Disclaimer

Any dissemination of results reflects only the author’s view and the European Commission is not responsible for any use that may be made of the information it contains.

Copyright message

© Partners of the SavingFood Consortium, 2015
This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both. Reproduction is authorised provided the source is acknowledged.
### Document Information

**Grant Agreement Number:** 688221  **Acronym:** SavingFood

<table>
<thead>
<tr>
<th><strong>Full Title</strong></th>
<th>An innovative solution to tackle food waste through the collaborative power of ICT networks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Horizon 2020 Call</strong></td>
<td>ICT-10-2015, Collective Awareness Platforms for Sustainability and Social Innovation</td>
</tr>
<tr>
<td><strong>Type of Action</strong></td>
<td>Research and Innovation Action</td>
</tr>
<tr>
<td><strong>Start Date</strong></td>
<td>1st January 2016  <strong>Duration:</strong> 28 months</td>
</tr>
<tr>
<td><strong>Project URL</strong></td>
<td><a href="http://www.savingfood.eu">www.savingfood.eu</a></td>
</tr>
<tr>
<td><strong>Project Coordinator</strong></td>
<td>ViLabs</td>
</tr>
<tr>
<td><strong>Deliverable</strong></td>
<td>D5.4: Behaviour change analysis</td>
</tr>
<tr>
<td><strong>Work Package</strong></td>
<td>WP5: Evaluation and behaviour change analysis</td>
</tr>
<tr>
<td><strong>Date of Delivery</strong></td>
<td>Contractual  <strong>M28</strong>  <strong>Actual</strong>  <strong>M28</strong></td>
</tr>
<tr>
<td><strong>Nature</strong></td>
<td>R - Report</td>
</tr>
<tr>
<td><strong>Dissemination Level</strong></td>
<td>P - Public</td>
</tr>
<tr>
<td><strong>Lead Partner</strong></td>
<td>IMEC</td>
</tr>
<tr>
<td><strong>Lead Author:</strong></td>
<td>Carina Veeckman &amp; Wim Vanobberghen</td>
</tr>
<tr>
<td><strong>Contributor(s)</strong></td>
<td>All partners</td>
</tr>
<tr>
<td><strong>Reviewer(s):</strong></td>
<td>Boroume, ViLabs</td>
</tr>
</tbody>
</table>
Table of Contents

Introduction.................................................................................................................................................. 5

White paper III: Supporting behavioural change around food waste through the SavingFood platform: involving citizens in gleaning and farmer market events ...................................................................................... 7

Summary .......................................................................................................................................................... 7

1. Introduction .................................................................................................................................................. 7

2. The SavingFood platform: Supporting communities in fighting food waste .............................................. 8
   2.1. The development of the platform through the Living Lab approach and co-creation with users .......... 8
   2.2. Enabling behaviour change through the SavingFood platform .............................................................. 11

3. Behaviour change results ............................................................................................................................ 12
   3.1. Statistics from the SavingFood platform ................................................................................................. 13
   3.2. Survey with volunteers ........................................................................................................................... 13
   3.3. In-depth interviews with coordinators: digital social innovation for fighting food waste ................. 17

4. Conclusions ..................................................................................................................................................... 19

Table of Figures

Figure 20: Living Lab approach of the SavingFood project for the development of the platform. ................. 9
Figure 21: Screenshot of list and map view of published farmer market events in Greece from Boroume. . . . 11
Figure 22: Google Analytics: Period 1/3/2018 – 11/03/2018 – peak in amount of users for HFA’s farmers’ market events .............................................................................................................................................. 13
Figure 23: Perceived change in knowledge and concern after the participation in a food saving event ...... 15

Table 4: Satisfaction scores about the usability and user experience with the SavingFood platform (scale from 1 to 10, 1 being extremely dissatisfied and 10 being extremely satisfied) ........................................................................................................... 15
Table 5: Statements about the user experience with the SavingFood online platform (1= strongly disagree, 2=disagree, 3= neutral, 4= agree, 5= strongly agree) ........................................................................................................... 16
Introduction

This deliverable reports the outcomes of the behaviour change analysis that was performed during the pilot implementation trials of the SavingFood project. The pilot trials were set up in 2017 and continued until April 2018, with communities of the SavingFood food redistribution organizations in Greece (Boroume), Hungary (HFA), Belgium (FoodWin) and the United Kingdom (Feedback). During these pilot trials, the SavingFood platform was used for organizing two types of food saving events, being (1) gleaning events to collect leftover crops from farmers’ fields and redistribute it to recipient organisations, and (2) farmers’ market events to redistribute unsold food at the end of the market to recipient organisations. Through the SavingFood platform, coordinators of the food redistribution organizations were able to plan and schedule these events, while citizens (or volunteers) could subscribe and find all the necessary details about it. Through the provided ICT solution, the food redistribution organisations learnt new ways of how to organise their food saving events in a more connected way with volunteers, food donors and recipient organisations.

