Appendix

In the appendix materials are presented which show more detailed results compared to the report itself or explanations of certain methods.
Appraisal Project brief
To be filled in by the chair of the supervisory team.

Chair: Ruth Mugge  
Date:   
Signature:   

Check Study Progress
To be filled in by the SSC E&SA (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:   

Department of Technology, Management & Innovation (DTM) is not yet in Osiris:   

Formal Approval Graduation Project
To be filled in by the Board of Examiners of IDE TU Delft. Please check the supervisory team and study the parts of the brief marked **.
Next, please assess, (dis)approve and sign this Project brief, by using the criteria below.

Content:   
Procedure:   

IDE TU Delft - E&SA Department /// Graduation project brief & study overview /// 2018-01 v30

Initials & Name L.A.J. Hoogeveen  
Student number: 4364945  
Title of Project: Circular Kitchen Products  

Page 1 of 7
Circular Kitchen Products

Please state the title of your graduation project (above) and the start date and end date (below). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

**INTRODUCTION**

Please describe the context of your project, and address the main stakeholders (interests) within this context in a concise yet complete manner. Who are involved, what do they value and how do they currently operate within the given context? What are the main opportunities and limitations you are currently aware of (cultural- and social norms, resources (time, money, ...), technology, ...).

---

Company: ATAG Benelux

ATAG Benelux is a leading supplier of kitchen appliances. We are a Dutch company and sell kitchen appliances under the brands ATAG, Pilgrim and Etina. Since 1 June 2017, we also take care of the distribution and service of Aiko dishwashers, washing machines and dryers. Our brands have a high brand awareness in the Benelux. The sale of kitchen appliances is done through kitchen and electrical compartments, electrical chains and through the kitchen industry. ATAG Benelux currently has more than 450 employees and is located in Duiven, near Arnhem. ATAG Benelux also has a branch in Denderhoutem (Belgium) where about 45 employees work.

ATAG and Hisense, a good combination of knowledge

In 2018, ATAG Benelux was acquired by the Chinese Hisense Group. Hisense is a multinational with an annual turnover of over EUR 16 billion, 80,000 employees and represented in more than 130 countries. Hisense is a partner with whom we can share and exploit our knowledge and experience – in the field of both R&D Cooking and kitchen retail in the Benelux – and can be used worldwide.

ATAG and Circular Economy/Products

Within ATAG Benelux the main focus areas for Innovation is Circular Economy. We closely cooperate in this field with suppliers, clients, Universities and com-makers. As example we work together with University, Kitchen Supplier and housing corporations on a circular kitchen project for social housing. In 2018 we started the project of Circular Products. Together with students we investigated possibilities to implement Circular products in the market. Already quite some nice ideas have been developed to make our products more sustainable. Also new business models based on ownership can help the awareness for end users and producers to make products more sustainable.

One opportunity in developing the right circular products for end consumers is to design and market these products and the systems around them in a way that consumers will accept.

---

image / figure 1: Butterfly diagram representing the circular economy strategies

image / figure 2: Eight archetypes of Product Service Systems
The user/consumer acceptance of the model should be validated. The research will explore consumer perceptions of alternative consumptions (product service systems), inspired by what was done in this paper for clothing (Armstrong, et al., 2015).

This research aims to answer the questions: how will users experience the circular business models, how to design for it and how to stimulate sustainable use and handling.

Possible design strategies to find solutions for this:
- Product attachment for users
- Modularity of products and product parts
- Adaptability for different life cycles and new markets
- Interactive user interfaces

Expected result:
- Exploration of consumer perceptions of alternative consumptions (product service systems).
- User research
- A solution for circular design, probably a product service system (PSS)

Throughout the project, I will be working 4 days a week, in connection with board function

Phase 1 - Exploration
- RQ: What product would be suitable as case study for ATAG to develop a circular Product Service System?

Phase 2 - Research alternative consumptions
- RQ: What Circular Product Service System would be suitable? for the ATAG brand, for customer satisfaction, for acceptance and for positive environmental impact. What are consumer perceptions of alternative consumptions (product service systems), inspired by a paper by Armstrong et al (2015).

Interviews, Focus group with hypothetical scenarios. Talk to stakeholders, retailers.

Phase 3 - Ideation RQ1: How would the feedback/interface work in this Circular PSS?
RQ2: How would the use change? And how would the impact change?
RQ3: How to create added value for this Circular PSS for the users?
Co-creation, brainstorm sessions, creative facilitation, etc.

Phase 4 - Develop. Phase 4 is basically an iteration phase.
User tests, prototyping. Result: Concept of a circular Product Service System.
Motivation

From my personal page in my online portfolio:

“As industrial designers we have a responsibility on what products we create and what materials we push into the world. Our decisions have both indirect and direct influence on what happens to the products and materials. If we want to reduce the linear material flow, we have to do something about it.”

“The Circular Economy can help companies change their business model for a more environmental friendly one. And part of that is that products and materials are used longer and more efficiently.”

One of the most important topics I wanted to address in my graduation is sustainability, in the form of Circular Economy. Another important topic to me is being user centered: consumer acceptance and user behavior. During my studies I found that those topics can come together when designing sustainable Product Service Systems (in the courses SBM/SPSS, or sustainable consumer behaviour).

When designing a Product Service System, you design business models (creating value for company) and different kinds of ownership which results in a different interaction between user and product (creating value for the user). And if you do it right, the change in interaction can be positive towards sustainability and efficiency of use of materials (creating value for nature).

When I heard of ATAG looking for circular solutions for appliances, thinking of pay-per-use systems for kitchen stoves, I immediately thought I want to take this challenge.

Personal ambitions

I want to do this graduation project user research oriented. I want to really dive into the front end: exploring consumer experience and perceptions of Product Service Systems. I learned to do the theoretical part of that by doing the course Sustainable Consumer Behaviour. In various courses I have done small interviews. I have transcribed interviews as a student assistant and I helped mapping insights and conceptualising from interviews with projects of friends and in the ReCiPSS project with Sonja.

One ambition is to be able to write a scientific paper about this research, challenging myself to not only plan and do the research, but also write it down in an academic matter. (But I am not sure if this actually would benefit this particular project.)

Next to that, in my studies I have learned how to do user tests with a prototype. I would like to find out how to do such user tests with a product service system. How can you assess the user experience, in a quick manner? Some products you can let participants use for a few minutes and then you know, but how do you assess the experience of a different type of ownership?
A.1 | CORPORATE STRUCTURE

This project is done at ATAG Benelux. On the right you can see that ATAG Benelux is part of Hisense Gorenje Europe, which is part of the global Hisense Group.

Hisense Group

Since 2018, ATAG Benelux is part of the Chinese Hisense Group. This is a multinational company with an annual turnover of over EUR 16 billion. With 80,000 people employed and represented in 130 countries.

Hisense Gorenje Europe

In 2008 Gorenje group purchased ATAG Benelux. When purchased by Hisense in 2018, this was changed into Hisense Gorenje Europe.

ATAG Benelux

Sells kitchen appliances under the brands: ATAG, Pelgrim and ETNA. Since June 2017, also handles distribution and service of washing machines, laundry machines and dryers of the brand ASKO.

ATAG Benelux has over 450 employees and is based in Duiven. ATAG Benelux also has a location in Denderhoutem (Belgium), with approximately 45 employees.

ATAG Verwarming uses the same name and a similar logo, is however not at all related to the ATAG Benelux which is the company stakeholder of this project.

PROJECT SCOPE

This project is done at ATAG Benelux. On the right you can see that ATAG Benelux is part of Hisense Gorenje Europe, which is part of the global Hisense Group.
This page shows an overview of the internal structure of the company.

R&D and Product Management & Design is done at the location of ATAG Benelux, but is part of the international team of Hisense Gorenje.
A.3 COMPANY BRANDS

ATAG Benelux has five brands. The first three are the main brands, and are all known to be Dutch.

Hisense and ASKO got added in the past few years. In the Benelux, these brands do not have all kitchen appliances, but have dishwashers (Asko) and refrigerators (Hisense). Next to that, these brands have televisions, washers and dryers.

**Visie**
Het aanbieden van de beste producten en diensten om een inspirerende kookbeleving te creëren gebaseerd op innovatie en design.

**Missie**
Het ondersteunen van eindgebruikers in hun dagelijks leven door hun behoefte te vervullen m.b.t. keukenapparatuur; koken, gebruikersgemak, functionaliteit en levensstijl.

**Merkwaarden**
- Uniek
- Design & Functionaliteit
- Kwaliteit & Garantie
- Nederlands

**Visie**
Het aanbieden van een breed assortiment functionele keukenapparaten van fraai design op zo'n aantrekkelijk prijsniveau dat zoveel mogelijk consumenten in staat zijn het te kopen.

**Missie**
ETNA maakt kwaliteit betaalbaar! Wij realiseren dit door het merk te positioneren als het meest betaalbare A-merk van de markt. Doordat we de producten in Nederland ontwikkelen en testen zorgen we ervoor dat iedereen kan genieten van een mooie keuken.

**Merkwaarden**
- Verrassend modern
- Duurzaam
- De helpende hand
- Thuis in de Benelux

**Visie**
Technologie is onze passie. Echter, wij geloven dat technologie pas echt innovatief is, als het toegankelijk is voor iedereen. Als het zorgt dat producten makkelijker zijn in het gebruik en ze je leven aangenaam maken. Het gaat niet om wat het is; het gaat over wat het doet.

**Missie**
ASKO streeft naar een leidende positie in het hogere marktsegment op geselecteerde markten wereldwijd.

**Merkwaarden**
- Scandinavian design
- Care
- Professional solutions

**Visie**
ASKO streeft naar een leidende positie in het hogere marktsegment op geselecteerde markten wereldwijd.

**Missie**
Het leveren van een hoogwaardig was-droog-was assortiment waarbij we consequent producten en ervaringen van hoge kwaliteit die consistent voldoen aan, of overtreffen van, de verwachtingen van de klant.

**Merkwaarden**
- Scandinavian design
- Care
- Professional solutions
A.4 | MARKET AND TARGET GROUP

ATAG is the premium brand, for the more luxurious kitchens. Pelgrim is the decent brand for the modal incomes. And ETNA is the budget brand.

Projects market
This is B2B. Here ATAG works together with kitchen producers like Bruijnzeel or Keller. They also work together with investors, housing associations, holiday parks and estate managers. The users in this market are the tenants in the rental homes. They do not own or choose the kitchen.

ATAG offers various service packages for the owner, where for example he can buy all service for 10 years. For maintenance or repair users can directly contact ATAG.

New Kitchen (NK) market
Here ATAG sells mainly to kitchen retailers (B2B). This is where home owners buy an entire kitchen, with often multiple appliances.

Replace market
This market is also mainly B2B via Electronic retail and online players. Users can go here to buy single appliances to replace a broken one.

MARKET OF THE KITCHEN APPLIANCE BRANDS

TARGET USER

Users who want to enrich their lives with premium products and services in their kitchens, which help them to get more value out of: cooking, their lifestyle, functional appliances and the appearance of their kitchen. They have the ability and the desire to invest in these solutions.

Income: Above average
Budget: Above 12k EUR
Top criteria for buying
- Quality
- Design
- Functionality
- Sustainability
- Ease
- User friendly

The Pelgrim user looks, by the help of a professional, for a solution for his/her wishes in the kitchen with beautiful and easy appliances.

