Reducing food waste with a sustainable lunch concept
A service design project

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Abstract

Environmental problems such as pollution and overconsumption is something that is mentioned often in the news as this thesis is written. Food waste is a problem that causes valuable resources to be lost, as on average one third of all food globally is being wasted. The food chain is complicated, from the farm to the table, and innovations in all parts of the chain could help reduce the waste. We have aimed our scope to the end of the chain, when food is made at a restaurants to be served to customers. Figures say that about 23% of food in the restaurant business in Sweden is being wasted. To try to solve this problem, we have turned to service design and the methodologies presented there, to find a potential solution that could help reduce food waste.

An extensive service design process was made with many interviews with restaurants to find where a solution could be made. The whole design process is presented in the report, and the final concept resolves around a sustainable lunch dish that can be made out of ingredients that would otherwise be thrown out. The dish would be sold at lunch restaurants for a reduced price since it is cheap to make, and would make more people act sustainable. A concept test was made to evaluate the the sustainable dish concept with the help from the public. The main question was:

*Is this concept something that could be adopted by people who buy lunch on a regular basis in Sweden?*

The concept test resulted in 165 respondents that were asked what they would choose to eat from a given menu. 32% chose the sustainable dish, and although biases were believed to have played a role in the decision, the concept was deemed successful. A website was then designed, aimed towards restaurants that wanted to adopt the concept and to get started in an easy way.
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Preface

This thesis is made as a service design project. Treating a design project in a scientific report like this requires some restructuring from a traditional report. One common structure that is commonly used is IMRAD (Introduction, Method, Results, And Discussion) — Which will also be followed here, with a slight modification.

![Fig. 1: The structure of the report](image)

The first part of the report introduces the problem area and motivates why we need a solution to the problem. This is exactly like a traditional report is usually structured (see figure 1, part 1).

The second part describes the design process, and how we came up with the final solution to the problem. This part is an addition to the traditional structure, and is not written in the same technical fashion as the rest of the report, because well, design is not always technical. Here we present the reasons to why we did like we did, and shows the steps along the way of the design journey.

The third part describes the evaluation of the final idea. An experiment have been made that tests the concept design that came out of the second part, and treats it in a scientific way with a method description, the results, and the discussion in the end explaining the result.
Part I

Introduction
Food waste is a big problem in today’s society. A study of food waste in public catering in a Swedish municipality in March 2017 showed that 75g per portion or 23% of the food mass was wasted [1]. Another study [2] shows that 1.3 billion tonnes or one third of all food globally goes to waste. A European regional analysis states that food accounts for around 40% of the total green house gas emissions in the EU, with agriculture and the hotel and restaurant sector included [3].

Food is being wasted in all parts of the supply chain, from the producers, to delivery, to restaurants, to preparation of meals, to the end customer buying the food. There are many studies [4][5] that examines how we can improve on food waste in restaurants in the very end spectrum, like designing the menu better, teaching cooks about food waste, or reducing plate sizes. There are also modern services like Karma 1 that helps customers rescue unsold food from restaurants, but there is a gap in the research and in the designed tools today that targets the earlier phase in the chain — How restaurants can reduce food waste before it reaches the customer.

A European declaration [6] states that the best way to reduce food waste is by prevention, and after that take other actions such as redirecting food to other people in need, or in the very last case, use it for landfill or biogas (see figure 2).

![Fig. 2: Top actions to reduce food waste (Interpretation from FAO [2])](image)

Eriksson et al. [1] states that source reduction is the greatest savings potential in food waste. Another source, the ReFED organization (Rethink Food Waste through Economics and Data) [7] states that reducing food waste by prevention methods has the highest economical and environmental benefit compared to other methods such as food recovery and food recycling. They list prevention solutions such as redesigning the menu and tracking waste as overall highest priority [7] (see figure 3).

1 [https://karma.life/](https://karma.life/)

Introduction
Although there is great work that has been done in finding solutions that a restaurant can use to prevent food waste, the statistics tells us that these solutions are not being used at their full potential. A problem with reports like the ReFED action guide is that they are often solution driven, and only looks at one side of the problem — what you can do to solve the problem (in a perfect world). But what seems to be needed is a clearer picture of why it is hard to apply these solutions. We need to understand the problem better to be able to implement a solution in the best possible way, and we believe that the problems are found in the restaurants themselves. What are the pain points for chefs and kitchen personnel that makes it hard to act sustainable? This is something we have investigated in this report.

The research makes it clear for us that prevention methods is a good way to reduce food waste, and that is what this thesis have tried to implement.

We will use service design methods to find a solution to the problem, and the thesis will be treated like a service design project. More information about these methods are described below.

1 Objective

The goal of this thesis is to find a possible solution to the food waste problem that can be introduced in a restaurant environment, and doing so by following a service design methodology.

The objective is to find the best way of the given circumstances to solve the food waste problem in a Swedish restaurant through design methods, and then evaluate if that solution could work in a bigger scale.

2 Service Design

Services can have many meanings, but we define a service in this project simply as a product that is built up of many parts, and together, solves a problem, or deliver value to a customer. An example is the personal transportation service Bird 2 that is a solution

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2 www.bird.com
to the problem of self transportation. The service is essentially built up on an array of electronic scooters that are connected to a digital platform which is accessible via a mobile application. A person can simply book a scooter that is nearby via the app and travel effortlessly, then leave the scooter wherever they please. The scooters are then collected during night time by workers in vans, that redistribute the scooters in the city.