During the pilot implementation trials, the behaviour change analysis had the purpose to investigate changes in behaviour on the following levels: (i) the degree of participation and volunteer effort in food waste reduction such as during food saving events, (ii) the degree of knowledge about how to save food in a collective way and information gained about the food redistribution process, (iii) the degree of awareness about food waste in general. To reach these objectives, an extensive engagement strategy was set up that included different behaviour change techniques, being motivational videos, a quantification report with statistics about the amount of saved food, ambassador or leadership tactics, awareness raising events, social media pictures, crowdsourcing tips for new donors and charities, and a pledge campaign. The engagement-related behaviour change approach relied on principles of community based social marketing (Lee & Kotler, 2015) and the 7E-framework (Bambust, 2015). For more information about the outlined strategy, the following documents can be consulted:

- SavingFood Deliverable 2.5: Strategizing SavingFood – Engagement and behaviours V1
- SavingFood Deliverable 2.6: Strategizing SavingFood – Engagement and behaviours V2

A short description of each white paper is provided below:

- **White Paper I – Supporting behavioural change around food waste through awareness raising events**: In this white paper, explanation is provided of how an awareness raising event about food waste can be organised, and how it can lead to behaviour change among citizens. The white paper specifically investigates the change in beliefs and knowledge about food waste with citizens through the participation in the awareness-raising events. Results and lessons learned are reported through a self-assessment survey filled in by volunteers and participants from the events in Greece, Hungary, Belgium and the United Kingdom.
• **White paper II: Supporting behavioural change around food waste through crowdsourcing, ambassadorship and pledges:** In this white paper, explanation is provided of how a crowdsourcing campaign can be organised for collecting tips from citizens about potential (new) food donors and charities as recipients, how ambassador and leadership tactics can be set up, and how a pledge campaign can be organised. Lessons learned are reported through collected logging statistics and interviews with the four food redistribution organisations.

• **White paper III: Supporting behavioural change around food waste through the SavingFood platform: gleaning and farmer market events:** This white paper focuses on the actual usage of the SavingFood platform for organising food saving events. The development process of the platform is explained, in relation to the development of the behaviour change strategy. Results and lessons learned are reported through a user survey with registered users from the platform, as well as through in-depth interviews with coordinators of the SavingFood pilots.
Summary

This white paper focuses on the usage of the SavingFood platform for organising food saving events, and how it supports in establishing behaviour change around food waste. Currently, the SavingFood platform supports two types of events, being farmers’ market and gleaning events. Through the event modules, food redistribution organizations can recruit and engage citizens (as volunteers) in the collection of surplus food, and communicate all practicalities of the event, such as date, start and end time, amount of volunteers needed, materials, etc. During the period March-April 2018, 28 food saving events were organised through the SavingFood platform by HFA and Boroume, with 112 registered volunteers. The behaviour analysis investigated whether participating in these events caused a change in awareness, knowledge, and concern around food waste. The collected results from volunteers indicate an increase in self-perceived knowledge and concern after the participation in a food saving event, even when their concern or knowledge was already high. Further, in-depth interviews were organised with coordinators from the pilots in Hungary and Greece to explore the change in efficiency and effectiveness in organising a food saving event online. For HFA and Boroume, the SavingFood platform leads to a time efficiency in the communication between a volunteer and a coordinator, and in finding the minimum amount of required volunteers for an event in a quicker way. Through this success, Boroume is able to expand the farmer markets program, while HFA will further decentralize their redistribution activities from central storage to more direct, and quicker redistribution.

1. Introduction

The SavingFood project ran from January 2016 till April 2018, and had as main objective to develop an online platform for enabling a more efficient redistribution of surplus food between food donors, recipient organisations, food redistribution organisations and volunteers. Further, through the creation of an online community and the development of engagement strategies (See White paper I and II), SavingFood empowered citizens and food waste stakeholders to take direct action and to become part of a new social movement for tackling food waste and influencing sustainable lifestyles.

The central functioning of the SavingFood platform exists of three modules, or food saving scenarios: (1) gleaning events: this is the collection of leftover crops from farmers’ fields by volunteers after they have been commercially harvested, or from fields where it is not economically profitable anymore to harvest, (2) farmers’ market events: this is the collection of surplus food by volunteers at the end of the market, and (3) general food rescue with direct redistribution of surplus food between a food donor and recipient organisation. The events modules help to recruit citizens (as volunteers) to help collecting surplus food through gleaning on farmers’ fields, or through the collection of surplus food at farmer markets. Through the SavingFood platform, the coordinator can communicate all details of the event towards interested volunteers, and offers an overview of events by place, date and amount of signed up volunteers.

