunteer selecting food at food donor

The information about the needs of the shelters and soup kitchens were updated based on the feedback that were given during the food redistribution. The information would be more up to date if it was provided prior to the food collection and not afterwards. That way the volunteers could adjust to the real needs of the shelters. In the future, more tests of the platform with the food donors and the shelters or soup kitchens are needed.



Figure 10: A volunteer transporting surplus food



Figure 11: The researcher collecting surplus food at food donor  
(Retrieved 29 May 2018 From: <https://www.facebook.com/madbroen/photos/a.2118454804838185.1073741828.2112850822065250/2118454684838197/?type=3&theater>)

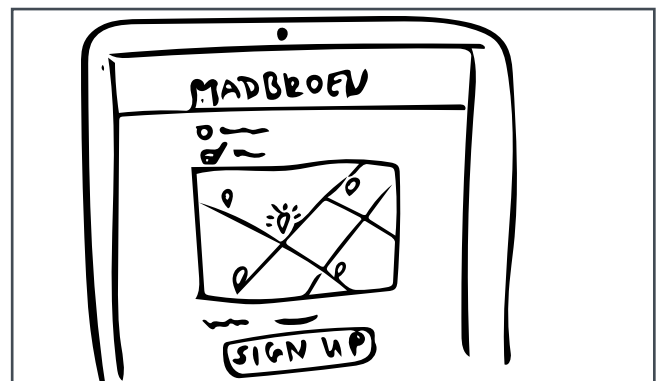
## Storyboard

When the concept was defined a storyboard (see Figure 12) was created which visualizes some common service moments and important aspects of the user experience. Although Madbroen is an online platform, storyboard illustrates moments from the food redistribution which does not happen in the online

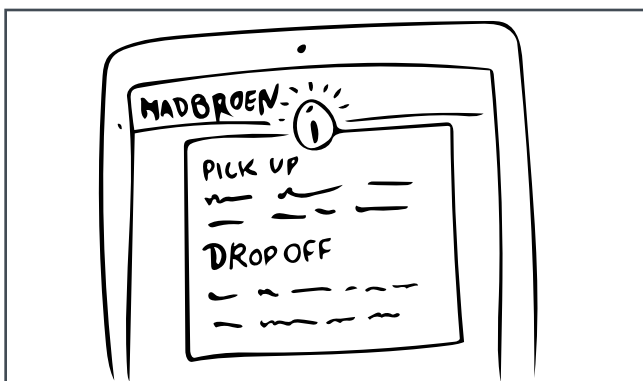
space, but equally important for the service to keep running. The storyboard helped to identify the most important actions that happen during the service starting from how the potential user could learn about the service until the food gets redistributed by the user.



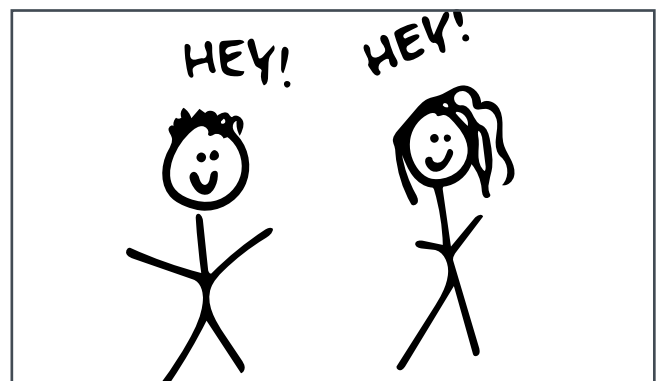
Finding the flyer of Madbroen at the bakery



Signing up for a shift on the platform



Getting information about the shift



Meeting the other volunteer at the food donor



Transporting the food to the shelter



Dropping off food at the shelter

Figure 12: Storyboard

## User journey

The user journey (see Figure 13) visualizes experiences that the user goes through while using the service. The user journey of Madbroen analyses the user actions through six aspects:

Stages: defines the phases of the service

Actions: actions carried out by the user

Channels: channels used for carrying out the action

Thoughts: represent what the user could think about

Stakeholders: actors that are involved in the user action

Emotional journey: shows how the user feels during the service

Madbroen's user journey showed that there can be issues with the transportation of the food. The volunteers have to transport the food by themselves and if the weather is bad and the volunteers are biking, that can influence their experience. The service provider have to consider all the options for how the volunteers can transport the food.