Income: Modal income
Budget: From 4k EUR
Top criteria for buying
- Affordable
- Ease of use
- Functionality
- Quality
- Measurements

The price aware consumer which is looking for the most value for his money. His need: No-nonsense products with a nice appearance and which are trustworthy.

Income: Below modal
Budget: Below 8k EUR
Top criteria for buying
- Affordable
- Quality
- Ease of use
- Design

Distribution of turnover of Brand ATAG, in the first 12 weeks of 2020.

Distribution of turnover of Brand Pelgrim, in the first 12 weeks of 2020.

Distribution of turnover of Brand ETNA, in the first 12 weeks of 2020.
Besides the designs of the products, the brands differ somewhat in the types of products that are offered. The differences are highlighted.

The product portfolios reflect the difference between the brands. With ATAG, the premium brand, having more luxurious options like the gas and induction combination cooking hob or the 3-in-1 oven. Also the fact that ATAG appliances are all recessed (inbouw). This is because this brand is doing better on the New Kitchen or Project market, where entire kitchens are bought. Stand-alone appliances are better suitable for lower budgets like the brands Pelgrim and ETNA.
A.6 | WARRANTY

All brands of ATAG Benelux have a similar warranty scheme:
2 years of legal manufacturer’s warranty. Including call-out costs, labor and parts.

After registration additional 3 years warranty. Additional warranty excludes: call-out cost, light and additional accessories.

This warranty scheme is only applicable when registration within 30 days after purchase.
De social cook
Saar

Maak kennis met de social cook: Saar

Saar is de moeder die dagelijks een gezonde maaltijd voor haar gezin kookt. Snel, makkelijk en zonder al te veel poespas. In het weekend vindt Saar het leuk uit te pakken qua koken, te experimenteren met verschillende ingredienten en nieuwe gerechten uit te proberen. Saar laat haar gezin, haar vrienden en familie graag meegenieten van haar kookkunsten. Haar keuken is een sociale ontmoetingsplek binnen het huis en van alle gemakken voorzien. Alle apparaten die ze nodig heeft zitten in haar keuken. Deze zijn functioneel, makkelijk te bedienen en haar inductiekookplaat biedt voldoende ruimte voor verschillende pannen tegelijk.

Nieuw in de campagne 2.0

In de campagne zal Saar gekoppeld worden aan slimme apparaten, grote volumes en makkelijke bereiding. Dat bespaart haar tijd en geeft haar de mogelijkheid om maximaal te presteren in haar drukke leven.
Lukas heeft plezier in het koken en is altijd op zoek om nieuwe gerechten te leren bereiden. Voor hem is het een sport om van iets simpels als een gebakken eitje iets bijzonders te maken. Lukas heeft een druk sociaal leven waardoor uren in de keuken staan niet in zijn schema past. Hij wil echter wel snelle en gezonde gerechten bereiden passend bij zijn levendige culinaire fantasie. Lukas laat zich graag inspireren door Pinterest, reisprogramma’s en foodmarkten. De keuken van Lukas past bij zijn industriële inrichting. Functioneel maar van alle gemakken voorzien.

Nieuw in de campagne 2.0
In de campagne zal Lukas gekoppeld worden aan vooral innovatieve en mooie apparaten. Lukas houdt van een uitdaging, van slimme oplossingen, maar ook heel goed uitgevoerd. Hiermee beloont hij zichzelf met de beste keukenapparatuur.

Maak kennis met de pleasure seeker: Lukas
Lukas heeft plezier in het koken en is altijd op zoek om nieuwe gerechten te leren bereiden. Voor hem is het een sport om van iets simpels als een gebakken eitje iets bijzonders te maken. Lukas heeft een druk sociaal leven waardoor uren in de keuken staan niet in zijn schema past. Hij wil echter wel snelle en gezonde gerechten bereiden passend bij zijn levendige culinaire fantasie. Lukas laat zich graag inspireren door Pinterest, reisprogramma’s en foodmarkten. De keuken van Lukas past bij zijn industriële inrichting. Functioneel maar van alle gemakken voorzien.

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De pleasure seeker
Lukas
Idris is een sophisticated, selfmade man die houdt van goede kwaliteit en design. Koken is zijn passie. Idris heeft de drang zichzelf steeds uit te dagen en te overtreffen. Hij beheerst veel verschillende kooktechnieken wat hem veeleisend maakt betreft zijn kookapparatuur. Een vacumeer- en warmhoudlade zijn een must in zijn keuken. Zijn passie voor koken deelt hij graag met zijn vrienden.

Nieuw in de campagne 2.0

Maak kennis met de semi-pro: Idris

Idris is een sophisticated, selfmade man die houdt van goede kwaliteit en design. Koken is zijn passie. Idris heeft de drang zichzelf steeds uit te dagen en te overtreffen. Hij beheerst veel verschillende kooktechnieken wat hem veeleisend maakt betreft zijn kookapparatuur. Een vacumeer- en warmhoudlade zijn een must in zijn keuken. Zijn passie voor koken deelt hij graag met zijn vrienden.

Nieuw in de campagne 2.0
Currently, the technical life of appliances in most cases exceeds the useful life of it. The product life can be maximized by moving appliances to a new target group after every use cycle. That is why this business unit offers customers an option between lease of appliances or buy with buy-back.

**STRATEGY**
Target maximum quality and extend product life and gain profit on service and software.

**VISION**
To facilitate a closed cycle for kitchen appliances that exceeds expectations of various target groups.

**MISSION**
Be the leading and most successful supplier of circular kitchen appliances and services of the highest quality for everyone in the Benelux.
Core values: Sustainable, innovative, quality, social, flexible.

Interviews with housing corporations and construction companies show that there is a need for unburdening. Appliances should be easily replaceable and the contact with the end user should go through the supplier. One also wants to reduce the use of natural gas and to use energy efficient appliances. Leasing and tailor-made service is therefore considered a good option, provided that the rent does not increase because of it. Having a clear Total Cost of Ownership can be a good tool to pitch this to construction companies, investors, etc.

There are legal issues with lease and with refurbishment. Rent prices of social housing is regulated in The Netherlands. For example, offering appliances in these rental homes can only happen if the rent does not go up. Refurbished appliances must comply with new legal standards of the food and commodities authorities.

The largest challenge is to make a long product life financially attractive. Refurbishment is a challenge for which conventional kitchen appliances are not designed. Appliances should be developed in a way that with repair and refurbishment it lasts at least 25 years. Careful handling and long use periods are stimulated by lowering the lease price when appliances are in use longer. Design for attachment can motivate users too.

**Electronic components**
The electronics and software are the weak part in appliances limit the product life and refurbishment of kitchen appliances. Limited availability of spare electronic components is a barrier for repairability of appliances. It is therefore recommend making new components suitable for older appliances, or use standard components. However, discussions have shown that keeping components in stock might not be maintainable, and that components on PCB’s after a while are not available anymore.

**Modular design**
Modular design for easier disassemble and reassembly of appliances is an important requirement to be able to repair and refurbish appliances. In refurbishment, one can for example keep the product platforms and replace electronics. Replacing only the front is a strategy to stay up to date with trends. Modular design also makes cleaning of the components easier. Warranty on the cleaning is necessary to comply with legal standards.

On material-level, a material passport should be created, for more transparency in the chain and to be able to track materials. Next to that it is important to rethink the materials. The supplier of ceramic glass has said that it is recyclable if it is sorted separately. If it ends up in the glass recycling stream, it only pollutes this. Jeroen and Gabi argue to choose stainless steel instead of enamelled steel, because of its recyclability properties.

**REFURBISHMENT PROCESS**
Smart and preventative maintenance can help restore the material value of appliances. Doing updates on software and electronics can also update the appliance to be more efficient. Arranging local refurbishment centres close to assembly enables shorter movements so components are available short-term, and the process is more effective. The appliances can then also be upgraded with new parts for customer specific demand. Moreover, it must be possible to do quick service for wear and tear. Next to that the refurbishment centres should be able to clean used appliances.

**Return**
The buy-back price will be based on the age and the status of the appliance. However, the return of appliances still should be facilitated. One step in this is providing a packaging for returning.

Networks must be created in four important aspects. These are about organising the reverse logistics, developing the cycle process, information provision to track materials and payments, and the right treatment of waste streams.
1. Second hand appliances
Freestanding oven or Plug-and-play recessed (inbouw) kitchen appliances, like an oven. Design so people can take it out and build it in themselves. Role of supplier: make quality so good and market it so people know it still has value after being used for several years.

2.a. Buy-back
Consider all kitchen appliances -> Multiple brands in one kitchen

2.b. Refurbished appliances.
Get ovens back from the Project market and try to update them and refurbish them so they can be sold as good as new.

3.a. Longer life design
It tells you, gives you incentives to maintain the product. Ovens should be cleaned after every use. They also should be designed against mis-behaviour like use. They also should be de-signed against mis-use and maintain the product. Ovens and refurbish them so they can work.

3.b. Hybrid model
Subscription on new filters Or reminders on the fact that the filters need to be cleaned.

3.c. Smart Extraction hood
Filters need to be cleaned. Or reminders on the fact that the filters need to be cleaned. Use and maintain the oven.

4. Warranty
Service for maintenance and repair. - Design for repairability by the service man.
- Get reminders to clean the retraction hood filter or receive single-use filters in mail.

5. Advice and consultancy
To buy the right oven. Also masterclasses on how to use and maintain the oven. - Teach people how to maintain and repair their products. - Design for repairability by the user himself. Order parts online through the webshop and have a manual and instruction videos on maintenance and repair.
- Advice on efficient appliances and how to cook efficiently.

6. Lease appliances to investors
Project market, B2B. - Lease of appliances is in the tenants agreement. Big amounts of kitchens in one building.

7. Lease appliances to consumers
New Kitchen market or Replacement market. B2C.
- Possible to upgrade lease plan to different sizes, additional appliances?
- Lease temporarily? Extra fridge in the summer, extra oven, or more expensive oven during holiday season.

8. Rent appliances for events
Very short term. Extra oven for holiday season?

9. Shared kitchen
People can have a subscription to use the kitchen. Or pay for a timeslot that they use it. Here you can also have a Pay-per-use system in place.

10. Portable extraction hood
Plug-and-play recirculatie afzuig-kap (die niet naar buiten ver-bonden hoef te zijn).
-> apparaat naast je op het aan-recht, zodat je het kunt verplaatsen naar een andere locatie, eventueel naar buren.

11. Like Peerby: C2C
ATAG App to share ovens/cooking hobs/kitchens. - Creates an ATAG community

12. Appliance library

13.a. Pay per use
Pay for every time you use the oven. Price can be based on time and heat temperature. Not desirable for extraction hood. Possible for cookin hob, but that is used almost every day.

13.b. Discounts to stimulate eating healthy
- To stimulate people to eat home healthy, you can give dis-count for every Xth use. So like: the fourth time per week you use an oven is for free.
- Gamification, aangedoogd of oven te gebruiken. Eike dag mijn gasstel gebruik, dus elke dag gezond kook, en daarom aan het eind van x periode, korting op een nieuwe. Of korting op een maaltijdbox. Hoe vaker je ge-bruikt, hoe meer korting je krijgt.

14. Pay per healthy meal
Abonnement op gezond eten, met maaltijdbox en een duurzame/energie zuinige oven. Marley spoon/hello fresh achtige box.