For the third food saving scenario, the platform functions as the following: organisations that have food surplus can enter this into the system, and other organisations that have a need for this type of food can acquire the donation through matchmaking by the coordinator.
The coordinator will match the food offers with the demands, and this based on several criteria such as current needs of the recipient organisation, geographical proximity and history.

In comparison to other food redistribution platforms, SavingFood offers the added value of having a central coordinator in the system. The coordinator is the intermediary actor between a food donor and recipient organisation, or between a farmers’ (market) and volunteers. The presence of an online coordinator in the system ensures that a fair food redistribution process can be set up among recipient organisations, and that a food offer reaches the final beneficiary in time. Further, the coordinator on the platform can also support users with knowledge about legislation concerning food donations, safety and other issues, and can take over efforts that otherwise should be made by the employees of the donor or the recipient organisation. Besides these three central modules, the SavingFood platform also offers a variety of support tools to create awareness and share knowledge around food waste: a food waste calculator for food businesses and organisations, awareness-raising videos, a pledge campaign and training material. For each food redistribution organisation in the project, a local instance was created (See info box 1).

In the following paragraphs, the Living Lab approach for developing the SavingFood platform is described, which explains how the platform was developed with the involvement of prospective end-users in the early design and co-creation of the solution, till beta-testing through fictive scenarios and real-life testing. When the platform was ready to go live, the behavioural change analysis investigated among registered volunteers whether a change occurred in perceived knowledge, concern and general beliefs after attending a food saving event.

2. The SavingFood platform: Supporting communities in fighting food waste

2.1. The development of the platform through the Living Lab approach and co-creation with users

The SavingFood platform was developed according to the principles of the Living Lab methodology. The ‘Living Lab’ concept has its roots in theories such as the ‘Mutual Shaping’ perspective or in ‘Social construction of Technology’\(^1\) from Science and Technology studies. The general beliefs from these theories are that society and technology are not mutually exclusive, and that for understanding the complexity, and unpredictability of interaction with technology one must study new technology related to users’ discourses and practices. According to Westerlund and Leminen, the Living Lab methodology can be defined as “physical regions or virtual realities where stakeholders form public-private-people partnerships (4Ps) of

---

firms, public agencies, universities, institutes and users, all collaborating for creation, prototyping, validating and testing of new technologies, services, products and systems in real-life contexts. This definition stresses that new technologies should be the outcome of a collaborative process between multiple and diverse stakeholders, and should encounter multiple iterations in the development process. Therefore, multiple feedback loops with prospective end-users were set up in the SavingFood project that iteratively defined the solution:

![Living Lab approach of the SavingFood project for the development of the platform.](https://savingfood.eu/deliverables/)

In the first year of the project, co-creation workshops were organised in the four pilot locations to identify and validate the user requirements for the platform. During these co-creation workshops, creative exercises such as user scenarios, wire framing, user voting, etc. were set up to collect user wants and needs. Different citizen communities and food waste stakeholders were invited to gather multiple viewpoints and create common understanding among them. For some of the SavingFood pilots, it was the first time that all stakeholders, being food donors, recipient organisations and volunteers, were sitting along the same table and could discuss their current and future envisioned working processes together. From the collected user wants and needs, user requirements were distilled that informed the technical development of the platform.

As a next step, these requirements were prioritized and split up in ‘batches’, and implemented according to an agile development process. During the first year in the project, the strategy for analysing behaviour change was also developed (See SavingFood Deliverable 2.4 and 2.5: [https://savingfood.eu/deliverables/](https://savingfood.eu/deliverables/)).

After the development of a first prototype in the second year, the SavingFood platform was beta-tested with a selected group of volunteers. During this testing phase, fictive scenarios were set up to measure the user experience and acceptance of the solution. For instance, volunteers were requested to register on the SavingFood platform and to sign up for a fictive event created by the coordinator. In a first set-up, the volunteers and coordinators were sitting along the same table to test out the solution, while in a second stage volunteers were testing the platform remotely. During the second year, the first dissemination and awareness raising activities also started, such as the organisation of awareness-raising events (See white

---

paper I), and the dissemination of the educational videos, food waste calculator tool, etc. After implementing user feedback and solving usability issues, it was decided in March 2018 to use the SavingFood platform for real saving food events. Since March 2018, 28 food saving events were organised through the platform by Boroume and HFA, and for which a behavioural change analysis was conducted. This was further supported with extended dissemination and awareness-raising activities.

INFOBOX 2. Features of the SavingFood platform.

