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## **WP4 Evaluation report**

### **WP4 – Testing Social Innovation Evaluation Report**

**March 2016**

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**Reducing food waste through social innovation**

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# Colophon

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# Summary

This report evaluates seven feasibility studies which have been implemented across Europe as part of FUSIONS (Food Use for Social Innovation by Optimising Waste Prevention Strategies) Work Package 4 (WP4). The main objective of WP4 is to identify solutions throughout the food chain to reduce food waste and to test via Feasibility Studies socially innovative measures to prevent and reduce food waste using a multi-stakeholder approach across all stages of the food chain. Along with the report each feasibility study has been individually evaluated; a report on each can be found in Appendices I-VII.

The seven feasibility studies commissioned to test social innovation measures to prevent and reduce food waste addressed the whole of the supply chain. However, they primarily focused on food redistribution rather than food prevention.

*Cr-EAT-ive* worked with school children and their parents to reduce their food waste in the home and promote key food waste prevention behaviours;

*Food Service Surplus Solution* focused on redistributing surplus food through connecting charities that required food donations (such as homeless shelters) with organisations from the food service and hospitality sector.

*Disco Bôcô* taught a range of individuals how to make jams and chutneys from surplus food in a unique, fun and often musical atmosphere.

*Gleaning* focused on creating a series of gleaning networks across the EU; therefore encouraging the picking of fruits and vegetables that were not harvested from the farmer and redistributing them to charitable organisations, across the EU.

*Social Supermarkets* redistribute surplus food donated by food retailers, manufacturers and the hospitality sector. They sell the surplus food at heavily discounted prices to food insecure individuals. The Social Supermarkets feasibility study is different to the other feasibility studies as it was largely desk-based, and thus aimed to facilitate the expansion of the concept by analysing a range of experiences across the EU.

*Surplus Food* tested the possibility of setting up an IT system that would connect food surplus donors (i.e. supermarkets) with charities that redistribute surplus food.

*Order Cook Pay* aimed to reduce food waste within the school environment by creating an IT service that determined how many meals to prepare each day for children.

These feasibility studies were evaluated by WP4. Each feasibility study collected data which evaluated their progress and impact. This, along with the feasibility [study final reports](#) and some evaluation visits to some studies, were used to fully evaluate the successfulness and potential replication of the social innovation feasibility studies.

On the whole the feasibility studies in WP4 have been successful; only two feasibility studies have been unable to fully implement their project. In these cases, key lessons learnt have been recorded along with a look at other social innovation projects, outside of FUSIONS, which successfully conduct similar activities.

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The successful feasibility studies have reduced (in some cases by a substantial amount) food waste going to waste, but also have demonstrated wider social benefits.

In total the WP4 feasibility studies have to date prevented a total of **44,561kg** from going to landfill. This is the **equivalent of 338 wheelie bins full of food**. If these wheelie bins were **stacked** up on top of each other they would be **37 metres higher than the Eiffel tower**. Saving 44,561kg of food from landfill is the equivalent of 209 tonnes of CO<sub>2</sub> equivalent emissions avoided. That is the **equivalent of taking 70 cars off the road**.<sup>1</sup>

Therefore, aside from generating environmental benefits, the feasibility studies have generated social impact through redistributing surplus food. They have addressed social issues surrounding changing of social attitudes towards issues of food waste; feeding food-insecure individuals; increasing the intake of nutritional food for food insecure individuals; increasing development of social capital; teaching kitchen and cooking skills; and encouraging a sense of community.

The feasibility studies have provided insight into what works well and what has not worked well. The key barriers have been due to a regional and national context which does not promote the reduction of food waste and in particular policies and legislation that hinder the redistribution of food; too short timescales; and insufficient project finance.

Some key issues have been identified which require consideration when attempting to encourage replication of these activities. These are:

*Time*, the projects required much more project management resource and time in general than first anticipated;

*Geographical location*, the feasibility studies which have been the most successful have also been situated in a social context which is favourable and has food waste high on the agenda;

*Policy*, the feasibility studies that have been the most successful have also had laws and policies that have allowed for the study to be implemented. Likewise the key barriers for some feasibility studies have been related to policy which has restricted implementation; Stakeholders, the most important aspect of many of these feasibility studies has been ensuring buy in from important stakeholders, then maintaining these relationships;

*Project objectives*, the feasibility studies which worked well were ones which had clear, narrow, measurable and precise project objectives. The less successful projects were those that tried to do too much with the money and time they had;

*Finance*, these feasibility studies were not economically viable, some cases the feasibility studies needed more finance. Any future project should be sustainable, therefore generate some type of income whether this is from grants, from making a social enterprise project or relying on donations/volunteers;

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<sup>1</sup> This is calculated on the fact that 240l wheelie bin full of food weighs approx. 132kg, and that a wheelie bin is 107cm high

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*Project managers*, the project manager is recommended to be someone who has technical knowledge and experience<sup>2</sup> in the area in which the project is operating, and ideally they will have prior connections with individuals in the project area;

*Measurement*, monitoring the project's key performance indicators and also going one step further in collecting empirical research identifies the impact of the project which demonstrates its worth to various stakeholders but also encourages further engagement from other organizations;

*Outputs*, various outputs from the feasibility studies have worked well for certain audiences. Events have been widely credited to engage people in the issue of food waste prevention;

*Being innovative*, some of these feasibility studies have tried something new, whether that is the same concept in a different country or an entirely new idea. This has generated interest from a range of stakeholders and is a good marketing strategy.

A strong argument can therefore be made that these projects should be replicated further. The feasibility studies have provided a suite of materials ready for replication. In-depth feasibility study reports, project guidelines and, in some cases, tangible outputs such as food waste prevention games have been produced. Replicating similar social innovation projects across Europe, and indeed the world, would have both environmental and social value and should be encouraged.

The feasibility studies have reduced a substantial amount of food waste whilst delivering on other goals. However whilst this report advocates for the successful feasibility studies to be replicated, a note should also be made regarding the type of projects within this study. All the feasibility studies focus primarily on food re-distribution rather than food waste prevention. Whilst food re-distribution is an important part of tackling food waste, it is also heavily interlinked with food poverty. There is a risk that these projects become a safety net which means that governmental bodies do not take responsibility for addressing the fundamental issues that cause both food waste and food poverty. The ultimate goal should be addressing food waste prevention.

Whilst social innovation in itself cannot completely solve the issues of food waste and food poverty, the seven FUSIONS feasibility studies, along with evidence from numerous other socially innovative projects, suggests that it can be extremely effective and should be considered as one of a suite of policy tools deployed to tackle the issues.

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<sup>2</sup> Zero waste Jam identified that some people were hesitant about eating surplus food because of the perception that surplus food/waste had a high risk of food poisoning. However Cornelia (the project manager) is a trained chef and she found that people were more acceptable to the idea once they found this out. This was because of the perception that she knew what she was doing and was trained to an adequate standard. This identifies the importance in some cases of having qualified and experienced project managers.

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# 1 Introduction

In the EU alone, the food and drink sector produces 100 million tonnes of food waste<sup>3</sup>. Therefore across European countries a substantial amount of food waste is generated. Whilst there is no single action by government, business or an individual that will on its own achieve a significant level of waste reduction, there are multiple ways in which inroads can be made. This report evaluates seven feasibility studies which have been implemented across Europe as part of the FUSIONS (Food Use for Social Innovation by Optimising Waste Prevention Strategies) Work Package 4 (WP4). They set out to test the impact of social innovation in reducing food waste<sup>4</sup>. Social innovation is about implementing new ideas that work to address pressing unmet needs. We simply describe it as innovations that are both social in their ends and in their means. Social innovations are new ideas (products, services and models) that simultaneously meet social needs (more effectively than alternatives) and create new social relationships or collaborations<sup>5</sup>; more information about how social innovation can help reduce food waste can be seen in the report. [How Social Innovation Can Reduce Food Waste](#) available on the Fusions website.

Each feasibility study has been individually evaluated; a report on each can be found in Appendices I-VII, and they will be frequently referred to throughout this report. Other socially innovative projects that were not part of FUSIONS have been identified and a short description of each can also be found in appendices VIII-XI.

The purpose of this report is to bring together the overall findings from the feasibility studies in order to facilitate replication of similar projects. The report will firstly cover the background to the FUSIONS project and describe each feasibility study. The report will then go on to describe the methods used to evaluate the feasibility studies; the results and findings of each feasibility study will then be reported. Some overarching findings will then be explored and themes across all the social innovation projects will be identified. Finally the section on replication will discuss whether the project has made the case for replicating further social innovation projects and, if so, the key characteristics that need to be considered.

On the whole the feasibility studies in WP4 have been successful; only two feasibility studies have been unable to fully implement their project. In these cases other social innovation projects, outside of FUSIONS, have been identified which conduct similar activities and key lessons learnt have been recorded. The successful feasibility studies have reduced (in some cases by a substantial amount) food waste going to landfill, but also have demonstrated wider social benefits. A strong argument can therefore be made that these projects should be replicated further; however some key contextual barriers need to be tackled, for example practical changes such as changes to certain laws, and this should be done within a wider theoretical discussion of the role social innovation could play in reducing food waste.

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<sup>3</sup> [Fusions Food waste data set for EU-28 \(October 2015\)](#)

<sup>4</sup> The objective of FUSIONS WP4 'feasibility studies' is "to identify solutions throughout the food chain to reduce food waste and to test via feasibility studies social innovative measures to prevent and reduce food waste using a multi-stakeholder approach across all stages of the food chain" (DOW p. 19).

<sup>5</sup> [http://ec.europa.eu/enterprise/policies/innovation/policy/social-innovation/index\\_en.htm](http://ec.europa.eu/enterprise/policies/innovation/policy/social-innovation/index_en.htm)

# 2 Background

## 2.1 FUSIONS

FUSIONS is a project which is working towards a more resource efficient Europe by significantly reducing food waste. FUSIONS has 21 project partners from 13 countries. These partners include Universities, knowledge institutes, consumer organisations, charities and businesses. In addition, a number of organisations from a variety of sectors have pledged their support to FUSIONS. The project has run for four years from August 2012 to July 2016. It is funded by the European Commission under Framework programme 7.

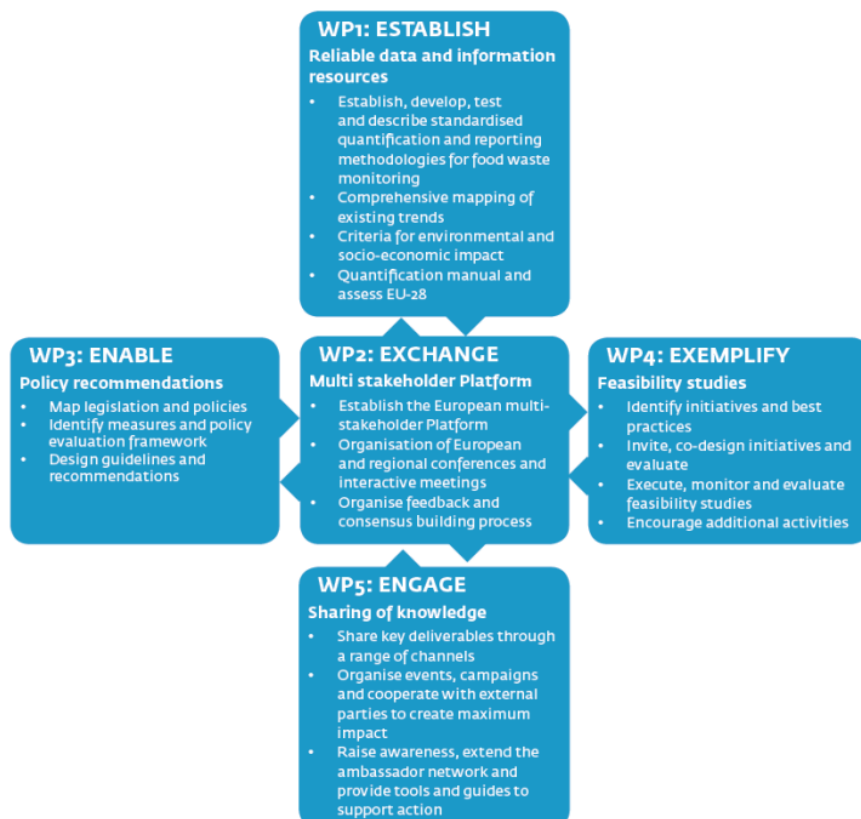
The FUSIONS project aimed to contribute towards three key objectives:

- the harmonisation of food waste monitoring;
- improved understanding of the extent to which social innovation can reduce food waste; and
- the development of guidelines for a common Food Waste Policy for EU-27.

By delivering these key objectives FUSIONS would support the delivery of the Roadmap towards a Resource Efficient Europe, the European Commission's target of a 50% reduction of food waste, and a 20% reduction in the food chain's resource inputs by 2020. FUSIONS was delivered through five packages, which are detailed in Figure 1.

Figure 1- FUSIONS deliverables in five work packages

### The five FUSIONS Work Packages (WP)



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This report is a deliverable from FUSIONS Work Package 4 (WP4) which set out to test the impact of social innovation in reducing food waste through a suite of feasibility studies (FS). The feasibility studies are a key part of FUSIONS, delivering actual reductions in food waste alongside social benefits, as well as demonstrating potential for replication. Additionally under Deliverable 4.1, an Inventory of existing social innovation initiatives has been developed (see D4.1 report and online inventory at: <http://www.eu-fusions.org/social-innovations>). This online inventory (and more detailed spreadsheet behind the inventory) will continue to be updated throughout the life of the FUSIONS project.

## 2.2 Aims of the Evaluation Report

The aim of this evaluation report is to identify the projects that reduced the most food waste and created the greatest social benefits, and are therefore strong candidates for replication. This document will carefully examine and evaluate each of the seven feasibility studies, in order to identify key lessons learnt from the success and failures of the project; particularly examining the project from result/impact, project implementation and project sustainability perspectives. This report will draw together the key findings from the individual studies and also looking across all the studies, observing common findings and how these relate to the socio-economic context across the EU.

## 2.3 The Feasibility Studies (FS)

Seven feasibility studies were commissioned under WP4 in order to test socially innovative projects that could be part of the solution of preventing food waste across the EU. The seven feasibility studies were set across Europe and are explained further in the following section.

### 2.3.1 Cr-EAT-ive

The feasibility study was managed by Anatoliki<sup>6</sup>, a partner in the FUSIONS programme, based in Greece. Anatoliki is an environmental organisation that works with stakeholders within Greece to achieve primarily environmental goals. The study started in March 2014 and was completed in September 2015 although some activities (and relationships) are continuing for the foreseeable future.

'Cr-EAT-ive' focused on educating kindergarten children in Thessaloniki about food waste prevention. Through a desk based study, Anatoliki found that families tend to throw away a higher amount of food than other householders. Whilst a variety of factors influenced the amount of food waste within the home, a large proportion of the waste was a result of the families' behaviour<sup>7</sup>. Anatoliki targeted children aged 3 to 5 years as they claimed

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<sup>6</sup> <http://www.anatoliki.gr/en/home>

<sup>7</sup> That is households have a lack of knowledge about food prevention measures and therefore have behaviours which are 'wasteful'; for example lack of planning, inappropriate storage habits, inappropriate packaging conditions, and misinterpretation or confusion over labels.

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that children's eating behaviours begin at infancy and continue throughout life; by instilling behaviours which are not wasteful at an early age, the hope is the amount of food waste generated in the future is reduced. In order to influence current behaviour within the household the children's parents and teachers were targeted through the children. Additionally parents and teachers play an important role in establishing and maintaining food behaviours in their children. Educating children about food waste issues and sustainability was implemented not only to raise children's and their families' awareness about this issue, but also to influence behaviour change both in the present and the future.

The Cr-EAT-ive project was delivered in six kindergartens (four of which were municipal kindergartens, and two were private ones) across four municipalities. Anatoliki worked with the kindergartens to produce, implement and promote a suite of innovative educational materials, on the topic of food waste prevention, for both the children and their parents. The materials designed for the children were intended to be delivered in class (such as educational games) whereas the material designed for the parents were guide books to take home. All the materials were disseminated through the kindergarten, with the parents' materials being delivered at events, seminars and through incorporating the materials into lesson plans where parents then helped their children. Anatoliki also wanted to instil food waste prevention strategies into the kindergartens through developing a stronger collaboration between food service employees, school administrators and teachers. Guidance was developed for canteen staff on how to reduce food waste within the kindergarten during meal times.

### 2.3.2 Food Service Surplus Solution Budapest

The project was managed by the Hungarian Foodbank Association<sup>8</sup> (HFA), based in Budapest, and a partner in the FUSIONS programme. HFA specialise in finding and collecting surplus food and donating the products to charities and local institutions. The study started 1<sup>st</sup> February 2014 and ended 30<sup>th</sup> July 2015 (1 year 5 months) although the activities are continuing for the foreseeable future.

'Food Service Surplus Solution'<sup>9</sup> Budapest' focused on redistributing surplus food through connecting charities that required food donations (such as homeless shelters) with organisations from the food service and hospitality sector. HFA focused on the hospitality sector as it presented a unique challenge for food re-distribution due to the food being at the end of the food chain, thus the shorter timelines of the food being edible within the health and safety regulations. HFA identify that within the hospitality sector forecasting can be difficult; thus food surplus is inevitable and challenging to reduce. Through the feasibility study, HFA aimed to create a structured link / dispatcher service between charities and the hospitality food service sector. They delivered this through two pilots.

In the first pilot, HFA created and facilitated the relationship between Sodexo (the food donor) and a homeless shelter (food recipient) run by the Charity Service of the Order of Malta<sup>10</sup> (CSOM). Sodexo supplied the charity with surplus meals from a central kitchen

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<sup>8</sup> The HFA is a non-profit organisation that works to make a link between surplus food and people facing food insecurity in Hungary. This is in order to reduce poverty, hunger and malnutrition. The HFA started work in September 2005 and is a full-fledged member of the European Federation of Food Banks (FEBA)

<sup>9</sup> Hungarian Foodbank Association

<sup>10</sup> <http://www.maltai.hu/>

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located in a school, between Monday and Friday<sup>11</sup>. The geographical distance between the Sodexo kitchen and the charity is short. Pilot one is what HFA referred to as a Hot-Hot model; that is the food is redistributed from the donor to the charity whilst it is still hot<sup>12</sup>. At no point is the food cooled, which eliminates the need for the food to be reheated. Pilot one ran for a period of 10 months between May 2014 and June 2015, with a short break between June 2014 and October 2014.

In the second pilot, HFA created and facilitated the relationship between 6 restaurants in the WestEnd Shopping Centre (food donor) and a homeless shelter (food recipient) run by Caritas<sup>13</sup>. Monday to Sunday, six restaurants within the shopping centre WestEnd retained their surplus and the following day the charity would collect the food, which would then be redistributed to the users of the homeless shelter. The shelter is a 10-20 minute car journey from the Shopping Centre. Pilot two is what HFA referred to as the Hot-Cold-Hot model; that is the food is cooked to be sold, the surplus is cooled and stored overnight until the following morning where the charity collect the food and reheat it on their site to distribute to their users. The second pilot commenced September 2014 and officially ended June 2015.

### 2.3.3 Disco Bôcô

The Disco Bôcô feasibility study was developed from within the Disco Soupe community, a group of individuals in France committed to combating food waste by raising public awareness through organising community events that are non-moralising and send positive messages. Disco Bôcô activities started in December 2013, with the main sessions running during 2014.