15. Pay for clean air
Betaalt per uur schone lucht. Smart extraction hood, measures air and starts from itself.

16. Service for cooking meals
Oven verkopen aan een derde party die maaltijden maakt en die rondbrengt voor anderen. Of verkoopt aan anderen. Ipv een oven krijgen mensen een maaltijd.

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**C.1 | PSS in Kitchen Appliances**

**CREATING SCENARIOS**

This page shows the results of a brainstorm on possible PSS’s with kitchen appliances. The scenarios were developed based on the main and subcategories of PSS (Tukker, 2004), creating a wide range of scenarios differentiating on the amount of service and level of dematerialisation. From this wide set scenarios, a comprehensive set of five is selected to be re-searched on user’s attitudes. The selected scenarios (marked red) are chosen, because they are expected to be suitable for ATAG and their target group. For example, PSS’s that involve peer-to-peer renting are less likely to provide an opportunity for an intervention that ATAG can fulfill, therefore those PSS’s have been excluded from the study. Also it is perceived more suitable for ATAG that the PSS’s provide a private appliance to users for their own kitchen.
## Characteristics of products for which a PSS typically will work (Tukker and Tischner 2006)

<table>
<thead>
<tr>
<th></th>
<th>Induction Cooking hob</th>
<th>Oven</th>
<th>Extraction hood</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expensive</strong></td>
<td>1600-2800 EUR</td>
<td>MAGNA: 2500-2900 EUR</td>
<td>600-2500 EUR</td>
</tr>
<tr>
<td><strong>Technically advanced</strong></td>
<td>Ceramic glass surface with induction technology underneath</td>
<td>Cavity with heating elements, motor, steam system and perhaps microwave function</td>
<td>Filters and motor in a housing</td>
</tr>
<tr>
<td><strong>Require maintenance and repair</strong></td>
<td>Glass surface is easy to clean</td>
<td>Parts that can break, food stains and descaling needed if it has a steam function</td>
<td>Filters need cleaning or replacing</td>
</tr>
<tr>
<td><strong>Easy transport</strong></td>
<td>Relatively flat to transport, but hole in the counter has to fit.</td>
<td>Bulky to transport, but standardized sizes make it easy to fit it in various kitchens</td>
<td>Bulky to transport, and especially the more expensive units are hard to install in a different kitchen</td>
</tr>
<tr>
<td><strong>Infrequent used</strong></td>
<td>Cooking hob is used every time one cooks</td>
<td>Oven is not used for every meal. Use frequency depends per household. An oven is also not present in every kitchen.</td>
<td>Extraction hood should be used every time one cooks</td>
</tr>
<tr>
<td><strong>Not heavily influenced by trend</strong></td>
<td>Visible in the kitchen, thus influenced by trends</td>
<td>Visible in the kitchen, thus influenced by trends</td>
<td>Only the invisible ones are not influenced by trends.</td>
</tr>
</tbody>
</table>
D.1 | PARTICIPANTS

Alice [H1]

Werk in keukenbranche

>40d Inkomen

Koken is leuk
Liefst voor anderen
Gezond eten
Milieuvriendelijkheid

Pachtwoning


Probeert graag nieuwe recepten

Gebruikt veel functies van haar oven. Voor ovenschotels, bakken van taarten en koekjes voor de kids, familie en vrienden. Probeert graag nieuwe recepten uit. Oven is 4jr oud.

Max [H2]

20-30d Inkomen

Koken is leuk
Liefst voor anderen
Gezond eten
Milieuvriendelijkheid

Huurwoning, 700e p.m.

Keukenapparatuur zat al in de woning. Max is gefrustreerd met bijna alles in de keuken die hij deelt met huisgenoten.

Deelt oven met anderen

Gebruikt oven 2x per week. Huis bevat een kleine, compacte oven van 1 jr oud. Max gebruikt alleen hetelucht, kent de andere functies ook niet. Gebruikt de oven voor Quiches, pizza en zoete aardappel.

Ella [H3]

Huurwoning, >900e p.m.

Koken zat al in de woning, maar oven niet.

Gebruikt de oven 1x per week. En de magnetronfunctie 5x per week. 3jr oude combimagnetron van Samsung.

ivm huurhuis geen dure oven

Gebruikt de oven 1x per week. En de magnetronfunctie 5x per week. 3jr oude combimagnetron van Samsung.

Jess&Daniel [H4]

Huurhuis, <700e p.m.

Beperkte keuze in keukenapparatuur bij aanschaf van de keuken.

Gebruiken oven 3x p.w.

Zouden deze oven meenen naar volgende huis

Gebruikt oven 3x p.w. 5jaar geleden Bosch oven gekocht, voor 800e. Was eerste aankoop nadat er geld binnenkwam na verkoop huis. Speciaal telescooprails erbij gekozen i.v.m. handicap van Jess.
Carmen [E1]  
Werkt in keukenbranche  

Keukenapparatuur zelf gekozen.  
Heel tevreden over 7jr oude oven.

Doris [E2]  


Chloe [E3]  

Keukenapparatuur zat al in de woning. De apparaten van KitchenAid zijn haar lieveling. De oven is eenvoudig en gezond. "Zonder oven kan ik niet".

Celine [E4]  

Keuken is handgemaakt en naar eigen wens ingericht. "Ik hou van koken. Ik zou voor een luxe keuken kiezen." Zonder oven kan ik niet.

Ik houd niet zo van koken  
Oven 4x per week.

Heel tevreden over 7jr oude oven.

"Zonder oven kan ik niet"  
Gebruikt oven 1-2x per week.  

"Zonder oven kan ik niet"  
Gebruikt oven 1-2x per week.  

"Zonder oven kan ik niet"  
Gebruikt oven 1-2x per week.  

Oven is eenvoudig en gezond  
Celine gebruikt haar 5jr ouder oven dagelijks. Gezin met twee kids, die soms wel, soms niet, soms met vriendjes thuis komen eten, dus moet heel flexibel zijn.
Iris [E7]
Koopwoning
>40d Inkomen
Keuken helemaal zelf ontworpen en dus keukenapparatuur zelf gekozen. Deze is ook op maat hoger dan een standaard keuken, omdat Iris lang is. Houdt van veel opbergruimte in kasten.
Koken is leuk
Liefst voor anderen
Gezond eten
Milieuvriendelijkheid

Luna [E8]
Koopwoning
>40d Inkomen
Koken is leuk
Liefst voor anderen
Gezond eten
Milieuvriendelijkheid

Peter [E5]
Werkt in keukenbranche
20-30d Inkomen
Heeft keuken zelf ontworpen en de nieuwste apparaten erin geplaatst voor goedkoop dan winkelprijs. Doet alles graag in de keuken, van simpel koken tot uitgebreid experimenteren.
Koken is leuk
Liefst voor anderen
Gezond eten
Milieuvriendelijkheid

Christel [E6]
Koopwoning
>40d Inkomen
Keukenapparatuur zelf gekozen.
Koken is leuk
Liefst voor anderen
Gezond eten
Milieuvriendelijkheid

Wil de nieuwste snufjes
Gebruikt de oven 3x p.wk. Wil graag de nieuwste technologieën hebben in zijn apparatuur. Een oven moet gebruiksgemak en ontelbare mogelijkheden bevatten. Peter gebruikt de oven voor allerlei dingen: van gastronomisch koken tot iets makkelijks bakken. Oven is 2jr oud.
D.2 | PROJECT IDEAS

This page shows the results of a brainstorm on possible project ideas for the future. These can be market opportunities, design challenges or other interventions. This brainstorm was used as input for the scenario choice.

- Maintenance contracts with refurbished oven. Like a lease or warranty to guarantee product life
- Design a lease PSS that is sustainable and perceived that way
- Give users a sense of ownership in a rental home
- Design for shared kitchens. Maintenance and cleaning is here the biggest challenge

- Maintenance service for all kitchen appliances instead of just the oven
- Enable users to have a say in what type of oven they have in their rental home, by giving them a choice
- Easy, hassle-free, user-friendly PPU system. PPU is seen as a hassle. If this PSS is pursued, it should be hassle-free

- Enable insight into product’s history (age, maintenance and usage)
- Design for maintenance. Motivate/enable users to maintain their lease oven
- Upgrades/personalisation options for tenants to choose so they have a sense of choice and ownership
- Design for pleasure/fun

- Design for sustainable behavior, reducing the energy consumption when using the oven
- Design for Adaptability for different life cycles and new markets
- Create a community with cooking enthusiasts in the same building, because everyone has the same oven
- Design the system for users to engage in, so they are motivated to use the oven as integral part of their circular kitchen

- Storytelling with the previous usage of the oven
- Design for Attachment
- Whole kitchen PPU. People will likely use the cheaper way to prepare something. Therefore the cheaper option should be the more sustainable one

- Design for longer product life
- Design for Attachment
- Design an app/function for users to get insight in energy use
- Design an app/function for users to get insight in energy use

LEGEND

Selected ideas
- Collaboration with mealbox service, so users can use the mealboxes in the first period after they purchased their oven, to learn all the functionalities of the oven
- Lease a microwave and freezer with the mealservice for elderly, who cannot cook on their own anymore
- Subscription to healthy meals, where in addition to the meal box, you receive a lease oven to be able to prepare your meals in the most healthy and tasty way

Other ideas
- Other ideas
- Other ideas

Appendix D.2 | Project ideas
1.a | Business potential
Is it a financially viable scenario?
- Costs for setting up refurbishment line, logistics, refurbishment activities, storage space. Revenue: ATAG can sell refurbished ovens for 75% of the original price of the appliance. Revenue stream on the short term (directly at purchase).
- Buy-back through discount means value remains within the organisation and is not an extra expense.

1.b | Brand
Does it fit the brand? ‘We love to cook’
- Visible sustainability efforts. Products must be good if the company is selling them again after first use.
- Refurbishment is a learning process, so in the beginning some things may go wrong and “refurbishment” triggers people’s experiences with other refurbished products.

1.c | Market
Not too niche. Scenario should be “mainstream enough” to have a large potential market.
- Wider market, because it makes premium recessed oven affordable for others, at entry-level price.
- With discount for second purchase at ATAG after handing in appliance, returning customers.

1.d | Viable
Fitting with company activities?
- Classic sales model, so this can go through the current retail channels. More effort needs to be put in returning the appliances, because the ownership is with the users.
- ‘Selling’ private lease ovens can go through the existing distribution channels, through retail. ATAG is already familiar with financial lease.
- The service component needs to be developed.

1.e | Current activities
Is it in line with their other circular projects?
- The circular efforts of ATAG are about refurbishment, modular design, lease and lease to social housing associations.
- The circular efforts of ATAG are about refurbishment, modular design, lease and lease to social housing associations.
- The circular efforts of ATAG are about refurbishment, modular design, lease and lease to social housing associations (with CIK).

Cost for placing the ovens in kitchens. Revenue depends a lot on the use.

This is very unsure. You need partners for this. And there are many questions regarding the service and placement of the ovens. What term? Etc.

Circular efforts within ATAG have briefly addressed pay-per-use, but have been disregarded because of the limitations.

Appendix D.3 | Scenario choice criteria
### Appendix D.3 | Scenario choice criteria

#### 2.a | Behavior
**Does the scenario stimulate sustainable behaviour?**

- **Refurbished**
  - Private lease as the risk of users not taking care of their products and becoming more resource intensive.
  - Here there is even less sense of ownership in relation to private lease.
  - PPU appliances will influence behaviour so that users will save energy, or use the oven more efficient.
  - Connecting the oven to something as short-term as groceries might make it feel more like a disposable product.