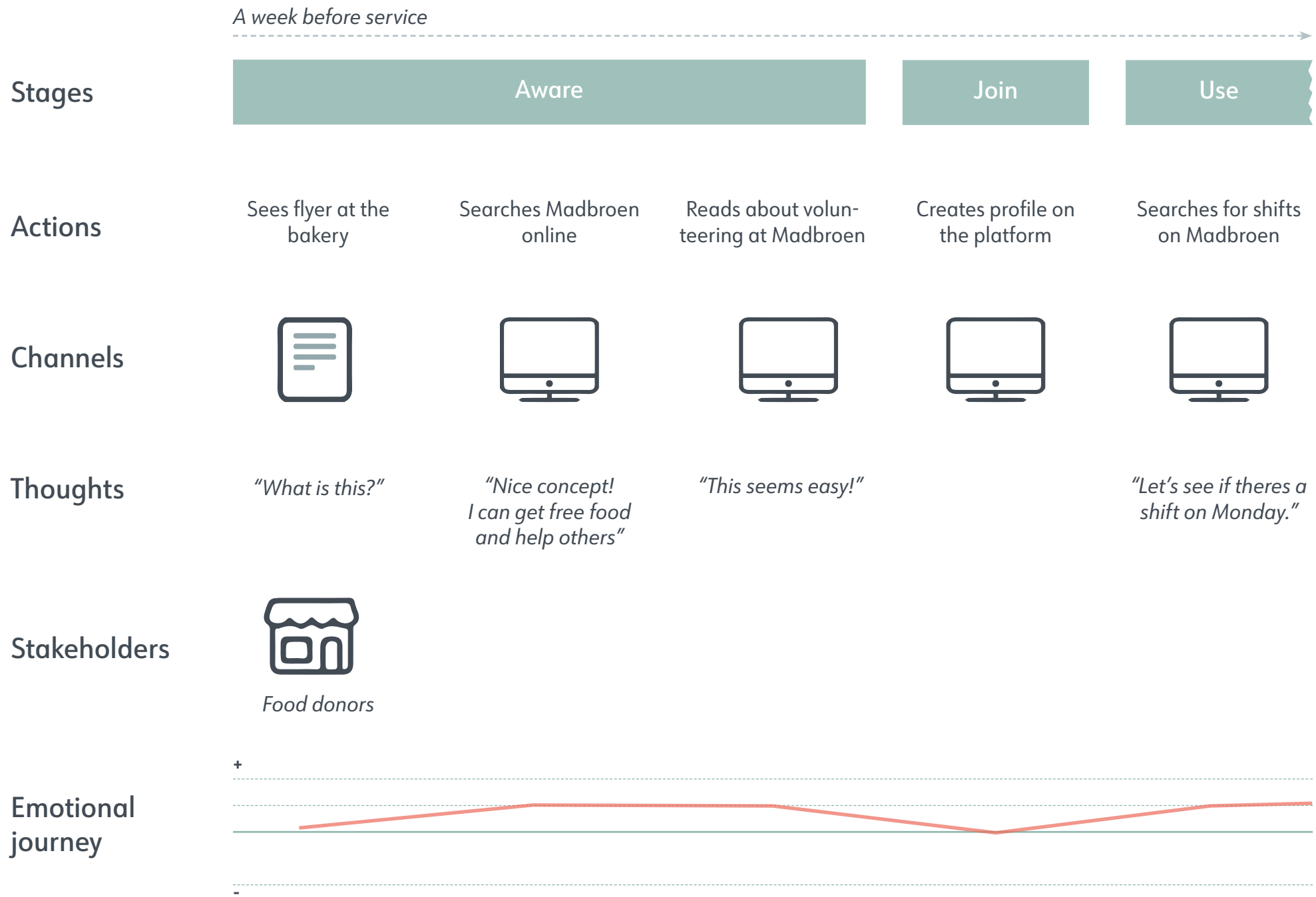
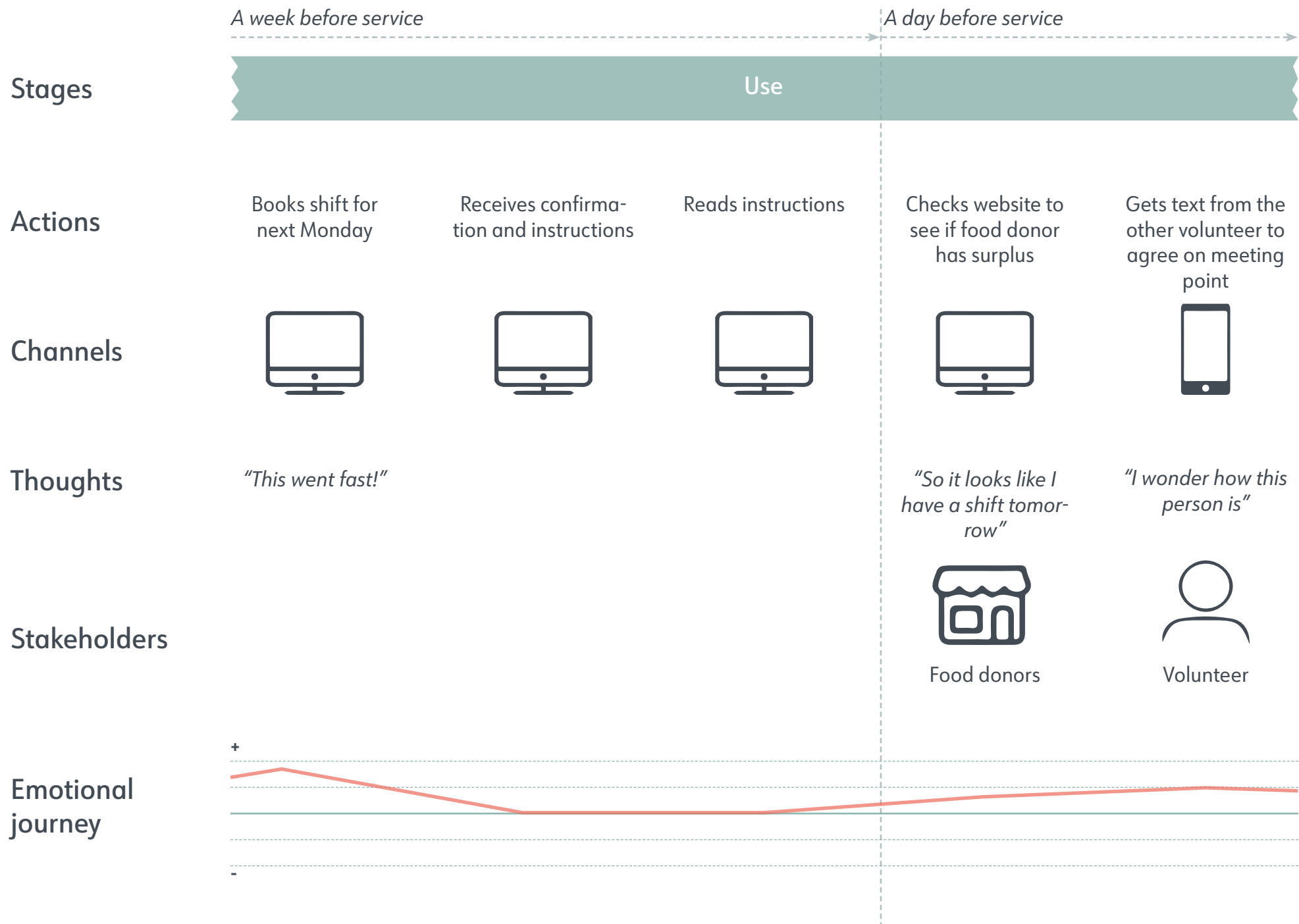
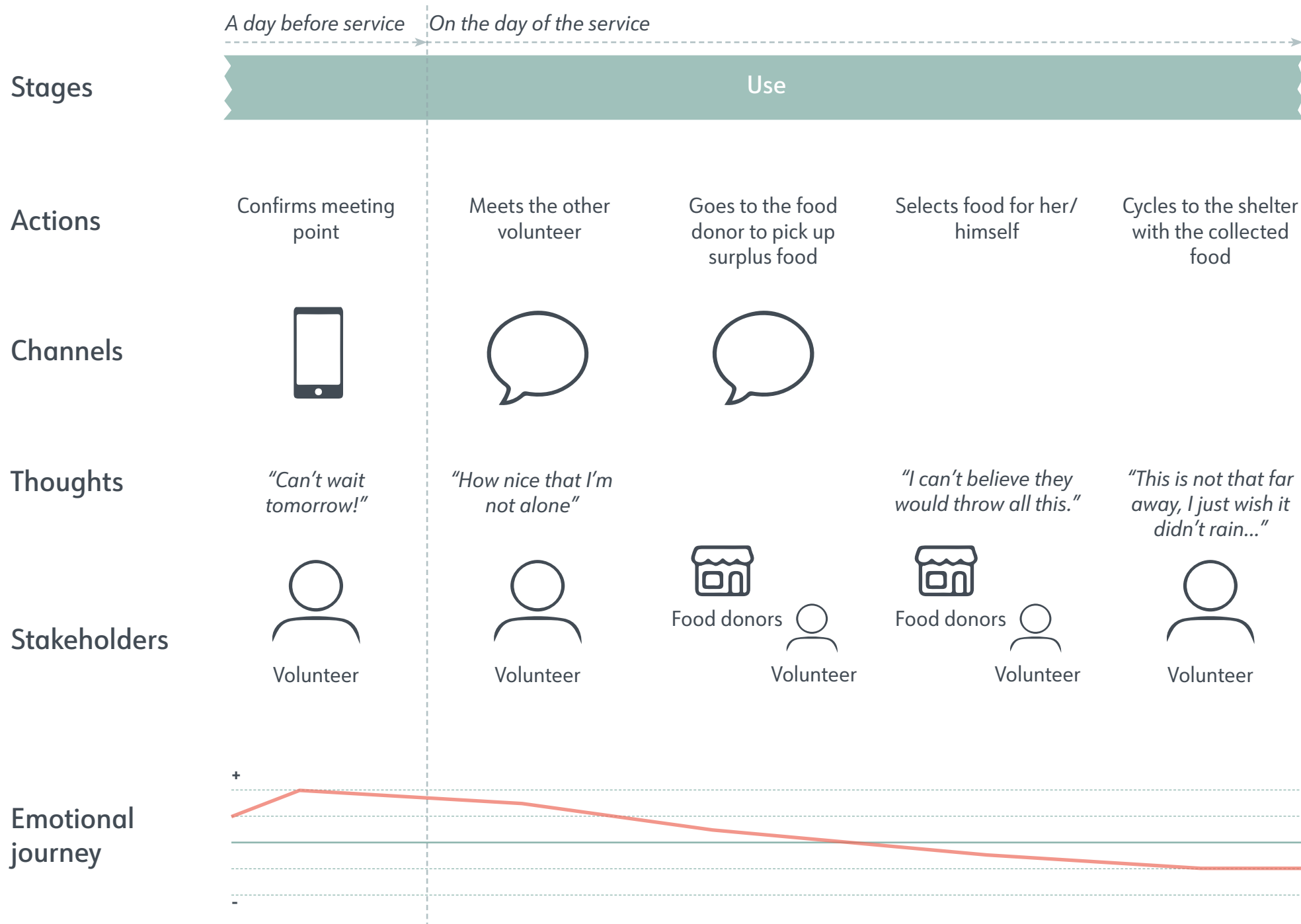
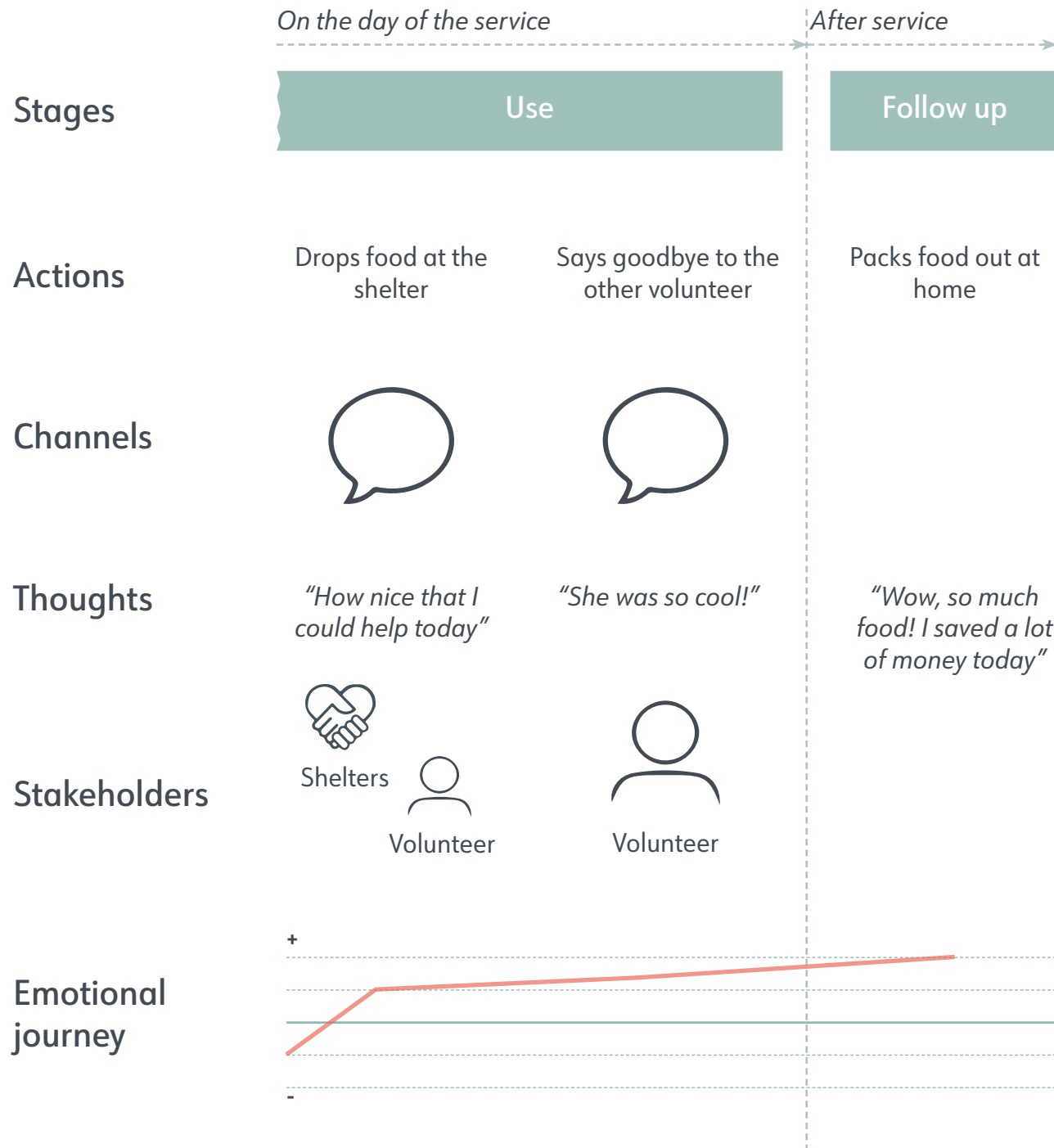


Figure 13: Madbroen's user journey







## Service Blueprint

The service blueprint of Madbroen (see on Figure 14) is based on the user journey, therefore it has the same stages: aware, join and use. The service blueprint of Madbroen visualizes which steps of the user actions are mandatory and which are not, and the flow of the information during each time the user interacts with the service.