To come up with this idea or a similar solution, the service design process is commonly used. The service designer has to look at many aspects. What do the users of this service want? How will the people who collect the scooters work? What will the application look like? As we see, there are many parts to this service, and it is the service designers work to make the whole experience both solve the problem in a good way, and also let the people use the service in an effortless way.

As Mark Stickdorn puts it in his book This is Service Design Doing [8]:

“Service design is an intensely practical and pragmatic activity, and this makes it inherently holistic. To create valuable experiences, service designers must get to grips with the backstage activities and business processes that enable the frontstage success, and address the implementation of these processes. They must tackle the end-to-end experience of multiple stakeholders, not just individual moments. And they must find a way to make it pay, considering the business needs of the organization and the appropriate use of technology.”

3 Design Fiction

The area of design sometimes iterates products that already exists, like creating a new car for instance. But design is also a powerful tool to explore solutions that does not exist yet. Design fiction is one way to explore and understand how a possible future could look like, through painting a picture that you can see yourself in.

To be able to create a solution for a wicked problem like food waste, we have to look a bit into the unknown, and this is where design fiction comes in. We define design fiction as a designed artifact that is made up (fictional), that makes you believe that it is real or already exist, so you can imagine a reality where the artifact could live. The artifact could be a book, a model, a prototype — anything designed really. This definition of design fiction also relates to something that Dunne and Raby calls Speculative Design [9], which is something we believe in as well. They say:

“We believe that by speculating more, at all levels of society, and exploring alternative scenarios, reality will become more malleable and, although the future cannot be predicted, we can help set in place today factors that will increase the probability of more desirable futures happening.”

In this project, designed folders, or flip through magazines will be used as design fiction.
Part II

Design Process
The design process in this project is inspired from Ideo\textsuperscript{3} and their human centered design principles. It is a variation of the double diamond principle\textsuperscript{4}, which is a renowned design process in the area of interaction design and other fields.

![Fig. 4: The design process that drove the project](image)

In figure 4, we see three phases of the project, along a curve. The amplitude of the curve resembles convergence, which is described as convergence of mind and ideas. The higher the amplitude, the more diverge the mindset of the designer is, like exploring a lot of different ideas. A lower amplitude means a more converged mindset, and the ideas boils down to more concrete, narrowed ones. The x-axis of the figure resembles time. This chapter of the thesis will use the design process as a timeline, and describe the work that have been done in this order. Below is a short description of each phase, and after that comes the details and work that was done in each phase.

- **Inspiration – Section 4**
  This part of the design process is about discovering the problem area. To be truly human centered, the designer has to get immersed in the users context and understand what the problems are for the people that will use the product that is being designed. To do this, methods like expert interviews and field studies are being used.

- **Ideation – Section 5**
  After a solid research phase has been made and the foundation for the design work is set, the designer now has a phase of ideation, where ideas are generated that could fit into the problem area that has been found. This is usually done through workshops. The idea is first to narrow down the research into a more tangible idea, and then diverge again into different possible products.

- **Implementation – Section 6**
  This phase is all about making the final product and converging down into the single, finished artifact. After all the research and ideating, the designer should have strong arguments why the designe became what it became.

### 4 Inspiration

The inspiration phase in a service design project is about going out into the unknown and immerse oneself into an environment. It is about diverging your ideas and thoughts,
and widening your perspective. Ideo puts it as stepping into another person’s shoes. The methods we used here were desk research, expert interviews, a one day internship, and using trigger material to spark conversations.

**Starting Point**

The starting point of the thesis was an idea that was sparked from a meeting with a designer at a company that deliver digital systems to restaurants. She told us that the restaurant business in Sweden is the least digitalized, alongside farming and constructing. This opened up ideas to reduce food waste with digital solutions and interaction design, and made the problem interesting.

We touched briefly on a concept that would use the data that this company collects for a restaurant, e.g. what they sell, what is on the menu, and what they purchase from farms — and use that with additional data such as weather and social event data to forecast how many guests that would come to a restaurant. But this idea was soon dropped due to non disclosure agreements within the company.

**Desk Research**

This term is analogous to preparatory research, or literature research. This was done to find out what had been done before in the area, and to get to know the problem better. This laid out the foundation for the previous part, the introduction, and also for the interviews described in the next section. Four areas of interest to reduce food waste was found in the ReFED action guide [7], which are described in figure 5.

![Fig. 5: Interpretation from the ReFED action guide](image)

1. **Measure Food Waste**
   Measuring the food waste of a restaurant is something that is ranked highly profitable by ReFED, but has a low feasibility. This made it interesting to go forward with, and initiated the question: why is it hard for restaurants to measure their food waste? The idea of this is that when a restaurant has data on what they waste, they can take the appropriate actions to reduce it.

2. **Demand Forecasting**
   The idea to use data to forecast when customers would visit a restaurant that was thought upon in the previous section was also mentioned in the ReFED action guide, as demand forecasting. We also found that other companies in the United States are doing this exact idea. This along with the non disclosure agreement led us to drop the idea, and look for something that has not been done yet.

3. **Use Imperfect Groceries**
   Imperfect groceries are those that does not look like you would find them in the supermarket. It could be a bent carrot for instance. This produce is often wasted before restaurants can buy them, which made it an interesting question to ask in the interviews.
4. Closer Connection to Suppliers
Having close connection to the suppliers as a restaurant helps reducing food waste since a supplier might have demands on minimal order size et cetera. If a restaurant has close connections, they can get better deals and order the right amount of food.

These four areas above was a good starting point to include in the interviews that are described below.

Explorative Interviews
Four interviews with different restaurants was conducted in Stockholm in February. These interviews was done as explorative expert interviews to understand the restaurant and the problem area better, and to find out where a possible solution could be introduced.