- **Private lease**
  - Does not stimulate sustainable behaviour.

#### 2.b | Circular Economy
**In systems, potential for others to follow and join in this concept.**

- **Refurbished**
  - Bringing materials back and for the refurbishment activities, ATAG needs to collaborate with others. And refurbishment is essential for the other scenarios to be circular, so ATAG should get started on this.
  - Similar to refurbishment
  - Collaborating on this level with housing associations and investors can create a circular system around kitchens and housing.
  - PPU can help buildings with community kitchens or public kitchens become circular.

- **PPU appliances**
  - Here there is even less sense of ownership in relation to private lease.

#### 2.c | Material flow
**Does this enable ATAG to keep control over its materials and resources?**

- **Refurbished**
  - This scenario enables ATAG to buy back, and to return material back, but because it is still the classic sales model, after purchase ATAG has no control over the products.
  - ATAG stays the owner of the product, so control. Here in bulk.
  - With the collaboration, the control of materials might be in the hand of the grocery provider.

- **Private lease**
  - ATAG stays the owner of the product, so control.

#### 2.d | Product life
**Extending the lifetime of the product (materials).**

- **Refurbished**
  - Product lifetime 200%
  - Product lifetime 150%
  - Product lifetime 250%
  - Product is not used that much, but it is also not cared for.

- **Private lease**
  - Product lifetime 200%
  - Product lifetime 150%
  - Product lifetime 80%
  - Product lifetime 80%

#### 2.e | Logistics
**Environmental impact of the system.**

- **Refurbished**
  - Risk of not getting products back, yet the impact of the system is not that much larger than the classic sell model.
  - Risk of having to transport products back and forth a lot.
  - Logistics can be optimised because it is through projects market and therefore it is with bulks of products in one building.
  - Use cycle of product might not be long.

- **Private lease**
  - Risk of not getting products back, yet the impact of the system is not that much larger than the classic sell model.
  - Risk of having to transport products back and forth a lot.
  - Logistics can be optimised because it is through projects market and therefore it is with bulks of products in one building.
  - Use cycle of product might not be long.

- **PPU appliances**
  - Meal services are flexible. To have the subscription for the oven become only a little bit flexible, there is a lot of logistics that need to happen for it.
<table>
<thead>
<tr>
<th>3.a</th>
<th>Acceptance</th>
<th>Low perceived risks, high perceived benefits. Does it raise a lot of questions or is the scenario accepted or familiar?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Familiar</td>
<td>Little risks, only that it is expensive. But only very limited benefits, like no need for maintenance on the oven.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Paying a monthly fee is familiar</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.b</th>
<th>ATAG Target group</th>
<th>Does it help cooking enthusiasts? Does it fit ATAG target group?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Similar target group, but with smaller budget. With the brand Pelgrim, ATAG has experience with that target group.</td>
<td>People who love to cook do not want to pay per use. They feel limited and discouraged to use the oven.</td>
</tr>
<tr>
<td></td>
<td>Participants show most interest in refurbishment.</td>
<td>ATAG target group loves to cook, they want to have control and freedom what to cook and how.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.c</th>
<th>Users’ interest</th>
<th>Based on the results from the interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4.a</th>
<th>Design for Interaction</th>
<th>The resulting design direction should fit in the Master’s programme Design for Interaction.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Appliance has to be redesigned for refurbishment, involving the user in the refurbishment process.</td>
<td>Lease service system has to be designed, user centric.</td>
</tr>
<tr>
<td></td>
<td>Lease service system has to be designed, user centric.</td>
<td>Good functioning Pay-per-use systems rely on very good and easy human-product interaction which is quick and effortless.</td>
</tr>
<tr>
<td></td>
<td>Meal subscription scenario is more dependant on the meal service rather than the oven/appliance.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4.b</th>
<th>Personal fit</th>
<th>The resulting design direction should require knowledge/skills that I personally can add to the company.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I can use the results I got from the interviews, together with a user-centered approach.</td>
<td>There is yet quite some more stuff to organise. This direction for ATAG has legal issues with rentprices, with housing associations and landlords. Where the users does not have much to say in the system/decision making.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I don’t know much with IoT, but I would be able to design a user friendly interface.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>See above</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4.c</th>
<th>Working from home</th>
<th>Is this project suitable to do from a distance (not being able to work at ATAG a lot)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Appendix D.3 | Scenario choice criteria
E.1 | PRODUCT CARE

RESEARCH ACTIVITY: SOCIAL MEDIA POST

Goal
For the purpose of exploring product care from the user perspective, a social media research activity is executed. To find out how users clean their oven, I asked people on social media how they clean their oven.

RQ: How do users clean their oven?

Method
I posted a message in few selected Facebook groups, asking how people clean their oven. Personal experience has shown that if you post a genuine question, you get more response than when you introduce yourself as a researcher, so that is what I did. This message is posted in two Dutch groups about cooking and baking, in an international group specific for steam and combi oven users, and I posted the question in a Dutch group on sustainability.

Key Insights
Over all four groups, I got response from 27 different people.

Over time the user’s attitude changes towards cleaning the oven. A new oven is easy, you barely need to clean a new oven. Also a new kitchen motivates to keep it clean: “I love this new kitchen so much, I am just wary of grease stains that turn into accumulating ugly messes!”

Functionality of the oven also changes how users clean their oven. With the steam function: Run a steam cycle: “steam veggies and soak the oven at the same time.” And some people make their own steam function, by putting a bowl with water, vinegar and lemon in the oven.

Others mention the self-cleaning functions like Pyrolysis, after which you have to sweep dust away. Someone mentions he does the pyrolysis 2-3 times a year: “oven cleans itself.”

Most people who mention when cleaning should be done, express it should be done regularly, preferably after every use: No need to scrape, a sweep with a cloth should be enough.

One person says to use the oven’s programmed settings for cleaning, rinsing and drying with additional deeper manual clean every month or two.

For cleaning, people want a detergent that is safe with food. Either non-chemical, or specific for cleaning ovens, when it says that it does not give fumes.
- Hg ovenreiniger
- Dasty
- Bowl with water and cleaning vinegar and lemon,
- Mix of warm water, with bi-carbonate of soda, some dishwashing fluid and vinegar, in a spray bottle.

The level of how ‘aggressive’ one can clean their oven differs. One person mentions a paint scraper to get splashes of fat from the door, whereas another mentions that their oven has some sort of special coating which you could damage with regular oven products.

Manual
I got the tip to look up the manual online. But others also express they didn’t read their manual at first use, and learn new things when reading it after years of use.

Grease filter in Miele appliances
One person mentions the grease filter of the Miele oven. After a look in their user manual, I found that this is an additional part that user should put in for certain functions, and take out for others, so that grease does not enter the fans. (figure to the left)
**READING THE MANUAL**

**Goal**
The product’s user manual contains instructions on how to use the steam oven properly. Therefore, there I assume the essential product care activities should be in there too.

Relevant research question: What are the essential activities the user can do to clean and maintain the oven?

**Method**

**Finding the user manual**
I already (within a few months of ownership) could not remember receiving a user manual with the steam oven. With a quick glance in the box that I kept, I could not find it either, so I decided to look online. Finding the manual online: with a few google clicks it is doable. You can choose between languages: NL, EN, DE, FR. But you also have to find the model number of the oven. I then Googled for the MAGNA steam oven of ATAG and found the model number on their website (ATAG.nl). However, if the oven were a little older, I would want to find the manual of exactly my oven, so taking a guess would not be enough. Luckily you can find the model number on the inside of the oven when you open the door.

**Key insights**
The manual contains instructions and tips for the user to ensure product life and quality.

Cleaning should be done regularly “to prevent fat and food particles from accumulating, especially on the surfaces of the interior and the exterior, the door and the seal.” No water should enter the vents.

**Soft materials and detergents**
The user manual calls for use of soft materials and non-aggressive cleaning detergents: “Clean the exterior surfaces with a soft cloth and warm soapy water. Next wipe with a clean, damp cloth and dry the surfaces.”

Also the user should: “never use abrasive cleaning materials or chemical solvents.” And after every steam function, the user should: “Dry the inside of the oven with a soft cloth.”

**Water after steam function**
After the steam function, water should be removed from the appliance. “Let the oven cool down and dry the inside of the oven with a soft cloth,” and “empty, clean and dry the water reservoir. Only fill the reservoir just prior to using it!”

**Careful handling**
- “Only close the oven door when the telescopic guide rails have been returned completely back into the oven cavity.”
- The door of the oven has a soft close function, so no special attention is needed on that.

**Accessories mindful handling**
The oven also comes with accessories. The user manual also contains instructions on how to use those. This includes how to use the culisensor and baking trays, but also that some accessories are not suitable for certain the oven functions. One instruction that surprised me is: “Never place an accessory on the bottom of the oven.”

**Infrequent cleaning activities**
Activities that have to be done less frequent, but are necessary to guarantee the quality of the components are cleaning the water tank filter and descaling the appliance. With descaling, the appliance alerts the user it needs to be done and the user manual contains a recommendation for a descaling agent that is “non-corrosive, not aggressive and is environmentally-friendly” (User manual).

Taking out parts for cleaning, repair or replacement
The manual also contains instructions for users to take the following parts:
- Removing the guide rails
- Replacing the oven light bulb
- Removing the oven door
- Removing the oven door glass

**‘Personalising’ the appliance and setting water hardness**
There are a few settings the user can set in this appliance:
At the first use or after the appliance was disconnected from the mains for a longer period of time, the user has to set ‘Language’, ‘Time’, ‘Date’ and ‘Water hardness’. Setting the correct water hardness helps in product care, because the equipment will be programmed so that the descaling notification will appear in accordance with the actual water hardness. Users can also save settings in ‘favourites’, so they can find their more frequent used programmes faster.
INTERVIEW QUALITY ASSURANCE

Goal
RQ: What product care tasks can and should the user do to maintain the quality of the oven?

Method
Expert interview with Senior Quality Engineer at Quality Assurance department of ATAG Benelux.

Key insights about product care
- The times a pyrolysis or steamclean function is needed really depends on the use of the oven, and whether it is used for preparing a piece of meat, a frozen pizza, or to steam vegetables. It is most important that you make sure it is done regularly. ATAG generally recommends for frequent users to use pyrolysis a few times a month, but some users only do it twice a year.

- Important in design is to have no ribs or edges that dirt can stick behind. People can take the racks out of the oven to clean them and behind them in the oven.

- The user just really has to regularly clean it, so it remains a small task and you do not have to start with ‘heavy’ cleaning materials.

- The most dirt and fat splatters end up on the topside of the oven. There is a heating element that makes it hard to clean and burns the spots in faster.

- In the back there are little holes, they make it a little harder to clean, but there is not more dirt there than on other sides.

- The enamel [NL: Emaille] coating in the cavity is a strong material that can handle aggressive cleaning materials. So you do not need be as careful as the manual says with a soft cloth and mild cleaning detergent. Willard also thinks many people refer to the use instructions of cleaning detergents like Dasty or HG over the one of the oven.