**Mandatory action**



**Optional action**



**Send and receive**



**Information flow**

Madbroen's service blueprint is based on the actions of a user that goes through the service for the first time. For a user who has been using the service for a longer time, it might not be necessary to read through the information or check the locations. The step of "Meet the other volunteer" is also not mandatory as it can happen that there is only one volunteer for one shift.

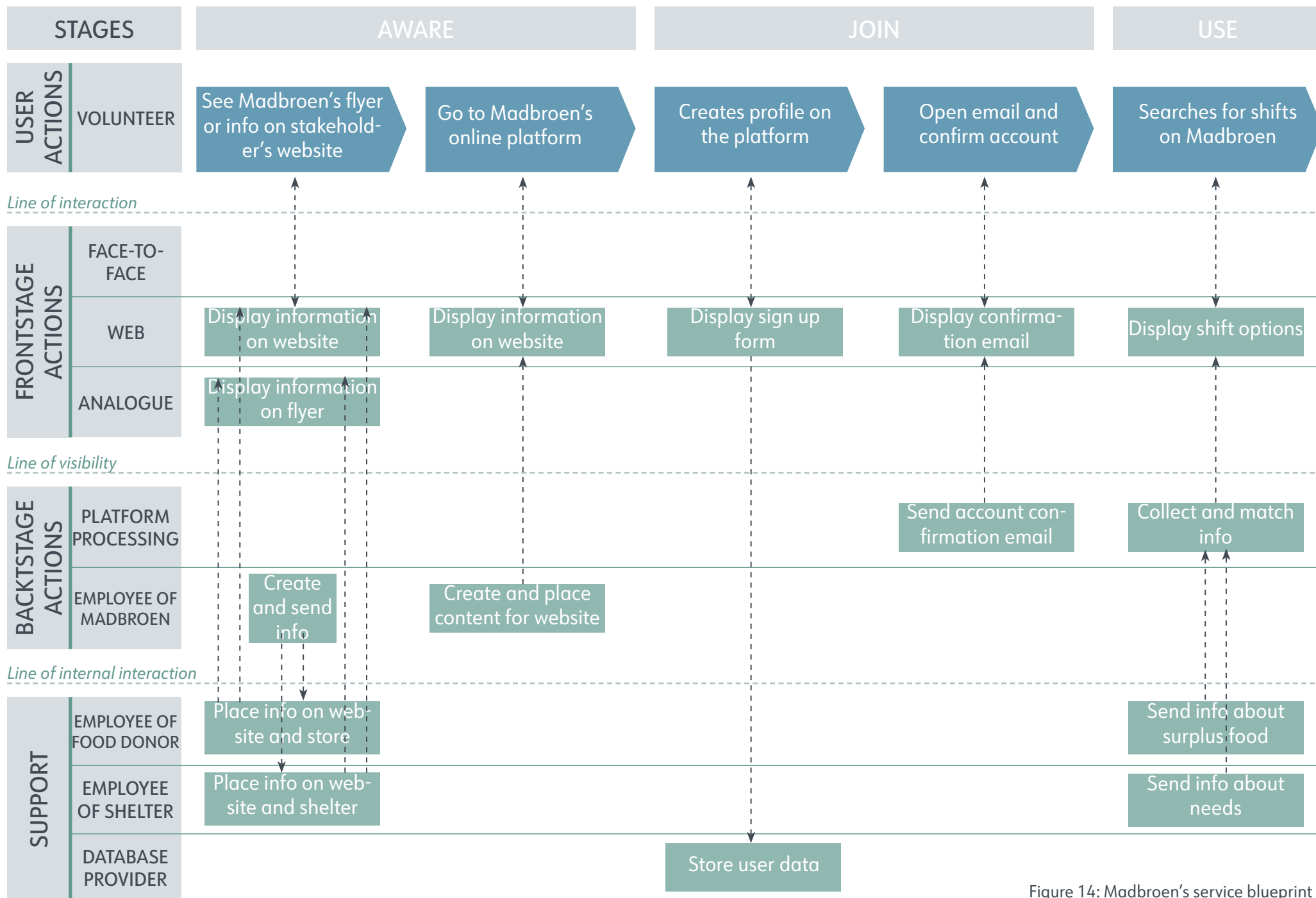
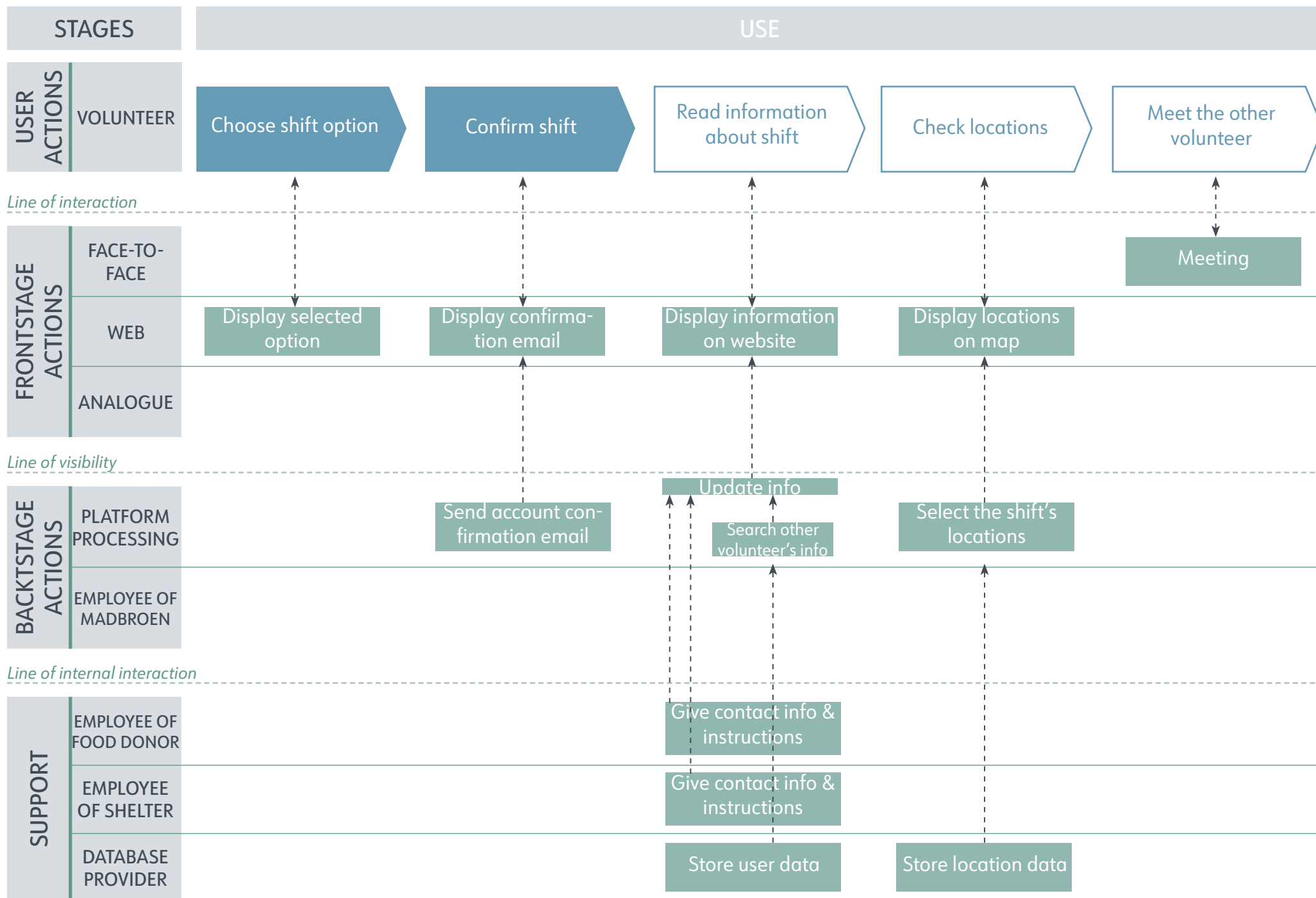
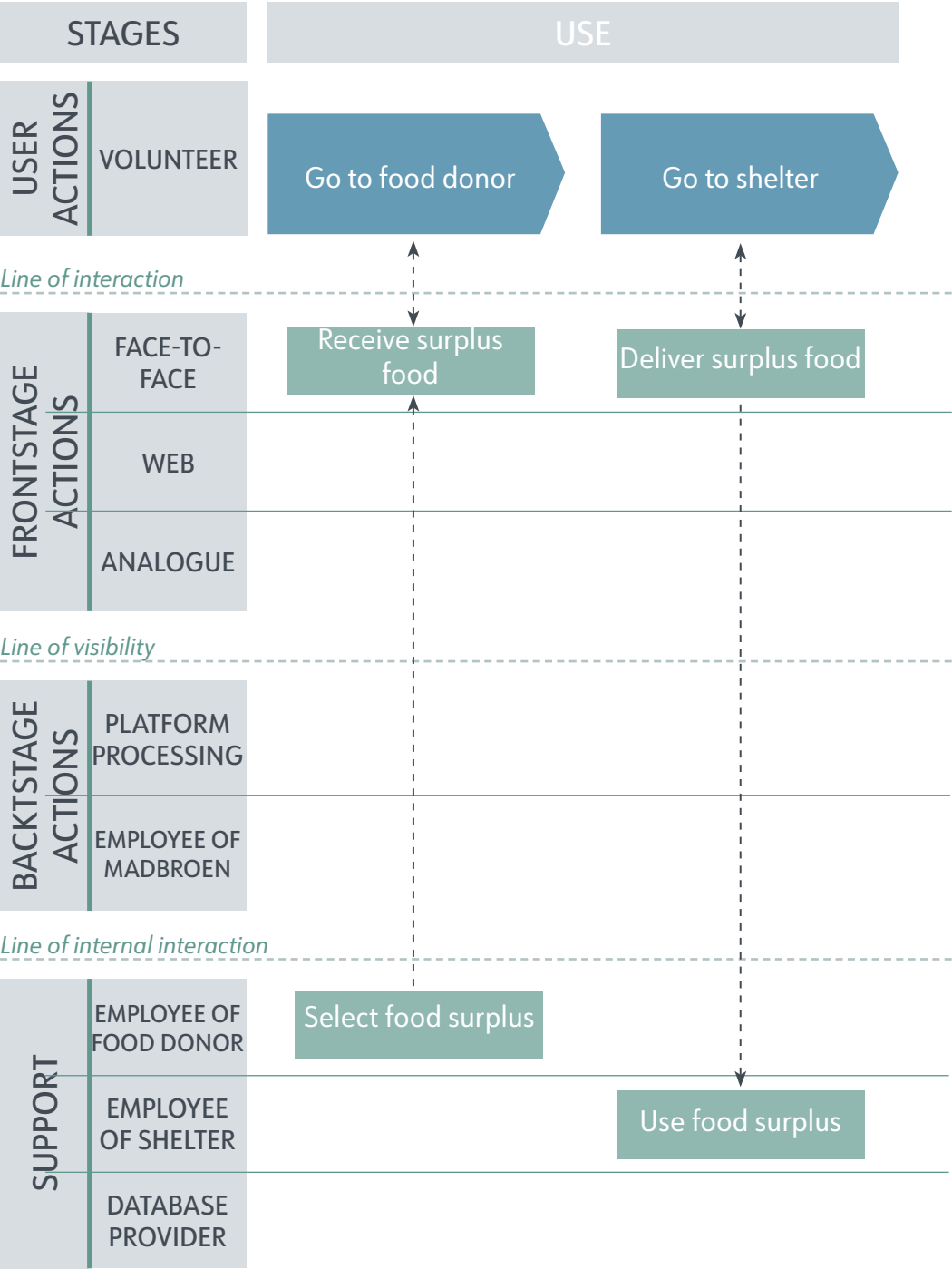