The Disco Bôcô feasibility study had three main aims, firstly to reduce the amount of surplus food going to waste/ landfill; secondly to educate and raise awareness of the edibility of this surplus food<sup>14</sup>; and finally to create social cohesion amongst certain community groups. The Disco Soupe movement had a network of farmers, groceries, supermarkets and wholesale markets that collected surplus fruit and vegetables, therefore Disco Bôcô staff were aware of the scale of surplus at this level and had the rationale to draw on these contacts to use the surplus food.

Disco Bôcô, invited people to cook with surplus food in a unique, fun and often musical atmosphere<sup>15</sup>; people gather inside and/or outside to prepare and cook food to music. Disco Bôcô, instead of making soup for immediate consumption, focused on developing cooking and preservation skills by making jams, chutneys, pickles and vegetable purees to take home. They used a variety of different locations as hosts (from charity organisations to immigrant jobless households) and they worked with different demographics from children, to vulnerable women, the homeless and also immigrants to teach them preservation and cooking skills/ knowhow. Through this process Disco Bôcô focused on stressing the importance of the edibility of this type of food and building social cohesion, and relationships, between farmers and urban consumers and also within the different groups of individuals that they worked with. They prototyped as many

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<sup>11</sup> During the weekends and school holidays food was not re-distributed from Sodexo due to the school kitchen not operating.

<sup>12</sup> The food is transported in double walled insulated food containers and therefore kept at a constant heat

<sup>13</sup> <http://karitasz.hu/>

<sup>14</sup> i.e. if the food was classified as 'ugly' or 'wonky' it was still edible.

<sup>15</sup> For example chopping fruit and vegetables whilst a DJ is playing music

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different formats in order to test best practice and to better develop the awareness and social benefits of the programme.

### 2.3.4 Gleaning

The feasibility study was managed by Feedback, based in the UK, and a partner in the FUSIONS programme. Feedback is an environmental organisation that campaigns to end food waste at every level of the food system. Their successful Gleaning Network UK project has five regional hubs throughout the UK, each of which is overseen by a voluntary coordinator. The study started in January 2014 and officially ended in September 2015; however many activities and networks are continuing for the foreseeable future.

'Gleaning'<sup>16</sup> focused on implementing gleaning networks across the EU. Feedback focused on farm-level surplus in high-income countries as surplus is perceived to be large in quantity and predominantly caused by strict cosmetic standards of supermarkets and retailers<sup>17</sup>. The feasibility study aimed to intercept surplus at farm level<sup>18</sup> across the EU through building on the success of the UK Gleaning network, supporting organisations in the nascent stages of setting up a gleaning network in various countries across the EU along with developing a set of materials that provided information about how set up a gleaning network for a wider audience.

The Gleaning study worked with organisations to implement gleaning networks and activities across Belgium, France, Spain and Greece. Within each country Feedback provided help to the organisation to develop relationships with the right stakeholders, intercept and redistribute the surplus crop, gather and co-ordinate volunteers, raise awareness of the issue locally and campaign to eradicate the underlying causes of the surplus.

### 2.3.5 Social Supermarkets

This feasibility study was carried out by BOKU- University of Natural Resources and Life Sciences, Institute of Waste Management from Vienna, Austria and BIO by Deloitte, France. This feasibility study differed to the other six studies as it was a literature review which highlighted the different models of social supermarkets in operation across the EU. Social supermarkets redistribute surplus food donated by food retailers, manufacturers and hospitality sector. They sell the surplus food<sup>19</sup> at heavily discounted prices<sup>20</sup> to low income, vulnerable and food insecure individuals. The main distinction between social supermarkets and other food redistribution is that they sell the

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<sup>16</sup> Gleaning means picking fruits and vegetables that were not harvested by the farmer, as there is not market for them, and giving them to charitable institutions involved in food redistribution.

<sup>17</sup> Overproduction and 'gluts' of produce (sometimes a result of farmers over-planting to ensure retailers have enough cosmetically perfect fruit and vegetables) and last-minute changes to demand forecasts often related to weather also contribute food waste at a farm level.

<sup>18</sup> If not for the intervention of gleaning, such farm-level food waste is at best sent for animal feed or anaerobic digestion, but is often sent to landfill.

<sup>19</sup> The products that social supermarkets provide often have labelling errors or a short remaining shelf-life. They include everyday goods such as fruits, vegetables, bread and dairy products as well as personal hygiene products and detergents.

<sup>20</sup> The discount is typically between 70% to 90% compared to the regular selling price.

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food as opposed to giving it away for free; often social supermarkets offer a wider choice of products. Social supermarkets not only contribute to reducing food waste but also have several additional social benefits<sup>21</sup>.

The aim of the feasibility study was to facilitate the expansion of the social supermarket concept into new areas or countries by analysing the experience in several Member States, identifying different models and good practices.

The feasibility study undertook an in-depth literature review, interviews and site visits of social supermarkets in France, Germany, Austria and UK, plus Switzerland. With the exception of the UK, these countries are thought to have the highest prevalence of social supermarkets (one social supermarket for every ~60-100 thousand people), with 700 social supermarkets operating in France. On the basis of the literature review, a typology of social supermarkets was developed, highlighting different models of social supermarket in operation across the EU. A few social supermarkets were selected as case studies of good practice. A SWOT (strengths, weaknesses, opportunities, threats) analysis was carried out for each case study.

### 2.3.6 Surplus Food

The Surplus Food feasibility study was implemented by Communique, a Danish PR agency, and Stop Spild Af Mad (Stop Wasting Food Movement), a Danish grassroots NGO specialising in raising awareness of food waste issues. The feasibility study was conducted during 2014 and 2015.

The aim of the feasibility study was to test the possibility of setting up an IT system in Denmark that would connect organisations, like supermarkets, that have surplus food on a daily basis, with local organisations like homeless shelters. The end goal is to give food that would otherwise have been wasted to people in need. The system's name in Danish is 'Overskudsmad', meaning surplus food. The rationale to work in this area was that food donations and redistribution were already taking place in Denmark, but at a very limited scale. A few local Danish supermarkets had established one-on-one relationships with local charities. There is also a food bank ("Fødevarebanken" in Danish) operating in Copenhagen, but the communication between potential donors and recipients is not systemised. The IT system was envisaged to be simple: supermarkets register their daily surplus food and the local organisations then receive an e-mail and SMS text message about the available food, which they can then collect at an agreed time.

The surplus food system feasibility study hired an IT company called *Net Ressourcer* to develop the system, and later set-up an organisation consisting of 22 volunteers to finalise the development of the IT systems, and support its uptake. Due to various barriers the project implementation was not completed and it proved difficult to test the system on a bigger scale within the timeframe of this project. At present the aspiration is to be able to conduct a test with a small number of supermarkets during autumn 2015, and based on the feedback from this test, roll out the system on a larger scale – hopefully in 2016.

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<sup>21</sup> They provide low cost food to individuals that are food and financially insecure; they also provide an opportunity for users to engage in support services (such as confidence building workshops and CV writing)

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### 2.3.7 Order Cook Pay

The feasibility study Order Cook Pay was organised by SP Food and Bioscience, based in Sweden, and a partner in the FUSIONS programme. Representatives from Qualifare, Bgruppen, Forerunner, InfoMentor, Grace Organic and Christina Skjoldebrand (CFB) also engaged in the Order Cook Pay feasibility study. The feasibility study focused on the possibility of reducing food waste within the school environment.

The feasibility study aimed to reduce food waste within the school environment through creating and developing new/better relationships between school kitchen staff, pupils (their parents) and teachers by introducing a technology to determine how many meals to prepare each day. The rationale to conduct this study within this sector was due to food waste in Sweden's school kitchens' being generated by overproduction due to lack of information on the number of pupils who will eat and which dishes they will eat. The portion number to prepare each day is often estimated and the Order Cook Pay Project (OCP) project focused on the possibility of planning the number of portions based on actual demand, through an IT system, and changing traditional ways of working.

The project ran for 10 months until it was concluded that the feasibility study could not be implemented with the resource and timeframe dictated by the FUSIONS project. The project team still considers the project idea to have high value.

## 2.4 How the Feasibility Studies were selected

During February 2013 an online survey was launched which called for ideas for the feasibility studies. This was live for nine months. The feasibility studies were assessed by WP4 partners, each partner acting as an independent assessor. The partners of WP4 are detailed below:

- **Wageningen UR** (NL) Coordinator and WP2-leader FUSIONS Platform
- **SIK** (Sweden) WP1-leader Reliable Data and Information Sources
- **WRAP** (UK) WP4-leader Feasibility Studies
- **BIO Intelligence Service** (France) WP5-leader Dissemination
- Institute for Food Research (IFR) (UK)

The assessment adopted a range of selection criteria which included the feasibility study's potential impact in terms of tonnage and the degree of social innovation<sup>22</sup>. A total of 39 proposals were submitted from which the final seven feasibility studies were chosen. A full description of the feasibility study selection criteria and process is described in [D4.2 report](#) "Feasibility Study Selection Criteria".

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<sup>22</sup> A full description of the definition and categorisation of social innovation is described in D4.1 report. Fundamentally the idea must be social in its ends and means, delivered by people, for people, to generate a high score.



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# 3 Evaluation Method

This section will outline the methods that were used to evaluate the success and replicability of the seven feasibility studies. Throughout the feasibility study period the project managers were assigned not only to deliver their proposals but also to measure impact. In section 3.1 the methods that were used to evaluate the feasibility studies individually will be identified. In section 3.2 the methods and decisions WRAP used in evaluating the feasibility studies will be covered and explored in detail.

## 3.1 Evaluation of the feasibility studies

In order to evaluate the impact of the feasibility studies in achieving food waste reduction and social benefits, WRAP and the Institute for Food Research (IFR) worked with each feasibility study partner to identify an evaluation criteria. The following section briefly identifies the key methods used in each feasibility study to evaluate their impact and success. For an in-depth review of the method used by each feasibility study please see the methods sections in the individual evaluations in Appendices I-VII

### 3.1.1 Cr-EAT-ive

Key performance indicators were measured throughout the project, for example the number of participants involved, number of seminars and events organised etc. For the full list of performance indicators and results see Table 2 in the Cr-EAT-ive evaluation in appendix I. In addition to monitoring the key performance indicators, empirical research was conducted. In order to measure the level of change in food waste within the household after the delivery of Cr-EAT-ive, food waste diaries were completed by 24 parents before and after the intervention. At the end of the Cr-EAT-ive project these parents also participated in a semi-structured telephone interview. Anatoliki also conducted semi-structured interviews with canteen staff in order to gather information surrounding what type of food waste is most commonly generated, for what reasons and the barriers to implementing food waste prevention techniques at this level. A full explanation of these methods can be found in section 2.3 of the Cr-EAT-ive evaluation, appendix I.

### 3.1.2 Food Service Surplus Solution Budapest

HFA evaluated the success of the feasibility study throughout the delivery process through collecting data on key performance indicators, for example the number of portions redistributed, the weight of redistributed food in the feasibility study and the monetary value of the food redistributed. For the full list of performance indicators and results see Figure 5 in the Food Service Surplus Solution evaluation in appendix II. In addition empirical research was conducted. A questionnaire was distributed to those that donated the surplus food in order to gather general feedback, information about where the food would have been disposed had it not been redistributed, and to identify the

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match funding and contributions in kind needed by the donors. A questionnaire and some qualitative interviews were conducted with the charities that received the food in order to gather general feedback and in particular knowledge about whether the food that is donated is actually used and if so by whom. Within this research, feedback from the participants who received (ate) the food was also gathered. Finally portion data was gathered throughout the project; using this data HFA calculated whether the level of food waste decreased across the donors over the period of time. A full explanation of these methods can be found in section 2 of the Food Service Surplus Solution evaluation, appendix II.

### 3.1.3 Disco Bôcô

Throughout the project, key performance indicators were measured for example the amount of food that was diverted from landfill and the number of participants that attended the sessions. In addition to this a small amount of empirical research was conducted. In order to gather feedback from their volunteers and participants an online survey was conducted. Qualitative feedback was collected through conversations with customers, employees and volunteers. A full explanation of these methods can be found in section 2 of the Disco Bôcô evaluation, appendix III.

### 3.1.4 Gleaning

'Gleaning' was evaluated through the collection of data on a series of key performance indicators for example number of gleaning days and the weight of the food redistributed. A full explanation can be found in section 2 of the Gleaning evaluation, appendix IV.

### 3.1.5 Social Supermarkets

The aim of this feasibility study was to facilitate the expansion of social supermarkets by analysing the experience in several member states, identifying different models and good practices. The feasibility study therefore was a desk based study. As a result of this, the study could not be evaluated in the same way as the others. Key performance indicators, additional empirical research and data analysis could not be conducted and collected. However in order to inform the study four individuals (two working in management of one or several social supermarkets, as well as two academic experts) were interviewed. A full explanation can be found in section 2 of the Social Supermarkets evaluation, appendix V.

### 3.1.6 Surplus Food

The Surplus Food feasibility study was due to gather data on key performance indicators such as the weight/type of items redistributed and number of donors etc. Further empirical research was due to be conducted in the form of a survey or qualitative interviews to address the participants feedback and also gain knowledge on what happens to the food once it is redistributed. As the feasibility study has not yet managed to pilot the system, no evidence was gathered; however key lessons learnt have been documented. A full explanation can be found in section 2 of the Surplus Food evaluation, appendix VI.

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### 3.1.7 Order Cook Pay

The Order Cook Pay feasibility study was due to gather data on key performance indicators, such as number of meals recorded on the system and number of participants; along with conducting empirical research in the form of interviews with participants (staff, teachers and pupils). The objective was to gather an understanding of the benefits they accrue from the project. However as the study only ran for ten months, no evidence was gathered although key lessons learnt have been documented. A full explanation can be found in section 2 of the Order Cook Pay evaluation, appendix VII.

## 3.2 Overall Evaluation method

WRAP worked with the feasibility study project managers throughout the period to provide advice for collecting data on key performance indicators and further empirical research to measure the impact of the study. The original intention was to evaluate the success of the feasibility studies by compiling feasibility [study final reports](#). However during 2014 a more in-depth approach to evaluation was implemented, which included some evaluation visits to the feasibility studies.

The initial evaluation of the feasibility studies Cr-EAT-ive in Greece and Food Service Surplus Solution in Budapest indicated that these would have a strong potential for replication. The two studies were selected for a detailed evaluation, including a visit to the projects to interview stakeholders. Visits to a UK social supermarket, a UK gleaning hub and a UK Disco Soupe were conducted to experience first-hand the activities promoted through these feasibility studies. In addition to this, meetings were held with FoodCloud<sup>23</sup>, Zero Waste Jam<sup>24</sup> and Bon et Bien<sup>25</sup> to gather a wider insight (and key lessons learnt) of other projects that were similar to the feasibility studies. These projects were chosen because they worked in areas, or had achieved certain goals, that the feasibility studies had struggled with.

Between June 2015 and December 2015 the feasibility studies submitted their final reports. It was within this time that the evaluation visits were also conducted. A range of individuals were involved in the evaluation process. Table 1 identifies the key individuals that were involved in the evaluation process. Table 2 documents the evaluation meetings at a high level. This excludes any phone calls or email exchanges with the project managers throughout the evaluation, as these were not recorded. The appendices within the individual reports for Cr-EAT-ive and Food Service Surplus Solution identify the specific meetings with stakeholders.

**Table 1- Key individuals involved in the Evaluation of the Feasibility studies**

<b>Name</b>	<b>Organisation</b>	<b>Job Role</b>	<b>Role in the evaluation</b>
Sophie Easteal	WRAP	Sector Specialist	Involved in the assessment of and choosing the feasibility studies.

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<sup>23</sup> A charity that helps business/ supermarkets redistribute their surplus to charities through an IT tool <http://foodcloud.net/>. This is a similar model to Surplus Food

<sup>24</sup> A charity that collects surplus fruit and vegetables to create jams and chutneys which they sell <http://zerowastejam.com/en/>. This is a similar model to Disco Soupe.

<sup>25</sup> <http://bonetbien.fr/>

			<p>With Graham Moates set the evaluation criteria for the feasibility studies</p> <p>Worked with each of the feasibility studies in the early stages until December 2014</p>
David Rogers	WRAP	International Food Waste Programme Manager (July 2015- Present)	<ul style="list-style-type: none"> <li>• Leading WP4 and the evaluation.</li> </ul>
Sarah Bromley	WRAP	Research Analyst	<ul style="list-style-type: none"> <li>• Writing the evaluation report</li> <li>• Writing the feasibility studies individual evaluation reports</li> <li>• Visiting the feasibility studies</li> <li>• Ensuring the feasibility study's final reports are delivered to standard from a Research and Evaluation perspective</li> </ul>
Elaine Charlesworth	WRAP	Project Manager	<ul style="list-style-type: none"> <li>• Managing the feasibility studies.</li> <li>• Advising the project manager of the Feasibility studies.</li> <li>• Ensuring final reports from the feasibility studies are delivered to standard.</li> </ul>
Bojana Bajzelj	WRAP	Technical Specialist in International Food Sustainability	<ul style="list-style-type: none"> <li>• Advising on the evaluation</li> <li>• Writing the feasibility studies individual evaluation reports</li> </ul>
Michael Wenborn	WRAP	International Food Waste Programme Manager (February 2015-July2015)	<ul style="list-style-type: none"> <li>• Leading WP4 and the evaluation.</li> <li>• Attended one (Cr-EAT-ive) feasibility study visit</li> </ul>
Bart Van Gogh	Wageningen UR, FBR	Scientist in Sustainable Fresh Food Chains	<ul style="list-style-type: none"> <li>• Attended Food Service Surplus Solution feasibility study visit</li> <li>• Provided input and a review of the Food Service Surplus Solution individual evaluation report</li> <li>• Evaluated Bon et Bien</li> <li>• Evaluated Food Battle.</li> </ul>
Graham Moates	Institute of Food Research (IFR)	Research Scientist	<ul style="list-style-type: none"> <li>• Involved in the assessment of and choosing the feasibility studies</li> <li>• With Sophie Easteal set the evaluation criteria for the feasibility studies</li> <li>• Reviewed the Social supermarkets final report</li> <li>• Drafted two of the individual evaluation reports</li> </ul>

Table 2-Key evaluation visits and meetings

<b>Date</b>	<b>Meeting</b>	<b>Country</b>	<b>Name and Organisation</b>
17 <sup>th</sup> February 2015	Visited a Disco Soupe at Warwick University UK	UK	Sarah Bromley (WRAP)
1 <sup>st</sup> May 2015	Visited Community Shop UK	UK	Sarah Bromley (WRAP)
9 <sup>th</sup> May- 11 <sup>th</sup> May 2015	Evaluating Cr-EAT-ive- included attendance at an awareness event; meetings with Anatoliki's team; meeting with a kindergarten head teacher and a parent; meeting with president of centre for Social Welfare and Pre-school Education, Thermi Municipality.	Thessaloniki	Sarah Bromley (WRAP) Michael Wenborn (WRAP)
3 <sup>rd</sup> June- 5 <sup>th</sup> June 2015	Evaluating Food Service Surplus Solution - included meetings with the HFA team; the pilot donors, West End shopping centre and Sodexo; along with both of the recipient charities (Charity Service of the order of Malta and Caritas)	Budapest	Sarah Bromley (WRAP) Bart Van Gogh (Wageningen UR, FBR)
1 <sup>st</sup> October 2015	Meeting with Cornelia Diesenreiter at Zero Waste Jam	Prague	Sarah Bromley (WRAP)
24 <sup>th</sup> October 2015	Apple Farm in Worcestershire Gleaning event	UK	Sarah Bromley (WRAP)
11 <sup>th</sup> December	Met with Iseult Ward co-founder of Food Cloud	UK	Sarah Bromley (WRAP)
7 <sup>th</sup> January	Bon et Bien- Skype interview with McCain the supplier of Bon et Bien	Netherlands/France	Bart Van Gogh (Wageningen UR, FBR)
20 <sup>th</sup> January	Bon et Bien- Skype interview with E.Leclerc the supermarket selling Bon et Bien products	Netherlands/France	Bart Van Gogh (Wageningen UR, FBR)

The evaluation of the seven feasibility studies has involved various stakeholders and naturally throughout the evaluation some key lessons have been learnt. The following section covers the key shortfalls of the evaluation as a whole, how some of these were overcome and the recommendations for future studies.

