Appendices

A: Interviews With Existing Initiatives

01. Too Good To Go
Interview with Robin Huyes on 06-05-2020
Customer Success Specialist | Waste Warrior at Too Good To Go

Too Good To Go is known for their application that enables consumers to pick up food boxes at Restaurants, Supermarkets or other catering industries that are close to expiry date. However Too Good To Go is doing much more than that. They are also putting effort into Education, Policy making and Consumer food waste. This last topic is something that was most interesting.

Q: You are doing so much more than just the application, why is that not as commonly known?
‘That is something that originated from the beginning but a thing that we are doing more and more with. The concept originated from Denmark and in the Netherlands a part of our 40 people team is focused on getting companies on the team. However more and more people that are joining the organization want to focus on consumer waste. The numbers are known and that is why our communication channels are used to address this problem. Tips on how to reduce more food, cooking tips and storing tips. These are all based on research that is available about what is thrown away. The content is focused towards this. Date labelling is an issue that we are addressing as well. There is a movement starting to change it. People are not aware of the differences in date so we are working towards ‘good after’ instead of ‘best before’. Slow steps, a lot of work.

Q: How did the tips on consumer food waste reduction come to realization? Is this collaboration with another party?
‘Those tips are posted by us, but based on various sources of various governments and our own research. [are there any plans to do more with these tips?] ‘there is a big willingness to do more with these, what is currently under development, is more related to the feedback of consumers. Tips on how to deal with the products in the box or packages. Vlogs and Tips that people can directly put to practice. The app is very simple, which makes it a small step to do something instead of not doing something. A youtube show, using an ambassador has started that focuses on reducing food waste. Using an influencer, first time we are doing this but we are addressing the younger target groups. We already have a big customer base that are big fans of the application and most customers are not always able to get their hands on a magic box. They are now working on getting more companies (and magic boxes) involved so that they can deliver more boxes and reduce food waste.

Q: How many consumers are you reaching with these tips? And do you know anything about the impact they are having?
‘We have 2 million users on the app. Most people are active. And they are directly connected to us. Per communication channel it differs. newsletter for partners, companies that are already connected to them. The impact is quite good, percentage wise. Newsletter to the people of the app. Twitter and Instagram are used, not any paid communication channels used because they grew. This gave them a name (prices of best start-up)

Q: Where are you seeing the biggest opportunities / challenges in reducing consumer food waste?
‘the challenge to get to no waste remains. We have a solution but there needs to be more solutions and initiatives to tackle this immense problem. The biggest challenge is really to change that mindset of waste. Bakers mention no we do not waste, we feed it to the pigs. It is a part of waste that is not meant for animals. Biggest challenge is to change what food waste is. People need to change their schedule, I still have this much food at home, it is still good to eat the day after tomorrow, let’s go out for dinner tomorrow. This is not the common thought now for everyone’. Many people choose this option. Saving food waste is secondary. (How can this step be made?) We believe the step can be made by all different actions combined. The complete movement of all parties involved and many more partnerships. Everywhere more awareness.

Q: Are there collaborations with supermarkets?
There are several things happening, many chains are connected to the app, which helps reduce food waste. Supermarkets are experimenting with new automatic discounting systems. Supermarkets are becoming more and more aware about sustainability and the fact that it is becoming a hot topic. They are willing to do more in this sector. More discount containers (50 cent bakken) Jumbo also has the rule that food still needs to be edible after 1 day of the date. Better technological advancements will come that reduce even more.’

‘But we are not there, not at all, so if there would be any other methods to reduce than we might also not know about them’

Q: Is there any research or initiatives you would recommend me to look into?
‘there are many really small initiatives or organizations that focus on reducing food waste in varying ways. Such as Kromkommer, Bammetjes Bier, In Stock (restaurant cooking with supermarket leftovers, but it is not scalable)
Q: Regarding the education focus you have, how did these De Educatie pijler, hoe zijn deze teaching packages come to be? Was this in collaboration with other parties? This are very much part of our story but these will be further developed such as Tony Chocolonely. Leading to kids wanting to do their own thing and being involved. We are also aiming to get here. Not put it in the education itself but giving people the opportunity to use it and inspire and we are very happy to help them further.