Semi Fancy Restaurant The first interview was held at a restaurant that served around 80 people. They had a fixed menu and served meat. The interviewee was a sous chef and had good knowledge about the business. Things that came out from the interview was that they had good connections with the suppliers, and he said that suppliers could seldom make demands — which made question number four (closer connection to suppliers) less interesting.

Ecological Grocery Store and Deli The second interview came to a short end since the grocery store did not have their own kitchen. But one thing that came out was that imperfect produce (question 3), also called Class 2 Produce, was easy to get a hold of. “Just ask for it to the suppliers” was something she said.

Fine Casual Vegetarian Restaurant The third interview took place with the head chef of a vegetarian restaurant. He talked about how it was hard to keep track of everything that he had to order to the restaurant, and he said he did not have the possibility to order class 2 produce because of a contract with a supplier. We also talked with the lunch chef that was in the kitchen. He said he had a lot of freedom to create recipes for the lunch each day.

Renowned Zero Waste Restaurant The last initial interview was held at a renowned zero waste restaurant. The zero waste movement in the restaurant business aims to reduce waste to a minimum in all forms, and this restaurant had done it good. We talked a lot about using imagination to reduce waste, which they did by using parts of vegetables that traditionally is not used in restaurants. They did this by using their imagination by coming up with new recipes.

5 Ideation
This section explains the ideation phase of the project. After the initial interviews, it felt like we had a good foundation to stand on. It was time to concretize what had been found and try to dig deeper. This section both contains methods to converge ideas down to something tangible, and doing more research in terms of interviews to find out more.
Defining the Area

After the initial interviews, we felt that we had to narrow down the area a bit to find out where we should focus more. To do this, we mapped out the most interesting topics that came out, quotes, and other information on something we called a download map (see figure 6).

![Download Map](image)

From this map, we made the decision to rule out some solution areas:

1. **Measure Food Waste** — though one of the "top ranked" solutions from the ReFED action guide, this area was ruled out since it would require interceptions inside the kitchen, with things like special scales and bins for measuring the waste.

2. **Demand Forecasting** — As stated in section 4, bullet 2, other companies are doing this which made it less interesting, also, this would require us to enter the existing ordering and sales systems of a restaurant, which would make the solution tied to one restaurant and more narrow.

3. **Use Imperfect Groceries** — Since this seemed to be possible from the interviews, we kept this area to go forward with.

4. **Closer Connection to the Suppliers** — This was ruled out early, since the suppliers did not seem to be able to make too many demands, as stated above.

Concretizing

Although no area was set to be the winning one from the interviews, we could at least rule out some areas, which was also valuable. The areas were meant as a guide in the interviews, and there were no guarantees that they would work. But, the interviews led us to something else, which was the area of imagination. It showed that the last restaurant we interviewed had succeeded in taking care of waste by using their imagination to the fullest. "Waste is a failure of imagination" is a quote that the interviewee said during the interview, and it led our work forward. We chose this area since it can be incorporated into many restaurants. Even though the first interviewees did give us a clear insight directly, they showed us that imagination could be implemented there too. The use of imperfect groceries could also be included into this area, since imagination enables a chef.
to use produce that may not have been used before. This insight served as a new starting point in the project, and an area to dig deeper into.

One more interview was conducted right after this, as a phone call with a chef that also tutors at the university of Umeå. We talked about imagination and he mentioned that it comes natural to many chefs, and that chefs do not want to throw away food, but they just do not have the time to always take care of it. This led us to add a third parameter to the idea — to enable chefs to have time for imagination (see figure 7).

![Fig. 7: The three parts of the main idea — imagination, imperfect groceries, and time](image)

**Restaurant Internship**

A one day internship was done at the same restaurant as in section 1.3.3, the fine casual vegetarian restaurant. The internship took place during morning prep and lunch service. This method of researching is what Ideo calls "Immersion" [10]. This was done to get a deeper understanding in how it is to be working as a chef and to be able to design something that is closer to the context where the solution should live.

![Fig. 8: A one day internship at a restaurant](image)

The internship gave insights such as that chefs are very stressed in their day to day work. When lunch service comes, a chef just wants to know what needs to be done, and do it as quickly as possible. There is no time for reflection or imagination — it is about getting the food out as quickly as possible. This made us realize that the designed solution should not be aimed for the chefs in the kitchen, at least not when they are working there, but more to a restaurant manager, or head chef, that have time outside the kitchen as well.

*Design Process*
Digging Deeper

The idea in figure 7 was set as a starting point to continue from. When that had been set up, we realized that we needed more information to understand if the use of imagination could be set up realistically in a restaurant kitchen. To do this, we wanted to make more interviews, but with trigger material that we could show the interviewees. Trigger material is usually an artifact that you show to get reactions, and to set the user in a more defined context, so that they can imagine how it could be if that artifact would exist. It is better than to just say things in words, since an artifact is more tangible [11].

First, a user journey was created to visualize different actors in a kitchen and how they work. The users were the evening staff handling the a la carte cooking, the prep staff doing the preparations of food during daytime, the head chef of the restaurant, and the lunch staff. These users were made up from the various interviews we had done before. The user journey mapped out when an actor started working during the day and what they were doing. Figure 9 is a simplification of the user journey that was created for the project, for visualization purposes.

![User Journey Diagram]

**Fig. 9:** A simplified user journey from the findings in the research

The second trigger material was an actual idea that we had for the solution of the problem, but quite abstractly put. This also helped us get an idea of what the solution could look like, without going too specific directly. The concept (figure 10) was split up into three parts. First, an idea bank for the restaurant staff to find inspiration and see what others had done with their waste. Second, introducing a dish on the menu that would be made out of produce that would otherwise go to waste. This could be scraps that comes from prepping food. Third, introduce an app that lets customers find where this dish can be purchased.