Evaluation was built into the feasibility studies from the outset. Monitoring of the key performance indicators was pushed to be high priority, whilst the additional empirical research (such as questionnaires of participants) was for some an add-on. This is because to conduct the empirical research was a time intensive task and one which many of the project managers were not necessarily equipped to deliver<sup>26</sup>. Cr-EAT-ive, Food Service Surplus Solution and Disco Bôcô conducted empirical research of some form whether this was questionnaires or interviews. Some of the research was particularly impressive and demonstrated the capability of some project managers to deliver evaluative research. However, some of the research was heavily caveated, small (but detrimental) mistakes could be found throughout the methodology for example in terms of questionnaire design and sampling, and the reporting of the results was not always transparent. A considerable amount of time was needed to manage and assist the project managers with the collection of data and reporting of their results.

<sup>26</sup> For example not being trained in Social Research Methods.

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Three factors contribute to the challenges that were observed in the evaluation. Firstly the international context, and therefore the language differences, often meant that timescales needed to be longer<sup>27</sup> and communication needed to be more thoroughly executed. Secondly, although gathering general feedback from participants is not always inherently difficult, the project managers are not trained researchers, meaning that sometimes the research was not delivered to a high standard. Finally, WRAP experienced some management changes throughout the project which resulted in expectations for the evaluation becoming more stringent. Therefore the empirical research may have been designed in way that was never intended to generate robust findings but rather provide a broad overview of impact.

Best practice suggests that evaluation should be conducted independently from the organisation carrying out the feasibility study. Resource constraints, as well as the practicalities of implementation, meant that the project managers conducted, analysed and reported their own results, and this could allow for a questioning of the reliability of the results. This could even be extended to the fact that the main evaluation report is written by a WP4 partner. The following are recommendations for evaluating similar studies in the future.

1. A peer review should be conducted of the main evaluation report
2. Project managers should not be given the responsibility of conducting the research. They should be provided with a suite of materials (questionnaires, interview scripts etc.) which are written by a professional researcher. They should also be assisted by trained researchers to execute the methods, provided by the project. This ensures reliable and valid research is conducted whilst also providing more time to the project managers for delivery, which is what they are best at. All the data should be translated into English and provided to a research department or agency to analyse the results and write a final report. This would also allow for a bank of data to be formed that can be drawn upon in future; only the summary results for each feasibility study was available for the evaluation and no raw data.
3. All those engaging in research should be aware and follow ethical guidelines<sup>28</sup>.
4. A greater focus should be placed on applying appropriate research methods based on the type of information required and the context in which the study is operating. Surveys are not always an advisable method; for example surveying homeless individuals may be associated by those individuals with authority and may incur an adverse response<sup>29</sup>.

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<sup>27</sup> For example, surveys would translate differently in English for review, therefore the survey would have to be reviewed a couple of times.

<sup>28</sup> <http://the-sra.org.uk/wp-content/uploads/ethics03.pdf> ; British Sociological Association, BSA (2002) *Statement of Ethical Practice*, The professional association for sociologists in the United Kingdom, Available Online: <http://www.britisoc.co.uk/about/equality/statement-of-ethicalpractice.aspx?alttemplate=print> <http://www.britisoc.co.uk/the-bsa/equality/statement-of-ethical-practice.aspx>

<sup>29</sup> Roy, Alastair Neil, Hughes, Jenny, Froggett, Lynn and Christensen, Jennifer (2015) *Using Mobile Methods to Explore the Lives of Marginalised Young Men in Manchester*. In: *Innovations in Social Work Research*. Jessica Kingsley Publishers, London, pp. 153-170. ISBN ISBN 978 1 84905 585 7 eISBN 978 1 78450145 7 Item not available from this repository

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# 4 Results

## 4.1 Results of the feasibility studies

The following section will briefly describe the key results of each feasibility study, covering whether it was considered to be a success; how much food was re-distributed; the social impact of the study; and provide concluding thoughts on project implementation and potential for replication. For a full explanation and results of the individual feasibility studies please see appendix I-VII, which has the full evaluation of each feasibility study.

### 4.1.1 Results of Cr-EAT-ive

Cr-EAT-ive proved to be one of the most successful feasibility studies within the FUSIONS project. Anatoliki delivered the Cr-EAT-ive project in six kindergartens, reaching 480 children and working closely with 7 kindergarten head teachers, 25 teachers and two canteen staff to the timescale set by the WP4. A range of well-produced and creatively designed outputs for children, teachers, and parents, were created to change/influence behaviour and increase awareness around preventing food waste<sup>30</sup>. In total 13 games were developed and three guideline books<sup>31</sup>. These materials are in a format that can be disseminated into other Greek kindergartens. These materials have been translated into English, therefore can be used in kindergartens at an international level. This means the feasibility study has a suite of materials for replication on a regional, national and international level.

Anatoliki successfully delivered a series of events that reached a large number of individuals; these events were later credited by some to be the 'best part' of the Cr-EAT-ive programme. In total seven seminars were delivered attracting 207 parents and 29 teachers<sup>32</sup>. Six welcoming events to parents were conducted with 222 parents attending. Anatoliki worked closely with 29 parents that participated in the food waste diary of which 24 completed them both before and after. Two workshops were delivered with the canteen staff and five people attended. Finally, Anatoliki organised two large cooking events which are estimated to have attracted over 1,000 people, and four smaller parallel events were organised; 100kg of surplus fruit and vegetables was redistributed at these events.

Aside from delivery, Anatoliki worked incredibly hard to reliably measure the impact of the project through food waste diaries, questionnaires and interviews. Overall the research found there was a reduction in food waste once the Cr-EAT-ive programme had been delivered. In total, after the families in the kindergartens had been informed of food waste prevention techniques through seminars and the guidelines, those participating in

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<sup>30</sup> A list of these outputs, with pictures and a description, can be found in section 3.3 of the Cr-EAT-ive evaluation in Appendix I

<sup>31</sup> Guidelines to reduce food waste produced in the home, school canteen and also guidelines aimed at kindergarten teachers.

<sup>32</sup> Of which some of these were head teachers

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food waste diaries combined managed to reduce their food waste by nearly half. There was a 27kg reduction, which, all things being equal, equates to a 1,417kg saving a year. This is a financial saving of around €100.00 a week and just less than €6000.00 a year for all the parents combined.

The data from the food waste diary were also used to estimate the average amount of food waste at each individual household pre and post the intervention. On average each household reduced their food waste by 1kg, which all things being equal, equates to a household saving 80kg a year. On average the household saved €6.40 a week, which equates to €334.00 a year. This is a huge saving for the households and a positive outcome for the Cr-EAT-ive project.

Overall parents reported the Cr-EAT-ive project to be helpful and easy to implement into everyday life. They claimed the programme had helped them to minimize their waste and save money because it identified to them how much they wasted. This was particularly through the method of the food waste diary, which was reported to be an intervention in itself. Food Battle (Appendix XI), similar to Cr-EAT-ive seeks to make people aware of how much food they actually waste and then presents them with practical solutions. Food Battle use similar methodology (food waste diaries) throughout a three week period to encourage consumers to identify the amount they waste. Therefore it is evident that this method is an effective way of identifying to consumers the amount of food they waste. Overall, some households claimed they now formed a shopping list, checked the expiration dates, used up leftovers and also planned their food through weekly menus. This is expected to have contributed to the overall change in level of food waste between week 1 and week 2 of the food waste diary.

Importantly some parents identified they liked the parallel education of their children in class learning about the topic. Others claimed they valued the social interaction, the chance to discuss topical issues with other parents. The children were identified as responding well to learning about food waste and there is some evidence that identifies children brought up the topic within homes. However research would have to be conducted in a longitudinal study in order to understand the long term behaviour change that Cr-EAT-ive would have on the children.

Whilst a full waste audit could not be conducted in order to determine the amount of food waste generated before and after Cr-EAT-ive at the kindergarten canteen level, some interviews were conducted to establish the type of food wasted, reasons why it was wasted and possible solutions. The canteen staff argued that a lot of the food is not wasted due to the small budget they have, inevitably however there was some surplus and this was most frequently found during lunch, where the children had certain preferences and varying attendance. Other reasons were identified and these, along with the full list of possible interventions that could reduce canteen food waste, are included in section 3.4 in the evaluation of Cr-EAT-ive (appendix I).

Things that worked well during this project were firstly incorporating the programme into the curriculum, and therefore into everyday life at the kindergarten. This is because the children became more engaged in the topic and were able to witness the topic in real life. Secondly allowing the kindergarten heads an element of free rein of both the content (in terms of producing games and crafts) and application of Cr-EAT-ive in their own curriculum. This is because the kindergarten heads could adapt the programme to fit their own needs which makes it easier for them to implement it. It also allows for the kindergarten heads to feel ownership over the project. Thirdly successful implementation of the project was achieved through the good relationships formed with the Kindergarten



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head teachers at the beginning of the project. Finally the events were considered to be extremely valuable and an important aspect of the feasibility study, from Anatoliki's, teachers and parents perspectives.

The challenging aspects of the project were gathering in-depth engagement from parents; many would participate to a degree but few would find the time to really engage. Anatoliki found that the majority of those that dropped out were members of schools with wealthier parents; therefore a different advertisement of Cr-EAT-ive, other than financial savings, may need to be explored in order to reach this demographic.

The feasibility study was successful in organising and implementing a programme across six kindergartens, reaching a large number of parents and children. It also provided a range of high quality useable outputs. The research indicates that the project was successful in reducing food waste in the kindergarten families by nearly half and therefore this suggests behaviour change was evident<sup>33</sup>. The research identifies not only the level of tonnage changed, but also other social benefits were apparent such as heightened engagement of parents in their children's education on food waste and parents creating social networks/ interactions with other parents within and across kindergartens. Apart from the feedback on the level of engagement of the children from parents and teachers, there is no other evidence to suggest the study had the desired effect on the children. This would require a longitudinal study. The Cr-EAT-ive feasibility study delivered a successful programme, with a suite of materials that can be used for replicating on a regional, national and international level.

For the full reporting and breakdown of these results see the Cr-EAT-ive report in appendix I.

#### 4.1.2 Results of Food Service Surplus Solution

The Food Service Surplus Solution feasibility study was successful overall although it did experience some key challenges throughout implementation<sup>34</sup>. The feasibility study was successful in organising and implementing two pilots with separate models (hot-hot AND hot-cold-hot) to redistribute food from the hospitality sector to charities that work with food insecure individuals. The additional success is that these pilots continue to operate and grow. The pilots redistributed a total 35,096 portions away from landfill or biogas plants, therefore the food has moved further up the food waste pyramid<sup>35</sup> to human consumption. This is the equivalent of €70,192 and 14,038kg<sup>36</sup>. In the first pilot a total of 12,000 portions (4,800kg) of food were re-distributed from the Sodexo kitchen to Charity Service of the Order of Malta<sup>37</sup>. On average that is 73 portions a day. This pilot re-distributed a high volume of food over a short space of time, as food was not re-distributed between June and October due to the school holidays. In the second pilot (Hot-Cold-Hot) 23,096 portions (9,238kg) of cooked food and 1513kg of bread and bakery products were re-distributed from West End shopping centre restaurants to Caritas<sup>38</sup>. On average 12 portions of food was re-distributed per restaurant per day,

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<sup>33</sup> However this was also a small sample size and could be subject to other seasonal effects, or answering in a social desirable. For a full explanation of the research caveats please see the Cr-EAT-ive evaluation.

<sup>34</sup> An explanation of these can be found in Appendix II titled Food Service Surplus Solution evaluation report

<sup>35</sup> <http://feeding5k.org/businesses+casestudies.php>

<sup>36</sup> The average portion is calculated at 0.4kg

<sup>37</sup> <http://www.maltai.hu/>

<sup>38</sup> <http://karitasz.hu/>

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which is 72 portions a day in total from all the restaurants. Sending the food surplus via biogas plants or landfill created a cost for the restaurants of approximately 0.1 Euro per kg; therefore the method of re-distribution was a lower cost alternative which could provide an incentive for replication.

HFA were happy with the success of the project and this was claimed to be the case by the donors; each donor was satisfied with the programme, commenting that the process of collecting the food ran smoothly. The main benefits from participating in the study were identified as reduced waste management costs, the positive contribution to society, and that it appeared to be the best way to deal with surplus.

In addition to reducing food waste HFA reported social benefits to these pilots, such as improving the food security of vulnerable people. It had been reported that many of the charities' users were not used to eating warm meals; therefore the feasibility study was not only providing food but for some a real luxury. HFA noted that some users claimed that they stopped drinking alcohol and ate regularly; they felt a sense of security that they would not starve that day; that they gained weight and felt healthier; along with now having more money to pay for other necessities that their budget previously struggled to stretch to. Previously both charities had found they could not afford to serve a warm meal, therefore participation in this study was credited to be a real bonus.

Additional to this, the food changed the dynamics of the charities, in the case of the first pilot allowed users of CSOM to sit and eat together, creating a communal dynamic. Caritas in the second pilot deliver sessions to help their users out of poverty<sup>39</sup> and serving food resulted in higher attendance. This identifies the additional social benefits which re-distributing the surplus food has, outside of that which is preventing food going to landfill. These findings however are largely from anecdotal data through conversations during evaluation visits and a questionnaire disseminated by HFA. However they also completed a questionnaire (43 people) which reported that recipients of the food were very satisfied with the quality of the food (9 out of 10), the amount of food (9.27 out of 10) and the variety of food (8.72 out of 10).

HFA reported that aside from re-distributing surplus food from the hospitality sector they aimed to change the attitudes of those donating the surplus, to add value to what was primarily considered as waste, but also to raise awareness that surplus food within this industry is an issue. HFA analysed their data and found a reduction in waste arising at both donors after the pilot was implemented. This could suggest that the project highlighted to the donors the level of waste generated and thus staff within the organisation became more aware to issues of waste and implemented measures leading to less surplus food. However the period of measuring is too short and the level of change is not significant enough to draw an overall valid conclusion as it could be due to other factors such as seasonal effects.

Both pilots worked and were successful in redistributing surplus food and providing additional social benefits. However pilot two experienced more complications primarily due to the interpretation of the health and safety law regarding re-heating food.

*"Where foodstuffs are to be held or served at chilled temperatures they are to be cooled as quickly as possible following the heat-processing stage, or final preparation stage if no heat process is applied, to a temperature which does not result in a risk to health."* (EC) No 852/2004, ANNEX II, CHAPTER IX, Section6:

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<sup>39</sup> For example CV writing workshops and help with addictions

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From a food safety regulation point of view, the redistribution of surplus food from restaurants remains a challenge due to the process of cooling down prepared food and the re-heating of this food. Part of the difficulty is within the lack of clarity of the EU food safety regulations and how they are interpreted by Hungarian officials. HFA found this to be the largest barrier. If strictly interpreted leftovers at the end of the day cannot be refrigerated. However there are different understandings and adaptations of the term “as quickly as possible” within the regulation. The adoption of the food redistribution model Hot-Cold-Hot is dependent on how the food law is interpreted in each country<sup>40</sup>.

From a logistical and food safety point of view, pilot 2 experienced more challenges, primarily due to the complex and varying legal interpretations of the law. This identifies a risk and barrier to implementing similar projects to pilot 2 of this feasibility study. Pilot one on the other hand was geographically well placed, thus minimal expense and effort was needed to transport the food. From a food safety point of view, the hot-hot model was optimal. The surplus food remained hot and did not require re-heating, thus avoiding the legal complexities.

Aside from two working pilots, HFA’s main output is a knowledge base and guidance documents<sup>41</sup>. Below is a list of the various documents that HFA has generated.

1. HFA produced a document which identified and analysed the legal environment in Hungary and some other EU-member countries.
2. HFA produced a donation contract for donors of surplus food to use with their recipient charities
3. HFA produced a take-over / product transfer document
4. HFA delivered an product label proposal
5. HFA produced a report of the pilot impacts
6. HFA delivered a set of guidance documents

The high-quality guideline material produced will promote replication in other cities and countries, and facilitate sharing of experiences between these organisations. HFA also organised a large scale feeding 5000 event. Volunteers gathered to chop and cook over one tonne of fresh vegetables that would have otherwise gone to waste, and distributed it to charities<sup>42</sup>.

There were some considerable challenges in this feasibility study, particularly in the case of pilot 2 in terms of project implementation, sustainability and also replication. This was largely due to the Hungarian interpretation of the regulations surrounding food safety.

The Food Service Surplus Solution feasibility study experienced a number of challenges, of which some still need to be resolved, however despite the complexities they successfully implemented two working pilots, which re-distributed a substantial amount of food, provided additional social benefits to wider society and also created a suite of materials ready for replication.

For the full reporting and breakdown of these results see the Food Service Surplus Solution evaluation report in appendix II.

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<sup>40</sup> [http://ec.europa.eu/food/food/biosafety/hygienellegislation/comm\\_rules\\_en.htm](http://ec.europa.eu/food/food/biosafety/hygienellegislation/comm_rules_en.htm)

<sup>41</sup> The guidance document is aimed at other project managers in order to aid them in replicating a similar project.

<sup>42</sup> Of which some were from the feasibility studies

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### 4.1.3 Results of Disco Bôcô

The Disco Bôcô feasibility study was considered to be a success. They organised 20 events, nine in Paris, three in Marseille, two in Lyon, and one each in Tours, Reims, Montreuil, Toussus-le-Noble, Le Mans and Saint Maur. These events attracted in total 627 participants and diverted 825kg of fruit and vegetables from landfill. Fifty percent of the food was collected from organic markets, supermarkets and local farmers, with the other 50% being collected from regular supermarkets, markets and conventional farmers. The feasibility study aimed at testing various models of delivering the Disco Bôcô. In general, some of the best attended events were those that were either held in a public space or aimed at consumers of a community supported agriculture network. The less well attended events were claimed to allow the organisers to devote more time and attention to participants who often have complex social issues. In order to raise awareness of the scale of food waste, events in large public spaces tend to work well; however in order to directly target complex social issues a smaller, local and private setting should be the priority.