Additional Remarks
- Robin mentioned her interest in this project/research. She thinks it’s very valuable for too good to go to also include the final result to motivate consumers to waste less.
- For specific questions I can contact her again. Robin mentioned an expert on their team who knows all the data on consumer waste but also in the politics.

02. Foodsharing Delft
Interview with Megan on 18-05-2020
Initiative Owner Foodsharing Delft

Foodsharing Delft is an initiative set up by several students that picks up close-to-expiry food products from various supermarkets and markets stalls in Delft. This food is used to cook dishes during one of their events/dinners. Food is also stored in community fridges around Delft where people can take these products for free.

Q: How did the community fridge initiative start?
The community fridge idea has been around for a long time and has been used in many other food sharing groups such as in Germany and Denmark. We drew inspiration from there and acquired our own fridge. It is perfect during corona times as it allows members of foodsharing to collect and drop off food waste easily while staying 1.5m apart.

Q: What else are you working on to reduce food waste?
We started a few months ago to call ourselves a ‘creative bureau’. We are not a consultancy. Our goal is to build a sustainable food system and to speed up the transition we are currently in. To achieve that goal we are helping other companies to make that transition.

Currently we are collaborating with a large day-care to see how we can develop a program for the day-care leader to assist them to reduce their food waste which happens a lot since they are dealing with feeding the children. We are helping this organization to set a step further towards a sustainable model. Food(waste) is growing in importance and is more often looked at as something companies can save money on, second to Energy consumption. This is more on the education side.

The easiest way to get projects is to do it via these ministry challenges. We are in contact with a co-creator organization called Noorderwind and they are coaching us as a start-up but currently, there are a lot of regulations preventing the distribution of food that is considered unsaleable so much of it is thrown away. If there were better incentives to help distribute this (e.g. financial incentives for food donation, liability protection for food donors etc.) this could encourage food donations instead of discouraging it.

03. Gros Food
Interview with Simon Schilt on 21-05-2020
Co-Founder of Gros Food

Q: Who are you/ what are you doing?
We started a few months ago to call ourselves a ‘creative bureau’. We are not a consultancy. Our goal is to build a sustainable food system and to speed up the transition we are currently in. To achieve that goal we are helping other companies to make that transition.

Currently we are collaborating with a large day-care to see how we can develop a program for the day-care leader to assist them to reduce their food waste which happens a lot since they are dealing with feeding the children. We are helping this organization to set a step further towards a sustainable model. Food(waste) is growing in importance and is more often looked at as something companies can save money on, second to Energy consumption. This is more on the education side.

The easiest way to get projects is to do it via these ministry challenges. We are in contact with a co-creator organization called Noorderwind and they are coaching us as a start-up but are also sharing these challenges with us.

Q: What does your concept ‘Maak Berta Blij’ do exactly?
We are also developing products such as maak Berta blij. We came about this project by a challenge that was written by the ministry. (start up in Residence). This Challenge was: ‘Help consumers waste less dairy by the use of a tool’. They preferred something physical because apps are just too intangible and difficult to really help and trigger people to change their behavior.

We started looking at objects that consumers use on a day to day basis and are close to them and the source of food waste which is the fridge.

This led to the development of the fridge magnet. Dairy waste however also happens at a specific target group: Families with (young) children. Scientists in this group also have difficulty when it comes to understanding date labels.

Q: Are there any other concepts under development that are helping to reduce consumer food waste? When it comes to addressing consumer food waste and reducing it, this is concept [Maak Berta Blij] the only one. It is a large project and we are still in the start-up phase.