*Design Process*
**Trigger Interview 1**

The main reason for the choice of restaurant to interview was because they had a vegetarian dish on the lunch menu that was made from food that would otherwise be wasted. This aligned perfectly with our idea, and we wanted to know more how they had succeeded with the concept. The things that came out from the interview that seemed to be success factors were:

**Communication** To communicate to the public why taking care of food waste is critical was both hard, and important, he said. Also, to communicate the message inside the restaurant itself was crucial. To get all employees on the same track so they could later communicate the message to the public. “They are the best ambassadors of the idea, so they have to be on board”.

**Decisiveness** One factor that made them succeed was decisiveness. “You have to go for it” was something the subject said. He explained that when doing things out of the ordinary, you have to stand your ground and be sure of what you do. “Sure, we may have lost a few customers, but we’re doing this for the greater good.”.

**Time** He also mentioned time as an important factor. “Don’t add extra labour to the chefs, make it easy for them. Instead of adding something extra, remove something to make space for the new ideas.”.

After the interview, we updated our main idea, as seen in figure 12.
We then looked at the trigger material with the interviewee, and he helped us make the journey map more complete from his experience. He liked the idea we showed him, and mentioned that it was important to focus on concepts and ideas in the first part of our solution (the idea bank), and not have specific recipes. As he said:

“Chefs does not use recipes, we take inspiration and create something from that”

**Trigger Interview 2**

This interview was done at the same restaurant as 1.3.1, the semi fancy restaurant, but with the restaurant manager. This time, the interview was about finding out what a sustainable restaurant was from the eyes of a manager, as well as getting feedback on a booklet (see figure 13) that acted as trigger material in form of design fiction. The booklet contained the idea that is described above in section 1.6, as well as informative text targeted towards managers. The complete booklet can be found in the appendix, section 12.
the concept at lunch restaurants, or lunch restaurants that also has an evening menu. But like he said:

“A customer that comes here wants to have fun, and feel like it’s Friday even though it’s a Tuesday, and then you don’t want to think about whether you order sustainable food or not”

**Profitability** He also talked about the idea’s potential profitability, and was positive about it. He thought that an idea like this could be favourable for a restaurant if it could:

1. Bring more customers — If you could let new customers find the restaurant through the customer app, it creates a new revenue stream for the restaurant.

2. Lower the cost of the ingredients — If the purchase price of the ingredients for the dish is significantly lower, the restaurant would make money on the dish, even though it has a cheaper list price than a regular lunch dish.

He talked about that in the end, a restaurant has to look at the profitability, and that it becomes a good incentive to start the concept in a restaurant. The trigger material in itself worked great to spark conversation, he flipped through the pages back and forth and was interested in the idea.

**User Survey**

At this point in the design process, a user survey was created to see what opinions customers have towards a sustainable lunch option. This survey is what is described in the next part of the report. The results were promising. Roughly one third of 165 respondents would choose a sustainable dish on the menu. The survey was created since we wanted some facts to rely on when presenting the concept to a potential restaurant.

**6 Implementation**

After the user survey was done, a website was designed as the last design proposal for the concept. It was designed in the program Sketch ⁵, and was not implemented with any code, but for visualization purposes. A final design fiction you could say.

The website acted like a portal for restaurants that would be interested in adopting the sustainable dish concept. The name for the company that would have the website was set to “Future Food”. The selling points for the company Future Food was set to be:

- Have a mobile application that would enable the restaurant to be seen, and to get tips on how to cook the sustainable dish
- Present the user study and the findings there, what a restaurant could think of when designing the menu
- Have recorded interviews with successful restaurants that had adopted the concept
- Have a download page where restaurants could get assets such as menu icons for the sustainable dish

⁵ [https://www.sketch.com/](https://www.sketch.com/)
Fig. 14: The landing page of the website when a user scrolls down
Part III

Evaluation
This chapter will go through the evaluation of the concept presented in the previous chapter. This is done in a more scientific fashion compared to the design description in the previous chapter, and will be presented with a short introduction to what was tested, the method chosen, the results of the test, and a discussion in the end.

The full concept that was designed in the previous chapter resolves around one idea — to have a sustainable dish on the menu of a restaurant. This idea consists of three parts (see figure 15). The first part is an app for the chefs of a restaurant to find new ideas for the sustainable dish. The second part is a menu where customers can see what the dish consists of, and also the part where the customers get the information about the sustainable dish concept. The third part is a customer application where they can find restaurants that have the sustainable dish.

The second part in figure 15 was tested in a survey to find out what customers think about the concept. This methodology is called Concept Testing in the area of market research, and can be used to see customers attitudes towards new concepts. As Kahn puts it in his book:

“Early in the NPD (New Product Development) process, concept testing is performed to proof concepts under consideration...” [12].

which is what we will do in this test, and he then continues:

“... and determine those concepts that customers find most favorable.” [12].

which this test did not handle. This refers to concept tests that tests variations of a single product, to find the optimal one. This test will more act as a first point for a completely new concept, and the question we will try to answer is:

“Is this concept something that could be adopted by people who buy lunch on a regular basis in Sweden?”.
Concept tests can be done in different ways, and test different variations of the product in question. This test however is done as a monadic test. A monadic test is when you show the participants one concept at a time, opposed to sequential testing where they are shown multiple concepts after each other. This could for instance be a new graphic design for a food product that you want to test, and show multiple designs at the same time.