In addition to re-distributing surplus food Disco Bôcô achieved a number of social goals. These were wide-ranging, including reducing tension between different groups within certain social residences, improving cooking skills, gaining knowledge of preservation techniques, improving social skills; and also improving the taste education<sup>43</sup> of participants. In the case of taste education, participants were often asked to trial different recipes, e.g. Christmas Jam. This not only expanded the participants' tastes but also encouraged creativity within the kitchen.

The organisers of Disco Bôcô collected some feedback from both the volunteers and people that participated in the Disco Bôcô events; whilst there are caveats within this research<sup>44</sup> they demonstrate some initial insights into the Disco Bôcô sessions. Overall the majority of participants rated their sessions very highly with 82% (n=33) giving the events the highest ranking. Participants were asked on a scale of 1-5<sup>45</sup> whether participating in Disco Bôcô had made them more aware of food waste issues; 85% (n=33) of the participants ticked between 2-5, thus claimed they were more aware of food waste by participating in the events. The extent of the increase in awareness was variable, for example 31% (n=12) provided the highest score and the same number of people gave a middle range score. Self-reported change in awareness due to Disco Bôcô was high.

The majority of participants claimed to varying degrees that they were likely to use the skills they learnt; 50% (n=20) of respondents claimed they would definitely use the skills they have been equipped with. Only one person claimed they would definitely not use the skills. Disco Bôcô participants were asked whether they would teach the skills they had learnt to others within their network. A high percentage, 42% (n=17), claimed they would definitely pass on the skills. Only three people said they definitely would not pass on the skills. The remaining 50% (n=20) were in between; however were towards the higher end of agreeing they would pass on the skills.

A key concern by Disco Bôcô was that the jams and chutneys were made by participants but then not eaten; therefore the programme would not increase the individual foods education and tastes or provide them with a healthier lifestyle. The research however

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<sup>43</sup> This is where an individual's learns new tastes in order to change their eating patterns

<sup>44</sup> See Appendix II of the Disco Bôcô evaluation.

<sup>45</sup> With 1 equating to no more aware than before participating

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suggests that 65% (n=11) of the participants ate all the Disco Bôcô produced; three people claimed they did not eat any of the Disco Bôcô, but those who said this also commented that they would do so but were waiting for it to be ready

Qualitative feedback was also provided from employees, volunteers and participants. Whilst this was a small sample size<sup>46</sup>, five key themes were evident which related to benefits around reducing social isolation, tackling food waste, accessing healthy food, developing new tastes, and self-empowerment.

Whilst the empirical research has a number of caveats, the initial findings suggest that Disco Bôcô has had a lasting and positive impact. The Disco Bôcô feasibility study has been successful in organising and implementing 20 sessions that have different formats, engaging a wide range and large amount of individuals. This feasibility study was implemented very quickly and successfully due to the experience and enthusiasm of those involved; along with the favourable French context. For example last year there was the introduction of the French law that banned French supermarkets from throwing away or destroying unsold food and must instead donate it to charities or animal feed. Supermarkets that have a footprint of 4,305 sq ft (400 sq m) or more will have to sign contracts with charities by July 2016 or face penalties including fines of up to €75,000 (£53,000) or two years in jail<sup>47</sup>. Additional to this the law will also introduce an education programme about food waste in schools and businesses, following their commitment to halve food waste in France by 2025. This resulted in many of stakeholders being highly engaged in Disco Bôcô. The study experienced few barriers and has provided impact both in terms of tonnage redistributed from landfill and social change. A set of guidelines and a detailed feasibility report providing people with information about how to set up a similar project were created ready for replication.

For the full reporting and breakdown of these results see the Disco Bôcô evaluation report in appendix III.

#### 4.1.4 Results of Gleaning

The Gleaning feasibility study was a success. They implemented gleaning hubs in Belgium, France, Greece and Spain. As a result 82 gleaning days were facilitated delivering 29,571kg worth of surplus food to 33 charities that feed people who are food insecure. The food gleaned was mainly vegetables and fruits. The gleaning feasibility study organisers also claimed to have raised awareness of farm-level food waste and provided opportunities to people of all ages to reconnect with farmers, and the way food is produced, through people spending time outside in a sociable environment<sup>48</sup>. The main driver for the surplus was often because it did not meet the cosmetic standards set by the buyers; this was especially the case in Belgium, Greece and Spain. After this, the most common reason behind the surplus was because the farmers had planned for surplus, as a buffer to ensure they would meet the contract requirements. This was the leading driver for France above the cosmetic standards.

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<sup>46</sup> 17 comments out of the 627 participants who took part in the events (<3%).

<sup>47</sup> <http://www.theguardian.com/world/2015/may/22/france-to-force-big-supermarkets-to-give-away-unsold-food-to-charity>

<sup>48</sup> This information is based on anecdotal evidence alone.

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The key findings of the study were that gleaning activities can be quickly organised with few resources, but this depends mostly on having motivated and organised volunteers to run the activities both from an organisational point of view – in contacting farmers, arranging travel, gathering volunteers to pick the food; and also volunteers to attend on the day to collect the food. The most significant barrier was found to be recruiting farmers. This took a considerable amount of time and effort; however on the whole partners did not have major difficulties in enlisting farmers. There was the exception of Greece where NGOs are traditionally not trusted, thus this contributed to difficulty in finding supportive farmers. Other smaller barriers that limited the amount that could be gleaned was the availability of volunteers; the packing equipment, for example not having enough or the right type of crates; the capacity of the charities which were receiving the food, with some unable to accept a large amount; and unseasonably bad weather which delayed some of the gleaning activities.

There were a number of recommendations that have been put forward by the feasibility study leaders and many of these have been encompassed in their replication material (such as the guidelines). The key recommendation surrounds health and safety with farmers needing to be consulted and every volunteer needing to be aware of the safety requirements. Overall however the feasibility project was deemed to be sustainable as limited resources are needed; however gleaning projects are mostly volunteer based, which can be susceptible to change with the individuals circumstances, which does increase the risk to the sustainability of the project. Nonetheless most of the volunteers are highly motivated and passionate individuals, and take great ownership of the project. Some gleaning networks are organised as a social enterprise, which generate modest income for themselves and the partners, this was the case in Spain; however overall this is not common practice. It does indicate the possibility that similar projects can generate a small income.

Overall the study was successful in helping to organise a large number of gleaning events across Europe, redistributing a huge quantity of surplus that would have otherwise gone to waste. What is more, the food is provided to food insecure individuals, along with offering volunteering gleaners a positive experience to reconnect with the source of food. The feasibility study was considered a sustainable model with positive impact and has produced some high quality guidance material. Already there has been interest from other countries for example Czech Republic for replication. Gleaning activities could be implemented in all member states of the EU, as in all member states some food grown will not be collected by the farmer. The gleaning network however identify that whilst the gleaning feasibility study is a good interim solution to the problem of on-farm food waste and supplying organisations that help alleviate food poverty, the ultimate goal should be to reduce and prevent the on-farm food waste, and the underlying causes of food poverty be addressed to prevent individuals experiencing food poverty. In conclusion gleaning is a highly replicable social innovation, and the materials produced through FUSIONS should help its wide uptake across the EU member states.

For the full reporting and breakdown of these results see the Gleaning evaluation report in appendix IV.

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### 4.1.5 Results of Social Supermarkets

The Social Supermarket was a slightly different feasibility study due to it being a desk based study. The study successfully analysed social supermarkets in Austria, Germany, Switzerland, France and the United Kingdom. Social Supermarkets were recognised as having strong potential for replication across the EU and the aim of this feasibility study was to develop a further analysis to enhance the development of further social supermarkets.

Overall they found that most of the surplus food was redistributed to clients rather than becoming waste further down the line<sup>49</sup>. Data on the amount redistributed was not frequently collected, therefore there is very limited information on the amount of food waste prevented from going to landfill; however in 2015 the UK social supermarket reported that it had received £55,000 (€70,000) worth of donations. Additionally in Austria, UK, German and Swiss social supermarkets the sale of non-food items is widespread. This enables the organisations to have a wider role in waste prevention rather than just food waste. One point which the study found to be particularly beneficial was that many social supermarkets provided **wider social benefits** by co-locating additional services. These have included: advice from on-site social workers, interview and CV preparation, money management advice and cooking / healthy eating lessons as well as social interaction via in-store cafés. The authors of the feasibility study, who thoroughly investigated social supermarkets, found them to be beneficial and complimentary to other forms of food redistribution (e.g. social pantries and free charitable redistribution) for two main reasons:

- Because there is still a transaction involved, beneficiaries are economically active and more integrated in the society. They also often have a higher choice in products and feel more empowered.
- The social supermarket model lends itself to achieve additional social benefits through co-location of advice and social care.

The main outputs from the feasibility study are six recommendations (for existing social supermarkets but are to a degree also applicable to emerging social supermarkets), and a set of key points for replication for each country. The recommendations for the existing social supermarkets are set out below.

- Social supermarkets benefit from forming **umbrella networks**. Social supermarkets were found to benefit from an umbrella network. The benefits of being a part of an umbrella network can be found in the individual evaluation in appendix V.
- Many social supermarket heavily rely on their **local connections**, such as receiving funding and premises from local authorities, offering services in collaboration with local social services (who also help identify beneficiaries), and receiving donations directly from local shops and producers, so it important for existing and new social supermarket to strengthen these relationships (more guidance and examples of how to do this would be beneficial).
- Provide **additional social benefits** to the beneficiaries in addition to food at a low cost. Social supermarkets have a great potential to become and remain a focal point in the social life of vulnerable and excluded beneficiaries and are therefore ideal vehicles for social integration and training.
- Work closely with **volunteers and frontline workers** – they are key for the consumer experience and need to receive ongoing training, support and

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<sup>49</sup> With the exception of what was taken home and became household food waste as this could not be measured.

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encouragement, and be involved in the decision making to ensure their engagement.

- **Improve measurement of impacts** – there is surprisingly little information on the impacts. However having some data could improve the position of social supermarkets in recruiting support from local and national governments, business and donors.

In order to replicate social supermarkets successfully, the following key areas need to be addressed to ensure their establishment and operations: financing, securing donations from retailers and manufacturers, gathering volunteers, ensuring infrastructure and transport, ensuring regulatory compliance, and building a strong collaboration with social services. For more detail of each area please see the individual evaluation in appendix V.

The social supermarkets feasibility study has provided useful insights into the state of social supermarkets in Europe, the different variants in existence and their strengths and weaknesses. Social supermarkets are a form of food re-distribution that are very commonly found in some member states (particularly France, Germany and Austria), while completely missing in other member states (e.g. Denmark). The UK is an interesting case where social supermarkets are just starting to emerge. Although not explicitly studied in the feasibility study, the main reasons for such differences seem to be historical prevalence of food donations, general level of social security and VAT legislation, which in some countries discourages food donations.

For the full reporting and breakdown of these results see the Social Supermarket evaluation report in appendix V.

#### 4.1.6 Results of Surplus Food

The feasibility study Surplus Food encountered various challenges throughout. At the time of writing the feasibility study has not yet managed to pilot the system, so no results in terms of food waste saved and re-distributed are yet available. Therefore from this perspective the feasibility study has not been a success in the same sense as the previous studies.

The feasibility study encountered various barriers, the key ones being:

1. Funding to fully develop the IT system ran out, partly due to contracting complexities. New sources of funding were sought but this was not successful so 22 volunteers were recruited in an effort to finish the development.
2. Donor concerns over food safety regulations, which resulted in two of the three supermarkets withdrawing from the project.
3. VAT regulations, which resulted in two of the three supermarkets withdrawing from the project.
4. Slow, top-down decision making process in supermarkets
5. In order for the staff to use the IT system, they needed to be trained. This required resource and was time intensive; therefore it highlighted that the IT system implemented needs to be simple.
6. There were project management changes within the feasibility study team.

The feasibility study got to the stage of launching a test website for a test audience, but has no results to present. Nonetheless some key lessons learnt have been identified from this project and are detailed below:



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1. Keep the scope of the project realistic. Small geographical areas will reduce the number of charities that need to be engaged and allow for a more in-depth understanding of the area.
  2. If the IT system needs to be developed by a third party, the expected delivery of functionality needs to be clearly contracted, and given the timeframe and the budget, this must be done with realistic expectations. Potential users of the system should be involved in the development of the systems from the beginning. If the system is to be freely available, this must be explicit in the contract as well.
  3. Simplicity should be the ultimate goal when designing the IT system. In the Danish context, the supermarkets need to register the food to identify that it is being redistributed. This creates an administrative burden. The unsold food also needs registering on the "store system" and there is a potential to combine the two systems. Additionally simplicity aids the staff training that is necessary in supermarkets.
  4. It is important to find alliance partners within the key stakeholders that are willing to champion the initiative. It is important to find out about any practicalities or concerns rather than make any assumptions.
  5. When ensuring the collaboration of supermarkets, ensure there is buy-in from top management first, or target smaller stores that have the autonomy to approve the use of the system. It is recommended when first developing the project, work with a few small, or one large, supermarkets.
  6. Carefully check VAT and health and safety regulations upfront and consult experts in the early stages to mitigate risks.
  7. The right funding is important from the beginning. If the budgets are not in line with the aim of the project, then the goals of the project should be adjusted. A specific fundraising strategy should be in place from the beginning of the project.
  8. Identify and appoint a dedicated project manager from the beginning of the project. Ideally the project manager should have knowledge within the field of surplus food and a strong network among all relevant stakeholders. If the organisation is based on volunteers, it is important to take relatively slower progress into account.
  9. Finally all roles and responsibilities should be clearly defined from the beginning, thereby avoiding unnecessary waste of time and confusion.

Whilst this feasibility study has not been as successful as the other studies, it was successful in mapping the Danish context to a degree, gathering and ensuring an element of engagement from donors and recipients, and making a test website for the test audience. The project's implementation was affected by changes in staff and their circumstances, and a lack of consistency could be problematic in the future. Although the project did not reach completion during the Fusions timeframe, the team have since secured additional funding and attracted several high profile partners.

Although this study was not successful in being fully implemented, this does not mean that the concept is void: rather there are a number of organisations that do something similar but in other countries; for example, Pheniz, Foodwe and FoodCloud. These organisations have been successful and are economically sustainable.

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For the purpose of this report FoodCloud has been analysed further. FoodCloud is a not-for-profit social enterprise that connects businesses which have too much food with charities in their surrounding communities. This is completed through an app (or via their website). The donors (such as supermarkets) upload details of the surplus food and the time period it can be collected in. The software then automatically sends a text to the most appropriate charities. The first charity to accept the offer collects directly from the business. However in some cases there is a rota system where charities have a specific day/ time they collect the food.

FoodCloud was first established in 2012. Today it has 160 donors and 350 charity donors across Ireland and the UK. They have re-distributed 788 tonnes of food, 1,730,000 meals which equates to 2,522 tonnes of CO<sub>2</sub> savings. For more information on their current impact visit their Annual Report for 2015<sup>50</sup>. They employ eight full time staff and three part time staff. There has been a continual improvement of the App system in order to make it user friendly and simplistic enough to be easily useable. This was especially the case in the early development of the App. FoodCloud have now been able to hire two members of staff who are IT specialists to allow for continuous development, with the hope to integrate the App into Tesco's system. This will remove some of the administration tasks.

Whilst the Surplus Food feasibility study was situated in Denmark which has an inherently different social context than FoodCloud, there were a number of things which made it successful which could be translated into the feasibility study and further projects.

1. FoodCloud began the project on a small scale and expanded it from there. They established a close collaboration with one supermarket chain, in a small country Ireland. But using their network of supermarkets they were able to expand quickly. Whereas Surplus Food tried to engage all the main supermarket chains, this proved too ambitious and stalled progress.
2. FoodCloud first and foremost explored the option of having the app produced at little or no cost before outsourcing the development of the IT tool.
3. FoodCloud are economically sustainable as 85% of their income is operational. That is it comes from the organizations they work with as a result of FoodCloud redistributing the food.
4. They developed a service which made the FoodCloud available from 9am-9pm each day in order to make sure the system was working for both the donors and recipients. This ensured that the App was working and in cases where it was not they were able to rectify the problem. This ensured consistent engagement from all the parties involved.
5. FoodCloud experienced a similar barrier to the Surplus Food feasibility study in that there is an administrative task that the supermarkets have to fulfil in posting the food. They are currently working with Tesco to integrate this into their system, removing this administrative task.

Whilst the Surplus Food feasibility study was not successful in fully implementing the IT tool with supermarkets and charities, FoodCloud has identified that this can be done, that they experienced similar and also different barriers to the feasibility study, but most importantly they are economically sustainable. For a full background of FoodCloud please see Appendix VIII.

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<sup>50</sup> <http://food.cloud/annualreport2015/>

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For the full reporting and breakdown of these results see the Surplus Food evaluation report in appendix VI.

#### 4.1.7 Results of Order Cook Pay

This feasibility study only ran for 10 months (and two and a half person months of management time) before it was announced that the study would no longer be going forward. The key barriers that were encountered were recruiting stakeholders to be involved in the study (such as municipalities), the complexity of the IT tool to be compatible in each school, funding the project and the time frame of FUSIONS. More money and time was needed in order to fully implement the project. Nonetheless some key learning was identified from this process. The most important point was that any project similar to this should be **organised on a smaller scale** at first in order to build up the trust and engagement of the schools and municipalities. Other key lessons learnt were identified and are detailed below:

1. More time should be left to build trusting relationships with schools, municipalities and school kitchens.
2. In the schools there should be an infrastructure which will allow for the IT tool to be fully implemented
3. There must be enough time for the kitchen staff to learn how to implement new ways of working before the tool is launched
4. Alternative sources of funding should be identified at an early stage. If funding is needed from the municipalities, this should be requested before the yearly budget has been finalized. This funding should also be asked for with an analysis of the impact of the tool, therefore an evidence base should be gathered to justify the need for the funding. Additionally the requirement of extra funding from a municipality can also be a barrier to their overall buy in and engagement to the project as a whole, therefore these relationships and financial requests should be carefully managed.
5. Ensure there is enough time to fully implement the project, leave contingency.
6. Ensure that the scope of the project is not too encompassing and wide that it is unmanageable.

Some of the project team remain hopeful a similar project will continue in Sweden but for now there are no immediate plans to expand this project after the FUSIONS deadline. This however does not mean that the concept of reducing waste at school canteens is void. The Order Cook Pay team identified that during spring 2015 two schools in Sweden trialled 'MealMan' which was developed as an result of pupils concern that the canteen offer three different dishes every meal. This pilot project<sup>51</sup> was set up between the kitchen organisation, school and a parent working at an IT company.

In the UK a private company called ParentPay<sup>52</sup> sells an IT tool and system which allows for cashless payments in schools. Each school is allocated a dedicated set-up manager and the school and parents are presented with an online system (which is assisted with SMS texts) where they top up their children's allowance on a swipe card. This has been implemented in 5,000 schools. It is claimed to save schools £15,000 per annum, with the majority of this being saved on administration. Parents have claimed it is convenient, ensures the money is being spent correctly and is efficient. Whilst this is not the same

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<sup>51</sup> <http://www.metro.se/nyheter/eleverna-far-valja-skolmat-med-hjalp-av-en-app/EVHody!WDS2AqkINQikk/>

<sup>52</sup> <https://www.parentpay.com/>

model as Order Cook Pay, the system will allow for data to be collected in terms of tracking the amount of meals purchased over a period of time. This data can be used for forecasting, which ultimately would help to reduce waste. Whilst this study does not focus on reducing food waste it does demonstrate that a similar IT system can be implemented into a wide range of (UK) schools, and more importantly there is appetite for this, even if it is not from a food waste perspective.