The SavingFood platform enables the following activities and tasks:

- A coordinator can create a food saving event and save it as a draft, publish it on the platform, cancel it or change the status to ‘completed’. The coordinator can choose to either create a gleaning or a farmers’ market event, or can also replicate events.
- A coordinator can enter all the necessary details around the food saving event: date, start and end time, minimum required amount of volunteers, description of the event, location (and save locations) and route description.
- The SavingFood platform displays all organised events in list view, and on a map. The SavingFood platform guarantees location privacy, the full address of a food saving event is only displayed to volunteers once they are registered for the event.
- A coordinator can approve new registrations on the platform from volunteers, food donors and recipient organisations. New users should first be granted access to the platform by the coordinator before they have full access rights and can subscribe for events, or start donations.
- User management: coordinators have a database of all registered users on the platform, and can decide about user roles (volunteer, recipient or donor). A user can have multiple roles on the platform.
- Volunteers can subscribe for a food saving event, by simply clicking one button ‘Volunteer’. The volunteer can also decline participation.
- Volunteers have an overview for all events they registered, and receive notifications about it.
- Volunteers can contact the coordinator and other registered volunteers of the same event through a comments section.
- A donor is able to enter a donation on the platform, and a recipient organisation is able to accept the food offer after the matchmaking by the coordinator. The coordinator can make the match based on the needs of the recipient, and geographical proximity.
- Quantification report: coordinators are able to track the amount of saved surplus food through the organised food saving events, or from the food donations. Coordinators are able to manage food types, and food units.
2.2. Enabling behaviour change through the SavingFood platform

The development of the SavingFood platform is strongly connected to the engagement and behavioural change strategy of the project. The behaviour change strategy has the objective to set up a social movement with citizens (as volunteers), food donors and recipient organisations to save food surplus through the organised food redistribution processes with the online platform. By creating synergies among these three stakeholders, the behavioural change campaign aims to increase the level of participation and volunteer effort of all stakeholders in redistributing surplus food, increase the degree of knowledge about how to save food in a collective way, and to increase the degree of awareness about food waste and food sustainability in general.

The behaviour change framework of the SavingFood project consists of eight behaviour change techniques, or inventions, that try to understand, and influence citizens’ behaviour related to food waste. The behaviour change techniques were designed through the principles of community based social marketing and the 7E-framework (See info box 3). By following these theories, all designed behavioural change interventions start with an “E”, of which the SavingFood platform is the ‘enabler’ for moving from intentional behaviour towards fighting food waste with concrete actions.

From behavioural change point of view, the SavingFood platform enables citizens to participate in food saving events, and provides the necessary support by the coordinator. For supporting

Info box 3: the 7E-framework

The 7E-framework of Bambust (2015) was developed on the experiences of the so-called 4E-model developed by Defra in the UK. The 4E’s model sets out an approach to understanding and influencing behaviour for sustainable lifestyles, by using a mix of interventions labelled with an E: enable (make it easier), encourage (give the right signals), engage (get people involved), exemplify (lead by example). The 7E-framework adds three other interventions, being enthuse (make people enthusiastic), enlighten (provide information) and experience (reinforce the positive choices). More information about the 7E-framework can be found here (in Dutch): http://7e-model.be/.

---
behaviour change through the platform, the following principles were applied:

• **Make it possible:** This is the most obvious principle to apply; in order to participate in food saving events, citizens should know the website link, register and have access to the Internet. From the initial baseline measurement around behaviour change, it became clear that not everyone has access to the Internet, and especially not at premises of charity organisations. Further, food donors stressed that entering information into the system should be made as simple as possible, and should be made accessible through a mobile-friendly interface. For volunteers, having a mobile-friendly solution was also a necessity in order to being able to access the information about the events while they are on the move.

• **Make it simple:** For food saving events, the process for signing up as a volunteer was made as simply as possible by only clicking one button ‘volunteer’. Of course, the volunteer has to register first on the platform, which might be perceived as a barrier by some.

• **Provide support:** On the SavingFood platform, volunteers are able to access the coordinators profile, and check the contact details for support. Further, training sessions are also being organised for learning how to use the platform by food donors and recipient organisations.

• **Inform wisely:** The SavingFood platform was disseminated on various occasions, and via different channels. Once people were made enthusiastic about fighting food waste, the opportunity was provided to them to act and register on the platform. For instance, during awareness raising events, volunteers could leave their contact details behind, after which they received a thank-you email with a link to the platform and option to receive a newsletter. Further, at the end of each motivational video, the message ‘Come on... Join the revolution – start saving food now! Find out more: www.savingfood.eu” was displayed.

• **Make it flexible:** If volunteers do not have the time to participate in a food saving event, the project also offered other possibilities to contribute. Citizens can be involved in different activities, with a variation in small or bigger tasks, such as the providing tips about potential new donors in the neighbourhood, signing a pledge or becoming an ambassador (See White paper II).