This survey acted as a selling point to strengthen the concept, and to be able to prove to people that might be uncertain of the concept that it might have a potential place in the market.

7 Method

The users in the concept survey were asked to choose what they would like for lunch from a restaurant menu. The idea was to have a typical menu found in the restaurants of Stockholm, but with one of the dishes as a sustainable dish like the one described in the previous part of the report. The idea was to see how many customers would choose that dish over the other dishes, and to get useful comments about the concept.

As said before, the concept survey was not made to optimize the design of the menu, the wording in the menu, or images used, but rather to see if the users were positive to the concept that was presented.

Survey Design

The survey was split up into three different menus, with different style of food. This was done to prevent the customer from being forced to choose something that they would not like to eat. Or at least make the decision somewhat more realistic, similar to when choosing a restaurant to go to in real life. These three menus were otherwise identical in terms of the presentation of the sustainable dish. This can be seen in figure 16.

![Fig. 16: The question design in the survey](image)

The users were first asked to choose which restaurant they would like to go to, with the options: 1. Asian Restaurant, 2. Swedish and Classical food, 3. Simple Wraps. The order of these options was randomized.
The users were then asked to choose from the menu. After that, the concept was presented again, and the users were asked if they had read the information text (see figure 17) about the sustainable dish. They were then asked how likely they would be to choose a sustainable dish like that, and in the end there were questions about how much they strive to live a sustainable lifestyle, and also general questions to see what age they were and in which sector they were working, and how often they eat lunch. The full survey design can be found in the appendix, section 13.

**Menu Design**

The sustainable dish was not labeled with any name, but with a symbol. The symbol was found again in the end of the menu, with a text that described the sustainable dish. This can be seen in figure 17. The dish was priced lower than the other dishes with about 25%. The ingredients in the other dishes on the menu was taken from existing restaurants, but the name of the restaurant was changed. All menus can be found in the appendix, section 13.

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![Fig. 17: The explanation of the sustainable dish as the consumer saw it](image)

**Users**

The survey was sent out to 9 offices in Sweden, all working within IT, design, software development, advertising, and digital creation. It was also sent out on the professional social space LinkedIn. This resulted in most users being in the same working sector, which

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6 [https://www.linkedin.com/](https://www.linkedin.com/)
has similar salary levels. As of prior knowledge, it was known that people within these sectors working in Stockholm buys or eats lunch at restaurants on a regular basis.

**Hypotheses**

1. Sustainability reasons by themselves will not be the driving factor in why the customer chooses a dish like this. Other factors such as price will be more important.

2. The menu design will not be perfect, and could be made better for a higher hit rate

**8 Results**

This section presents the results of the user survey. Some results were excluded since they were not of any use to the concept. We will show the user groups that answered, the reasons to why users did or did not choose the sustainable dish, and present comments that caught our attention.

**General User Results**

The survey had 165 respondents, all working or studying in Sweden. Most participants were in the age of 18-35 or 28-35. Around 6% were not currently working, and the rest worked with some kind of office job, where Data, IT, and Design were most prominent. Around 82% were living in a big city like Stockholm.

![Age Distribution](Fig. 18: User results from the survey)

![Area of Living Distribution](Fig. 18: User results from the survey)

![Job Sector Distribution](Fig. 18: User results from the survey)

**Positive Opinions**

57 of 165 (34%) of the users reported that they would choose the sustainable dish after looking at the menu. This is an aggregated result from the three different menus.

![User Groups](Fig. 19: The ones who did and did not choose the sustainable dish)
The respondents in group A were also asked why they chose the dish they chose, and three main opinions were discovered among the comments. These were vegetarian/vegan, sustainable and/or price reasons. Figure 20 resembles the opinions found in those belonging to group A (see figure 19), and we see that the people with price and vegetarian reasons were more to the amount, and sustainable reasons were lower. The people could have all three opinions, or just one, as depicted in the figure. We see that vegetarian and price reasons together are the most protruding.

Fig. 20: Amount of people that chose the sustainable dish, and the reason why they chose it

**Negative Opinions**

When looking at the same question for group B, we see that price is no longer a driving factor in the decision of what to eat. We see that 67% of the users in this group wants a dish that they are familiar with, and 29% would choose because they are urging something specific on the menu. The people in group B was less likely to choose something because of vegetarian preferences.

Fig. 21: The top three reasons why people in group B chose as they did on the menu
Cross referencing

The users were also asked in the end how likely they were to choose a dish that was sustainable, on a scale of 1 to 10, regardless of what they had chosen before. The people who had chosen the sustainable dish in the first section of the survey, had a mean value of 8.8 (variance 1.5) when asked how likely they were to choose a sustainable dish, and the rest who chose something else had a mean value of 7.2 (variance 4.4).

Visibility of Info Text

One question in the survey asked if the users had seen the information about the sustainable dish, and if they had read it (see figure 17 for the text in the menu).

![Fig. 22: The amount of users who saw and read the sustainable info text](image)

When comparing the two groups (group A and B, see figure 19), we saw that about 57% of group A read the text, while the same number in group B was 25%. 17% in group A did not see the text at all, and this number in group B was 39%. About 25% in both groups saw the text but did not read it, see figure 22.

Outliers / Comments

“...I noticed the sustainable dish and considered taking it but I don’t like sweet potato so I didn’t take it.”

“Because I like salmon. I would’ve chosen the Buddha Bowl if I would’ve read the text at the bottom before ”ordering“.”

Comments About the Menu

“Too much text. Could it be explained easier with more symbols maybe?.”

“I think the concept should be communicated in a more direct and positive way. This is slightly too convoluted.”
“It sounds “good” and “responsible” but lacks taste-element that triggers the brain better. You want something that also says to taste great.”