Together with I-Change we are working on the Rescue Chef concept. In essence it is a meal box which consists of rescued vegetables. With this box comes a recipe which is made by a ‘Rescue Chef’. Giving rescued food a face.

Q: Where are you seeing the biggest opportunities to reduce food waste? The reason this challenge was set out is because dairy is the second most wasted category of products, after bread. But there are already many initiatives doing something with bread.

The Government is growing in their view that food waste is an important aspect when it comes to sustainability where you can make a lot of impact. It is becoming more and more clear. But the way to do this is still a big question for them. There is the foundation Samen Tegen Voedselverspilling and they work closely together with the Ministry of LNV (Landbouw, Natuur en Voedselkwaliteit) so you can state that they are working on it.

On one hand we are looking at projects that can have a big impact, not limited by reducing food waste. There are more in the entire food chain such as more transparency and shorter chains. We are now working on food waste because this is also something that is very concrete and tangible to tackle. It is also something that is present in the portfolio of sustainability managers which means there is a budget for it.

Money needs to be made as well.

Q: What are the biggest obstacles that need to be overcome to switch to less food waste?
The Date label problem is something the ministries are working on (THT vs. TGT). But I think they are still depending mainly on the market. An easy solution would be to change the name. Frame it positively.

One really big obstacle is the change in behavior. Consumers need to behave differently but also look at products differently. This is connected with the way supermarkets function. Offer consumers loads for little prices. This leads to an increase in consumer food waste.

How this should and can be tackled is by pushing a mind shift for the producer and consumers about what is sustainable. How do we go for quality instead of quality?
B: Concept Print-outs

Concept 1: The Fridge Flyer

Concept 2: The Organization

Labels

Productcategorëen / Product categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olives / Olives</td>
<td>Olives for use in salads or as a side dish</td>
</tr>
<tr>
<td>Bitter / Bitter</td>
<td>Bitter components are used in salads or as a side dish</td>
</tr>
<tr>
<td>Herbs / Herbs</td>
<td>Herbs are used in salads or as a side dish</td>
</tr>
<tr>
<td>Fruit / Fruit</td>
<td>Fruits are used in salads or as a side dish</td>
</tr>
<tr>
<td>Vegetables / Vegetables</td>
<td>Vegetables are used in salads or as a side dish</td>
</tr>
<tr>
<td>Sauces / Sauces</td>
<td>Sauces are used in salads or as a side dish</td>
</tr>
<tr>
<td>Drinks / Drinks</td>
<td>Drinks are used in salads or as a side dish</td>
</tr>
<tr>
<td>Good / Good</td>
<td>Good is used in salads or as a side dish</td>
</tr>
<tr>
<td>Cheese / Cheese</td>
<td>Cheese is used in salads or as a side dish</td>
</tr>
<tr>
<td>Bread / Bread</td>
<td>Bread is used in salads or as a side dish</td>
</tr>
</tbody>
</table>

Some labels are for other product categories.
**Concept 3: The Product Priority**

Pin

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**The Booklets**

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**NOG EEN PAAR LAATSTE VRAGEN**

1. **Hoewel gebruikersmiddel heeft u het product van anderen en waarom?**
2. **Vindt u het product dagelijks te gebruiken?**
3. **Denkt u dat deze week enkele voordeelen heeft vergift dan in een normaal week door het product?**
4. **Denkt u dat het product willen blijven gebruiken?**
5. **Denkt u dat het product laten blijven gebruiken?**

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**Inleiding**

Albrecht heeft het druk voor je beslissingen te maken. Uw keuze is belangrijk voor je dagelijks leven. Denk eraan dat je keuze een impact heeft op je gezondheid en welzijn. Het is belangrijk om je beslissingen te overdenken en bij te sturen als nodig.