### 3. Behaviour change results

During the period March – April 2018, 28 food saving events were organised through the SavingFood platform by HFA and Boroume, of which 23 farmers’ market events, three gleaning events and two other types of events (a conference, and a charity award). In total, 5960 kilos of surplus food were saved and redistributed to recipient organisations. During these events, 127 volunteers participated, of which 112 registered through the SavingFood platform. It should be noted that these numbers are not unique volunteers, and that some people participated multiple times during the occurring events. Therefore, logging statistics were also retrieved from Google Analytics to check the amount of unique users during this period.

After the organised food saving events, the coordinators of HFA and Boroume requested volunteers to complete a survey, either on paper or online. The survey had the objective to analyse a self-perceived change in knowledge, concern and belief around food waste. Further, at the end of April 2018, in-depth interviews with coordinators from the food redistribution organisations were organised as to explore the change in efficiency and effectiveness in organising a food saving event online, in communicating and recruiting volunteers, and in the established processes and routines about the redistribution of surplus food on the logistic level.
3.1. Statistics from the SavingFood platform

During the period 1/3/2018 – 30/04/2018, HFA and Boroume published and organised 28 food saving events in Hungary and Greece, for which 112 volunteers registered through the SavingFood platform. To check the total amount of new and returning users, statistics from Google Analytics were retrieved. In total, 728 users visited the SavingFood platform, with 17.9% returning visitors, 82.1% new visitors and 8,693 page views in total. In terms of amount of users per country, Boroume had 369 users (50.62% of total visitors, with main cities: Athens: 28.40% and Thessaloniki: 13.09%), and HFA had 251 users (34.43% of total visitors, with main city Budapest: 20.55%) – other countries visiting the platform are the United Kingdom (5.62%), Peru (2.74%), United States (1.78%), etc. The average duration session was 6 min. 56 seconds, and users mostly visited the SavingFood platform through their desktop (52.6% - versus 43.96% for mobile, and 3.43% for tablets).

A clear relationship can also be investigated between the confirmed dates of food saving events, and a growing peak in the amount of users close to the date for signing up:

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Amount of volunteers registered through the SavingFood platform</th>
<th>Amount of visitors on the SavingFood platform during this period for Hungary</th>
</tr>
</thead>
<tbody>
<tr>
<td>HFA- farmers’ market – Budapest Nyugati tér</td>
<td>2/3/2018</td>
<td>4</td>
<td>110</td>
</tr>
<tr>
<td>HFA- farmers’ market – Budapest Fővám tér</td>
<td>10/3/2018</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>HFA- farmers’ market – Budapest Fehérvári út</td>
<td>10/3/2018</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 3: Google Analytics: Period 1/3/2018 – 11/03/2018 – peak in amount of users for HFA’s farmers’ market events.*

3.2. Survey with volunteers

After the organised gleaning and farmers’ market events, a survey was distributed for gathering feedback about the volunteers’ experiences. In total, 22 volunteers filled in the survey, of which 10 in Greece and 12 in Hungary. The survey had an estimated response time of seven minutes, and included questions about socio-demographic characteristics (gender, age), experience in volunteering (beginner, or regular volunteer), level of engagement with SavingFood through other tactics, knowledge increase, concern increase, beliefs around food waste, general user experience and usability of the platform, and intention to use the platform for subscribing for food saving events.

*Profile of the participants*

The survey was filled in by 14 females and 8 males, who were mostly between 21 and 30 years old (N=11). Further, there were six participants who are older than 50 years old. 11 participants confirmed to volunteer on an occasional basis, while 9 mentioned to volunteer regularly. Two participants joined a gleaning or farmers’ market event for the first time in Greece.
A remarkable result is that this group of volunteers is also being involved in the SavingFood project through (on average) 2 to 3 other engagement tactics. 17 volunteers are also following the social media pages of the SavingFood project, and 10 volunteers also participated in one of the awareness-raising events organised by HFA or Boroume. 8 volunteers also signed the SavingFood pledge, and 7 of them are being involved in the ambassador program. These results indicate that the engagement strategy of the project succeeded in involving citizens through multiple activities in a reinforcing way, and also for citizens who did not have any volunteer experience, to rather limited or very experienced.

Last, it also has to be noted that 19 citizens participated in the event and registered on the SavingFood platform, while 3 citizens participated in the event but did not register on the platform. It often occurs that when someone registers for an event, that he/she brings along a friend.

This is encouraged by the local food redistribution organisations, and is also going to be supported by the SavingFood platform by mentioning the amount of friends that will come along with you to the event without the necessity to also register. The survey was designed as such that each participant had to answer the behaviour change questions, but not the questions related the registration and the general user experience of the platform.