- If the enamel does get a scratch, it reveals the steel underneath and that may cause rusting, especially when steamovens are not left open to dry after use.
F.1 | CREATIVE SESSION REFURBISHMENT

- PLAN

06-07-2020, 13:00-17:00u
Location: ATAG Benelux in Duiven

**AANWEZIG**
Lisa Hoogeveen
Jan van Os - Innovation Manager - Innovation & Projects
Vincent Hofstee - Global Design Manager Cooking & Refrigeration - ASKO
Iris Hogervorst - Industrial Designer - ASKO Design team
Roxanne van Rijn - MSc Student Strategic Product Design TU Delft and MSc Management of Innovation Pauline Timmers - MSc Student Integrated Product Design and Science Communication TU Delft

**MAIL NAAR DEELNEMERS**
Hoi allemaal,
Leuk dat jullie maandagmiddag meedoen met de creatieve sessie.
We gaan tijdens de sessie veel ideeën bedenken en daarvoor zo veel mogelijk schetsen en tekenen. Daarvoor vraag ik jullie het volgende filmpje te kijken over hoe je de simpelste dingen kunt tekenen:
https://www.ted.com/talks/graham_shaw_why_people_believe_they_can_t_draw?language=nl
Het onderwerp van de sessie is refurbishment van de oven. En het doel is om ideeën te bedenken voor hoe er in het ontwerp waarde kan worden toegevoegd voor de gebruiker en het refurbishment proces. Hier is een voorbeeld van Philips:
https://www.youtube.com/watch?v=cWWZl-Qcz60c&feature=emb_logo

**Spelregels**

1 | Geen apparaten
2 | Geen kritiek
3 | Schrijf teken alles op
4 | Kwantiteit
5 | Borduur voort op ideeën

**Ontwerp richtingen en ideeën voor user-centered design voor en rond refurbishment.**

**DOEL**
Ideëen en ontwerp richtingen voor user-centered design for refurbishment.

**UITGEBREIDE PLANNING**

13:00 Welkom en introductie
13:15 Presentatie Bevindingen
13:15 Probleem verkenning
15:00 Brainstorming oefening
15:15 Pauze
15:15 Ideeën uitwerken
16:00 Posters presenteren
16:45 En Roadmap maken
17:00 Afsluitend
17:00 Einde

**Tijdschema**

**Welkom en introductie**
Vooral rond Design for Interaction
10 min

**Probleem verkenning**
Formuleer Design Goals. Werk met tijdlijn en users
10 min

**Creatie HKJ’s**
Vraag de HKJ’s aan de hand van de Design Goals. Selecteer er 10 en schrijf ze ieder op een eigen A3 vel.
10 min

**Creatie ideeën**
Laten zien waar je maar het best kan
20 min
20 min Hang de vellen op de muur.  
De HKJ vellen worden gepresenteerd.  
Noem een paar ideeën die je hier aanspreken.  
Zien we nieuwe ideeën of nieuwe combinaties?

15:00 Stemmen en pauze

15:15  
10 min Snelle oefening  
Woord associatie.

15 min Werk een idee uit  
Ieder kiest 2 ideeën om deze verder uit te werken  
Ieder idee 5 min

10 min Value oefening  
Ga in tweetallen. Leg je ideeën uit aan de ander.

20 min Maak een poster  
Werk in tweetallen en kies een idee of combineer jullie ideeën tot één concept.  
Werk deze visueel uit.  
Wat zijn de Unique Selling Points van jullie concept?

Korte pauze?

16:00  
10 min Posters presenteren  
20 min Schrijf op post-its wat je hiervan vindt.  
Welke waarde heeft dit concept voor de stakeholders?
  - ATAG  
  - Gebruiker  
  - Milieu  
  - ....

15 min Roadmap maken  
Welke stappen moeten hier genomen worden.

16:45 Afsluiten  
Reflectie  
Hoe vonden jullie het om dit te doen?  
Wat nemen jullie mee na vandaag?  
Wat hopen jullie voor ATAG?

17:00 Einde
### F.2 | CREATIVE SESSION REFURBISHMENT - RESULTS: DESIGN GOALS

#### DESIGN GOALS – 1ST USER

<table>
<thead>
<tr>
<th>User</th>
<th>Situation/location</th>
<th>Effect</th>
<th>Stakeholders</th>
<th>Design goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social cook, wanting to show off their baking skills to friends</td>
<td>At their home when friends are visiting</td>
<td>Will not be witheld by their oven in their aspirations</td>
<td>Buren, familieleden, producent, volgende gebruiker</td>
<td>Social cooks die hun baking skills thuis willen laten zien aan bezoek, zullen hun baksels perfect op tijd af hebben.</td>
</tr>
<tr>
<td>People who cook</td>
<td>In the kitchen or living room</td>
<td>Oven die het goed doet maar doorgegeven kan worden als je hem niet meer gebruikt.</td>
<td>Ecosystem of connectivity around the oven</td>
<td>Let people who want to cook use a good oven and return it when they are done. Wegdoen voor een tweede leven.</td>
</tr>
<tr>
<td>Mensen die verhuizen naar een lelijke keuken</td>
<td>Die toch iets terug willen</td>
<td>Guiding you through the process of cooking</td>
<td>Solo cookers</td>
<td>Voor mensen die verhuizen naar een lelijke keuken ze iets terug te geven bij een nieuwe oven.</td>
</tr>
<tr>
<td>Social cook</td>
<td>Preparing meal for friends</td>
<td>Energy efficient behaviour</td>
<td></td>
<td>What feedback is needed to help the chef during cooking?</td>
</tr>
<tr>
<td>Parents with family</td>
<td>Kitchen preparing dinner</td>
<td>Providing the feedback to all ‘users’ at the same time</td>
<td></td>
<td>How can we improve products to be more energy efficient when used?</td>
</tr>
<tr>
<td>Pleasure seeker</td>
<td>Cooking with friends or family</td>
<td></td>
<td></td>
<td>Making it attractive for our target group to buy an oven that will have a second life and thus reducing footprint, giving the opportunity to make a change, environmentally and to make it accessible for a next owner. ‘Look after it for the next owner.’</td>
</tr>
<tr>
<td>ATAG target group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### USER ACTIVITIES

<table>
<thead>
<tr>
<th>NEW OVEN IN USE</th>
<th>REFURBISHED OVEN IN USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buy oven</td>
<td>Buy refurbished oven</td>
</tr>
<tr>
<td>Use, clean and maintain</td>
<td>Use, clean and maintain</td>
</tr>
</tbody>
</table>

#### HKJ

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>HKJ nieuwe functionaliteiten bieden in een bestaande oven?</td>
<td>HKJ mensen motiveren hun oven op het einde te laten refurbishen?</td>
</tr>
<tr>
<td>HKJ mensen verleiden hun ATAG oven in te leveren bij een nieuwe keuken/huis?</td>
<td>HKJ ovens energiezuinig maken?</td>
</tr>
</tbody>
</table>

Appendix F.2 | creative session Refurbishment
### DESIGN GOALS – 2ND USER

<table>
<thead>
<tr>
<th><strong>User</strong></th>
<th><strong>Situation/location</strong></th>
<th><strong>Effect</strong></th>
<th><strong>Stakeholders</strong></th>
<th><strong>Design goal</strong></th>
<th><strong>HKJ</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>A user who would like quality (and to whom esthetics are important), but can’t or won’t afford a new oven.</td>
<td>When the user chooses their ‘new’ oven the outside won’t withdraw them because they can choose the look themselves.</td>
<td>How can I clean the oven easily</td>
<td>Easy exchangeable fronts must be produced and assembled</td>
<td>Let the buyer of a refurbished oven choose a design fitting their personality and environment.</td>
<td>HKJ ervoor zorgen dat een oven terugkomt voor refurbishment? HKJ ervoor zorgen dat een oven schoon en netjes blijft? -&gt; gebruiker helpen HKJ ervoor zorgen dat het ‘front’ gewisseld kan worden?</td>
</tr>
<tr>
<td>3rd user in circular cycle</td>
<td>Preparing lasagne for dinner</td>
<td>Loving the oven as any other oven (/ like new)</td>
<td>Repair / clean people of oven Family / huisgenoten, buren</td>
<td>How can we make oven better cleanable?</td>
<td>How to make cleaning the oven more easy? How to prevent the oven from becoming dirty?</td>
</tr>
<tr>
<td>People who don’t have a lot to spend / Who care about the planet / Are not interested in cooking</td>
<td>Kitchen</td>
<td></td>
<td></td>
<td></td>
<td>HKJ mensen van hun oven laten houden? HKJ ‘refurbished’ aantrekkelijk maken? -&gt; wel weer door naar 3e u</td>
</tr>
<tr>
<td>People who are environmental conscious.</td>
<td>Who show friends their new kitchen</td>
<td>Groene oven. Status object, trots</td>
<td>Making it attractive for our target group to buy a refurbished oven, by making the refurbished oven like brand new and still giving very good value for money, ans also enabling the personalisation of the oven.</td>
<td>Mensen die bewust omgaan met hun leefomgeving kunnen een oven gebruiken als een status symbool en gevoel van trots als zij hun vrienden een nieuwe keuken laten zien.</td>
<td>HKJ van een refurbished oven een status symbool maken?</td>
</tr>
</tbody>
</table>
IDEAS FOR RETURNING THE OVEN TO ATAG

- Brainstorm questions:
  - HKJ mensen verleiden hun ATAG oven in te leveren?
  - HKJ ervoor zorgen dat de oven terugkomt voor refurbishment?

- Buy-back:
  - Financiële incentive;
  - Terugkopen; statiegeld/borg wat je terugkrijgt;
  - Bij inlevering oude oven korting geven (op nieuw product / op volgende ATAG oven / bij nieuwe keuken/oven);
  - Garantie: Binnen garantie terugkopen;
  - Terugroep actie;
  - Verplichten, anders boete/deurwaarder;

- Educate users:
  - milieu benadrukken; educatie over duurzaamheid;
  - Bij kopen al noemen dat oven terug kan; Verplichte voorlichting bij aankoop keuken;

- System change:
  - Abonnement op steeds nieuwste oven, oude wordt ingeleverd;
  - Oven blijft eigendom van ATAG;

- Amount of money back depends on state of the oven:
  - Netjes klasse: A - 500eur, B - 300eur, C - 50eur;

- Use kitchen specialist:
  - Elke ATAG keuken specialist een bonus geven voor elke teruggebrachte oven;

- Good customer relationship:
  - Connected blijven met user/owner en weten wanneer;
  - Hele blijve ATAG mensen, zoals bij de kringloop;

IDEAS FOR INCREASING (PERCEIVED) ENVIRONMENTAL VALUE

- Award or sticker for user:
  - “Ik ben groen bezig”- Award op oven;
  - “#kg CO2 bespaard”- Certificaat;
  - “600kg CO2 bespaard” - sticker op oven;
  - Duurzame kok);
  - Wat gebeurt daarna? 3e gebruiker certificaten

- Use the brand image:
  - ATAG keurmerk, 8 jaar garantie, super degelijk product; Kwaliteitskeurmerk;
  - Reclame;
  - Sympathiek merk;

- Use all materials:
  - Creatief met materialen;
  - Ook nieuwe oven uit herbruikte onderdelen samenstellen;

- Joining the bigger movement:
  - Als individu ben je onderdeel van een beweging;
  - Shaming voor nieuw kopen

- Return when placing new oven:
  - Bij koop nieuwe, oude automatisch eruit; Ophaalservice van ATAG; Aan huis ophalen

- Marketing & Sales:
  - Award or sticker for user
  - Use kitchen specialist

LEGEND

- Cluster idea 1
- Idea 2
- One dotvote for this HKJ
- One dotvote for this idea
- Double dotvote for this idea

SOLUTION SPACE
### IDEAS FOR ADDING VALUE DURING REFURB.