For the full reporting and breakdown of these results see the Order Cook Pay evaluation report in appendix VII.

## 4.2 Overarching results

### 4.2.1 Tonnage impact of the feasibility studies

As identified in section 4.1 five of the seven feasibility studies were successful and made quantifiable impacts. Success largely took the form of diverting food waste from landfill or biogas plants. Table 3 identifies the amount of surplus each feasibility study has redistributed.

Table 3 Surplus which each feasibility study redistributed

Feasibility Project	Total amount of food re-distributed
Cr-EAT-ive	100kg of surplus fruit and vegetables was redistributed.  There was a 27kg food waste reduction across the households that participated in the food waste diaries for two weeks.
Food Service Surplus Solution	35,096 portions diverted away from landfill or biogas plants. This is the equivalent of 14,038kg <sup>53</sup> .
Disco Bôcô	825kg of fruit and vegetables diverted from landfill.
Gleaning	Redistributed total of 29,571kg

In total the WP4 feasibility studies have to date prevented a total of **44,561kg** from going to waste. This is the **equivalent of 338 wheelie bins full of food**. If these wheelie bins were **stacked** up on top of each other they would be **37 meters higher than the Eiffel tower**. Saving 44,561kg of food from landfill is the equivalent of 129 tonnes of CO<sub>2</sub> equivalent emissions avoided. That is the **equivalent of taking 43 cars off the road**.<sup>54</sup>

<sup>53</sup> The average portion is calculated at 0.4kg

<sup>54</sup> This is on calculated on the fact that 240l wheelie bin full of food weighs approx. 132kg, and that a wheelie bin is 107cm high

**Table 4 Surplus redistributed by other organisations**

<b>Project</b>	<b>Total amount of food re-distributed</b>
FoodCloud	869 tonnes of food, 1.9m meals
Bon et Bien	Intercepted 17,000kg between May-December 2015
Zero Waste Jam- food waste from private gardens compared to farms (Disco Bôcô collected surplus from farms)	600kg redistributed from June to December 2015
Gleaning – the UK network was the model which the feasibility study was based upon, thus identifying the potential of the project.	From 2012 to the end of 2015, the Gleaning Network already gleaned over 188 tonnes of produce

In the case of FoodCloud, this indicates the potential amount of food waste that could be diverted from studies similar to the feasibility study Surplus Food. Additionally the UK Gleaning network tonnage indicates the redistribution possibility of the gleaning networks set up in other countries. Therefore taking these two into account, the potential for these two feasibility studies is 1,057 tonnes a year, or 1057,000kg. This is the equivalent to just over eight blue whales (one whale weighs roughly 125 tonnes). Saving 1,057,000kg of food from landfill is the equivalent of 3,065.3 tonnes of CO<sub>2</sub> equivalent emissions avoided, the same as taking 1,022 cars off the road.

These figures confirm that these feasibility studies have intercepted a large amount of food waste, which in turn has resulted in positive environmental impacts. What is key to note here, is in the case of Cr-EAT-ive the results incorporated were the impacts evident in the two weeks of measurement; however the study was designed to implement long term behaviour change, which if all things being equal would equate to a saving of 1,417kg a year. Two of the feasibility studies were not fully implemented thus did not have any figures, and the social supermarket feasibility study did not report the annual savings redistributed. The figures also identify the large scope for potential impact of some of the feasibility studies in time (gleaning) or when they are fully implemented (food cloud). These are large savings that should be regarded as underestimates of the true impact and in part only paints some of the story.

#### 4.2.2 The social impact of the feasibility studies

As identified in 4.1 and the individual evaluations, aside from generating environmental benefits, the feasibility studies have generated considerable social impact through redistributing surplus food. For a detailed description of the social impacts that the studies have made please see the individual evaluations. This section will focus on primarily social impact themes that have been evident across the feasibility studies including the changing of social attitudes towards issues of food waste; feeding food

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insecure individuals; increasing the intake of nutritional food for food insecure individuals; development of social capital; learning kitchen and cooking skills; and becoming part of a community.

Nearly all of the successful feasibility studies have sought to not only redistribute surplus food but also increase awareness around the issue of how much food is wasted. From the reporting it is suggested that awareness raising events (such as Feeding 5000 events) have been very successful in achieving their aim. For example Cr-EAT-ive ran a series of events and seminars in order to change the behaviour and awareness of the issues of food waste amongst parents. As identified in their individual evaluation, this was reported to be hugely successful amongst the parents involved. HFA claimed they changed the attitudes of those who donated the surplus in their pilots, as they found a drop in waste arising at the donor sites after the pilot was implemented. This could suggest that the project highlighted to them the level of waste generated. However this work is heavily caveated.

On the other hand, the majority of these feasibility studies (apart from Cr-EAT-ive) are involved in the redistribution of surplus food to charities or organisations that feed individuals that are food insecure<sup>55</sup>. These feasibility studies are helping to feed some of the millions of people that live in poverty across the EU. However at the same time some of these feasibility studies have gone further than simply providing food: rather in some cases the food has become the lever to more long term social impact.

In the case of Gleaning<sup>56</sup>, Food Service Surplus Solution and Disco Bôcô they have not only provided food to food insecure individuals, but more importantly they have provided fresh nutritional food (Gleaning in the form of fruits and vegetables; Food Service Surplus Solution in the form of warm cooked meals; Disco Bôcô in providing healthy food). Often those experiencing food insecurity survive on poor nutrition; Hawkes 2006 argues that poorer sections of society are culturally, financially and social excluded from an adequate and healthy diet<sup>57</sup>. Foodbanks often redistribute non-perishable foodstuff and in the case of Food Service Surplus Solution, the homeless shelters could not afford to serve warm food. Therefore the opportunity for these, and similar food aid programmes, to work with projects that redistribute surplus that is fresh, and in some cases warm, is an additional benefit. HFA reported that those that received the food claimed they felt they gained weight, felt healthier and that it was a real luxury as they were not used to eating warm food<sup>58</sup>.

Not only did some of the feasibility studies provide individuals with fresh and often healthy food but also Disco Bôcô and Cr-EAT-ive provided their participants with kitchen skills, whether this was learning preservation techniques or taste education (Disco Bôcô), or learning simple hints and tips that can be followed in the kitchen to reduce food waste (Cr-EAT-ive). For consumers the skills needed to select and prepare food to eat are changing. Control of what goes into food and how they are treated has passed more to

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<sup>55</sup> 'Food security is defined as the ability of individuals, households and communities to acquire appropriate and nutritious food at a regular and reliable bases using social acceptable means' (Page 456): Law, I. R. Ward, P.R. and Coveney, J. (2011) 'Food insecurity in South Australian single parents: an assessment of the livelihoods framework approach' *Critical Public Health*, Vol.21, No.4, pp. 455-469

<sup>56</sup> And indeed would have been the case if Surplus Food had been successful in being implemented.

<sup>57</sup> Hawkes 2006 cited in Butler and Dixon, 2012 page 99- Butler, D. C. and Dixon J. (2012) 'Plentiful food? Nutritious food:' in Rosin C., Stock P. and Campbell H. (Eds.) *Food Systems Failure: The Global Food Crisis and The Future of Agriculture*, London and New York, Earthscan, pp. 98-113

<sup>58</sup> Initially the participants experienced stomach problems at the start of the pilot, however over time they became accustomed to the food

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those who operate between farm and fork; convenience food is an example of this, where you need few cooking skills. Tansley and Worsley 1995 argue that this has led to a large proportion of the population being deskilled in this area<sup>59</sup> and Cook, Crang and Thorpe argue that the current food system has resulted in many individuals to be completely detached from food<sup>60</sup>. Therefore learning culinary skills and understanding the food system is part of the way of re-attaching people, in the hope that people will value food again. This was a social aspect which Disco Bôcô strived to achieve. Additionally, Dowler, Caraher and Lincoln argue that for particularly low income, cooking new dishes is a risk. This is because the outcomes can be unpredictable, for example the family may not like the food etc. This would lead to waste which they cannot afford, and therefore experimentation is not seen as a sensible strategy for those on tight budget<sup>61</sup>. In the case of Disco Bôcô, practicing these culinary skills in a controlled area allows for people to learn new techniques that they may be unable to at home, due to the limited knowhow and the risk of getting it wrong with the little food they have.

In the case of Food Service Surplus Solution, Disco Bôcô and also Social Supermarkets, the provision of the food became also an opportunity to engage with the clients on a more personal level. Caritas in the Food Service Surplus Solution pilot claimed that the provision of meals was particularly useful when they delivered sessions to help their users out of poverty, these varied from session helping clients with addictions, to CV writing sessions to get them back in employment. This is because the food is served alongside the sessions and allows for some individuals to stay longer for additional sessions, as they do not have to leave for a meal. Similarly Social Supermarkets feasibility study identified that many social supermarkets provided wider social benefits by co-locating additional services. These have included: advice from on-site social workers, interview and CV preparation, confidence building, money management advice and cooking / healthy eating lessons as well as social interaction via in-store cafés. Disco Bôcô aimed through these sessions to reduce tension between different groups within certain social residences along with improves the social skills of vulnerable individuals. They identified that some individuals had claimed Disco Bôcô had helped them escape social isolation and have a sense of self-empowerment.

Not only did these feasibility studies provide some people with additional social support, they provided people with a sense of belonging and community. In the Food Service Surplus Solution feasibility study, the food provided a chance for the homeless shelter users to sit and eat together. This within itself provides a positive benefit as eating together instils a powerful sense of well-being in us and binds people together<sup>62</sup>. The act of cooking together served as a community building exercise for some people involved in the Disco Bôcô. Whilst in Cr-EAT-ive the joining together of families to discuss this issue at both the kindergartens and the events created a sense of community, with parents reporting they valued the social interaction, the chance to discuss topical issues with other parents. This was partly evident through the Facebook group which was generated for the parents to post pictures, news and updates on.

This type of additional social support (such as teaching CV writing, money management etc. developing a community and social networks) is a hugely important aspect of these

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<sup>59</sup> Page 143 in Tansey, G. & Worsley, T. (1995) *The Food System: A Guide*. London: Earthscan.

<sup>60</sup> Cook, I. Crang, P & Thorpe, M (1998) Biographies and geographies: Consumer understanding of the origins of foods. *British Food Journal*, 100 (3): 162-167.

<sup>61</sup> Dowler, E., Caraher, M., & Lincoln, P. (2007). Inequalities in food and nutrition: challenging 'lifestyles'. In E. Dowler, & N. Spencer (Eds.), *Challenging Health Inequalities: from Acheson to 'Choosing Health'* (pp. 127-156). Bristol: Policy Press.

<sup>62</sup> Steel, C. (2009) *'Hungry City: How Food Shapes Our lives'* London, Vintage: pp. 212-214

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feasibility studies. This is what some would describe as providing the clients with social capital. A number of theorists have discussed social capital<sup>63</sup>. Putman increased the popularity of the concept. He argues that social capital refers to the connections and social networks, which create norms of reciprocity and trustworthiness<sup>64</sup>. Therefore if individuals trust each other they are less likely to exploit or defraud one another, thus allowing for communities to advance smoothly; a well-connected individual is likely to access more opportunities within society (for example people are hired by who they know not always by what they know); and widen an individual's awareness, in order to test their world views. Although it has also been disputed<sup>65</sup>, social capital is attributed to generating greater health, happiness and wellbeing, economic development and social inclusion along with poverty reduction<sup>66</sup>. Bauman argues that communities are crucial to a happy life as we look to others for salvation and to share troubles<sup>67</sup>. The supportive networks allow people to cope with long term problems such as poverty, exclusion and stigmatisation, along with short term crises. The fact that some of these feasibility either directly, or enable other organisations to, equip individuals who are food insecure to benefit socially aside from only gaining food, has wider positive social effects. However Putman has been widely criticised for romanticising the idea of community and that social capital<sup>68</sup> should not be a substitute for public assistance<sup>69</sup>. Whilst some of the data within the feasibility studies which has generated the results on the social goals has been empirically collected, the majority is anecdotal data, gathered from the project managers, the evaluation visit and through the reports submitted. Nonetheless it is evident that social goals during the feasibility studies were achieved other than redistributing a certain amount of food waste and this should not be understated or overlooked.

#### 4.2.3 The implementation of the feasibility studies

The following section will cover some key findings from the feasibility studies in terms of project implementation. The section will address timescales; the project management and volunteer resource needed to develop and implement the project; the financial cost of the studies; and the main constraints/unforeseen issues of the studies. It will also identify what worked well during the implementation of the feasibility studies. For a full breakdown of the implementation of each feasibility study see Appendix I-VII for the evaluations of each project.

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<sup>63</sup> Bourdieu, 1986; Coleman 1994; Putman 2000

<sup>64</sup> Page 19 in Putman, R. D. (2000) *Bowling Alone: The Collapse and Revival of American Community*, New York: Simon and Schuster

<sup>65</sup> Schuller, T., Baron, S. and Field, J. (2000) 'Social Capital: A review and Critique' in Baron, S., Field, J. and Schuller, T. (Eds.) *Social Capital: Critical Perspective*, Oxford, Oxford University Press, pp. 1-38 /

<sup>66</sup> Page 11 in Field, J. (2008) *Social Capital (Second Edition)*, London and New York: Routledge/ page 16 in Cattell, V. (2012) *Poverty, Community and Health: Co-operation and the Good Society*, London, Palgrave Macmillan / Page 121 in Ferlander S. (2007) 'The importance of different Forms of Social Capital for Health' *Acta Sociologica*, Vol. 50 No2. pp. 115-128

<sup>67</sup> Page 144 in Bauman, Z. (2001) *Community: Seeking safety in an insecure world*, Cambridge: Polity Press

<sup>68</sup> Fremeaux, I. (2005) 'New Labour's Appropriation of the Concept of Community: A Critique', *Community Development Journal*, Vol.40, No. 3, pp.265-74.

<sup>69</sup> Page 114-120 in Cattell, V. (2012) *Poverty, Community and Health: Co-operation and the Good Society*, London, Palgrave Macmillan



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#### **4.2.3.1 Timescales**

Apart from Order Cook Pay and Surplus Food, all the feasibility studies achieved impacts within the timescales set by FUSIONS. This demonstrates that two years is a sufficient amount of time to plan, organise and implement some projects, but that others may require longer. Additionally roughly one year was the average amount of time that the feasibility studies operated. For example in the Food Service Surplus Solution Budapest feasibility study, the pilots ran from May 2014 until June 2015. Just under a year was needed to organise and plan for the feasibility study. This time was used to ensure engagement from the necessary stakeholders.

A key point that emerged was the timescales needed to be flexible in order to accommodate the needs of the stakeholders involved. For example Anatoliki in the Cr-EAT-ive feasibility study found they had to shift their planned timescales in order to match the kindergartens' curriculum. Food Service Surplus Solution Budapest worked with Sodexo who supplied meals to schools and therefore did not operate during school holidays. This resulted in HFA temporarily placing the pilot on hold. The Gleaning network overran into September due to the timing of harvesting certain foods.

Similarly there were specific timeframes in which to contact stakeholders. In terms of Gleaning a key barrier was contacting and engaging farmers; an English farmer claimed that he himself was contacted during the busiest and most stressful time of year which can result in less engagement. He argued that farmers should be contacted earlier in the year when it is less stressful, which may result in higher engagement. He did however recognise that he was an organised farmer that knew what crop he was going to have sometimes three years in advance. A similar case can be found with the Cr-EAT-ive programme in terms of contacting teachers to ensure buy-in for the following school year and curriculum.

From the implementation and success of some of the feasibility studies, two years to plan and implement similar feasibility studies appears a sufficient amount of time. However timescales should include a sufficient amount of time for stakeholders to be engaged; have flexibility and contingency to change in order to meet the needs and requirements of stakeholders; and also should take into consideration the most appropriate time to contact the stakeholders they wish to be involved.

#### **4.2.3.2 Project Management**

In order to implement the feasibility studies a substantial amount of project management time was needed from those who organised the feasibility studies, along from the various stakeholders involved in the study. Not all the feasibility studies collected information on the amount of project management hours it took to implement each feasibility study, but what was apparent across the studies was that a considerable amount of time is needed to organise and implement the projects. Some project managers identified that the amount of time needed to run the feasibility studies had been more than originally expected.

It was apparent across the feasibility studies that although there was often a main point of contact (i.e. the project manager), they worked closely with a wider team to help them implement the feasibility study. Anatoliki took 19.85 months in total to manage the Cr-EAT-ive project. This was across seven individuals within Anatoliki, with the main lead Dora (who organised much of the on the ground work) spending the most amount of time on the project, roughly 5.5 months. Food Service Surplus Solution's main contact

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was Balázs Cseh however he had Katalin Újhelyi and others at the food bank that assisted him. Disco Bôcô had a delivery team which included Marine Lafon as the main project lead; however also worked closely with Bio by Deloitte who assisted with more office based work such as auditing/accounting and delivering the documents. It is evident that these projects with a small team are often successful. This was also identified through the two feasibility studies which were not as successful, Order Cook Pay had seven project partners and at minimum 10 individuals involved; and Surplus Food had a change in project management during implementation. Whilst Anatoliki had a high number of individuals involved in the Cr-EAT-ive project, they were only one partner. Frequent project management changes and too many project partners can hinder the progress and implementation of a project.

The Social supermarkets feasibility study identified that individuals in skilled positions such as mentors, cashiers and also chefs had to be hired in order to run a successful social supermarket along with a team to coordinate and implement social supermarkets in areas. Similarly it was evident in the Cr-EAT-ive, Food Service Surplus Solution and Disco Bôcô feasibility studies that time was required by their partners to manage the project. For example the second pilot (hot-cold-hot) in the Food Service Surplus Solution study required the charity to spend a total of 8-10 hours a day extra across 3-4 employees to engage in tasks (such as collecting the food, re-portioning the food, washing up etc.). There were a number of reasons as to why one charity required more time to engage in the feasibility study<sup>70</sup> than another. On the other hand pilot 1 in Food Service Surplus Solution did not require much additional project management time from either the donors or recipients of the food. In Cr-EAT-ive teachers identified that the project required some more of their time, but this was not as much as they anticipated. Nonetheless this highlights the possibility that the feasibility studies not only require project management time from a team to implement the study, but also from the stakeholders involved, and this is often individual to each case.

It became apparent that the two key tasks that required the most amount of project managers' time were firstly sourcing stakeholders and ensuring their engagement in the project; and secondly maintaining these relationships through supporting the various stakeholders in the project. Both of these tasks were claimed to be aspects which the majority of project managers had underestimated the amount of time they would take. This was particularly the case for Order Cook Pay where the team struggled to gain and maintain stakeholders, along with Surplus Food for whom two supermarkets dropped out of the feasibility study. Part of this was a result of having too wide a scope, i.e. Surplus Food was targeting three supermarkets; whereas it may have been more effective to target one and develop a successful programme with them only to begin with.

Other key aspects that required significant project management time included designing materials (Disco Bôcô and Cr-EAT-ive - 4.8 months) and dealing with issues surrounding health and safety, whether scoping out the legal context or ensuring the practices were in line with health and safety law. HFA spent a considerable amount of time scoping out the legality of re-distributing cooked food in the EU and Budapest in particular, along with organizing and attending various meetings and discussions with officials and experts in the area due to the law being unclear. This was something that spanned across the whole feasibility study and continues now. The nature of Disco Bôcô meant that Marine attended health and safety training and also spent a considerable amount of time ensuring food safety and hygiene issues are addressed.