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**Viewpoints**

- **Ik zal**
- **Ik wil**

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**BIJVOORBEELD**

- **IK ZAL**
  - Ik zal eieren kopen
  - Ik zal een gezond ontbijt maken

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**FOR EXAMPLE**

- **IK ZAL**
  - Ik zal eten en drinken
  - Ik zal een gezond ontbijt maken

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**DAG 7**

- **Hoowas het product van iedereen en waarom?**

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**Veiligheid**

- **Heeft u ervaring met het product (heeft u het eerder gegeten)?**

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**以致美观**

- **Is het product iets dat u al eerder heeft gemaakt?**

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**Eten verdient het om gegeten te worden, zorg ervoor dat dit gebeurt.**

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**Food deserves to be eaten, make sure it is.**

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**DE STEPS**

1. Schrijf uw eigen luchten op om ervoor te zorgen dat u een goede voeding met vet ziet voorgezet worden.
2. Kijk wat u het best geeft en zorg dat u het voedsel op het papier houdt.
3. Heeft u als luchten een kaas of melkproduct die niet langzaam beschimmelbaar is?
4. Als het product is geklokt, pak u het brood en plaat het over een ander product dat niet langzaam beschimmelbaar is en dus diengeen diertek te worden.

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**Ik zal**

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**I WILL**

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**THE STEPS**

1. Write down your commitment to help your food get what it deserves (be eaten).
2. Cut out your commitment and paste it on the sign.
3. Put the sign in your fridge next to an item of food that does not last long.
4. Every time you take a product, pick up the sign and place it next to another product that has to be eaten soon.
This page was different for each of the concepts. The page explained what the concepts do and how to 'install' it.

DAG 6
How motivated was u vandaag om het product te gebruiken en waarom?

Heeft u vandaag interactief een gesprek met het product? (Hoe u het bekeken/gebruikt)
Zo ja, waarvoor en waarom?
Zo nee, waarom niet?

DAG 5
How motivated was u vandaag om het product te gebruiken en waarom?

Heeft u vandaag interactief een gesprek met het product? (Hoe u het bekeken/gebruikt)
Zo ja, waarvoor en waarom?
Zo nee, waarom niet?

DAG 4
How motivated was u vandaag om het product te gebruiken en waarom?

Heeft u vandaag interactief een gesprek met het product? (Hoe u het bekeken/gebruikt)
Zo ja, waarvoor en waarom?
Zo nee, waarom niet?

DAG 3
How motivated was u vandaag om het product te gebruiken en waarom?

Heeft u vandaag interactief een gesprek met het product? (Hoe u het bekeken/gebruikt)
Zo ja, waarvoor en waarom?
Zo nee, waarom niet?

DAG 2
How motivated was u vandaag om het product te gebruiken en waarom?

Heeft u vandaag interactief een gesprek met het product? (Hoe u het bekeken/gebruikt)
Zo ja, waarvoor en waarom?
Zo nee, waarom niet?

DAG 1
How motivated was u vandaag om het product te gebruiken en waarom?

Heeft u vandaag interactief een gesprek met het product? (Hoe u het bekeken/gebruikt)
Zo ja, waarvoor en waarom?
Zo nee, waarom niet?
C: Project Brief

Procedural Checks - I2E Master Graduation

APPROVAL PROJECT BRIEF
To be filled in by the chair of the supervisory team.

Jan Schoormans

Date

CHECK STUDY PROGRESS
To be filled in by the I2E ASC (Shared Service Center, Education & Student Affairs), after approval of the project brief by the Chair. The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total:
Of which, taking the conditional requirements into account, can be part of the exam programme:

List of electives obtained before the third semester without approval of the BoE:

FORMAL APPROVAL GRADUATION PROJECT
To be filled in by the Board of Examiners of I2E TU Delft. Please check the supervisory team and study the parts of the brief marked **. Then please assess, sign below and sign this Project Brief by using the criteria below.