#### Brainsmorm questions
- HKJ ‘Refurbished’ aantrekkelijker maken?
- HKJ ‘Refurbished’ oven een statussymbool maken?
- HKJ ‘Refurbished’ oven nieuwe functionaliteiten geven?

#### Renaming refurbishment
- Noem het anders:
  - Previously ‘loved’ <3 ; of Tweedekans;

#### Plan additions with refurbishment
- Speciale front die alleen bij refurbished oven kan;
- Uitbreiding net als bordspellen; Kan zelf kiezen of ervoor wilt betalen;
- Meenemen wanneer planning nieuwe modellen wordt gemaakt (hier kunnen we in de toekomst .... Aan toevoegen);
- Updaten €, Add new function bij update;

#### Software update
- Uitbreiding software bij bestaande hardware;
- Software update; Nieuwe software;
- Pre-owned - Oven heeft ervaring; Maak dagboek van ervaring;
- Gamification -> Reached next level;

#### Offer additional services
- Service erbij, installeren;
- Reinigings service

#### Marketing efforts
- Super duur maken €€€, Reversed psychology;
- Goedkoop €
- Verkoop in combi met kookplaat;
- Is de beste keuze;
- + Assecoires, Gratis accessoires uitkiezen;
- Special limited editions;

### IDEAS FOR REFURB. PROCESS

#### Brainstorm questions
- HKJ ‘Refurbished’ oven er brand-new uit laten zien?

#### Factory reset
- Net als telefoon;
- Of juist factory reset; Reset naar gabriekssinstellingen; “Gefer-
  liciteerd met uw nieuwe ATAG oven.” ;

#### Renaming refurbishment
- Noem het anders:
  - Previously ‘loved’ <3 ; of Tweedekans;

#### Software update
- Uitbreiding software bij bestaande hardware;
- Software update; Nieuwe software;
- Pre-owned - Oven heeft ervaring; Maak dagboek van ervaring;
- Gamification -> Reached next level;

#### Brand new unpacking experience
- Kaartje aan handgreep; (alleen first-time use)
- Glansspray of geurspray, net als ‘nieuwe auto’-geur;
- In een doos laten komen/zoals normaal;
- Buitenkant helemaal shiny;
- Sticker: ‘Ik ben zo goed als nieuw.’;
- Mooi gepoetst en met strik er afgeleverd; Grill rooster / bakplaat met een strik erom; Opgepoetst;
- Paar nieuwe onderdelen;

#### Factory reset
- Net als telefoon;
- Of juist factory reset; Reset naar gabriekssinstellingen; “Gef-
  liciteerd met uw nieuwe ATAG oven.” ;
### IDEAS FOR DESIGN

#### COMPANY ACTIVITIES

- NEW OVEN BEING PRODUCED

#### USER ACTIVITIES

- User builds appliance
  - DIY oven door consument; Bouw het zelf, bestelt onderdelen à la IKEA;
  - Oven uit legoblokjes maken;

- Timeless design
  - Oven alsof het een kastje is. Net als koelkast/vaatwasser;
  - Tijdloos design;
  - 1 standaard maat voor alle keukens, makkelijk in bestaande keukens in te wisselen;
  - Glas design; Neutraal zwart; Past overal; Geen handgreep (past in elke design keuken);
  - Goed design;
  - Super gebruiksvriendelijk;

#### IDEAS FOR PERSONALISATION

- NEW OVEN IN RETAIL

- NEW OVEN IN USE

#### KITCHEN RETAILER ACTIVITIES

- Buy oven

#### USER ACTIVITIES

- Use, clean and maintain

### IDEAS FOR SHOWING REAL AGE OF OVEN (KM STAND)

- ‘Dagboek’ van de oven;
- Oven-paspoort met ‘km-stand’

- ‘Kilometer stand = experienced oven: ‘74u exp.’;
- Gebruiksdata;

### BRAINSTORM QUESTIONS

- HKJ ervoor zorgen dat een oven in elke soort keuken past?

- HKJ een oven personaliseren/nieuwe frontjes geven?

### BRAINSTORM QUESTIONS

- HKJ ervoor zorgen dat een oven in elke soort keuken past?

- HKJ een oven personaliseren/nieuwe frontjes geven?

### MODULAR DESIGN

- Personalisation for new user

- Magnetic front;
- Telescoop geleiding op eigen niveau;
- Eigen naam graveren;
- Nieuw frontje;
- Modulair design: replace and update; Makkelijk vervangbare frontjes; ‘skin’ aanpassen; display-kleur en ambient light; New front: kleur, materiaal, handgreep.
- Lijke verf;

- Personalisation through use/ by user

- Meest gebruikte programma op 1e plek;
- Krassen op surface in laag dat weggekrast kan worden;
- Whiteboard;
- Stickers;
- tv scherm, screen/pictures; foto’s ophangen; fotolijstje geïntegreerd in front; foto van gezellig diner;
- Herinneringen opslaan; herinneringen aan oven verbinden;
- Personal settings kunnen instellen; favo recept in standaard setting; Oma’s appeltaart recept geprogrammeerd; Eigen recepten uploaden; recepten aan oven verbinden;
- User interface met eigen kleuren schema;
IDEAS FOR GETTING A RELATIONSHIP WITH YOUR OVEN

**Brainstorm questions**
HKJ mensen van een oven laten houden?

**Personal communication**
- Persoonlijke berichten; Hello Lisa; personal touch; I’ve got a new dish for you;
- Praten met je oven; complimenten geven;
- oven zegt: “I love you. You look great!” - oven terug laten houden van gebruiker;
- Oven krijgt ook credit voor baksels: Mensen laten beseffen dat ze dankzij hun oven altijd geweldige baksels maken;

IDEAS FOR CLEANING

**Brainstorm questions**
HKJ ervoor zorgen dat een oven schoon/netjes blijft?

**Educate users**
- Handleiding: Hoe maak ik mijn oven schoon;
- Instructiefilmpje op youtube;

**Oven cleans itself**
- Cleansteam reinigingsfunctie;
- Autoclean functie;
- Schoonmaken doet de oven hetzelfde zelf;
- Steamclean kan alleen als oven 40 graden of lager is;

**Protective layer**
- Bakpapier op bakplaat;
- Olie over de hele binnenkant, eruit;

**Use display to guide users**
- Oven display zegt: “Clean me!” - stappen om te doorlopen getoond in de display. Gebaseerd op bakuren; Oven die zegt: “Maak me schoon.”
- Subtiele nudges, in user interface. (Beter voor smaak, even snel doen met tips en tricks);
- Timing van schoonmaak nudge is belangrijk; Na een bepaalde tijd na het koken/bakken geeft de oven een opdracht voor schoonmaken.;
- Oven op slot; kunt hem niet gebruiken;
- Spel ervan maken: ‘Zorg goed voor je oven, dan dit...’; Lol krijgen in schoonmaken, en lol houden;
- Gewoontje: doekje aanrecht -> meteen oven;
- Netjes schoonmaken -> Gratis reinigings set terug krijgen.

IDEAS FOR ENERGY EFFICIENT USE/SUST. BEHAVIOUR

**Brainstorm questions**
HKJ energiezuinig gebruik bevorderen?

**Use display to guide users**
- Oven laat energie intensieve functies niet toe;
- Feedback geven over verbruik. Persoonlijke competitie zuinig koken; Feedback over neergie verbruik + Tips hoe je dit kunt verbeteren; Inzicht in wat je verbruikt: €1,55 / 2kg CO2;
- Zet je gerecht erin TIJDENS voorverwarmen. 30min +8min = X CO2 I.p.v. 45 min = XX CO2.
- Duurder energieverbruik;
- Challenge: Zo zuinig mogelijk koken (één win een keuken)

OTHER IDEAS

- Oven doorgeven aan kennis met ATAG garantie (garantie en apparaat op naam nieuwe eigenaar);
- Digitaal kopen;

IDEAS FOR GETTING A RELATIONSHIP WITH YOUR OVEN

**Brainstorm questions**
HKJ ervoor zorgen dat een oven schoon/netjes blijft?

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OTHER IDEAS

- Oven doorgeven aan kennis met ATAG garantie (garantie en apparaat op naam nieuwe eigenaar);
- Digitaal kopen;
### F.4 | REFURBISHMENT - EVALUATION OF SOLUTION SPACES

The possible interventions in the solution space should...
1. ... be a potential design solution.
2. ... require knowledge/skills that I personally can add to the company.
3. ... be user-centered.
4. ... have the potential to make a significant difference in refurbishment.
5. And the resulting design goal should fit the scope of the remainder of this graduation project.

<table>
<thead>
<tr>
<th>Intervention</th>
<th>1. Design solution.</th>
<th>2. Personal knowledge/skills</th>
<th>3. User-centered.</th>
<th>4. Significant difference in refurbishment.</th>
<th>5. Fit in project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returning oven to atag</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Taking a user-centered perspective in getting products back is a new and innovative take on reverse logistics. Having the user as key stakeholder in returning the products, buy-back has potential, but should be refined and communicated in the right way.</td>
<td></td>
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<tr>
<td>Showing real age of oven (mileage)</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✗</td>
<td>✔️</td>
</tr>
<tr>
<td>Measuring real age of the oven is one of the things ATAG can do for gathering data, learning about the value depreciation of their products so they in the future will be able to estimate in what state their product will return. I expect this will happen eventually when the kitchen appliances are ‘connected’, and I definitely recommend communicating real mileage of a refurbished oven. But how this will affect the perceived value of refurbished ovens is hard to predict, and has to be researched. This is something for the future.</td>
<td></td>
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</tr>
<tr>
<td>Refurbishment process and adding value during refurbishment</td>
<td>✗</td>
<td>✔️</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Software update or factory reset is required for refurbishment. Creating a brand-new user experience is so too. Yet this is a small part in the whole use cycle, so I want to focus my project on other parts.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Increasing perceived environmental value</td>
<td>✗</td>
<td>✔️</td>
<td>✔️</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>ATAG should never stop increasing the environmental value of their appliances. Here I believe increasing the environmental value of the oven itself is more in line with the engineers of ATAG. Also increasing the perceived environmental value is more something for the marketing department.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Timeless design</td>
<td>✔️</td>
<td>✗</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Design of the refurbishable oven should be Timeless design hardware and personalisable software (temporary personalisation). The Create department of ATAG already focuses really well on creating timeless design.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Modular design</td>
<td>✔️</td>
<td>✗</td>
<td>✔️</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>For refurbishment, modular parts and components is also really important, preferably a removable cavity would be great. ATAG has been and will be working on this in the future. This is too large of a challenge for me.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Personalisation</td>
<td>✗</td>
<td>✔️</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Temporary personalisation is a real interesting angle for refurbishment. It has been shown to create more careful behaviour towards the product. However, I wonder if this is priority for refurbished ovens. Timeless design seems more worthy for refurbishment.</td>
<td></td>
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</tr>
<tr>
<td>Getting a relationship with your oven</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Just creating a relationship is not necessarily good for refurbishment. Attachment has upsides (more careful with products) and downsides (not being able to send it off to proper reuse or refurbishment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleaning</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Changing users' behaviour so they take better care of their products is an interesting angle. For refurbishment it is not necessarily that we want to prolong the use cycle, but it is to make sure the oven is in better state when it returns, given that part of the users dispose of their oven for other reasons than it not working.</td>
<td></td>
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</tr>
<tr>
<td>Energy efficient use / sustainable behaviour</td>
<td>✔️</td>
<td>✗</td>
<td>✔️</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Making the appliances more energy efficient requires expertise of the engineers of ATAG. Next to that, creating a sustainable use behaviour does not seem to fit the brand of ATAG, where they do not want to discourage users to use their ovens, but rather have them use the oven and eat healthy. Also, this is something ATAG should still work on, but it is not specific for refurbishment.</td>
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</tbody>
</table>
G.1 | RESULTS GROUP SESSION PRODUCT CARE
Appendix G.1 | Results group session product care

User: Cooking enthusiasts, with above-average income

A day in the life
- Buns for breakfast
- Bake a cake
- Have friends over
- Dinner with vegetables

Home situation
- Built-in oven
- Family with older kids

Motivate behavior
- Health
  - Becoming better, developing skills
  - Having friends over to show off

- Good taste of food
- Love cooking for friends

- Love cooking
- Motivation

What stops them / makes it hard to change behavior
- User does cooking not the oven
- Lack of freedom
  - Oven door closed
  - What care has to be done

- Lack of knowledge
  - Oven turned off, cannot open steam/water tray

What skills/knowledge do they have when it comes to product care?
- Stains burning into material
- Emptying water tray
- No steel wool
- Pyrolyse
- Repeat small care
- Clean functions that are shown

Skill level: 4/5
Which actions can have a negative impact on the product life of the oven?