Figure 14: Madbroen's service blueprint





## Ecosystem map

The ecosystem map of Madbroen (see Figure 15) visualizes the main stakeholders of the service as well as their relations and interactions. In the case of Madbroen, the ecosystem map shows the stakeholders groups and the online platforms. The flow of information and food is also visualized on the map.

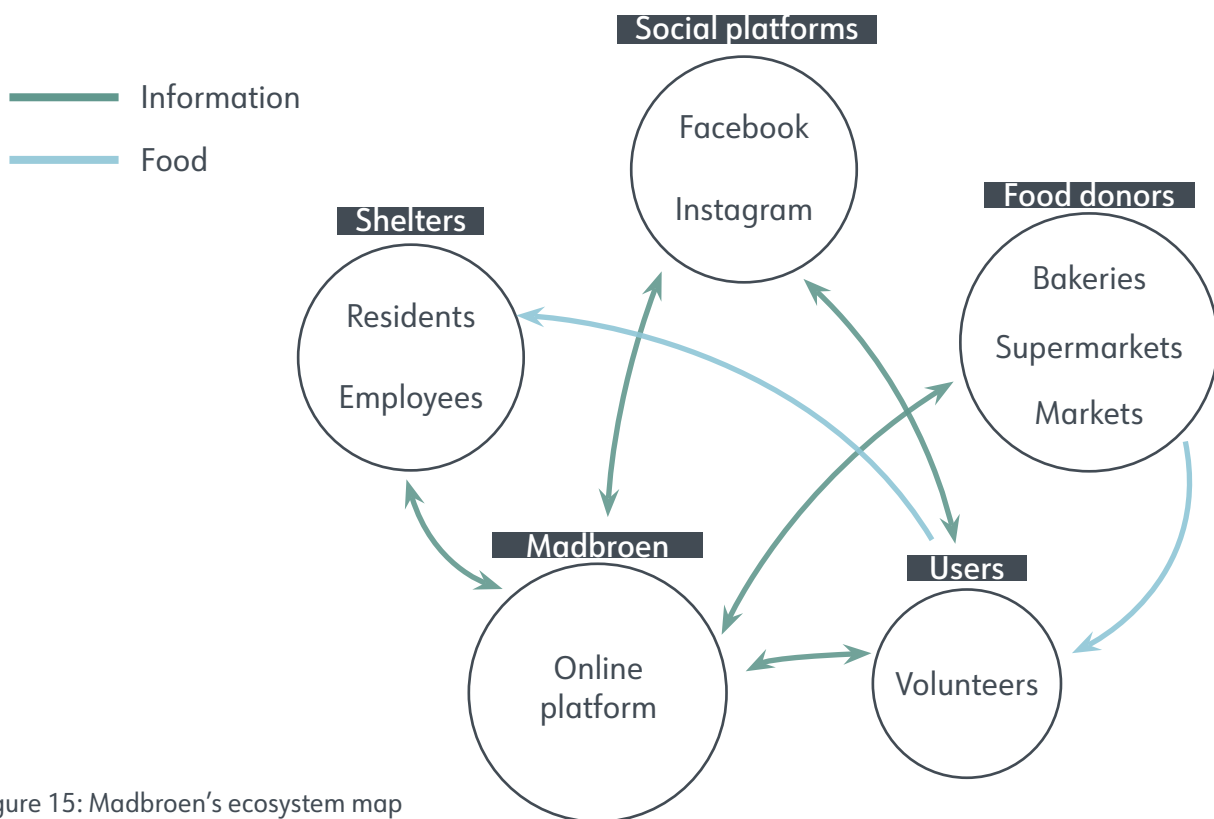


Figure 15: Madbroen's ecosystem map

## Ecology map

The ecology map of Madbroen (see Figure 16) shows the relations between the actors and their actions. On the ecology map of Madbroen there are four levels: User, Information provider, Other volunteers and Community.

The service is illustrated through six aspects:  
**WHO?** - defines the actors involved,  
**WHEN?** - the time the service is used,  
**WHERE?** - the locations,  
**WHAT?** - the tools that are used during the service,  
**HOW?** - the way the service is used,  
**WHY?** - the reason why for the service is used.