**Behaviour profile**

The volunteers rated their knowledge on food waste as basic (N=8, or 36,4%) to good (N=13, or 59,1%), while most of them said that through their participation in the food saving event their knowledge increased to a **moderate extent** (N=12, or 57,1%). All volunteers, either volunteering for the first time or very regularly, affirm that through their participation they have learned something new – even when they consider to have already good knowledge on the topic. Most volunteers mentioned that they learnt something about the rules and practicalities about how to volunteer in a food saving event, the amount of surplus food that was collected and about the objectives of the SavingFood project. The results indicate that more information can still be shared with volunteers about the donors and/or charities that are connected to the food saving event, as most volunteers indicate to have not learnt anything about it (N=3) or only partially (N=12).

Next, for perceived concern, most volunteers feel concerned about food waste (N=11), while four are feeling somewhat concerned and six very concerned. Those who volunteer regularly are mostly feeling concerned (N=5) to very concerned (N=3), while those who volunteer occasionally are mostly feeling somewhat concerned (N=4) to concerned (N=5) about the issue. After the participation in a food saving event, most volunteers mention that they feel **slightly more concerned** (N=8) or **much more concerned** (N=7). Five volunteers affirm that their concern remained the same, while one volunteer mentioned that his/her concern declined. Those whose concern remained the same were mostly already very concerned about the food waste issue, while others move from ‘concerned’ to slightly more concerned or much more concerned.

In the open text boxes, two testimonials of volunteers were provided about their increase in concern:

“I was already concerned, but watching at the markets how much food would have wasted, I now try to save food even better” (Greece, female, above 60 years old, feeling much more concerned after participation)

“I saw the alternative ways that can be used to save food, instead of just throwing it in the dumpster” (Greece, female, 21-30 years old, feeling much more concerned after participation)
Last, related to the volunteers’ beliefs around these organised food saving events, it is clear that most agree (N=14) to strongly agree (N=7) that these events are an effective means for people who suffer from food insecurity. Further, volunteers strongly belief that these food saving events also help in creating new ties in the neighbourhood around food waste. However, there is a slightly opposing opinion among the volunteers in the belief whether these food saving events can help pushing local authorities towards taking measures in reducing food wastage: 6 volunteers are neutral, 3 disagree, 12 agree to strongly agree.

**General user experience and usability of the platform**

Overall, the volunteers who registered through the platform for the food saving events were satisfied with the general navigation and user experience. The mean scores are all within the range of being ‘satisfied to extremely satisfied’, and especially the level of completeness about the information provided and the overall look-and-feel obtains a very good score:

<table>
<thead>
<tr>
<th></th>
<th>Mean score</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>User satisfaction: Level of completeness of information provided</td>
<td>8,4</td>
<td>1,3</td>
<td>18</td>
</tr>
<tr>
<td>User satisfaction: Reaction time of the platform</td>
<td>7,7</td>
<td>2,3</td>
<td>18</td>
</tr>
<tr>
<td>User satisfaction: Overall look-and-feel</td>
<td>8,4</td>
<td>1,8</td>
<td>18</td>
</tr>
<tr>
<td>User satisfaction: The amount of notifications</td>
<td>7,8</td>
<td>2</td>
<td>18</td>
</tr>
</tbody>
</table>

*Table 1: Satisfaction scores about the usability and user experience with the SavingFood platform (scale from 1 to 10, 1 being extremely dissatisfied and 10 being extremely satisfied).*

Related to the reaction time of the platform and the amount of notifications, it is clear that opinions are opposing about these aspects (high standard deviations). During the period March-April 2018, several measures have been taken to improve these aspects. Some volunteers contacted the coordinators of the
food redistribution organisations to say that there were too frequent notifications around the publishing of an event (e.g. new event published, new event confirmed, new registration, etc.), and that it was perceived as annoying. Therefore, the coordinators redesigned the amount of notification messages send to volunteers. Further, the hosting server was changed in order to be able to manage the amount of users and the traffic size. Due to increased activity from the food saving events by the pilots, the capacities of the server were increased.

Related to the user experience, volunteers also rated several statements on a five-point Likert scale to know their opinions related to easiness and efficiency of using the online platform for signing up:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean score</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thanks to the SavingFood platform, it is easier for me to find food saving events in my neighbourhood</td>
<td>4.41</td>
<td>.795</td>
<td>17</td>
</tr>
<tr>
<td>The SavingFood platform makes it easier for me to sign up as a volunteer and plan my participation in the event</td>
<td>4.82</td>
<td>.393</td>
<td>17</td>
</tr>
<tr>
<td>The SavingFood platform helps me to connect better with the coordinator and other volunteers in the event</td>
<td>4.18</td>
<td>.951</td>
<td>16</td>
</tr>
<tr>
<td>In general, I think that the SavingFood platform is a great online tool for efficiently organising food saving events</td>
<td>4.50</td>
<td>.894</td>
<td>18</td>
</tr>
<tr>
<td>I rather prefer other channels for signing up for food saving events (e.g. via email, social media)</td>
<td>2.72</td>
<td>1.2</td>
<td>18</td>
</tr>
</tbody>
</table>

Table 2: Statements about the user experience with the SavingFood online platform (1= strongly disagree, 2=disagree, 3= neutral, 4= agree, 5= strongly agree).