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<sup>70</sup> Section 4.2.2 in the Food Service Surplus Solution evaluation found in Appendix II.

### 4.2.3.3 Finance

All the feasibility studies recorded the finance spent throughout the project. Table 5 identifies the total amount spent by each feasibility study and a brief overview of what it was spent on. The 'study trips' have been identified separately because they are not essential in replication. For a more detailed explanation of the financial expenditure of each feasibility study please see Appendix -VII.

Table 5 Finance of the feasibility studies

Feasibility study	Total amount	Study Trips
Food Service Surplus Solution Budapest	€52,362.00	€3,000.00
Disco Bôcô	€40,594.00	€1,200.00
Cr-EAT-ive	€37,474.00	€250.00
Gleaning	€29,975.34	€2000.00
Order Cook Pay	€24,000.00*	€-
Surplus Food	€24,000.00** External €15,700ca	€-

\* Order Cook Pay required extra funding outside of FUSIONS estimated at €75,000.00 to deliver the software needed for the feasibility study. They envisioned that of the 40 municipalities each would contribute €15,000.00; no municipalities provided the money.

\*\* Surplus Food needed more than the FUSIONS budget, they received €15,700ca from two other sources

Due to the nature of the Social Supermarket feasibility study there is little financial information available in terms of the set-up and operating costs of a social supermarket, although a brief overview can be found in the UK's Community Shop business plan which suggest that around £200,000 (€255,000) is needed to set up a social supermarket<sup>71</sup>. Additionally we have been able to obtain the operational costs of two social supermarkets in the UK, who report running costs to be in the order of €12,000 to €14,000 per week (including some payment for the food, and running an advanced personal development programme, which may not be necessary in other cases). According to Leinbacher and Holweg<sup>72</sup>, the average revenue of a social supermarket was €46,000 per annum.

The feasibility studies which required additional money were the two which included IT software and development in scope. This may be a reflection that in order to implement a project which involved building an IT system/software, the budget and timescale provided by FUSIONS was not sufficient. On the other hand this may have been a reflection of the availability of the project management resource, the objectives and scope of these feasibility studies and the fact that they both faced a number of unexpected barriers, some of which required more funding and project management time. This may be likely, as FoodCloud in Ireland was successful in designing and creating a tool. Originally their funding was from grants and the original app was created free of charge from an American designer, which was then developed over time. Alternatively this may have also been a reflection of the geographical context of the feasibility studies.

<sup>71</sup> Please contact Community Shop to see a copy of this document.

<sup>72</sup> Leinbacher & Holweg (2010) Studie der Sozialmärkte in Österreich. Vienna: ECR-Workgroup on Social Sustainability and GS1.

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Some of the money was spent on designing materials and organising study trips and this money would not be spent again if the study was to be replicated. On the other hand the majority of the money was spent on financing the project management of the feasibility studies. Depending on the feasibility study a large proportion of the finance is also spent on consumables; for example Disco Bôcô had to buy cooking materials for the events and Food Service Surplus Solution had to buy plastic boxes to transport the food. These are ongoing costs. Similarly in the case of Food Service Surplus Solution, the charities that received the food had to finance items such as refrigerators and double walled containers in order to participate in the feasibility study. This highlights some of the hidden costs for stakeholders; however they accessed grants and charitable deeds (for example the refrigerator was donated) and the majority of the time they are also receiving a good (food) in return.

Whilst the feasibility studies save food surplus, which can often be converted into monetary savings and thus a positive return on investment, the return in investment does not directly convert to financial gains to the project. For example Cr-EAT-ive could save families up to €334 a year; however this money is not transferred back to Cr-EAT-ive in order to fund project management. The majority of the feasibility studies experience similar complexities in that they are not economically self-sustainable; no process has been implemented that generates capital to pay for project management or equipment, rather they rely on grants. However in the case of Disco Bôcô, Social Supermarkets and Surplus Food, to become economically viable may be more achievable. In the case of Cr-EAT-ive and Order Cook Pay, these could be integrated into an institution such as schooling. This will be explored in section 4.2.4 covering the sustainability of the projects.

#### ***4.2.3.4 Key constraints to implementation***

All the feasibility studies experienced challenges and barriers. For some project managers these barriers were overcome and the feasibility study went on to be a success whilst for others these barriers resulted in the feasibility study ending prematurely. The main barrier that was experienced across all seven feasibility studies was ensuring engagement from potential stakeholders, whether organisations donating food, charities receiving food, schools, farmers, volunteers or local government. As identified in section 4.2.3.1 a large proportion of project management time was reported to be spent to ensure initial engagement from various stakeholders but then to also to provide ongoing support to the participatory organisations. It was this barrier which has contributed to the many complications that Order Cook Pay (the municipalities withdrew from the project) and Surplus Food (two supermarkets withdrew from the project) experienced and therefore to these studies being less successful than the others.

Many of the feasibility studies experienced barriers related to issues of health and safety. This was evident in two forms. The first was spending a sufficient amount of project management time in order to ensure the feasibility studies complied with health and safety laws. For example Marine Lafon from Disco Bôcô attended training, invested in insurance, scoped out the health and safety necessities; and Gleaning invested in appropriate training, procedures and equipment to ensure their volunteers were safe on the farms. The second barrier around health and safety was situated in the realm of food safety regulations. HFA had considerable issues in defining and interpreting the EU law<sup>73</sup> to ensure they were not acting illegally which had a series of knock on effects to the

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<sup>73</sup> (EC) No 852/2004, ANNEX II, CHAPTER IX, Section 6

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project. HFA had to engage in numerous municipality meetings, could not conduct any communication and advertising of their pilot two activities and still faces uncertainty on the future of pilot 2. Similarly, Surplus Food's key barrier was food safety regulation for the supermarkets. Should there need to be a recall of the donated food, the recipient of the food and the supermarket should be able to track the origin of the food to prevent diseases to spread. This results in all the food needing to be registered by the supermarket, which generates an administrative obstacle for the supermarkets and charities. This ultimately resulted in supermarkets withdrawing from the project.

Additionally, and unrelated to food safety issues, Surplus Food encountered issues surrounding VAT regulations that were obstructive to donating food<sup>74</sup>. The Social Supermarket feasibility study identified further that tax regulations vary between member states. In most EU countries where social supermarkets are currently operating the value of donated food is set to zero and no tax is paid on it by either party. In some EU countries (Spain, Denmark and Sweden) VAT would have to be paid on donated food, which can be a major barrier to surplus food donations. VAT regulation regarding food donations has recently changed in Germany, which resulted in a boost in donations. In addition to zero VAT on donated food, France and Spain also offer tax breaks related to food donation, which is understood to be a huge incentive for donating to social supermarkets and food banks. The financial attractiveness of donating therefore depends on the costs and revenues associated with alternative uses of food waste material, and tax regulations. Therefore some barriers experienced by the feasibility studies centre largely around laws and regulations, primarily around food safety, but also around tax regulations.

As identified in 4.2.3.3 a key barrier for the two organisations that were not as successful was finance. Their projects required additional finance to that provided by FUSIONS. This suggests that projects that encompass IT software require more funding. Other issues encountered by these studies include the context of the countries they are operating in; a result of having too many stakeholders; too large a scope for the project; poor management; a product of outsourcing certain elements of the project; or, more likely, a combination of all of the above.

Finally there were some uncontrollable issues which were barriers for the feasibility studies. For example in the case of Gleaning one of the main causes for delays in the overall project was unseasonably bad weather. The only solution to bad weather was to ensure that the produce was gleaned, redistributed and used as quickly as possible. If the weather was looking bad at the start of the day, organisers would consider shortening the length of the gleaning day. Additional to unforeseen issues such as weather there were also social barriers. For example Gleaning had issues in reaching volunteers when other political and social events were occurring. In order for Order Cook Pay to predict how much food was needed to be cooked, they had to ask pupils, children and young teenagers about their food preferences. They experienced difficulty due to having to be sensitive to many teenagers that had complex relationships with food, for example having eating disorders such as anorexia and bulimia. Whilst the Cr-EAT-ive project found that their programme worked very well with low and middle income families, the least engaged participants were those who were the wealthiest and thus did not find money saving messages to be motivational because they could afford to waste food. This identifies that whilst some of the barriers were practical, technical or

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<sup>74</sup> Companies in Denmark that wish to donate food are liable to pay the VAT on the food's value, making it more expensive for the supermarkets to give away food than dispose of it via waste management routes.

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law/legally related; some of them were also due to the social environment the feasibility studies were working within.

#### **4.2.3.5 What worked well?**

Whilst the feasibility studies experienced various barriers to implementing their programmes, throughout the process key themes of what worked well also came to light.

What became apparent within some<sup>75</sup> of the feasibility studies was that organising events as either the main part of delivery or as something alongside their feasibility study delivery was incredibly successful. Gleaning and Disco Bôcô are innovative in that the delivery of their feasibility study involved engagement in events, whether that is attending a farm to glean or attending a Disco Bôcô session which is filled with a musical atmosphere. These feasibility studies raise awareness through these events and they have been proved successful through the high rate of participation to these events and also the energy and engagement they establish to those involved. Whilst Food Service Surplus Solution and Cr-EAT-ive organised events to encourage participant engagement and awareness as both part of their delivery but also as an additional activity. Cr-EAT-ive organised events in the form of seminars but also organised events on a larger scale that involved workshops, group play, cooking demonstrations, a DJ and also free hand-outs. The main event attracted an estimated 1000 people. The feedback throughout Cr-EAT-ive identified that the events organised were a success. HFA organised<sup>76</sup> a Feeding 5000, which had a Disco Soupe atmosphere as volunteers chopped vegetables to music, cooked the food in a large pot whereby it was then re-distributed to charities. The event format was successful on a number of levels, whether it was the primary method of the feasibility study or as an addition to delivery. This identifies the importance of these events in raising awareness and engagement.

The feasibility studies that were successful had some reoccurring themes throughout which are detailed below:

1. Project managers who were engaged in the topic; had good 'people skills' thus could manage relationships well; had prior connections with the industry they were working in; had technical knowledge of the area; had time, passion and enthusiasm for the project; and who was reactive and reflexive.
2. Zero Waste Jam (see appendix X) identified that some people were hesitant about eating surplus food because of the perception that surplus food/waste had a high risk of food poisoning. However Cornelia (the project manager) is a trained chef and she found that people were more open to the idea once they found this out. This was because of the perception that she knew what she was doing and was trained to an adequate standard. This identifies the importance in some cases of having qualified and experienced project managers.
3. Feasibility studies that had well designed outputs and brands (Disco Bôcô and Cr-EAT-ive – and gleaning in the case of the toolkit – for example)
4. Feasibility studies that did much of the implementation, designing and development in-house as opposed to contracting it out
5. Feasibility studies that did not have **too** many stakeholders within the project; this cut out costs, project management and admin time.

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<sup>75</sup> Disco Bôcô , Gleaning, HFA and Cr-EAT-ive

<sup>76</sup> With the help of other partners such as Feedback

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6. Feasibility studies that had good working relationships with local government.
  7. Feasibility studies that were aware of the audience they were working with.
  8. Feasibility studies that were able to be flexible, changing and adapting to the needs of stakeholders for example the case with Food Service Surplus Solution, Cr-EAT-ive and Gleaning
  9. The feasibility studies that had positive and attentive relationships with their stakeholders
  10. The feasibility studies that had an online presence. For example this was in the form of a Facebook group for Cr-EAT-ive. Other examples are found in Gleaning and Disco Bôcô.
  11. The feasibility study was working in a positive local context for example Disco Bôcô worked in the national French context which provided a positive context for the development of Disco Bôcô as various public institutions and companies have put food waste at the top of their agenda, whereas in Denmark the local context was less favorable as VAT is charged on re-distributed food.
  12. The majority of the feasibility studies that worked with commercial organisations such as supermarkets and restaurants went through their CSR route.
  13. Nearly all the feasibility studies visited similar activities and studies, for example HFA in Food Service Surplus Solution visited three existing projects in the first stages of the study, one in Portugal and two in Bologna. They also gathered information from other EU countries, such as France and Finland. The act of visiting, and building relationships with, similar activities was considered to be invaluable by some as it allowed for the new project managers to experience firsthand the activities and gain a true understanding.

#### 4.2.4 The Sustainability of the feasibility studies

The ability to implement the feasibility studies has been a success. However what makes certain feasibility studies stand out further is the legacy they leave behind, in other words whether it is sustainable once the FUSIONS project has ceased. The feasibility studies' short term and long term sustainability have been evaluated in each of the individual evaluations identified in Appendix I-VII. Therefore this section will discuss the key themes across all the feasibility studies in terms of short term and more importantly long term sustainability of the project. This section will also explore possible solutions to making the feasibility studies sustainable going forward; this will be partly conducted through identifying other social innovation projects that have been successful at similar activities outside of the FUSIONS project.

In the short term the Food Service Surplus Solution, Cr-EAT-ive, Disco Bôcô and Gleaning feasibility studies are continuing activities outside of FUSIONS, and in some cases expanding the project further. HFA are in current discussions with Sodexo to expand their feasibility study wider than the one site they are currently operating in; whilst Anatoliki is working with the municipality to implement Cr-EAT-ive in further kindergartens. The Social Supermarket feasibility study was different in that a pilot was not conducted; however various social supermarkets continue to operate across countries. Surplus Food and Order Cook Pay, whilst have not been able to fully implement their feasibility studies, remain hopeful that the momentum they have built through FUSIONS will in time allow their feasibility study to be successful.

Some of the feasibility studies are sustainable in the sense that they are continuing activities outside of the FUSIONS project in the immediate future. Whilst there are risks to the short term sustainability to some of these feasibility studies (identified in Appendix I-VII), many of these barriers are being overcome or are in the process of being solved, indicating that once implementation of the project has been successful in the short term

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they are sustainable. However across all the feasibility studies there are risks to their long term sustainability and these risks fall into five key areas.

The first, which is arguably the most important risk to the long term sustainability of all the projects, is finance. None of the feasibility studies are economically viable, that is for these studies to continue and expand their activities they still all need some type of grant or funding injected into them, whether this is a one off payment or continuous funding. None of the feasibility studies generate income in order to cover costs concerning project management and consumables, therefore the long term sustainability of the projects are questionable. However there are a number of possible solutions that could be adopted in order to make these projects economically viable.

#### 1. Selling products and services

All of the feasibility studies could, in theory, sell either their products or services. Some of the feasibility studies could do this more easily than others, for example in the case of Disco Bôcô, the chutneys and jams (along with soups, chopped vegetables and fruit jerky) could be sold in order to generate income to pay for various outgoings. Currently social enterprises work in this area for example Re-belle<sup>77</sup> (France), Zero Waste Jam<sup>78</sup> (Austria) and Rubies in the Rubble<sup>79</sup> (UK) all create jams and chutneys from surplus food and sell it online, in stores and at markets. Snact<sup>80</sup> (UK) creates fruit jerky from surplus fruit and sells it in various locations across London. Bon et Bien<sup>81</sup> (France) (see appendix IX) sells soups from surplus fruit and vegetables in the French supermarket E.Leclerc. These companies, although some are small scale, are all economically viable. In order to sell the products the hygiene conditions are much stricter, which Disco Bôcô cannot match. However they have identified that could sell fruit jerky or prepared chopped fruit and vegetables, as there are fewer hygiene complications in these processes. Additionally lessons learnt from organisations such as Zero Waste Jam have identified areas where Disco Bôcô could overcome some of their barriers to selling their products (see Appendix III Disco Bôcô Evaluation). However ultimately it is evident that Disco Bôcô would have to become a more structured model in order to sell their products.

Interestingly Bon et Bien originated from a gleaning project<sup>82</sup>; however their partners agreed that gleaning alone had limited social and environmental impact due to the short period in which gleaning would take place. This is evident to a degree within our own feasibility studies. Therefore a consortium of McCain, E.Leclerc, Randstad, Le Gappi and the Federation of Food Banks began Bon et Bien, which has developed an alternative supply chain for surplus potatoes and vegetables through processing them into soups which are then sold in a leading supermarket. They have created a secondary market for this food. Additionally the company is seeking to combat unemployment through providing jobs to personnel with no working experience, qualifications or proven skills, and gives them the opportunity to follow a one year training programme. The impact so far shows that the first steps to reduce food waste that is generated on the farms have been set and that the concept has the potential to develop further. Their sales turnover this year was €98,000 selling each soup at €4.97. This identifies a social enterprise

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<sup>77</sup> <https://www.facebook.com/ConfituresReBelles?fref=ts>

<sup>78</sup> <http://zerowastejam.com/en/>

<sup>79</sup> <http://www.rubiesintherubble.com/>

<sup>80</sup> <http://www.snact.co.uk/>

<sup>81</sup> <http://bonetbien.fr/>

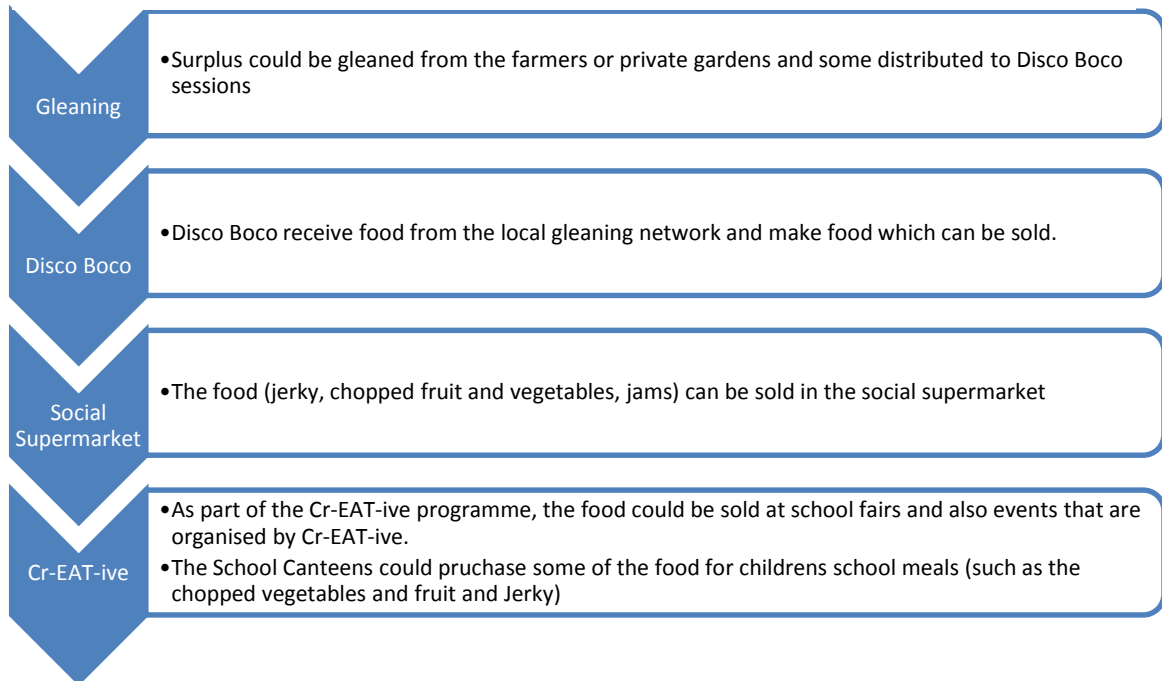
<sup>82</sup> For a full description of Bon et Bien please see Appendix IX



model that is not only successful in reducing food waste but also addressing some social goals (unemployment), along with making an income to cover their costs.