“Good thing. But maybe it needs to be more conceptualized and described better so the overall feeling isn’t that you’re ordering something less good, or leftovers.”

“Like it! I checked the icon but didn’t read the text. Maybe it’s possible to short it down a little and have a more positive tone? :)

“Skeptical, is it really sustainable/better for the environment? ... Sounds like a marketing fad.”

“I love the concept! I’d be very happy to see it in real life. I’m not quite sure about the phrasing, though... maybe it should start with the positives (less waste, more mindful consumption, less CO2, etc.)”

9 Discussion

We will here discuss the results and try to bring clearness into the biases that were found in the survey, as well as bring up the limitations. It is hard to reason if the amount of people that chose the sustainable dish was enough. To know that, one would have to make calculations on how profitable it would be if that amount of people chose the sustainable dish. That is something that would require another study. However, as the restaurant manager said in section 5, the dish would be cheap to make, since it is made out of things you would throw away anyway, so having about a third of the customers choosing the dish is considered quite good.

Positive Opinions

When looking at figure 20, we see that there were three main reasons to why people chose the sustainable dish. These were Price, Vegetarian/Vegan reasons, and Sustainable reasons. Our first hypothesis was confirmed, that sustainability reasons alone was not the driving factor to why people would choose the dish, but rather price.

Price seems to be a good selling point for the dish, and as we think, if you can gain something more than just being sustainable, more people would choose the sustainable option. This is different from how sustainable options are being presented today, with ecological food as an example. It is often more expensive to take the more sustainable choice, but this makes it harder for those who does not care as much about the environment, or do not have the money for it, to act sustainable. To open up positions were a lower price could be more sustainable, we enable more people to act good, which is what we want in the end.

We did not expect as many people choosing the dish just because of vegetarian or vegan reasons. If someone chose the dish purely because of this reason, they could also choose something else that was vegetarian or vegan but not equally sustainable. This is discussed further in section 9.
Negative Opinions

Figure 21 shows the main reasons to why people did not choose the sustainable dish. A big factor here is that many people stick to what they are familiar with. This leads us to think about nudging, which is ways to make people take decisions they might not be used to take. This can be especially important when choices are presented in a menu. As Johnson et al. puts it “what is chosen often depends upon how the choice is presented” [13]. In nudging, there is a specific bias that is mentioned, called the status-quo bias [14], which explains that people often stick to what they know. A way to handle this is to change the default value that a user is presented with, and if we somehow could nudge the user into taking the sustainable choice, it could benefit the study.

Another big factor that we saw in the results is that people tend to choose what they are urging in that moment. This makes us think that maybe the specific dish that was presented to the user was not to their liking, but the concept in general was. Having more sustainable choices on the menu would make this error lower. This was also confirmed with comments like “… I noticed the sustainable dish and considered taking it but I don’t like sweet potato so I didn’t take it.”.

We also saw that price was a low factor for the people that did not choose the sustainable dish, which tells us that they would not choose the sustainable dish just because it was cheaper, but if it would be more to their liking. It is therefore important not to rely simply on a lower price, but a high quality dish as well.

Limitations

We will here discuss the limitations of the survey and the menu and what could have been done to make the experiment better.

Demand Characteristics One thing that is common when doing experiments and surveys are the fact that participants can tend to choose an answer that they feel is the right choice, even if they would not do it in real life. There are many terms for this phenomenon, and one is Demand Characteristics [15]. In this case, the users could tend to choose the sustainable dish because it sounds like the right thing to do, while they in fact would choose something else in a restaurant. With this in mind, the result of 34% choosing the sustainable dish is expected to be a bit lower.

The survey was however designed to limit this as much as possible, by not introducing the users with things like “In this survey we will present a new sustainable concept…”, but rather, the expectancy of the participant was to imagine themselves in a restaurant, and choose what they would like to have.

The best thing to do would be to make the test in a real life situation, in one or more real restaurants, over a certain time period, but the budget for that was simply not there for this thesis.

Targeted Users Although the amount of respondents was quite high in the survey, one thing that was limiting the results in a negative way was the targeted users. As seen in section 8, almost all of the respondents was having some kind of office job. It would be great if other working sectors would be part of the survey as well to have more general result. People working in other sectors could have very different opinions.

One thing that we know by experience is that people having office jobs in Stockholm and works in technical companies, IT, and design, often go and eat lunch, and could be a big part of the people who visits the local restaurants every day.
Menu Design  When looking at the results from section 8, we see that 39% of the people from group B (the ones that did not choose the sustainable dish, see figure 19) did not see the text that explained the sustainable concept in the menu. This combined with that 57% of the people that chose the sustainable dish, also read the text, leaves us to think that if more people would have seen the text, it would be a higher chance of people choosing the dish. The result of this is that the design of the menu could be done better, and that there is room for improvement.

When looking at the comments from section 8, we can consolidate that the information text could have been shorter, less convoluted, and more positive. This is something that can be done in the future if the concept is taken further.

Vegetarian Reasons  After the study was made, we noticed that many people chose the sustainable dish because it was vegetarian or vegan. This made us think that some people could have also disregarded the dish for the same reason, people that want meat in their diet. As a future work, it would be good to introduce the option to add meat to the dish to get a bigger target audience, since the concept is not about vegetarianism, but food waste.

10 Conclusion

The results of the survey was regarded positive for the project. The main point of the survey was to act as a selling point for the concept itself, and to see if customers would be positive to such a concept, and in that regard, the concept was successful. When looking at the hypotheses:

1. Sustainability reasons by themselves will not be the driving factor in why the customer chooses a dish like this. Other factors such as price will be more important.