Volunteers have a clear positive opinion about the easiness of the platform for signing up for a food saving event and to plan their participation in the event ($\mu = 4.82; \text{SD} = .393$). This is a very positive result, as most participants volunteer occasionally or very regularly and can thus compare the situation prior and after the launch of the platform. The SavingFood platform also obtains high scores for efficiency in organising events ($\mu = 4.50; \text{SD} = .894$), and easiness for finding events in the neighbourhood ($\mu = 4.41; \text{SD} = .795$). A lower mean score, although still good, is obtained for rating the perceived connection with donors and others volunteers who sign up for the event. At this moment, the platform only supports a general comment section, whereby one user can reply to the questions or feedback of others. However, one-to-one private conversations amongst volunteers or between one volunteer and a coordinator are currently not supported.

Last, a mediocre score is obtained for the statement whether volunteers would rather prefer other channels for signing up for food saving events ($\mu = 2.72; \text{SD} = 1.2$). Once again, this is a good score, as a lower mean score here means that volunteers rather prefer the SavingFood platform versus other suggested channels, such as email or social media. Ten volunteers disagree to strongly disagree that other channels are preferred, while 5 volunteers are rather neutral and 3 strongly agree. Although some volunteers differ in opinion here, the final question in the survey reveals that all volunteers would like to take part again in upcoming food saving events of HFA and Boroume, and that they would also recommend the platform to friends and relatives. As such, it can be concluded that both the experience prior as during the food saving event was positive for most of the volunteers, and led to a change in perceived knowledge and concern and also overall satisfaction with the navigation and registration online.
3.3. In-depth interviews with coordinators: digital social innovation for fighting food waste

Apart from the behaviour change analysis with volunteers, in-depth interviews were also organised with coordinators of HFA and Boroume. During these interviews, specific questions were asked about their satisfaction with the platform, and how they perceived the change in processes and routines to organise food saving events through the online tool. Prior to the SavingFood project, Boroume was organising food saving events, including the communication and recruitment, through e-mail, social media or through word-of-mouth communication. HFA did not have any experience with organising food saving events prior to the SavingFood project. Feedback and FoodWin are very experienced in organising gleaning events, and mostly do this via e-mail and social media. The interviews explored whether the coordinators of the local food redistribution organisations perceived a change in efficiency and effectiveness in organising a food saving event online (e.g. amount of hours spent, and amount of staff involved for organising an event), in communicating and recruiting volunteers, and in the established processes and routines around the redistribution of surplus food on the logistic level. The interviews were organised in April 2018, and lasted approximately 40 minutes to 1 hour.

The four food redistribution organisations have a different modus operandi, and implement different food saving scenarios. Therefore, the following results and experiences with the platform are not comparable and are very context specific to the modus operandi already established at the organisations:

**Greece - Boroume**

In Greece, Boroume is a key player in redistributing surplus food through direct redistribution from a food donor to a recipient organisation, and also through their farmer markets and gleaning programmes. Boroume testified that thanks to the SavingFood platform a food saving event is organised in a much quicker way, and proofs to be useful in finding volunteers and setting up communication with them in advance of an event. For the Boroume coordinators, the preparatory work in advance of an event has not changed. Coordinators are still contacting representatives from farmer markets and the agriculture sector by phone, and also the collection time during the events of the surplus food has not changed. What has changed, or what has definitely been improved, is the process of how volunteers confirm their participation in the event online. Volunteers now confirm (or decline) their participation through clicking one button, while this was formerly managed through a whole process of communicating back and forth via email between the coordinator and the volunteer in order to reach the minimum amount of required participants per event. Furthermore, the SavingFood platform allows the coordinators of Boroume to replicate events, which is particular useful for the farmer markets program. Boroume organises food saving events at a weekly basis at particular farmer markets in Athens, and through this feature the coordinators can easily re-use information from previous created events. Further, Boroume also testifies that through the platform they have a better overview of all organised events in different locations (also remotely), and about the amount of registered participants per event:

“There is definitely a time efficiency in the communication between a volunteer and a coordinator. Through this efficiency, it allows us to expand our activities – and especially our farmer markets program” (Boroume)

Besides the SavingFood platform, Boroume sees that also other digital channels are used among volunteers to communicate. Messenger groups are created among the subscribed volunteers to share pictures with each other, and to meet besides the food saving events for a drink. Boroume greatly supports this, as it creates bonding among the volunteer group. The SavingFood platform allows for basic communication in the
group in a formal way, while the sharing of pictures and informal gatherings are organised outside the platform. The social media pages of Boroume are also still used for posting pictures of the events.