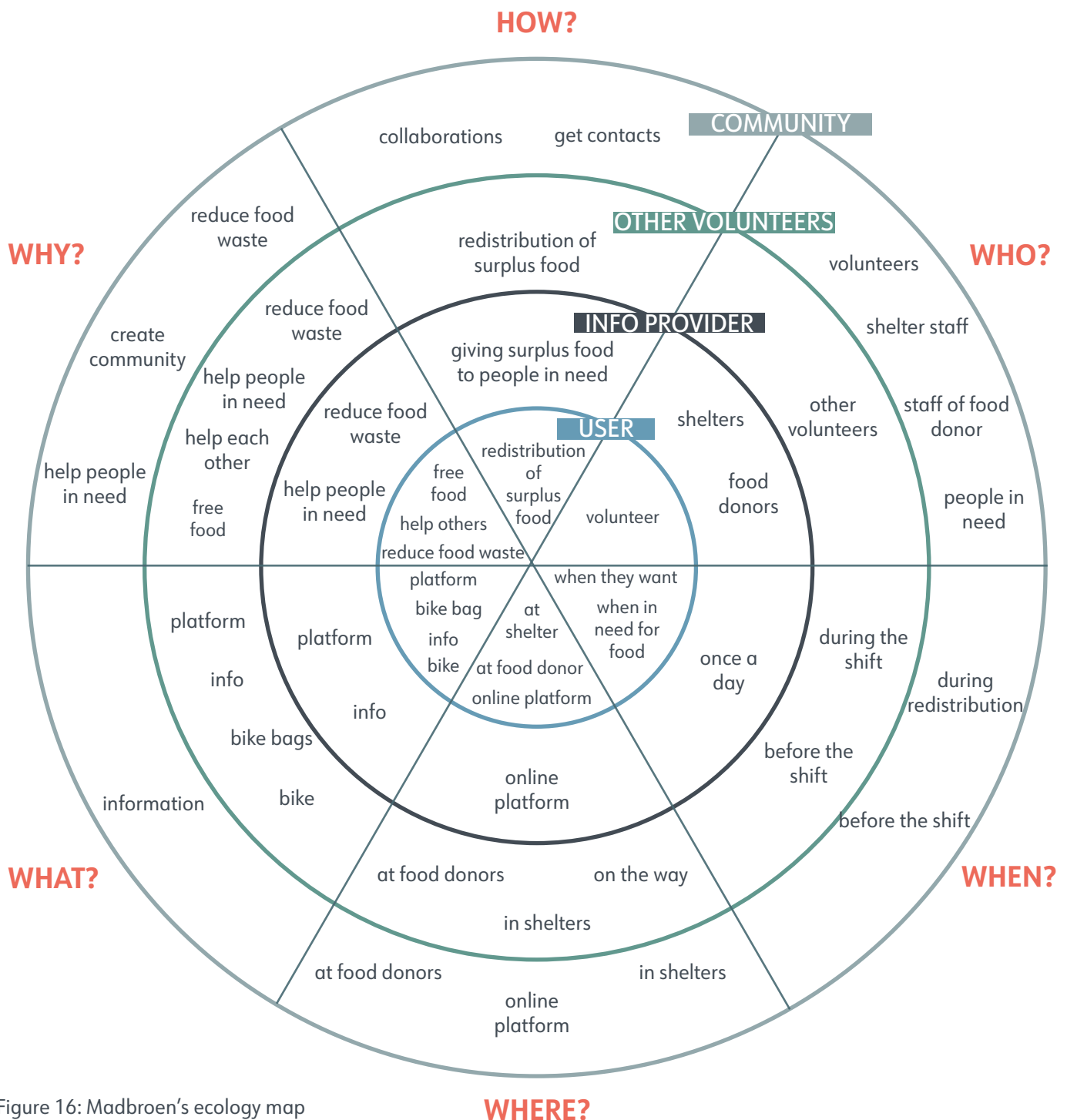


Figure 16: Madbroen's ecology map  
22

## **Future Improvements and steps**

In this sections some of the steps will be considered that are necessary for the platform to be implemented.

### **Prototype improvement**

First of all, a better communication is needed between the service provider, the food donors and the shelters. Since these stakeholders usually do not have too much time, they need an easy way to communicate with the service provider. For instance if the volunteers could send a text message to the employees of the food donor just before the food collection to ask if they have any surplus food that day, the employee just have to answer yes or no. This would be easy for the employee to do, but at the same time it would provide important information for the volunteers.

### **Promotion**

One of the next steps would be to promote the platform to potential volunteers. There are four shifts per week at the moment, but unfortunately there are not enough volunteers. If Madbroen had more volunteers, the platform could be tested with more people which would give useful feedback for the service provider to improve the service. The concept could be promoted on social media for students or to existing volunteer groups.

### **New collaborations**

Some shelters reached out to Madbroen with their needs for food. So far there is only one supermarket and a bakery chain that collaborates with the service provider, but many more are needed in order to help more people in need. As a next step, the service provider should map out possibilities to collaborate with companies in the catering business. Companies that cater huge events might have surplus food that is already cooked and ready to consume. This sort of collaboration would make it easier for the shelter and soup kitchens to provide hot meals for the people in need.

## References

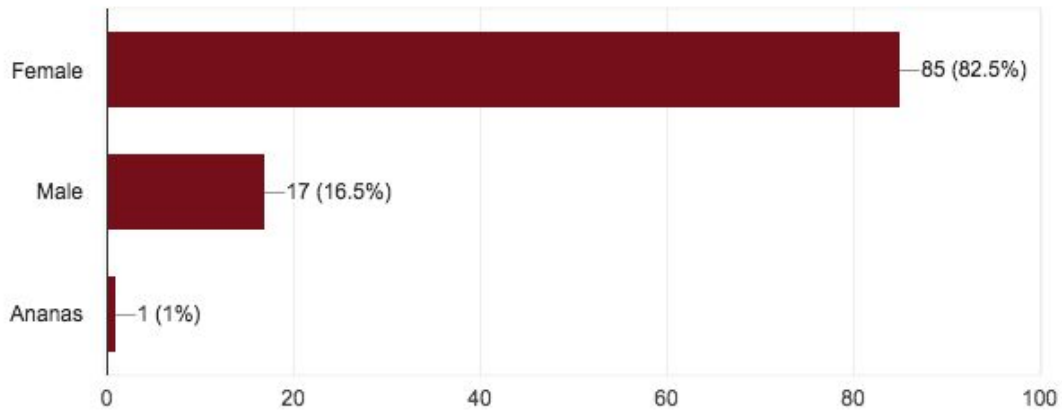
Food waste: the problem in the EU in numbers [infographic] | News | European Parliament. (2018). Europarl.europa.eu. Retrieved 1 March 2018, from <http://www.europarl.europa.eu/news/en/headlines/society/20170505STO73528/food-waste-the-problem-in-the-eu-in-numbers-infographic>

Rombac, M., & Bitsch, V. (2015). Food Movements in Germany: Slow Food, Food Sharing, and Dumpster Diving. *International Food And Agribusiness Management Review*, 18(3), 1-24.

# Customer survey

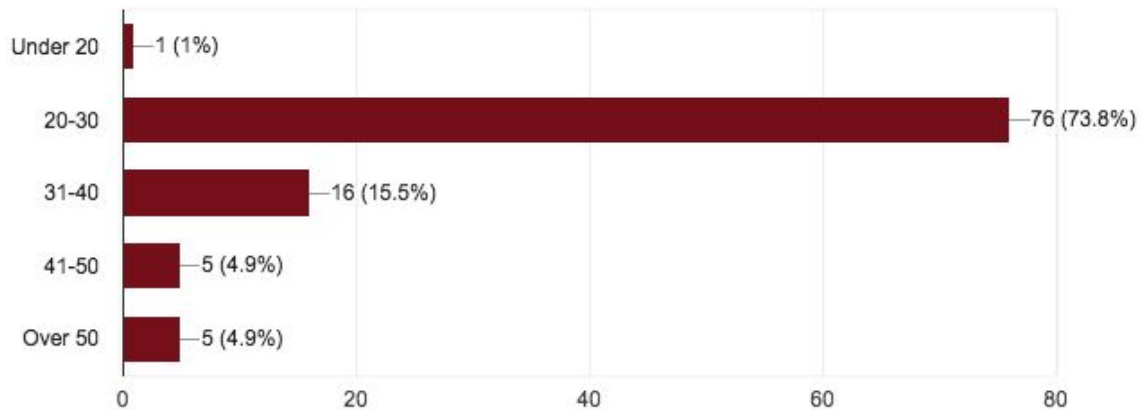
## What is your gender?

103 responses



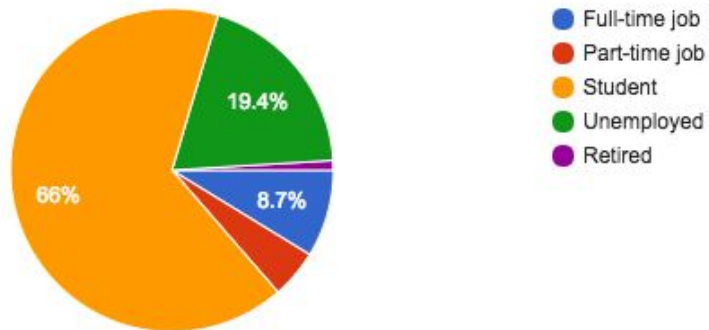
## How old are you?

103 responses



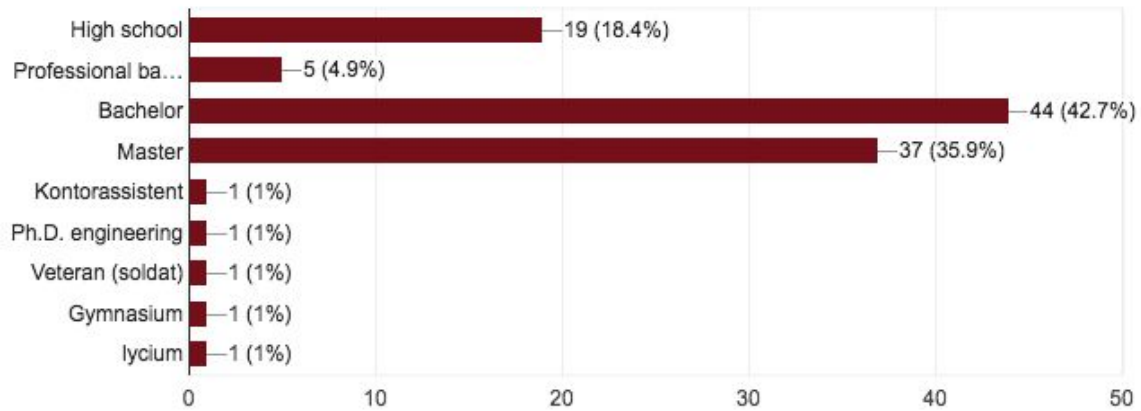
## What is your occupation?