Bon et Bien has been successful in addressing each stage of the supply chain. What is evident within the structure of the project is that there is a feasibility study at each stage of the supply chain. Therefore some of the feasibility studies could possibly become more economically viable if for example they joined forces and shared the income. Table 6 identifies this further:

**Table 6- Feasibility study Links**



Whilst the income generated may not be enough to cover the outgoing costs for all the feasibility studies, it does create a market for these products.

Outside of selling products there is the opportunity to sell the services that are being offered through the feasibility studies. Disco Bôcô explored the option of charging organisations to organise a Disco Bôcô session. This could be advertised as a way for individuals to learn new culinary techniques (this was tried by the Disco Bôcô team<sup>83</sup> and was considered a success. It was inspired by a UK project called Made in Hackney: Local Food Kitchen<sup>84</sup>). Similarly this could also be advertised as a team-building session and marketed to organisations as part of an 'away day'. This was successfully tested twice<sup>85</sup>. However, overall Disco Bôcô felt that the ethics of the feasibility study were being challenged as Disco Bôcô originated as a free of charge event.

It is not only Disco Bôcô that could sell their services. Food Service Surplus Solution feasibility study identified that in pilot 2, for the restaurants it was cheaper to redistribute the food to charities than send the food to the waste management company. Therefore

<sup>83</sup> Charging 35 Euros per participant

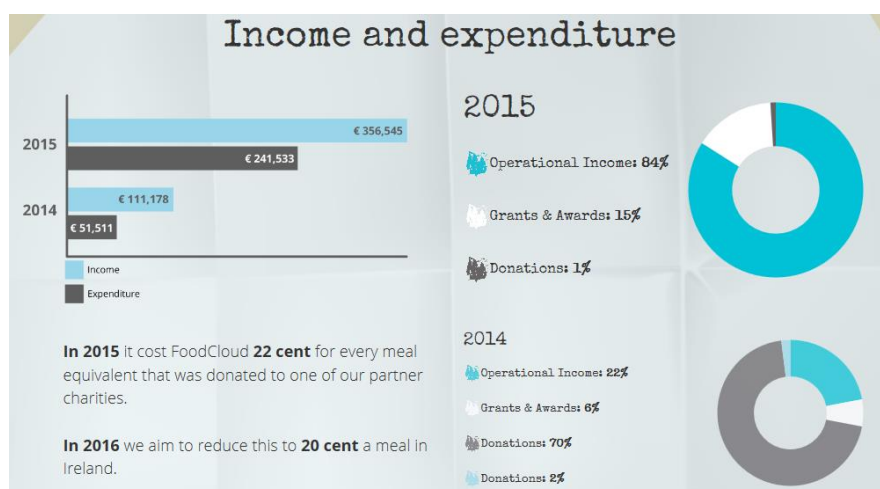
<sup>84</sup> <http://madeinhackney.org/>

<sup>85</sup> Charging 500 Euros each organisation.

on a larger and more integrated scale Food Service Surplus Solution could charge the restaurants a smaller fee than the waste management companies. Food Service Surplus Solution could create a body of certificated charities to receive the food, which would provide peace of mind to the restaurants that the food would be re-distributed safely and legally; this could provide an enticement to use Food Service Surplus Solution instead of working with their own charities.

Whilst Surplus Food was not fully implemented as identified in section 4.2.1 FoodCloud is a similar equivalent. Whilst FoodCloud was first formed through grants and the good will of IT developers, they are now a financially sustainable organisation. Table 7 identifies that they are economically viable and generate income from the organisations they work with. The organisations pay FoodCloud for the surplus food that they take.<sup>86</sup>

**Table 7 Income and expenditure of FoodCloud**



Whilst FoodCloud is a perfect example of a socially innovative project that is economically viable, they started their journey through grants. During the summer of 2013 they successfully pitched FoodCloud at SEI’s first Minnovation Fund. This became their first funding and validation for the concept. FoodCloud was then accepted into the accelerator programme, TCD launchbox. Part of this grant provided them with a salary in order for them to develop the idea further. The app was first designed by an American designer at a 0% commission and to improve it various grants and donations were injected into it, in order to get it to the point it is today<sup>87</sup>.

Similarly, whilst Order Cook Pay was a feasibility study that was not successful in implementing their project, ParentPay was identified to have a similar IT tool (even if they do not have similar food waste objectives). This has been done not from a social entrepreneurial perspective rather by a private company. As a result of this, no financial information is available; however this does identify that schools are willing to pay for this type of system.

<sup>86</sup> Another organisation that is similar in the UK is Plan Zheroes’s who is financed from grants, paid projects, private donations, public speaking, running workshops. <https://www.planzheroes.org/#/!/howwework>

<sup>87</sup> The development of the app was outsourced

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## 2. Donations:

In order for some of the feasibility studies to be sustainable in the long term, instead of becoming a social enterprise they could adopt more of a charitable status that seeks donations. Disco Bôcô has already tested a Pay As you Feel Box (PEAF) where participants choose to pay how much they feel is deserved by the session. They found that the amounts vary but can sometimes cover the overhead costs. HFA are already a charity and in some respects have absorbed some of the costs of the feasibility study, and are likely to continue. This feasibility study could be absorbed as part of the HFA activities. Aside from gathering donations as part of the feasibility study, there is funding available for these types of projects. For example the developers of Food Cloud created the first IT tool on a funding from SEI's Minnovation Fund; Zero Waste Jam received a government grant which originated to move people out of employment onto a chosen career path.

Within our own feasibility studies the route of grants and funding appears to be the most popular. As identified earlier, this is likely due to many of the organisations already working in this area, having funds for this type of work. Surplus Food was successful in securing some extra funding for their work; HFA are currently looking for a funding opportunity in order to fund the plastic boxes used to re-distribute the food in pilot 2. Cr-EAT-ive are currently applying to the Erasmus+<sup>88</sup> scheme in order to promote developing environmental education in both preschool and primary school education, which in turn will generate a market for their materials.

The partners of the feasibility studies could work closely with local governments and universities to tap into an (albeit small amount) of funding available. For example Cr-EAT-ive could work closely with a university and offer a work placement for a student studying early childhood education and care. This individual could take on some of the project management tasks. This however is a more unreliable source of funding, which can create risks for the long term sustainability of the project. With that said, there are an enormous number of sustainable charities, and designing something to be a charity does not mean it is not sustainable. Additionally some of these feasibility studies, although fast expanding across the globe, are to a degree 'new' and 'unique' and therefore could be desirable within the charitable market.

The second most important risk to the long term sustainability of these feasibility studies is the context of policy and legislation that the activities operate within. The Food Service Surplus Solution feasibility study's key barrier was the lack of clarity in the section of 'as quickly as possible' in the EU regulation on food hygiene. From a food safety regulation point of view, the redistribution of surplus food from restaurants (pilot 2 of Food Service Surplus Solution feasibility study) remains a challenge due to the process of cooling down prepared food and the re-heating of this food. Other countries they visited (Portugal and Bologna) did not experience this problem. Therefore the adoption of the food redistribution model Hot-Cold-Hot is dependent on how the food law is interpreted in each country<sup>89</sup>. This not only affects the implementation but also the long term sustainability of the project.

Surplus Food was unsuccessful in fully implementing their study partly due to the existing VAT regulations in Denmark. Companies that wish to donate food are liable to pay the VAT on the food's value, resulting in it becoming more expensive for the supermarket to

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<sup>88</sup> <https://www.erasmusplus.org.uk/>

<sup>89</sup> [http://ec.europa.eu/food/food/biosafety/hygienelqislation/comm\\_rules\\_en.htm](http://ec.europa.eu/food/food/biosafety/hygienelqislation/comm_rules_en.htm)

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give away food than dispose of it via waste management routes. Similar to Food Service Surplus Solution, this not only obstructs the implementation but also the long term sustainability. Surplus Food has been successful in securing one supermarket but if this feasibility study is fully implemented, the law does pose a risk. For example if the supermarket hits economic crisis and has to undergo cost cutting, as the feasibility study may be increasing their CSR rating but does incur costs, it runs a high risk of being something that is quickly removed.

FUSIONS report \*to be published\* D3.3 on policies which influence the deployment of social innovation has identified these two aspects of policy and legislation to be obstructive to not only the implementation of the projects but also the sustainability of the feasibility studies. The report recommends greater consistency and clarity around both EU and national laws which affect redistribution and food safety. Along with the drafting of some new laws that improve the implementation and long term sustainability of some of the projects.

Disco Bôcô clearly identified in their feasibility report that working in the French context resulted in the positive development of the Disco Bôcô concept. This was because of the various public institutions and companies which had put food waste at the top of their agenda. Food waste is clearly high on the agenda in France and this had an impact on the implementation of the project, but also the appetite for more projects. This demonstrates the influence of local and national political and cultural context on the ability to successfully implement social innovation activities.

Similar findings were also evident within other feasibility studies, that is, recommendations on what was needed in order for the project to be suitable in the long term often correlated with the local context and food waste being on the local authorities' agenda. In the case of Social Supermarkets in order to make them sustainable in the long term they required greater resources from the local authorities, such as time to link their activities with other social services operating in that area, or reduced rent on buildings, access to grants which can help them fund transport to collect the food or to buy storage facilities. In the Cr-EAT-ive feasibility study having the engagement of the municipalities provided them with venues, access to kindergartens and in some respects legitimated the study for Anatoliki. Therefore in order to provide long term sustainability of the projects the international, national and regional context have to have food waste prevention high on their agenda. This will not only filter from the EU wide legislation but also further down into the practicalities of having local authorities provide resources, improved communication and promotion of campaigns and networks for the studies to continue.

The third risk to the long term sustainability of the feasibility studies is the commercialisation of the projects. As identified previously, there are various social enterprises which operate in this area. These organisations not only work in the same area, seek to achieve the same goals but in some cases are conducting the same activities. There may become a point in time, where a secondary market is produced for this surplus and therefore social enterprises that can offer money to the donors may be more appealing than providing it to charities for free. For example in the case of gleaning, if an organisation can offer farmers a small sum for their waste, compared to an organisation that does not, it is likely the former will receive the food<sup>90</sup>. Additionally as the feasibility studies continue to grow and expand, thus to a degree become more

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<sup>90</sup> A short interview with a farmer in the UK that participated in Gleaning identified that he had been offered money for his surplus by the social enterprise, Rubies in the Rubble. At that time he turned down their offer but identified that it would be attractive to some farmers.

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commercial, they are likely to face other barriers. For example in the case of Gleaning, a farmer claimed that if the Gleaning network got larger and more commercialised they may have to adhere to the same standards as supermarkets. Theoretically when placing and storing apples in the large wooden crates a nail could get stuck in a bottom of an apple; therefore each one should get checked. He identified this would be a burden on the farmer and unlikely that he would engage in this task, whilst it would be a huge administrative task to be able to be absorbed into the small capacity of the charities. Whilst it is evident that on the whole some of these feasibility studies are sustainable in the short term, if some choose to become more commercialised their long term sustainability may be challenged as they face further barriers.

The fourth risk to the long term sustainability of the feasibility studies is that a large proportion relies on volunteers to implement the study (Gleaning, Disco Bôcô, Food Service Surplus Solution, Surplus Food, and Social Supermarkets). Relying on volunteers can be viewed as a risk to the long terms sustainability of the project as they are unpaid and sometimes an unreliable workforce. Gleaning is highly dependent on the enthusiasm and self-organisation of a single individual, which of course is susceptible to change in relation to the individual's circumstance. It was within the gleaning feasibility study that due to political and social events in Greece it made it hard to recruit volunteers. However this view point is not always a reflection of reality. There are numerous organisations that work successfully on a team based on volunteers. For example the Trussell Trust FoodBank<sup>91</sup> has over 400 foodbanks in the UK which are largely organised and run by volunteers. The gleaning network in the UK has over 9000 volunteers signed up to help glean. However there are often two types of volunteers, the coordinators and the regular volunteers. It is the coordinators that ideally would be in a paid position. Taking gleaning as an example, many gleaning operations currently rely on two types of un-paid individuals. There are the gleaning volunteers, i.e. the people who come along to the gleaning days and help harvest the food. Then there are the gleaning coordinators, who usually give their time voluntarily (perhaps 1-2 days per week in peak season) to organise the gleaning days. To be sustainable in the long term, an organisation would ideally employ the gleaning coordinators on a part-time basis. That said, Gleaning Network UK ran fairly successfully for the best part of 4 years from voluntary coordinators.

Finally the fifth risk to some of these feasibility studies is that most of them largely rely on the production of food waste. If an organisation, supermarket, restaurant or farmer starts to become more sustainable in their waste management then this may result in a decline of produce for the feasibility studies. The US and Canada are claimed by Sustain to be experiencing donor fatigue, where donors already feel they are giving enough, or are becoming more efficient, so generating less waste<sup>92</sup>. A farmer at a gleaning session in the UK claimed that he has recently purchased some new varieties of fruit trees that yield more uniformed fruit, which would result in less surplus food to glean in the future. However given the magnitude of surplus on farms, and the fact that this does not take into account seasonal effects<sup>93</sup>, it is likely that there will be enough surplus products for gleaning in the foreseeable future. Nonetheless this may become an issue for some more than others. However for some project managers this would be welcomed as it would mark a reduction in real change and less waste overall.

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<sup>91</sup> <https://www.trusselltrust.org/>

<sup>92</sup> Sustain (2000) 'Too much and too little' Report, Available Online: <http://www.sustainweb.org/publications/?id=127> (Accessed 16th July 2012)

<sup>93</sup> For example climate change causing hail during the August years in the UK. This resulted in the whole crop of apples becoming blemished, to which the supermarkets would not accept the apples.

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On a general level it must be noted that the majority of these feasibility studies all encompass food redistribution. The food is collected and redistributed to those who are often food insecure. There is however a risk to the sustainability of these organisations. Traditionally food aid programmes have been heavily criticised. Riches<sup>94</sup> argue that food aid similar to foodbanks is an inadequate response to complex issues of social exclusion and the state's failure to respect, protect and fulfil the right to food. Therefore they provide a safety net which in the long term results in increased poverty and income inequality. There is a real risk in institutionalising programmes which seek to feed people, as these individuals become dependent on the source of food and also that this allows the state to neglect its obligation to provide people with the human right to food<sup>95</sup>.

When food aid programmes are combined with the paradox of the amount of food waste, although this appears to be a justified link, Tarasuk argues that it is undesirable to entrench a two tiered food system to which the 'good' food is available to those with money, and the remaining for the poor, particularly as it furthers social inequality<sup>96</sup>. As identified above, there may be the desire to become less wasteful, thus by building a model on a unreliable source may generate further issues in the long term, particularly if a number of food insecure and socially deprived people are reliant on these programmes. Using food waste as a method of feeding people not only could potentially create a two tiered but also to an extent eliminates choice from the individual. For example in Food Service Surplus Solution, it was noted by some individuals who had the food that they preferred the Hungarian cuisine, but most of what was received was Chinese. Whilst there is the approach that most individuals should accept the food provided, these individuals are often facing extreme poverty day to day and therefore are often excluded from consumer behaviour. These individuals, like any human still have food preferences and certain choices. Using surplus food however reduces this element of choice.

Additionally there is a stigma associated with food aid programmes. Users of food aid are often correlated with abusing welfare systems; Travers<sup>97</sup> claims they are often discredited as uneducated, in mismanaging their budget and having sufficient resources but lack the knowledge and skills to widely use them. This could also be furthered with the perception that they are being fed waste. For example whilst individuals involved in the sector are aware that surplus food is edible and produced for a number of reasons, it

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<sup>94</sup> Page 650 in Riches G. (2002) 'Food Banks and Food Security: Welfare Reform, Human Rights and Social Policy. Lessons from Canada?' *Social Policy & Administration*, Vol.36, No.6, pp. 648-663

<sup>95</sup> The human right to food law is evident in Article 21 (1) of the Universal declaration of Human Rights and in Article 11 of the international Covenant of Economic, social and cultural rights. This outlines the right a person has to an adequate standard of living, including adequate food and the fundamental right of everyone to be free from hunger – in Mahon C. (2012) 'The right to food: a right for everyone' in Rosin C., Stock P. and Campbell H. (Eds.) *Food Systems Failure: The Global Food Crisis and The Future of Agriculture*, London and New York, Earthscan, pp. 83-97

<sup>96</sup> Dacher, N., Gaetz, S., Poland, B. and Tarasuk, V. (2009) 'An Ethnographic Study of Meal Programs for Homeless and Under-Housed Individuals in Toronto' *Journal of Health Care for the Poor and Underserved*, Vol. 20, No.3, pp. 846-853 ; Tarasuk, V. and Eakin J. (2003) 'Charitable food assistance as symbolic gesture: an ethnographic study of food banks in Ontario', *Social Science and medicine*, Vol.56, No.7, pp. 1505-1515 ; Vozoris N.T. and Tarasuk V.S. (2003) 'Household Food Insufficiency Is Associated with Poorer Health' *J. Nutr*, Vol.133, No.1, pp.120-126 ; Kirkpatrick, S. and Tarasuk V. (2003) 'The relationship between low income and household expenditure patterns in Canada', *Public Health Nutrition*, Vol.6, No.6, pp. 589-597; Loopstra, R. and Tarasuk, V. (2013) 'The Relationship between Foodbanks and Household Food Insecurity among Low-Income Toronto Families' *Canadian Public Policy*, Vol.38, No.4, pp497-514

<sup>97</sup> Page 225 in Travers D. K. (1995) "'Do You Teach Them How to Budget?'" Professional Discourse in the Construction of Nutritional Inequities' in Maurer, D. and Sobal J. (Eds.) *Eating Agenda: Food and Nutrition as Social Problems* New York: Aldine de Gruyter pp. 213-240

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is nonetheless associated as 'waste', and could enhance the stigma attached to food aid programmes. This affects all the long term sustainability of the projects as they have been effectively drawn up to create social good and not further inequality.

This is not necessarily the case for all redistribution feasibility studies. Social Supermarkets are thought to reduce some of the stigma attached to relying on food donations and also provide an element of choice for an individual. This is due to social supermarkets allowing individuals to perform and engage in normal consumer behaviour in that the supermarket items are purchased rather than given as a charitable act. The act of purchasing allows for dignity to be retained and for individuals to participate in consumer behaviour that they may have otherwise been excluded from due to being on a low income. FoodCycle, which was founded in 2009 aims to reduced food poverty and social isolation through gathering surplus food from retailers and cooking meals which are then table served to a wide range of individuals, a large proportion which are food insecure, they educate their users and promote the idea of food waste as a benefit to the environment<sup>98</sup>. Additionally, Equoevento<sup>99</sup> collect surplus from event caterers (some of which are high-end) and redistribute the food to those 'in need'. In some cases therefore some individuals are provided with food which is high quality. Whilst this does not directly link to the ability to remove the possible stigma attached to receive food surplus, it does highlight that surplus food can be high quality food, which in some cases people pay a large financial price for. Whilst some of these aspects are barriers and could affect the long term sustainability, there are ways in which these can be addressed, which starts by putting the consumer (those that receive the food) at the heart of the development.