- Does the project fit within the (MiS) programme of the student being assessed? If described, the activities done next to the obligatory MiS specific course?
- Is the level of the project challenging enough for a MiS I2E graduating student?
- Is the project expected to be deliverable in 100 working days/20 weeks?
- Does the composition of the supervisory team comply with the regulations and fit the assignment?

Monique von Morgen

Date

IDE TU Delft - E&SA Department // Graduation project brief & study overview // 2019-01 v10

Initiates & Name: J. Dietz

Student number: 4512311

Title of Project: Design interventions to reduce household food waste
INTRODUCTION

Globally, one third of the edible parts of food destined for human consumption is wasted. Although food waste happens in all stages of the food supply chain, in high-income countries it mostly happens at a consumer level. It was found that over 40% of the total food waste occurs in the consumption stage, making it the biggest contributor to food losses (Gustavsson et al., 2011). This whole food waste is largely seen as avoidable by researchers (Gibé et al., 2012; Graham Rowley et al., 2014; Gustavsson et al., 2011; Stuart, 2009).

However, in practice this is harder to achieve. Consumer behavior is influenced by four main conditions: Attitudinal factors, external or contextual forces, personal capabilities and habit or routine (Far-Wharton et al., 2014). These four conditions make up the ‘WIN (Value Belief Norm)’ theory framework. This framework helps to measure the impact of consumer decision making behavior, especially in the domain of food and food waste.

Within each of the four conditions are several forces that have led to this high percentage in consumer food waste (see figure 1 for the complete overview).

- **Attitudinal factors** explain our intrinsic motivation to be a ‘good provider’ for our families and our strive for convenience (Evans, 2011; Graham Rowley et al., 2014). This means we want to provide abundant and healthy food for family and guests as well as avoid risks by always having enough food and throwing away any food in time to avoid health risks (Evans, 2011). A perfect example of this factor can be seen in the hoarding behavior of consumers during the COVID-19 pandemic.

  On the other hand consumers have the desire to comply to social correct behaviour (meaning: make ethically just decision) and save money in purchasing food (Graham Rowley et al., 2014).

- **External factors** that influence our behavior are marketing and advertising practices but also societal trends such as growing prosperity, declining food prices and the rise of single households (Griffin et al., 2009; Pfeifer et al., 2016).

- **Personal capability factors** refer to our lack of planning concerning food purchasing but also our lack of knowledge on how to store and prepare food as well as how to recombine leftovers into new meals (Pfeifer et al., 2016).

- **Habit or Routine** explains daily shopping behavior and because of these low cost and low involvement product it leads to impulsive purchasing and purchasing of new products that we don't like.

Influencing these conditions change consumer behavior leading to a reduction of household food waste (Far-Wharton et al., 2014). One way to achieve this is by using design interventions.

Design can influence and change human behavior. According to Liddon and Hekkert (2014) "by using the power of design interventions to influence people's behavior, designers can and are making successful contributions to diminishing some of the alarming societal problems that we face."

This project will focus on analyzing and developing opportunities that operate in the previously named conditions, addressing the causes of food waste: by developing design interventions (nudges) that influence the decision-making behavior, consumer food waste can be reduced.
**Personal Project Brief - DE Master Graduation**

**Problem Definition**

We consumers are constantly finding ourselves in a confusing situation when shopping for groceries. On one hand, we follow our emotional motives, which tell us to be always have food in the house for friends and family and in case of unexpected events (e.g., sickness, working overtime) (Graham-Rowe et al., 2014). On the other hand, we do not want to waste money on things we eventually don’t consume and we don’t want to throw food away because, ethically, it is not right (Graham-Rowe et al., 2014).

Within this conflicting situation, we often make the most convenient decision which is not the most environmentally conscious. A Dutch organization called CHANGE is working towards changing this. CHANGE has taken on the mission of making the city of Delft a role model for a minimal food waste community. They have set up several initiatives that contribute to this goal. However, most initiatives are focused towards tackling the consequences. This is done by creating awareness of food waste and showing consumer what to do with it in various ways. However, real change in consumer behavior is something that could use some attention.