- Putting heavy stuff on door when open
- Draining water into the oven
- Using very high heat for long time
- Baking paper catching fire in the oven
- Using metal wool to clean
- 'Smacking' the door close
- Cooking with food that corrodes (eg. citrus fruits)

What are desired behaviors or actions of the user?

- Soak oven, with water
- Add protective layers of baking paper and aluminum foil etc.
- Cleaning often
- Cleaning with soft tools -> soft towels.
- Be more careful with food
- Putting lids on
- Do not use aggressive detergent etc.

What kind of breakages or deterioration should be prevented or postponed?

- Stains on the glass door (inside and outside)
- Scratches on the touchscreen
- Scratches on the surface in the inside of the oven
- Permanent greasy stained steel
- Broken door
- Light in the oven breaking
- Glass window broken

What does the user need to do to make that happen?

- Have soft cleaning supplies
- Cleaning each week
- Material that does not stain
- Cleaning material
- Knowledge
- Clean the seals
- Cleaning triggers
- Motivation to clean
- Guidance in cleaning and maintaining
What sort of daily patterns or routines does your user have?

- After cooking
- Having dinner with the family
- Doing the dishes
- Heating up frozen bread for lunch & breakfast
- Cooking/preparing dinner
- Doing dishes
- Eating and having dinner
- Having breakfast
- Setting dinner table and cleaning dinner table
- After dinner → clean oven, empty water tray

How could necessary product care activities fit into the user's daily patterns and routines?

- Incorporating them into existing kitchen cleaning activities
- Having the oven placed next to the freezer
- Have parts that fit in the dishwasher and can be cleaned that way
- When putting dishes back into oven, go with a wet towel through the oven.

What sort of small activities can be done (regularly) to ensure the quality or performance of the oven is upkept?

- Mix some water with soda and lemon in a small bowl. Put in the oven, put on the highest heat, leave there for 20 minutes, cool down a bit, and clean entire oven.
- Use steam function to soak
- Use a cloth over the bottom of the cavity
- Use a cloth to take out dust or small things from the cavity
- Use pyrolyse
- Use a cloth to keep the inside of the cavity
- Empty water tray
G.2 | RESULTS CREATIVE SESSION PRODUCT CARE

IDEAS ON WHAT THE INTERACTION SHOULD BRING FORTH

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Team effort</th>
</tr>
</thead>
<tbody>
<tr>
<td>- oven enables/helps the user to bake wonderful things</td>
<td>- Show that cleaning and product care is team effort: the oven does something, and you help each other.</td>
</tr>
<tr>
<td>- clean function is fun-&gt; shows cool animation</td>
<td>- Oven is your team mate in cooking</td>
</tr>
<tr>
<td>- Show more emotions</td>
<td>- message on screen: ‘alsjeblieft, je pizza is klaar’ - ‘my part is done, now you can finish the cake’</td>
</tr>
<tr>
<td>- Yay FUN</td>
<td>- new handles. personalisable</td>
</tr>
<tr>
<td>- An empty water tray is a happy tray</td>
<td>- new, clean door</td>
</tr>
<tr>
<td>- Emptying is satisfying</td>
<td>- possibility to change buttons</td>
</tr>
<tr>
<td>- Carrying tray should be satisfying</td>
<td>- Provide repairability options (modularity of oven parts that break most often)</td>
</tr>
<tr>
<td>- positive emotions to clean product</td>
<td>- extra parts. Sluiting reservoir vervangen</td>
</tr>
<tr>
<td>- care/cleaning task -&gt; yippee</td>
<td></td>
</tr>
</tbody>
</table>

IDEAS ON HOW DESIGN CAN PREVENT THE NEED FOR PRODUCT CARE

<table>
<thead>
<tr>
<th>Stains are part of the pattern</th>
<th>Stain Resistand coating</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Cavity-floor with pattern including stains and splatters</td>
<td>- Stain resistant coating</td>
</tr>
<tr>
<td>- Layer that you can peel off</td>
<td>- New coating in cavity</td>
</tr>
<tr>
<td>- Folie dat gebruiker zelf kan vervangen -&gt; voor glazen deur of voor bodem van cavity</td>
<td>- Stainless material. surface - no stain ever lasts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Positive emotions</th>
<th>Emphasize hygiene</th>
</tr>
</thead>
<tbody>
<tr>
<td>- It should be fun to clean your oven, like you would show your toddlers that it is fun to clean after playing</td>
<td>- Hygiene! If you clean, you can have hygiene when cooking</td>
</tr>
<tr>
<td>- clean function is fun-&gt; shows cool animation</td>
<td>- Cooking for allergic people -&gt; hygiene care is important</td>
</tr>
<tr>
<td>- Show more emotions</td>
<td>- empty water tray means you can eat healthy</td>
</tr>
<tr>
<td>- Yay FUN</td>
<td></td>
</tr>
<tr>
<td>- An empty water tray is a happy tray</td>
<td></td>
</tr>
<tr>
<td>- Emptying is satisfying</td>
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<td>- positive emotions to clean product</td>
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<td>- care/cleaning task -&gt; yippee</td>
<td></td>
</tr>
</tbody>
</table>

IDEAS ON HOW A SMART/CONNECTED OVEN DOES PRODUCT CARE

<table>
<thead>
<tr>
<th>Self cleaning</th>
<th>Smart oven starts steamclean when temperature is right</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Self cleaning function on oven</td>
<td>- Indication if oven is too hot (to use steam clean) on screen.</td>
</tr>
<tr>
<td>- Self cleaning oven</td>
<td></td>
</tr>
<tr>
<td>- Steam clean</td>
<td></td>
</tr>
<tr>
<td>- Pyrolyse</td>
<td>- Oven cleans itself automatically</td>
</tr>
<tr>
<td>- Oven cleans itself automatically</td>
<td></td>
</tr>
<tr>
<td>- use steam for food, also cleans oven?</td>
<td></td>
</tr>
<tr>
<td>- Cleaning robot -&gt; going over oven</td>
<td></td>
</tr>
<tr>
<td>- dishwasher in oven -&gt; cleans oven automatically</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Automatic software updates</th>
<th>Main screen changes after frequent use of functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Automatic software updates which benefit the user</td>
<td>- Favourites on main screen. Automatically after use.</td>
</tr>
</tbody>
</table>

LEGEND

- Towards concept 1
- Towards concept 2
- Towards concept 3
IDEAS ON HOW THE OVEN POINTS OUT PRODUCT CARE...

...WITH MECHANICAL MOVEMENT

Oven shuts down
- Oven stops working if care is needed, refuses to work until it is done.
- Oven shuts down unless there is something done.

Door opens/closes automatically
- Door opens automatically
- Door opens to draw attention
- Door opens slowly by itself, to prevent being ‘smacked’ closed

Water reservoir comes out if not empty or turned on
- Water tray compartment opens automatically
- Push water reservoir out when still water in it.
- Oven has sensor for water in tray. Alarms the user to empty it.
- Water reservoir comes out to be cleaned/emptied.

Button attracts attention
- Thing moving out when task is not done
- Button pops out attracting attention; push back because it is annoying

Use colour in light
- Use colour for when care is needed
- Green ambient light; replicate age growth
- Red -> alarming colour
- Purple -> is an annoying colour

Sound to alert
- BEEP; ATTENTION
- Gives notifications with sounds -> later sounds will be enough info to users to know what to do
- Water flowing sound and blue ambient light when it needs to be rinsed
- Sounds that show positive or negative
- Sound turns ugly when something needs to be done.

Use icons and flashing lights and alarms
- Signals/alarms with icons like in cars
- Flashlights and alarms
- Button that lights up showing you need to do something
- Icon specific for a type of cleaning/product care lights up
- Light showing that the oven needs to be descaled/decalcified

Use aggressive light to show stains
- White cavity to show stains
- Light needed to clean the oven. To see all stains
- -> aggressive light to show stains
- Two hands needed for cleaning, extra hand for light?
- User has to empty the water reservoir: have visual cue on the outside whether there is still water in it or not.
- Show water is there (in water reservoir)
- Transparent window (water reservoir)

...BY SHOWING ON DISPLAY

Oven indicates need for cleaning
- Indicate need for cleaning on screen
- Flashing screen - saying you need to do something
- Oven indicates when repair/maintenance is needed, where the problem is, and contact details of repair services.
- There should be cleaning on the main screen
- Oven lets you know when it’s time to clean it
- Care task info when you take out the dish/dinner -> keep it there till other button pressed
- Use icons. Use clear visual instructions -> minimum tekst.
- Clear instructions on screen, reminding you that you have to do small little things often
- Use screen to inform
- Smart oven -> know when to show user it has to be done.
- Learn routines of user
- Taking food out -> clean. ‘Wipe after use’

Use icons and flashing lights and alarms
- Signals/alarms with icons like in cars
- Flashlights and alarms
- Button that lights up showing you need to do something
- Icon specific for a type of cleaning/product care lights up
- Light showing that the oven needs to be descaled/decalcified

Use colour in light
- Use colour for when care is needed
- Green ambient light; replicate age growth
- Red -> alarming colour
- Purple -> is an annoying colour

Mold water
- After times the oven shows patterns of (fake) mold creeping down every few days reminding you that it is unsanitary after a while.
- Fake mold ‘growing’ on screen. Light showing fake mold in cavity
- Screen is visually ‘overflowing with water’. Virtual fish swim in screen
- If they do not have product care, the UI can ‘slowly break down’ or show rust.