2. The menu design will not be perfect, and could be made better for a higher hit rate

We can say that both were confirmed. These were quite easy to guess before hand, but they held true after analyzing the results.

Something that would be interesting to do as a next step of this project would be to pitch the idea to investors or restaurants to see if they would evaluate the idea as successful. After that, the real website as seen in section 6 could be launched and filled with real interviews and content.

11 Acknowledgements

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References


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Part IV

Appendix
12 Trigger Booklet

The trigger booklet that was used in an interview.
Låt gästerna hitta dig

Välj ditt stall för att matcha

Typ av stall för att matcha: man

Select your stall for matching: men
13 User Survey

The full user survey is appended after this section.

Appendix

42
What do you want for lunch?

We have created a set of menu choices and your task is to choose what you want to eat for lunch. It takes about five minutes to answer and your answers will be used in research at Umeå University. Your answers will be treated anonymously.

Win a lunch! We are very happy for your participation, and you will have the chance to win a lunch with us in Stockholm as a thank you.

It's ok to give your answers in Swedish.

*Required

1. It's time for lunch! Which restaurant would you choose? *

   Mark only one oval.

   ☐ Asian Restaurant  ❇️ Skip to question 2.
   ☐ Classical and Swedish Traditional Dishes  ❇️ Skip to question 4.
   ☐ Simple Wraps  ❇️ Skip to question 6.

Good choice! You have arrived at a restaurant and you're now choosing from the menu. We want you to read through the menu as you're used to, and then choose what you would like to have.
Makgeolli

Bibimbap
Bulgogi beef with crisp lettuce, sour radish, kimchi, sesame seeds, spinach, and korean rice.

Pad Thai
Stir fried rice noodles with chicken (or tofu) with egg, vegetables, crushed peanuts, chili flakes, & lime

Spicy Tuna Rolls
Sashimi graded tuna, chili mayo, cucumber, avocado, crisp salad, sesame seeds.

Buddha Bowl
Buddha bowl with roasted sweet potato, roasted black beans, mixed rice, carrot, green onion, sriracha mayo

Poké Bowl
Chopped salmon or tofu, sushi rice, baby spinach, sesame mayo, pickled onion, avocado, roasted sesame seeds.

Phô
Vietnamese noodle soup with broth, beef cooked at low-temperature, sprouts, fresh herbs and rice noodles

109 SEK

https://docs.google.com/forms/d/19Nx7DyOXnsos5m0eHmzjEMOoDv3s-Pdh0jthYOVNvE4o/edit
2. Which dish would you choose? *
   Mark only one oval.
   - Bibimbap - 109 SEK
   - Pad Thai - 109 SEK
   - Spicy Tuna Rolls - 119 SEK
   - Buddha Bowl - 89 SEK
   - Poké Bowl - 109 SEK
   - Phô - 109 SEK

3. Why did you choose that dish? *

   ____________________________
   ____________________________
   ____________________________
   ____________________________
   ____________________________
   ____________________________

   Good choice! You have arrived at a restaurant and you're now choosing from the menu. We want you to read through the menu as you're used to, and then choose what you would like to have.
Cauliflower soup with pork belly
Soup of the day topped with bacon and apple. Can be made vegetarian or vegan.
120:-

Wallenberger
Finely minced veal beef from our original recipe. Served with our own lingon berries and small peas.
195:-

Egg florentine
Sourdough and leaf spinach, Salmon and poached egg. Served with an avocado salad. Can be made vegan.
145:-

Pasta sofrito
Pasta sofrito with tortiglioni, cocktail tomatoes, roasted pumpkin seeds, gremolata and parmesan. Can be made vegan.
95:-

Portabello burger
Served with a salad, tomato, pickled onion, horse radish mayonaise and coleslaw.
135:-

Pasta with salmon
Salmon filet served with a cream sauce, cherry tomatoes and baby spinach
145:-

The sustainable dish is made from ingredients that may not look perfect, or parts of a vegetable that normally isn’t used. We don’t make exceptions for the quality of the dish, and we let the chef use all of her knowledge to create a dish that is better for you, the environment, and your wallet!
4. Which dish would you choose? *
Mark only one oval.

- Cauliflower soup with pork belly - 120:-
- Wallenberger - 195:-
- Egg Florentine - 145:-
- Pasta Sofrito - 95:-
- Portabello burger - 135:-
- Pasta with salmon 145:-

5. Why did you choose that dish? *

Good choice! You have arrived at a restaurant and you're now choosing from the menu. We want you to read through the menu as you're used to, and then choose what you would like to have.
# WINNIE

**Today's Wraps**

<table>
<thead>
<tr>
<th>Wraps</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAESAR WRAP</strong></td>
<td>99 SEK</td>
</tr>
<tr>
<td>Parsley and garlic-roasted chicken served with a fresh caesar salad, bacon and a nice Italian parmesan cheese</td>
<td></td>
</tr>
<tr>
<td><strong>PORK SLAB WRAP</strong></td>
<td>99 SEK</td>
</tr>
<tr>
<td>Slow cooked pork belly served with coleslaw, pickled red onion, pickled chili, cheese, salad, chili dressing och roasted onions</td>
<td></td>
</tr>
<tr>
<td><strong>Winnie Weekly Wrap</strong></td>
<td>99 SEK</td>
</tr>
<tr>
<td>Double CheeseBurger Wrap, 2 cheesy good hamburgers topped with cheddar cheese and served with hamburger dressing, tomato, red onion och chips</td>
<td></td>
</tr>
<tr>
<td><strong>Falafel Wrap</strong></td>
<td>69 SEK</td>
</tr>
<tr>
<td>Fresh falafel wrap with a beet root hummus, sweet potato crisps, cherry tomatoes, pickled onion, and a fresh salad. Sustainable let's go!</td>
<td></td>
</tr>
<tr>
<td><strong>Winnie Veggie Wrap</strong></td>
<td>99 SEK</td>
</tr>
<tr>
<td>Los VegMe Vego - Soy mince spiced with South American flavours, served with guacamole and sweet peas, pickled onion, red quinoa, roasted garlic creme, corn and chives</td>
<td></td>
</tr>
<tr>
<td><strong>Tokyo Wrap</strong></td>
<td>99 SEK</td>
</tr>
<tr>
<td>Sushi rice, sashimi salmon, carrot and cucumber sticks, avocado, pickled ginger, lovely roasted sesame seeds, and a nice sesame dressing</td>
<td></td>
</tr>
</tbody>
</table>