The focus for my graduation project lies within this change in consumer behavior, by looking at prevention. Influencing the decision-making by use of design interventions to prevent food waste from happening in the first place. This project will investigate the most wasted and thus most promising fast moving consumer goods products after which design intervention concepts will be developed, tailored to the good.

Although the scope of CHANGE and this project are on the context of Delft, it is reasonable to think that the solution would work in other Dutch cities and municipalities.

**Assignment**

In order to achieve this reduction, a product/strategy will be developed. The aim is to make this product/strategy physical so that the trigger can happen at the moment of the ‘food’ decision.

The aim of this product/strategy is to trigger the consumer in such a way that their behavior is changed towards a less waste (more sustainable) option. What this trigger exactly is and where it will be positioned will become clear after elaborate field and desk research.

This project and eventual product/strategy will add value because it limits consumer food waste, contributing to a positive change for the environment.

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**Planning and Approach**

The planning and approach for this project can be found in Manual 2. These phases will be designed with the aim of completing the final project. The planning should include a timeline, project tasks, the timeline for the project, and milestones for each stage of the project. This will help in ensuring that the project is completed on time.

**Planning**

- **Phase 1:** Research
  - Market research
  - Consumer behavior
  - Sustainability
  - Food waste

- **Phase 2:** Design
  - Concept development
  - Prototyping

- **Phase 3:** Prototype
  - Testing
  - Feedback

- **Phase 4:** Implementation
  - Distribution
  - Marketing

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Start Date: 16 - 3 - 2020
End Date: 20 - 7 - 2020

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ID: TUE - BESA Department / Graduation project brief & study overview / 2018-01-040

**Title of Project:** Design interventions to reduce household food waste

Student number: 4172131

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ID: TUE - BESA Department / Graduation project brief & study overview / 2018-01-040

**Title of Project:** Design interventions to reduce household food waste

Student number: 4172111
**Personal Project Brief - IDE Master Graduation**

**MOTIVATION AND PERSONAL AMBITIONS**

Explain why you set up this project. What competences you want to prove and learn. For example: acquired competences from your MSc programme, elective semester, extra-curricular activities (etc.) and point out the competences you have yet developed.

Optionally describe which personal learning ambitions you explicitly want to address in this project: on top of the learning objectives of the Graduation Project, such as: in-depth knowledge a on specific subject, broadening your competences or experimenting with a specific tool and/or methodology. Stick to no more than five ambitions.

For my Master thesis, I wanted to find a project that would fit with my personality and interests. It knew it had to be something in which I could apply my curious and observing personality traits. Questioning why some things are the way they and digging for the real reason behind it. After thinking about this, the first thing that came up was my Bachelor thesis.

During my Bachelor thesis, I had to create a new outdoor cooking experience for the barbecue brand of Jamie Oliver. I remember being fascinated about the fact that our barbecue culture is dominated by meat. People do not really cook with a barbecue. You just put some meat on the grill and wait until it is ready. I wondered why this was the case and took on the mission of trying to change this behavior during my Bachelor thesis. The more I looked into it the more I got inspired. People have a certain behavior towards consuming and everyone goes with it without questioning why.

However, this behavior is not always desirable. We consume without really thinking about the consequences. I do not think this behavior fits within the sustainable future we need to create.

Food waste being one of the ‘simpler’ challenges to tackle.

During my Master thesis, I hope to find a solution that contributes to tackling this challenge (even if small). I hope to do this by involving many parties. My strength does not lie in doing just desk research. After doing SPD master and especially JMP project, I noticed the added value of talking to experts and stakeholders to involve them in your process.

I intend to do this now as well. During this thesis, I hope to gain real practical knowledge on how to deal with this issue as well as strengthen my (graphical) communication skills. Furthermore, I hope that the solution I eventually develop can and will be put into practice.