103 responses



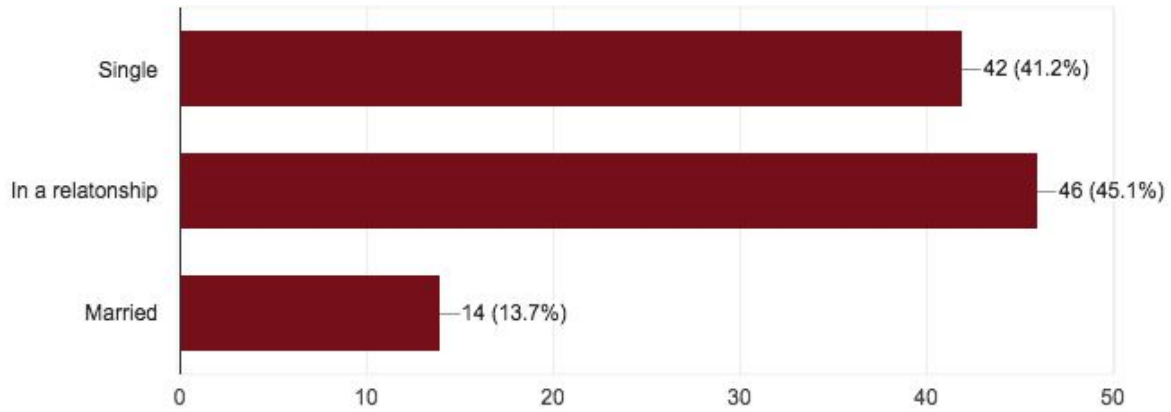
## What is your education?

103 responses



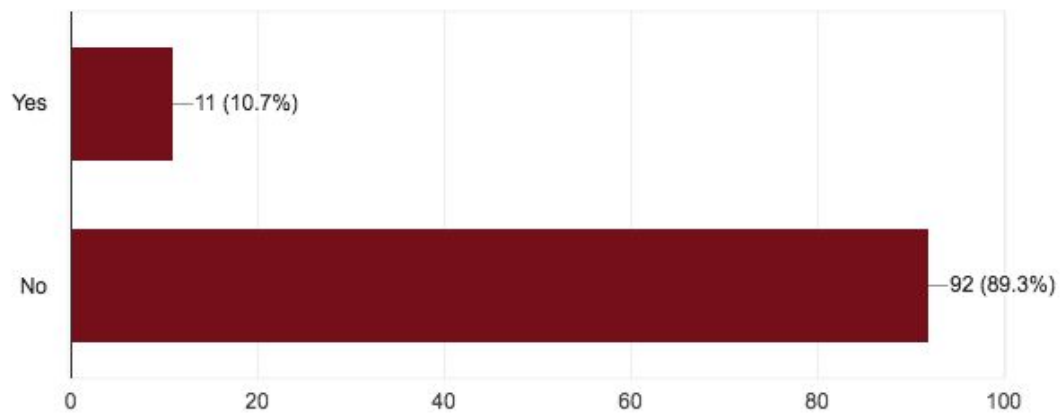
## What is your marital status?

102 responses



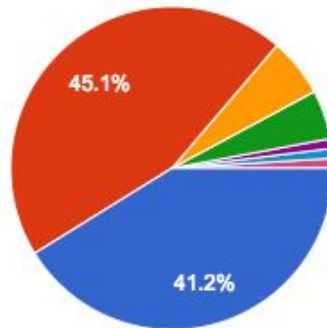
## Do you have children?

103 responses



## How did you hear about Foodsharing Copenhagen?

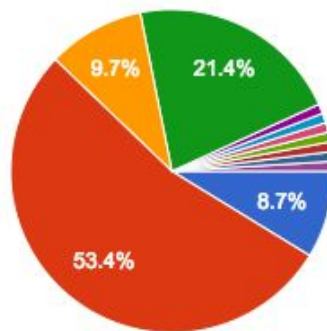
102 responses



- From a friend
- From social media
- Went to an event
- I was part of a similar movement in another country
- From a friend and social media
- A lecture
- Meet them first at international House

## How do you take part in Foodsharing Copenhagen?

103 responses

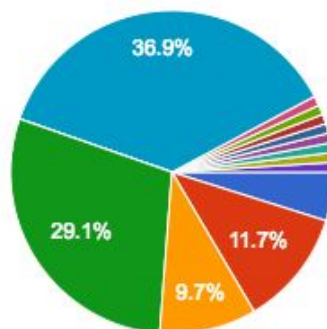


- Volunteer
- Attend events
- Follow updates
- Support the idea of foodsharing
- All of the above
- I follow updates to pass Them to pe...
- Will attend events in the future
- Haven't been there yet, because I a...

1/2 ▼

## What is Foodsharing Copenhagen for you?

103 responses

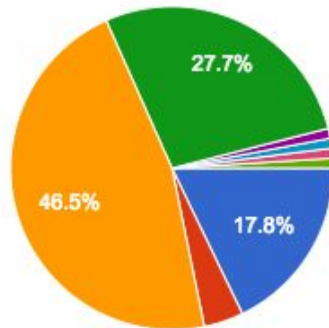


- Events
- Community
- Organisation
- Movement
- Business partner
- Food source
- Events, Community, Organisation,...
- Community, movement, food source, ...

1/2 ▼

## What do you do with your surplus food?

101 responses

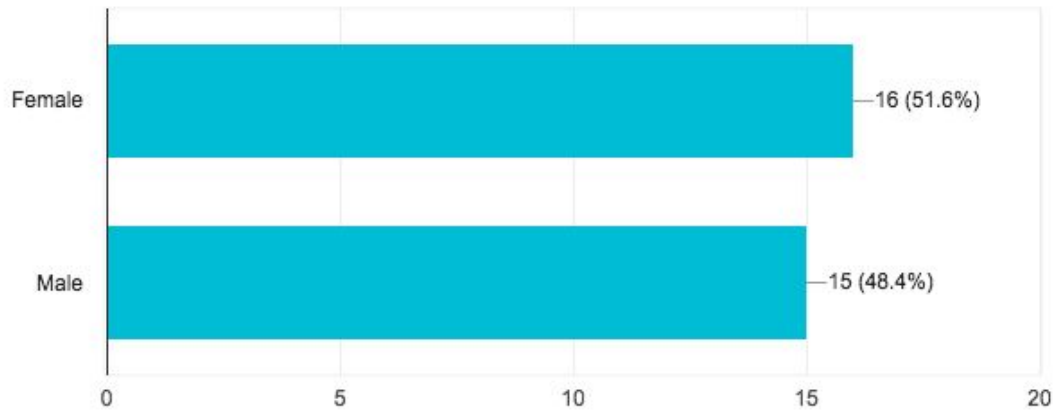


- Give it away to friends/people in need
- Throw it away
- I have none
- Ferment it/freeze it
- Use it to prepare food 4 friends - showing them that sharing is caring
- Give it away, ferment/freeze it
- I TRY TO NO HAVE ANY , AND COOK OR FREEZING
- compost it or give it away

# Volunteer survey

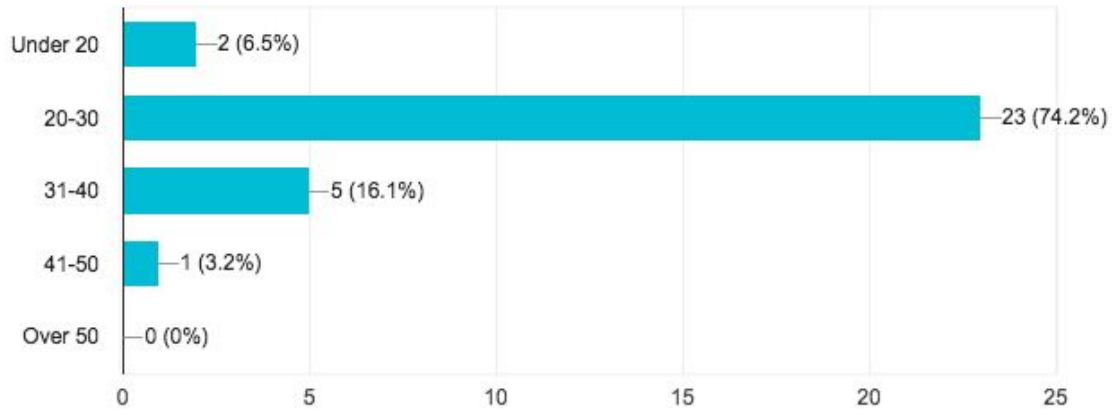
What is your gender?

31 responses



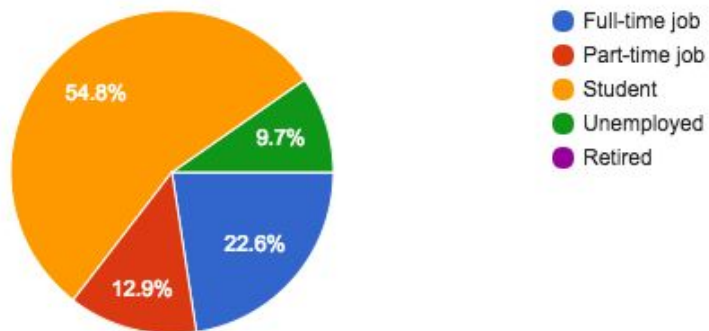
## How old are you?

31 responses



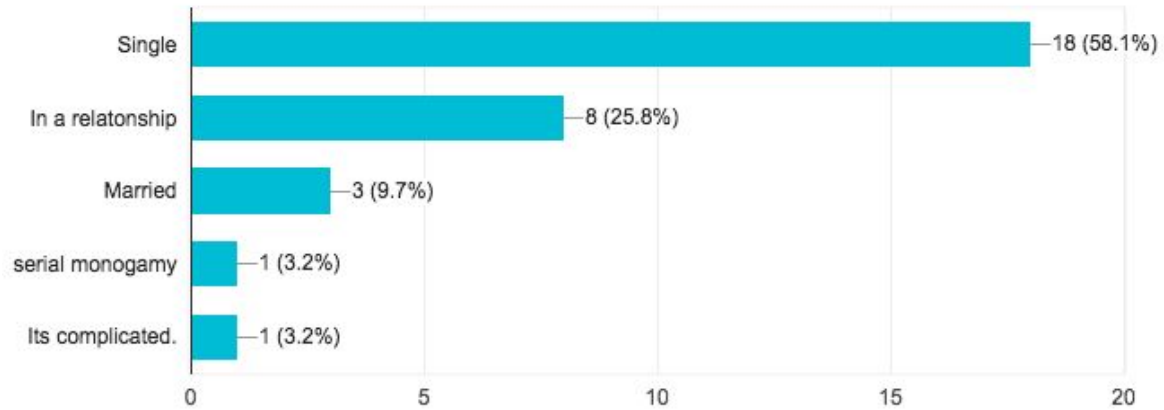
## What is your occupation?