The sustainable wrap is made from ingredients that may not look perfect, or parts of a vegetable that normally isn’t used. We don’t make exceptions for the quality of the dish, and we let the chef use all of her knowledge to create a dish that is better for you, the environment, and your wallet!

All wraps can be made vegetarian/vegan.

[https://docs.google.com/forms/d/19Nx7DyOXnIsos5m0eHmaqEMOjV3s-Pdht0jthYOVNvE4v/edit](https://docs.google.com/forms/d/19Nx7DyOXnIsos5m0eHmaqEMOjV3s-Pdht0jthYOVNvE4v/edit)
6. Which dish would you choose? *  
*Mark only one oval.

- Caesar Wrap - 99 SEK
- Pork Slab Wrap - 99 SEK
- Winnie Weekly Wrap - 99 SEK
- Falafel Wrap - 69 SEK
- Winnie Veggie Wrap - 99 SEK
- Tokyo Wrap - 99 SEK

7. Why did you choose that dish? *

---

8. When you looked through the menu, did you see this text? *

*Mark only one oval.

- Yes I read it
- Yes, but I didn't read it
- No, didn't see it

---

The sustainable wrap is made from ingredients that may not look perfect, or parts of a vegetable that normally isn’t used. We don’t make exceptions for the quality of the dish, and we let the chef use all of her knowledge to create a dish that is better for you, the environment, and your wallet!

Imagine that this concept is something that can be found in many restaurants near you, and the next time you’re at a restaurant, you see this text.
The sustainable wrap is made from ingredients that may not look perfect, or parts of a vegetable that normally isn’t used. We don’t make exceptions for the quality of the dish, and we let the chef use all of her knowledge to create a dish that is better for you, the environment, and your wallet!

9. How likely would you choose a dish like that? *
* Mark only one oval.

Not likely 1 2 3 4 5 6 7 8 9 10 Very likely

You now get the information that dishes with this mark always is 25% cheaper than other dishes on the menu in different restaurants.

If the average price for the dishes on a menu is 100 SEK, then this dish would cost 75 SEK.

10. How likely would you choose a dish like that? *
* Mark only one oval.

Not likely 1 2 3 4 5 6 7 8 9 10 Very likely
11. What are your thoughts about the concept? *

______________________________
______________________________
______________________________
______________________________
______________________________
______________________________

Skip to question 12.

Hope the food was to your liking! We will now ask you a few questions about how you eat lunch, and then some general questions to wrap up the interview.

12. Generally, how often do you go to a restaurant to buy or eat lunch? *
   
   *Mark only one oval.
   
   ○ Never
   ○ 1-3 times per month
   ○ 1 time per week
   ○ 2 times per week
   ○ 3 times per week
   ○ 4 times per week
   ○ 5 times per week
   ○ Other: __________________________

13. What is important for you when you choose a lunch restaurant to go to?

______________________________
______________________________
______________________________
______________________________

14. When choosing on the menu, what is usually driving your decision?

______________________________
______________________________
______________________________
______________________________

15. To what extent do you strive to live a sustainable lifestyle? *
   
   *Mark only one oval.

   1  2  3  4  5  6  7  8  9  10
   
   ○ Not at all
   ○ To a high extent

This is the last part!
16. **What's your age?** *
*Mark only one oval.*

- [ ] Under 18
- [ ] 18-27
- [ ] 28-35
- [ ] 36-45
- [ ] 46-55
- [ ] 56-65
- [ ] 66+

17. **Where do you live?** *
*Mark only one oval.*

- [ ] Smaller district / country side (15 000 - 40 000 inhabitants)
- [ ] Middle sized city (50 000 - 200 000 inhabitants)
- [ ] Bigger city (over 200 000 inhabitants)

18. **Within which sector are you working?** *
*Mark only one oval.*

- [ ] Currently Studying / Not working
- [ ] Data, IT, Design
- [ ] Art, Architecture, Design (Konst, Arkitektur, Design)
- [ ] Engineering and Technical (Ingenjörsjobb och teknik)
- [ ] Manager and HR (Chefsjobb och personal)
- [ ] Retail and Service (Detaljhandel och service)
- [ ] Industry and craftsmanship (Industri och hantverk)
- [ ] Sales and communication (Försäljning och kommunikation)
- [ ] Education (Undervisning)
- [ ] Office and economy (Kontor och ekonomi)
- [ ] Healthcare and Social Work (Socialt och hälso- och sjukvård)
- [ ] Other jobs (Övriga jobb)

**Do you want to win a lunch? 🍴🌟**

We'll take you out to lunch if you win, you decide the date! The winner will be randomly chosen and emailed. Limited to Stockholm in May.

19. **Enter email address**