To conclude, in the period March-April 2018, Boroume has organised 19 events through the SavingFood platform and will continue publishing food saving events in the future. Boroume testifies that using the SavingFood platform has become a habit for them in a very short time, and that all gleaning events will be organised through it in the future and that they will also expand farmer market activities through it. For instance, since February 2018, Boroume was able to start a collaborative partnership with two farmer markets in Thessaloniki, and to manage the volunteer registrations remotely through the SavingFood platform. Last, the efficiency gains in amount of time spend is estimated to be reduced from 80 to 20 minutes to organise the communication with volunteers, and is therefore the ultimate proof to continue to use the platform.

**Hungary – Hungarian Food Bank Association (HFA)**

HFA has a different modus operandi compared to Boroume. HFA applies the indirect food redistribution model whereby surplus food is collected and first stored at the warehouse before it reaches the final beneficiary. Through the SavingFood project, HFA is restructuring its redistribution activities from indirect towards more direct food redistribution activities through the gleaning and farmer markets programmes. Organising gleaning and farmer market events are thus new activities for HFA, and the coordinators of HFA testify that through the SavingFood platform it is enabling them to find volunteers in a quick way, and proofs to be useful in finding volunteers and setting up communication.

However, HFA also learnt that other engagement tactics should be used in combination with the platform, and which proofed to be more supportive in recruiting volunteers, such as social media and the ambassador program:

> “Engagement is more important than technology, technology is not solving how to involve your stakeholders in food waste. We learnt a lot how to concretely engage different target groups with different tactics, and what the barriers or enablers may be in actually doing and showing up.” (HFA)

In the period March-April 2018, HFA organised ten food saving events through the platform and will continue to use the platform to expand its activities. HFA is currently also exploring another type of event that can be organised through the platform, being “catering events”. This type of event is the collection of surplus food at the end of a party or celebration, whereby volunteers are needed for packaging and collecting the food. HFA has the opinion that the SavingFood platform is flexible in control and management, and can therefore also manage other types of events that might come to existence in the future.

**Feedback and FoodWin**

Feedback and FoodWin are two organisations that are specialised in organising gleaning events, and are not redistributing or storing surplus food from food donors or retailers. Both organisations have a large volunteer base that they invite for various gleaning events throughout the year in the United Kingdom and Belgium, and who collect leftovers crops directly from the fields. However, since Feedback and FoodWin have already well-established procedures and routines for inviting volunteers through social media, it proofed to be difficult for the coordinators to convince volunteers to create an additional account and confirm their presence via another online tool. Volunteers had to learn to use another online tool for which they had to register, and also had to change their habits for confirming their participation. During the period March-April 2018, fictive events were organised with volunteers to gather their experience and volunteers perceived the processes as too cumbersome. After this trial period, it was decided to not to use the online
platform for recruiting volunteers and only as an awareness raising tool for consulting videos, signing the pledge, etc.

4. Conclusions

Since the launch of the SavingFood platform in March 2018, 28 food saving events were published, with 122 registered volunteers. The amount of activities and number of registered volunteers through the platform is expected to continue to grow after the project ending, seen the trials were perceived as successful for the pilots in Hungary and Greece. In these two countries, 5960 kilos of surplus food were saved through the platform and redistributed through recipient organisations, and which also led to behavioural change among volunteers after their participation. The survey results showed that participating in a food saving event caused to an increase in knowledge and concern among volunteers – even though when this was already high to moderate. Volunteers testified that they learnt more about how to save food in a collective way, the food redistribution process and the amount of saved food. Further, volunteers also mentioned that their concern increased by seeing how much would otherwise been wasted at the market, if they did not redistribute it. Further, from coordinators’ point of view, time efficiency in communication between a volunteer and coordinator was created (e.g. for Boroume from 80 to 20 minutes for publishing an event and finding volunteers), leading to time and staff resources that can be devoted to expanding activities. In Greece and Hungary, the SavingFood activities will be further sustained, and whereby a combination of different digital channels will be used to communicate with volunteers in a formal and informal way. However, the pilot trials in the UK and Belgium were not that successful, seen the process of change for volunteers was perceived as too cumbersome. In these cases, the SavingFood platform was further on used as a support tool for raising awareness and sharing knowledge about food waste.