31 responses



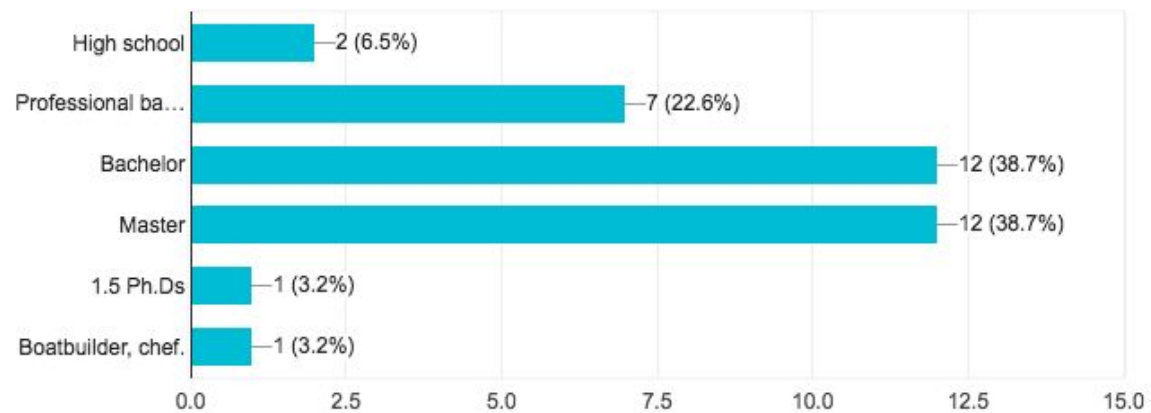
## What is your marital status?

31 responses



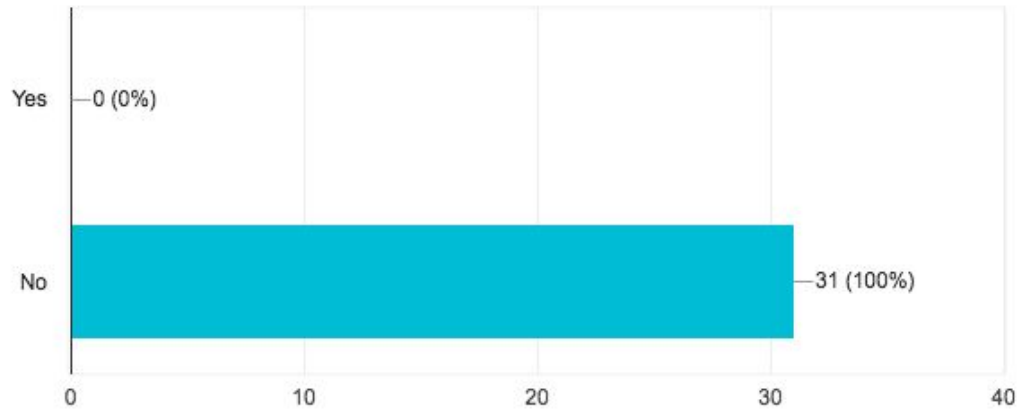
## What is your education?

31 responses



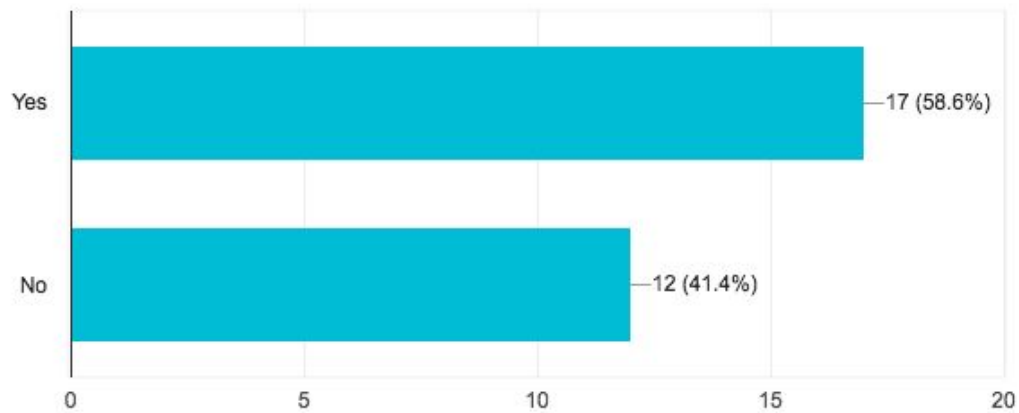
## Do you have children?

31 responses



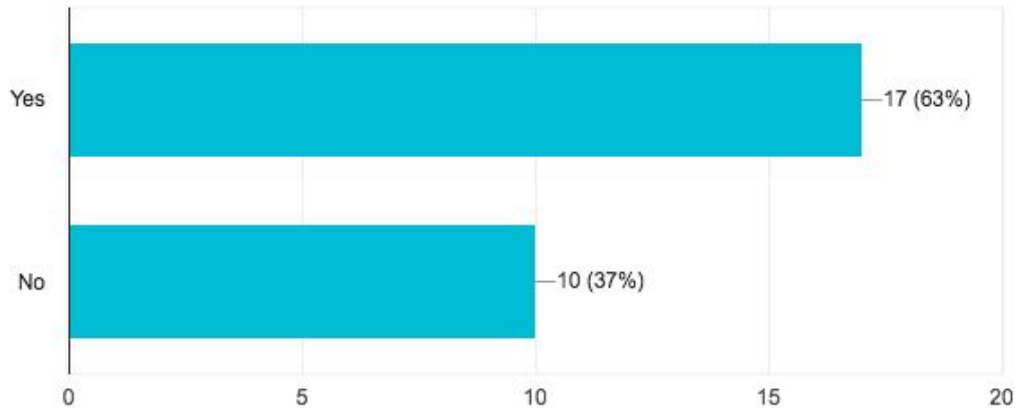
## Would you like to engage in more volunteering activities for Foodsharing Copenhagen?

29 responses



## Would you like to engage in more team building activities?

27 responses



What kind of content would you like to see on Foodsharing Copenhagen social media channels?

- Recipes or tips to do with food we get.
- Tips for veggies like fermenting etc/ how to make the most of what you have.
- How to avoid waste.
- Activities and how volunteers gather the food.
- Stories of people who live 0 waste life, inspiring recipes, ideas how to turn trash into home decor or other useful DIY ideas which can prevent waste in general.
- More spaces in which to get food or make healthy dishes out of the food given!
- I would like to be informed on events and maybe on how to save food at home.
- I love seeing what food there is beforehand and in general knowing when exactly the event takes place (although it's usually at the same time, right?).
- Maybe more recipes and explanations about fermenting and cooking with the veggies we get at the events.
- Sensibilization for the impact of food waste and how much it means for someone who's economically struggling.

- Recipes with the given vegetables, specifications of the vegetables are given (some of them are unfrequent or unknown for some people).
- Maybe how you get the food, the process - to be more informed of the source.
- More about ways to conserve extra food or how to cook it.
- Dumpster Diving Spots.
- How you organise to pick up food. How I can provide addresses or stores that might donate their food. I might be able to provide the address of a bakery that daily throws out a lot of bread. I am not able to bring the food to you as I work a lot volunteering with integration.
- Statistics and pictures of food which Foodsharing Copenhagen saved.
- Info about the events.
- information about food.
- Info how to waste less and use most of the food/products.
- Zero waste - preventing all kind of trash that is not necessary.
- Tips on how to avoid /minimize food waste.
- Events and Information about food waste and food waste reduction practices.
- Initiatives and different examples on how to avoid food waste.
- Food preserving information, maybe some recipes.
- Articles about different ways of conservation for food or how to consume in different ways.
- Events, other ways of supporting social movements.
- How to volunteer.
- I think it is good as it is.
- Introducing other similar anti-waste movements/ organizations in DK/ Copenhagen. Mostly events.
- I'm happy with it.
- More info on how to store food so it lasts longer.
- Events about foodsharing and information about those events. Maybe tips and tricks for no-waste. :)
- Tutorials/guides on how to cook certain food or how to save them safely for later use.
- All the events that are related.

- Tips and tricks to avoid food waste in a busy everyday life.
- I really like your channel, but i'm sometimes wondering if you have a bigger plan for FS CPH? Do you have the ambition to grow as an organisation and become a larger network, or even a business? if yes - how do you work on that and what can we do to help you?  
Just a small hint on what your plans are for the future (as an initiative) could be nice!
- Dates and updates on, when there is a foodsharing or a clothes / things-sharing event.
- You are doing great! Maybe some more scientific Studies ?
- Recipes, things to inspire people and to help reduce food waste.