Overall some of the risks to long term sustainability of the project area imminent and need to be addressed, whilst others are likely to develop over a period of time.

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<sup>98</sup> The author of this paper did an ethnographic study with FoodCycle which found that some of the participants said they were helping the environment through eating the surplus.

<sup>99</sup> <http://www.equoevento.org/dicono-di-noi?lang=en> AND [http://www.eu-fusions.org/phocadownload/rpm2016/2%20FSE%20Network\\_Equoevento\\_PitchingSession.pdf](http://www.eu-fusions.org/phocadownload/rpm2016/2%20FSE%20Network_Equoevento_PitchingSession.pdf)

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# 5 Replication

Currently Food Service Surplus Solution, Cr-EAT-ive, Disco Bôcô and Gleaning are all working towards replicating their feasibility studies either on a regional, national or international level. Please see the individual evaluations in Appendix I-VII, for an overview of the approach to replication taken by each project. Progress can be tracked by visiting the social innovation pages of the FUSIONS website <http://www.eu-fusions.org/index.php/social-innovations/fusions-feasibility-studies>.

Some of these feasibility studies have been successful at not only redistributing surplus food but meeting social needs and goals too. Whilst some of the feasibility studies have not been successful, there are clear lessons learnt and it is evident that there are other similar and successful models. There is a case for replicating these studies. Today the world faces global challenges, environmentally and socially. We live on one planet with finite nature resources, yet we would require the resources of nearly three earth sized planets for future populations to consume at the rate we do currently in Europe. The increasing global population means we cannot consume at current levels without a change in the way we use resources<sup>100</sup>. This is ever more present in our food system, which is complex. Pollan<sup>101</sup> argues that after cars, the food system uses more fossil fuels than any other sector. To produce food involves a heavy industrial process that uses many of our natural resources; therefore, it seems absurd that according to the UN FAO a third of the food produced around the world throughout the supply chain is then wasted<sup>102</sup>.

On the other hand we live in a world where many go hungry both in developed and under-developed countries. There is a real paradox between food poverty and food waste. These feasibility studies go part way in trying to alleviate some of these issues, primarily to alleviate the amount of food that is wasted. However, whilst doing this they also achieve other social goals. Currently within the EU a substantial amount of food is wasted at all levels of the supply chain, whilst hunger and food insecurity has become a central topic for many of the EU countries. There has been an increase in emergency food aid programmes operating, particularly in the form of foodbanks. High unemployment and stagnant wages are often correlated with this rise of food aid. 21.944 million men and women in the EU were unemployed in December 2015<sup>103</sup>, thus are at risk of poverty. Currently Europe is experiencing a huge shift in population due to the Syrian crisis. A growing number of migrants are seeking asylum in EU countries, and often the migrants require food aid. Additional to this, most of the world's population live in countries where overeating and obesity kill more people than being underweight<sup>104</sup>. There is a whole body of literature which explores the link with food insecurity and obesity<sup>105</sup>. Whilst the era of convenience food has resulted in a loss of connection with

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<sup>100</sup> <http://www.wrap.org.uk/sites/files/wrap/WRAP-Plan-Resource-Revolution-Creating-the-Future.pdf>

<sup>101</sup> Pollan, M (2008) *Farmers in Chief: Dear Mr. President-Elect*, [Online], Available. [http://www.nytimes.com/2008/10/12/magazine/12policy-t.html?\\_r=1&em&oref=slogin](http://www.nytimes.com/2008/10/12/magazine/12policy-t.html?_r=1&em&oref=slogin)

<sup>102</sup> <http://unep.org/wed/2013/quickfacts/> and <http://www.fao.org/docrep/014/mb060e/mb060e00.pdf>

<sup>103</sup> [http://ec.europa.eu/eurostat/statistics-explained/index.php/Unemployment\\_statistics](http://ec.europa.eu/eurostat/statistics-explained/index.php/Unemployment_statistics)

<sup>104</sup> <http://www.who.int/mediacentre/factsheets/fs311/en/>

<sup>105</sup> Germov, J. (2008) 'Food, Class and Identity' in Germov, J. and Williams, L. (Eds.) *A sociology of Food and Nutrition: The Social Appetite*, Victoria, Australia: Oxford University Press, pp. 264-280. ; Delpeuch, F. Maire



food and a large proportion of people having inadequate kitchen skills<sup>106</sup>; some skills which can help alleviate food insecurity but also reduce the level of food waste in the home. In addition to unemployment, individuals in society face homelessness, addictions and social isolation<sup>107</sup>. Factors associated with social isolation are complex and numerous; however, it is exacerbated when the individual has a low income due to often having limited access to help<sup>108</sup>. Food insecurity and poverty tie in with other social challenges such as mental health; for example Anderson 2007<sup>109</sup> claims the poorest 20% of the population are at risk of developing a mental health problem which is twice the rate for individuals on average incomes. Vozoris and Tarasuk found that food insufficient households are more likely to report having physical health problems, such as heart disease<sup>110</sup>.

Therefore, with both the environmental and social problems that challenge the EU today it is evident that there is a case to replicate these feasibility studies. However this should not be considered as the only approach to tackling food waste, food poverty and other social issues. In some cases these issues should be dealt with directly by government or organisations with upstream approaches that seek to reduce food waste, food poverty and other social issues separately. Whilst there is no single action by government, businesses or individuals that will suffice, funding and organising social innovation projects similar to the feasibility studies is a step forward. However serious consideration should be given to the audience of the feasibility studies, as identified in section 4.2.4. Some of these feasibility studies have been successful and therefore are replicable, and the majority of these projects redistribute food to people experiencing food insecurity, and thus we should maybe not be asking the question is it possible to feed people with redistributed food but rather is it desirable<sup>111</sup>.

Replication of these projects and others like them should not only be encouraged on a regional, national and international level, but steps taken in order to enable these projects to be most effective. There is a great potential for these feasibility studies to be replicated. Below we identify some key characteristics that should be taken into account when considering replication.

1. **Time.** A key finding that was apparent within all the feasibility studies was that the process took much longer than first anticipated. This was particularly the case in relation to gaining buy in from various stakeholders, such as municipalities, farmers, schools etc. Nearly all the feasibility studies reported that the

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B. Monnier, E. and Holdsworth, M. (2009) *Globesity: a planet out of control?* London: Earthscan.  
;Drewnowski, A. and Specter, S.E. (2004) 'Poverty and obesity: the role of energy density and energy costs'. *Am J Clin Nutr.* Vol.79, No.1, pp. 6-16.

<sup>106</sup> Page 143 in Tansey, G. & Worsley, T. (1995) *The Food System: A Guide.* London: Earthscan.

<sup>107</sup> Social isolation describes the state of being deprived of social relationships that provide positive feedback and are meaningful to the individual.  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/461120/3a\\_Social\\_isolation-Full-revised.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/461120/3a_Social_isolation-Full-revised.pdf)

<sup>108</sup> Pp 13 of  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/461120/3a\\_Social\\_isolation-Full-revised.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/461120/3a_Social_isolation-Full-revised.pdf)

<sup>109</sup> Anderson, S A. (2007) 'Nutrition interventions in women in low-income groups in the UK', *Proceedings of the Nutrition Society*, Vol.66, No.1, pp.25-32

<sup>110</sup> Vozoris N.T. and Tarasuk V.S. (2003) 'Household Food Insufficiency Is Associated with Poorer Health' *J. Nutr.*, Vol.133, No.1, pp.120-126

<sup>111</sup> Dr Brown cited-in Sustain, 2001 page 23 in Sustain (2000) '*Too much and too little*' Report, Available Online: <http://www.sustainweb.org/publications/?id=127> (Accessed 16th July 2012)

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development and maintenance of these relationships took a considerable amount of time.

2. **Geographical location:** the feasibility studies which have been the most successful have also been situated in a context which is favorable. That is, the reduction of food waste is high on the agenda within the local context. This has been particularly important in terms of working with large organizations, as it has been their CSR focus, and similarly in the case of governments. Many of the feasibility studies that have been successful have begun activities in a small localized area and not had a massively wide scope.
3. **Policy:** Similar to point 2 the feasibility studies that have been the most successful have also had laws and policies that have allowed for the study to be implemented. For example Spain and France offer tax breaks to food donations. Likewise the key barriers for these feasibility studies have been related to policy which has restricted implementation. For Food Service Surplus Solution this was in the form of the unclear legal regulations, whilst for Surplus Food it was that supermarkets were charged VAT on the donations. See FUSIONS report D3.3 on policy drivers for social innovation.
4. **Stakeholders:** The most important aspect of many of these feasibility studies has been ensuring buy in from important stakeholders, then maintaining these relationships. This can be in the form of large organizations, to local government, to volunteers. Importantly the project needs to be a win-win for every stakeholder involved. In some cases some of the more commercial organizations can inject money into the project, which was the case for Bon et Bien.
5. **Project objectives:** The feasibility studies which worked well were ones which had clear, narrow, measurable and precise project objectives. The less successful projects were those that tried to do too much with the money and time they had. The project objectives feed into finance, as if the project objectives are too aspirational, as found with two of the feasibility studies, the finance is less likely to cover the full project costs. It is important to know your audience and this should feed into the objectives of the study. This mitigates any risk that the project is unlikely to work with the audience they aspire to work with. Additionally it is extremely important that ethics are considered throughout the project but more importantly whilst scoping the project objectives, to ensure there is no harm in the short and long term. In the case of re-distribution and food waste the element of choice for the recipient is key; that is for the individual not to feel they are being provided with second class food and that we recognise the fact that all people have food preferences.
6. **Finance:** Any future project should be sustainable, therefore generate some type of income whether this is from grants, from making a social enterprise project or relying on donations/volunteers. There should be some type of financial plan that ideally would tap into a varied amount of sources.
7. **Outputs:** It has become evident throughout this project that some outputs have worked well for certain audiences. Events have been widely credited to engage people in the issue of food waste prevention, whether that is part of the feasibility study (gleaning day) or as an add-on to delivery (Feeding the 5000). Having both an online and offline presence is valuable, particularly as social media is an increasingly important aspect of everyday life.
8. **Being innovative:** Some of these feasibility studies have tried something new, whether that is the same concept in a different country or an entirely new idea.

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What most of these feasibility studies have which many projects do not is the social achievements. Primarily this has been reducing food waste but there have been other social goals too such as alleviating food insecurity, reducing social isolation, educating children etc. Zero Waste Jam identified that their target audience appreciate the personal story behind their product (that is it is made out of surplus). This is a key factor in their marketing strategy, and indeed is evident elsewhere. For example the Brussels Beer project makes real ale beer from surplus bread<sup>112</sup>. Because this is a unique idea, along with working in a new market, this has generated wider interest; Tristram Stuart (founder of Feedback) recently appeared on a popular cooking show in the UK (Jamie and Jimmy's Friday Night Feast) with the Brussels Beer Project to showcase the idea. This has also resulted in Tristram creating his own brand of bread beer – Toast Ale- which he is now be found in six locations in London and bought online<sup>113</sup>. The story behind the beer, which is it is made from surplus bread has generated interest. This is a wider marketing strategy, for example evident in Fairtrade products, but the concept of telling the story should be considered during replication.

9. ***Project Managers:*** The project manager is recommended to be someone who has technical knowledge and experience<sup>114</sup> in the area in which the project is operating, and ideally they will have prior connections with individuals in the project area. Their characteristics should encompass qualities related to being reactive, reflexive and also a people person. It is essential that have good people skills and can build, manage and maintain relationships with important stakeholders. The project should not have too many project managers and ideally a team of individuals with specific jobs.
10. ***Measurement:*** What has become apparent from many of the feasibility studies is that to ensure engagement from stakeholders, there often has to be a benefit for each party involved. Therefore monitoring the project's key performance indicators and also going one step further in collecting empirical research (similar to how Food Service Surplus Solution, Cr-EAT-ive and Disco Bôcô) is key. This identifies the impact of the project and not only demonstrates its worth to various stakeholders but can encourage further engagement from other organizations.

The feasibility studies have provided a suite of materials ready for replication. In-depth feasibility study reports, project guidelines and in some cases tangible outputs such as food waste prevention games have been produced. Additional to this, there is the social inventory<sup>115</sup> on the Fusions website which identified other social innovation projects across Europe.

Whilst this report advocates for the successful feasibility studies to be replicated, a note should also be made to the type of projects within this study. As identified apart from Cr-EAT-ive, all the feasibility studies focus primarily on food re-distribution rather than food prevention. Whilst food re-distribution is an important part of tackling food waste, it is also heavily interlinked with food poverty which as discussed throughout the paper also poses wider social threats in the long term. The ultimate goal should be addressing food waste prevention. Therefore going forward social innovation projects should also be

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<sup>112</sup> <http://www.beerproject.be/en>

<sup>113</sup> <http://feedbackglobal.org/2016/01/a-toast-to-fighting-food-waste/>

<sup>114</sup> Zero waste Jam identified that some people were hesitant about eating surplus food because of the perception that surplus food/waste had a high risk of food poisoning. However Cornelia (the project manager) is a trained chef and she found that people were more acceptable to the idea once they found this out. This was because of the perception that she knew what she was doing and was trained to an adequate standard. This identifies the importance in some cases of having qualified and experienced project managers.

<sup>115</sup> <http://www.eu-fusions.org/index.php/social-innovations/social-innovation-inventory>

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formed which primarily focus on food prevention: rather than solely on food re-distribution.

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# 6 Conclusions

Five of the seven feasibility studies have been very successful in delivering their project aims. Some of these feasibility studies have achieved significant impacts in terms of food waste prevented, along with contributing to social goals. They have produced a suite of materials that will make it easy to replicate these pilots on a regional, national and international level. Even where the feasibility studies were not successful, key lessons have been identified, and other projects have been reviewed that sought to achieve the same goal through similar means.

The WP4 feasibility studies have identified the key barriers as being:

- A regional and national context which does not promote the reduction of food waste and in particular policies and legislation that hinder the redistribution of food;
- Too short timescales; and
- Insufficient project finance.

And they have learnt the following lessons:

DO...

- Engage stakeholders, but at the right time and keep them engaged throughout;
- Organise awareness events
- Have experienced and enthusiastic project managers;
- Have a narrow but ambitious scope for the project;
- Make use of an evidence-based approach to implementation;
- Work with commercial organisations;
- Complete one or more study visits to similar projects to learn from them.

DON'T...

- Be too ambitious with what can realistically be conducted with the money and time;
- Include too many project partners;

The long terms risks to the projects are primarily around financing without FUSIONS, to which the lessons learnt from social enterprises can be drawn upon. However for some feasibility studies, such as Disco Bôcô, they felt that becoming a social enterprise lent them to becoming too commercial, which does not always reflect the values of what they are trying to achieve.

The distinction between these feasibility studies and many other projects or other means of reducing food waste is that they have a social element; they serve other social means. This is an important aspect of the studies and places the recipient of the food, their needs and preferences firmly at the heart of the process.

Overall the evaluation has shown that replicating similar social innovation projects across Europe, and indeed the world, would likely have both environmental and social value and should therefore be encouraged. We have shown that the feasibility studies have reduced a substantial amount of food waste whilst delivering on other goals. However there is a risk that these projects become a safety net which means that governmental bodies do not take responsibility for addressing the fundamental issues that cause both food waste and food poverty.

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One drawback of the feasibility studies is that they focused more on food redistribution than on preventing food waste occurring in the first place. Food waste prevention is important both environmentally and economically so should be incorporated into any roll out activities.

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# 7 Recommendations

There is a section on recommendations within each of the individual evaluation studies. This section sets out the actions which are needed to facilitate the overall implementation of socially innovative food waste reduction and prevention projects across Europe

1. Tackling food waste should be placed high on governmental agendas in order to create a favorable context for practical on-the-ground projects such as those tested through these feasibility studies. The European Commission has adopted the 'Circular Economy Package' which includes revised legislative proposals on waste to stimulate Europe's transition towards a circular economy. An action plan<sup>116</sup> is in place and these proposed actions will contribute to closing the loop of product lifecycles. Placing food waste high on governmental agendas is a good start and useful sign from the commission that food waste is an issue for Europe.<sup>117</sup> Much European and national policy on food waste will now follow the lead of the UN Sustainable Development Goal 12.3 (By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses).
2. There should also be pressure from government to commercial organizations to reduce their level of food waste and that which cannot be prevented sent to social innovation projects that deal with surplus. There are a range of policy instruments available to achieve this goal, from command-and-control type measures, the design and application of economic instruments, all the way through to voluntary agreements.
3. EU and national laws relating to food redistribution should be made clear and concise. This covers health and safety, environmental health, trading standards and also taxation. See FUSIONS report D3.3 on policy drivers for social innovation.
4. Policies and laws which unnecessarily hinder the re-distribution and prevention of food waste should be reconsidered to determine whether a more favorable context might be created. It would be helpful if policies and laws could be interpreted and applied consistently across EU countries.
5. It is critical to collect evidence about an initiative's impact, even if it is not a feasibility study. This is especially the case if these projects will be requiring engagement and financing from government or grants, as they will need to demonstrate their worth and value for money. It is also beneficial for making cases about the effectiveness of this method on a wider scale.
6. One of the key recommendations from this work is that project managers of new initiatives should visit other similar projects to see first-hand the work, pick up tips and learn lessons. This may be difficult to achieve as people do not know where find these organizations. Therefore a network should be built which links all the social innovation projects addressing food surplus currently operating across

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<sup>116</sup> <http://eur-lex.europa.eu/legal-content/EN/NOT/?uri=CELEX:52015DC0614>

<sup>117</sup> [http://ec.europa.eu/environment/circular-economy/index\\_en.htm](http://ec.europa.eu/environment/circular-economy/index_en.htm)

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EUROPE. Currently the Food Surplus Entrepreneurs (FSE) Network is undertaking this role. The FSE network is a European virtual community that connects food surplus projects, allowing them to work together to achieve the goal of reducing food waste<sup>118</sup>. However this should be further funded and expanded in order to create an online system which is easy and effective to use. Secondly the study visits are costly, therefore regional meetings where individuals can meet, or the putting on of webinars, would be valuable in order to allow some contact between project managers.

7. Whilst many of these social innovation organizations grow, various barriers are faced, lessons learnt and areas of development found. Opportunities could be sought for project managers, academics and commercial organizations to come together and discuss these barriers, and going forward in, a physical or virtual forum. Therefore an annual conference or symposium about European food reduction and redistribution could be held.
8. The most significant barrier to all these feasibility studies is finance. When talking to new project managers one of the questions has been how can this work be funded. Therefore, an organization or online forum which identifies the various grants that social innovation projects can bid and apply for may be beneficial. On the other hand some of the social innovation projects may move to become a social enterprise in order to be financially sustainable; therefore a similar forum could identify the key organizations willing to provide commercial finance, and guidelines on how to secure this.
9. Further work could be done in order to create better, sustainable and reliable relationships between policy makers/ local authorities, food donors and food redistributors.
10. Although redistribution is an important aspect of food waste reduction, social innovation projects should also be address food waste prevention.

Any party interested in organising similar initiatives to the feasibility studies identified through FUSIONS are strongly encouraged to take into account the key replication characteristics identified in the individual evaluations, along with reading the Guidelines published through the FUSIONS project.

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<sup>118</sup> <http://fsenetwork.org/>