## **Appendix 2:**

### **Interview notes with Interviewee nr. 1**

- Master student
- Food related studies
- 27
- Joined: January 2018
- Known about it from flatmate
- "I think it's a wonderful concept. I've always been interested in food waste and ways to minimize it. Back home I don't know of anything similar to this concept. Maybe it exists but I just don't know about it"
- Interested in food waste problem, wanted to see how the process goes
- "I like the idea that it's very different people with different backgrounds coming together. I mean as far as volunteers concerned. There are volunteers with very different backgrounds from mine and it makes sense because we're all there kinda for the same reason. And I think it's also a nice way to chat with people who actually come and pick up the food because we have a lot of regulars and we have people who just come once or twice "
- "There's also people who need it (free food from the events) because they don't have sufficient financial resources for instance because I see that as well... students, there're a lot of students." "So it's a nice way to talk to them
- Goes about twice a month
- So far she hasn't been on other events but regular event and Hyggestedet
- Would be interested in going to more events

## **Appendix 3:**

### **Interview notes with Interviewee nr. 2**

- Student
- Saw it on facebook
- He was a participant first and heard about that FSCPH is looking for volunteers,
- "When I saw the address of the bakery, I thought that it was really close to my place and I could do this, at least I could try this out and then so I signed up for it and then it just continued every week"
- He stopped bakery collection last November because he moved so now he is 'just' a leader and tries to coordinate the volunteers
- He calls the bakeries to let them know that FSCPH will come to collect the bread and ask how much bread they have and try to organise if they have a lot of bread then ask for more volunteers
- "Volunteers ask a lot of questions: where do we have to come, what is the time and so on."
- Started November 2016
- "Organisation that helps to reduce food waste. Initially, I'll be honest and I would say I joined just to get free food because coming, being a non-EU, living here in Denmark is quite expensive so I started it just for the free food, but as I got involved in the organisation more and more, I got to know that there is really a problem of food waste and lots and lots of food goes wasted and I think if we organise it a bit more and more and more people help out then we can do even

more better work and have few more food sharing points and try to reduce the food waste as much as possible. I really think it's a huge problem all over the world."

- Main motivation at the moment is "to reduce the food waste"

#### **Appendix 4:**

##### **Interview notes with Interviewee nr. 3**

- Started about a year ago
- He met a volunteer that's how he found out about it
- Motivation: free food.
- I joined because I got free food and I stayed because I was of the good cause and also because of the community of the volunteers.
- He participates in another people's kitchen which is about collecting surplus food from shops and cook it
- 3 times a month Saturdays
- Software developer
- He thinks that the second shift is much tougher than the first shift because you have to be on time and you have to get rid of the leftovers and "sometimes we don't know where to take the leftovers and if first shift can't finish something then the second shift has to
- "Sometime we take it (leftovers) to shelters, sometimes we use it for compost, sometimes we give it to other collectives"
- "One time I went with bread (to shelters) and they were happy with the bread but with vegetables I don't know"

#### **Appendix 5:**

##### **Interview notes with Interviewee nr. 4**

- 19
- Student
- Joined in October
- "I heard that it's an amazing opportunity to help other people and also to gain free food and I can volunteer, I don't do a lot of work and it's a win-win situation: I help other people and they help me."
- "My boyfriend used to volunteer and he told me about this and he said that I should come ... and I came once and I liked it and ...keep going"
- 2 times a month Wednesdays
- "I would (take leader shifts) but I'm not sure right now...I don't know why"
- About the movement: "I think it's a great idea because there's of the waste, all of this could be thrown out and it's not that bad for consuming it because the expiration date is not always .... I mean you can eat them even though it's passed that... it's just 'best before' but not everything is bad"
- "All the people are so happy and grateful and they come with their energy and I feel good too for doing that and I remember the first time that I was so happy because of the people and everybody was saying 'thank you' and they were really grateful"

## **Appendix 6:**

### **Interview notes with Interviewee nr. 5**

- 25
- Student
- Started in december
- Through a team leader friend
- "It helps a lot with grocery bill and also like...free stuff right? There's something really exciting about going each week and see what thing are there and also because I was trying to eat less meat as well and this actually helps financially it helps"
- 3-4 times a month both wednesdays and saturdays
- Tried a lot of kind of shifts
- About leader shift: "I would consider it but I don't want the responsibility."
- About the movement: "I think it's great that they just get the food and they give it to anyone that pass by. This is purely about food sharing and I think that is something that is lacking a lot of cities in the world. "
- "I think the foodsharing attracts a certain kind of person I feel like people who come here .... They are open and welcoming and I think that's just the kind of person that it attracts"
- "The excitement of free things"

## **Appendix 7:**

### **Interview notes with Interviewee nr. 6**

- 28
- Unemployed
- Joined recently but knows foodsharing because he was an event participant before for half year
- "You become really aware of the food spoiling like in front of you ... when you are actually seeing the whole action ... it is shocking "
- "You become aware of 'I shouldn't take too much food because there are people who might need more than me'" you are not thinking always in advance

## Appendix 8:

### Interview guide for employee of a shelter

Interview Guide – Manager of the night shelter			
Research objectives	Topics	X	Interview Questions
“Facesheet”	Personal experience at shelter		Can you tell me about your main roles and responsibilities at Shelter?
			How long have you been working at the shelter?
1. Life in the shelter	Objectives		How do the shelters help the homeless people?
			What can the different shelters offer?
			What happens in a regular shift at the shelter? When do people arrive?
2. Nutritional needs of homeless people	Needs of the homeless		Does anyone have any health issues that would require a special diet?
			How do you make sure that they receive food according to their diet?
3. How homeless people get food?	Outside of the shelter		What are the opportunities for people on the street to get food?
	Inside the shelter		Who prepares the food and when?
			Who decides and how about the menu?
4. Volunteers			How many volunteers work in the shelter?
			What kind of volunteer work do they do?
5. The shelter’s supply	Organizations		How does the shelter get food?
			What organisations help the shelter to get food?
			What kind of food product does the shelter receive from the food donors??
	Future		Is there any kind of food products that the shelter regularly miss?

## **Appendix 9:**

### **Interview notes from interview with an employee of a shelter**

- They get food from Food Bank
- "we cook different food depends on what we have, but normally we always have soup. A soup factory in Denmark is a sponsor. So we don't have to cook, we can order some soup and we get it here."
- "We heat it up (the soup) and we have a production of food"
- "We make something out of what we have. We don't buy anything. Sometimes we don't get no meat, no veg. Rice, pasta, beans, coconut milk and stuff like that so we can produce some hot meals"
- They do not bring much vegetables and fruits
- "Normally, they go to the library, over here (there's a library just on the other side of the road). 90% have some problems with alcohol and drugs and they go to a library here and sit inside in the winter time and in summer they are in the park. They go to laundry store here. They can sit inside and it's warm."
- "All the administration is mine, I am the chief of this part of the shelter. I make all the plans "
- He started working there 10 years ago
- Shelter is there since 1994
- They get two million from the government and 1,5 million from the main office: KK headquarter / year
- They have a lot of volunteers and second hand shops: they make a lot of money from the social work
- 7 people hired full time
- 5-6 volunteers "they are normally here for 2-3 hours from 9 o'clock in the evening til midnight. They talk with the guys who come here, some of them make some food, some tea, some coffee. Just normally social work, just sitting and playing cards or backgammon stuff like that. "
- Church organises lunch two times a week for 70-75 people
- "There's a lot of free food in Copenhagen. it's not the food that is the problem for the guys that live on the street ... it's the shelter place. You can eat for free in Vesterbro, in Mandeshjem I think, some christian organisation make food for free. So you can live here in Copenhagen for free food but no shelters, you have to sleep outside. But you can get something to eat. "
- He's normally in the office from 10-15 on Monday, Wednesday and Friday
- "We ask but they don't care (if they have a special diet), they have bigger problems. Some of the guys who are here, they get a lot of medicine, and we take care of the medicine for them we have it out here in small boxes, so when they get here they get their own box and they take the medicine they need and put it here because if they have it in their pocket in the street they will lost it. But they come in and out from the hospitals"

## **Appendix 10:**

### **Notes from co-creation workshop**

- "We already have volunteers signed up for bread collection and on Tuesdays we don't go to the ones close to Nørreport and the one in Østebro, so the volunteers could go there to pick up bread for the shelters."
- "We could definitely do an extra collection just to supply them with bread "
- "Lot of people go to the bakery (for bakery collection) because the next day then they can pick up food " "or you can simply tell Rema that we will take food and the volunteers can take whatever they want. They get food, shelters get food, everyone happy"
- "Some of them are motivated by deeper causes but most of them are here for the food"
- "It's raising awareness among volunteers because we have even more people involved in basically moving the food waste. This way they will get more insights in how much waste is produced"
- "If you start data collection of how many kilos of food you save"
- Supermarket can use the case for promotion: giving food to shelters
- PR also for foodsharing
- "I think in raising awareness it works in a sense that we have more people actually doing this" "They (volunteers) are actually seeing it first hand as opposed volunteers who come here (to the Foodsharing events) see a big pile of food they don't know where it comes from they don't know how it works, but these guys will see it first hand because they are at the shop "this is all the food that's gonna go in the bin"

## **Appendix 11:**

### **Notes from test and interview**

In the shop: "I'm not going to take food from the homeless"

- How did you like the experience?
- "In general it was a good experience. If you have a lot of time you have a good feeling afterwards. It was actually interesting to see the backside of the supermarket: what they toss away and how they treat food. Would be nice how people react on what you bring them but its not a waste of time.
- Do you think you got enough information beforehand?
- "I think for me it was enough because of the experience with Foodsharing in general but ... I don't know. Maybe if its a bigger organisation it would be a little bit tricky. If there are more people involved there can be improvements in the communication"
- Would you do it again?
- "Yeah if I have time, sure!"