Smiley character emotions
- Oven has a face with emotions
- Create a smiley character that reacts to different situations
- Create a smiley character that reacts to condition of the oven (sad face when it’s dirty)

OTHER

Nudges into cleaning
- Nudges in design help to clean
- Form nudges into the movement of cleaning/emptying

Parts & materials
- Sign inside of the oven that says ‘clean me’
- Mirror glass; only transparent when oven is turned on.
- Use soft materials, clean gently.
### Ability and knowledge to user
- Give good cleaning supplies with oven
- Have cleaning tools close to oven
- Tool om gaatjes te bedekken wanneer je met zwaar geschut gaat schoonmaken
- Manuals
- Sticker on oven with contact info in case of issues
- Show small maintenance tasks in manual or tutorials
- Product care tips always available on the touchscreen
- NFC chip net als Senseo apparaat in afstudeer opdracht (van Jozine Bouma)
- Online tutorials
- Instructions with guidance on the screen -> with clean visuals
- Instruction videos -> access them on screen

### Tutorial mode first period of use
- First use -> first month of use shows more instructions. Later less. Instructions 'Tutorial mode'.

### Reward for product care
- Reward yourself with the fun thing
- Reward for product care is a clean oven
- Get a reward for product care
- Reward on screen -> unlock achievements by using oven
- Certain images for stand-by-screen

### Value
- Show how much value is decreased every use and gained every cleaning
- Inform about decrease in value
- Inform on consequences
- Gives you feedback on the quality of the cleaning and the effect it has on the longevity of the product.
- Challenge to increase the value (just like in the ZOE)
- Inform on consequences of product care: product value is based on use.

### Consequences of not cleaning
- Negative emotions
- Frustration if not cleaned.
- Not emptying the water -> water goes green.
- Postponing emptying the water basin, makes it possible for algae to grow in there and it to go green.
- Postponing it makes the oven stink

### Light
- Keep light in oven on after use
- Moving flashing lights to show where care is needed
- Highlight parts that need cleaning
- Spotlight showing what should be done.
- Use ambient light to show where you have to clean and what to do
- Blue ambient light around water tray
- Ambient light around door

### Experience the result of product care

### Ways and moments to customize your oven

#### Customize before/at purchase
- ATAG gives options to customize before purchase. To match their identity or preferences.
- Possibility to add in extras such as food thermometer, maybe delayed cooking (put your pizza in in the morning so that it’s ready after work), Special cake settings etc (maybe also allow the extras to be built into existing ovens?)
- Let users decide on height of rack
- You have to pick a cleaning programme when buying the oven.

#### Design of exterior of oven
- Oven exterior design that matches rest of the kitchen. Or that can be changed over time.
- The front of the oven exists out of mosaic tiles which the user can replace/rearrange any time
- Timeless design.
- As little buttons as possible, neutral colours

#### Physical customization by user, during use
- Whiteboard -> write on it.
- Stickers with motivational text related to product care, or funny pun.
- Magnets
- Oven contains memories; stickers, magnets.
- Sticker, like a car sticker, on the oven, small customization

#### User can manually change UI
- Choose ambient light
- Choose colour of screen
- Choose what should be on front screen
- Choose name for oven, or how to call me
- Make it more personal by having to authenticate it. Ask for: your name; what its name is; setting your own background colour for the touchscreen; setting your own menu style
- Oven knows your name.
OVEN KEEPS MEMORY OF ACTIVITIES AND MORE

User's personal recipes on screen
- Make your oven into your cookbook
- change meny preferences and order
- load recipes, throw recipes
- Make the oven smart so you can see the recipes with an app
- user can add recipes to the oven's front, either digitally on screen, or maybe funny tags with a picture
- Add nfc chip to send your own recipes to the oven from your phone so you can later download your own recipe via the oven.

Memory in cleaning
- show stats
- user gets feedback on use
- memory last time you cleaned it
- stats of use of clean function
- track uses and cleaning moments
- visual calendar when is needed again
- times of use vs. times of product care. -> You are doing okay 70% -> 30% to do better.

Give oven a history of other use cycles
- Give insights about where the oven has been. Not only a story, also more reliable.
- Give pictures of the earlier use of the oven.
- "I baked this amazing cake with this oven and this recipe."
- Focus on what is possible with the oven instead of that someone used it.
- Example: Gordon Ramsay (could also be a normal person) cooked for 4yrs with this oven and this oven helped him to perfect this book (or this kind of cake).
- Focus on the fact that it has been reliable for all these years and it still is.

Memory of last dishes
- recipes say also about cleaning
- oven meny preferences change depending on what you use
- Memory: last few dishes
- show last few activities
- Let front of the oven show visuals of how he/she used the oven: e.g. fish is blue, steak is red, veggies is green. -> a coloured block is added with every use of the oven. Whole front of the oven is a screen.

Create an emotional bond with the oven
- pictures of fav. dishes and recipes in oven. -> log of all cakes -> connected to insta, where pictures of cakes are shared -> when stand-by, own pictures are shown.
- Later: show achievements from what the user made a year ago.
- You can upload family dinner pictures to door of the oven. The whole front of the oven is a screen.
- Saving baking times in your own meny. At 3D printer you can see what you made before and you can print it again, same could apply for your oven.

ATAG community
- ATAG hackers -> consumers can share ideas and inspiration on how to alter their CIK (Circular Kitchen) to make them unique and fit their desires.
- ATAG community -> share cleaning tips and product care tips
- MyATAG -> sharing secret cleaning detergent 'recipes'

USER CLEANS AND REPLACES PARTS

User does repair
- Send through post NL.
- DIY installing.
- Easy take out of the oven, returned when fixed.
- User can take out the oven with own tools.

Take out parts to clean (behind) them
- Allow for parts to be taken out for cleaning
- rekjes eruit zodat user erbij kan om zelf schoon te maken
- Racks can be taken out to be put in the dishwasher and so you can clean walls.
- Take tray out to empty like with a toaster or a bird cage
- Provide protective layer for the oven, that they can put in the dishwasher
- Bakplaat onderin oven

CLEANING IS A SOLO-TASK
- Cleaning should be done alone

PEERS AND COMMUNITIES OF USERS

Community
- Show pictures of other people’s oven
- graphs and stats comparing your use to others; “you can clean more.” “You forgot to clean more frequently than others”

Use together
- Clean together
- Clean together with your child -> teach your child to clean and cook/bake
- Share oven with neighbours
- Share baking
- encourage to invite others to enjoy cooking/baking
- oven enables users to cook for friends
G.3 | RESULTS BRAINSTORM
RETURNING THE OVEN TO ATAG

CASHBACK, REWARDS AND MANUAL

Cashback and Warranty
- EUR money
- Cash back. Zit bij garantie
- Garantie verlopen? Notificatie dat je de oven terug kunt sturen.
- MOMENT
- Deadline voor garantie of voor goedkope reparatie
- Op het moment dat die stuk gaat

Share rewards with others
- To stimulate (future) users to hand in their devices, propose multiple mutual benefits to users who involve family and friends in the reward programme.
- The concept mainly focused on the compensation factors and making the collection effortless.

Manual
- Manual
- Handleiding hoe te demonteren
- Trigger

INFORMATION AND SUPPORT

Buying a new oven
- Tell them when they buy the oven / a new oven
- Als je op het punt staat een nieuwe oven te kopen
- Bij aankoop informeren
- Voordat je een weekend weggaat of op vakantie, zodat je er geen last meer van hebt. Stekker eruit -> eerst nog pop-up over end-of-life disposal.
- ATAG Circulaire oven. Lever oude oven in.

Product relationship counsellor
- acknowledge the end of the use cycle at the purchase.
- Soothing separation anxiety for returning the old appliance with a strong relationship.
- Poppelaar (2020) mentions the idea of a “product relationship counsellor” as part of an after service for handing in a used phone.
- Counselling and after service: data backup, appliance recycle options, appliance return, general support.

LEGEND

Ideas from brainstorm with CDL students
Ideas from conversations with company mentors
Ideas based on an idea in Poppelaar (2020)

ATAG DOES PRODUCT CARE, OR USE THE ATAG BRAND

Use brand to add value
- Brand the oven really well, connect high level chefs to the oven to make the user feel proud/pride and let the user take care of the oven.
- Instead of changing the oven, let the brand ATAG be connected to inspiring cooking chefs/classes/books, to indirectly link this value to their equipment.

Birth certificate/passport of oven
Give a birth certificate and its life achievements.
- Here you can see it being made at ATAG
- Here it turned on for the first time
- Also gives the idea that you are not the first one using it, but you can still have experiences of the person using it for the first time.

ATAG takes over care and maintenance
- ATAG takes over repair/maintenance, the user pays per month for a functioning appliance
- ATAG taking responsibility; after removing the kitchen, they offer a reduction on your new kitchen if you bring back the old oven.

Mandatory check-up
- Check-up by professional or maintenance guy who placed your oven
- -> be judged that you are doing it wrong
- Mandatory check-up

Appendix G.3 | Results Brainstorm Returning the oven to ATAG
Experience and Reminisce

Experience
- cool ervaring met terugbrengen
- afscheidsritueel
- afscheidsceremonie
- Ophalen is een ervaring
- speciale trolley voor cool ervaring

Reminisce and look back
- By enabling to reminisce and look back at old appliances as well as their digital content at the time, designers can play on the factor of psychological compensation.

Off-boarding service
- Guide to a respectful goodbye
- a “ceremony to say goodbye” to give the new appliance a good start by cleaning the digital content from the old oven before putting it “into a new body.”
  1. Clean up your appliance’s digital content
  2. Make a back-up and transfer your data to your new appliance for a fresh start
  3. Remisnise on the time spent with your old appliance through visual memories.
  4. Thank your old appliance, erase data and place it in the care of ATAG.

Sweeping and look back
- By enabling to reminisce and look back at old appliances as well as their digital content at the time, designers can play on the factor of psychological compensation.

Connected oven
- Je kunt een uitgangspunt hebben als de circulaire oven ook een connected oven is.
- Stukker eruit -> melding in myATAG over de EoL van de oven.

Sign oven up for return through screen
- Servicemonteur bellen -> it in menu
- op scherm aanmelden voor return. Kost plek voor functies, dus misschien niet.
- Online aanmelden voor re-shipping
- User can call service to pick it up. bol.com-like return service.

Ideas on pick-up and shipping

ATAG shipping box
Dus bewoner meldt de oven aan, ATAG doet de rest.
ATAG-> verzenddoos.
Koelkast/oven/wasmachine. Soort sok, of universele vouwbare doos.

Handling should be done by professional -> pick up at home
Gebruikers kunnen iemand bellen om het op te halen.
Het maakt ook al uit hoe je het overhandigt. Dat kan voorzichtig, maar anderen doen het hardhandig.

Re-boxing experience
- making the “re-boxing” of the old appliance a memorable experience (a deliberate opposite to “unboxing”).

Self-Diagnostics

Self-diagnosis
- Building in a self-diagnosis system to evaluate the performance of the device and help sell it after use.
- It combines both the factors of financial compensation and effortless collection.

Promotion

Promotion
- Lottery -> give the chance to win a brand new oven from ATAG.
- Promotion: hand in your oven, together with kitchen-retailers.

Other
- Levels van geschiktheid
- Iemand die hem ophaalt -> Tijdelijk vervangende oven
- Irritante piepgeluidjes; meldingen op scherm
- weggeven aan de volgende bewoner
- Wat heb je nodig? bon? garantiebewijs?

Sticker or Text

Timecapsule
- Something hidden inside cabinet, on the housing of oven, like a treasure

Text in/on oven
- Schrijf het op de oven zodat mensen het onthouden: “Hand in the oven when it is done.”
- Wist je dat je deze oven in kunt leveren?”
- recycle sticker op de behuizing van de oven
- Warning stickers
- Positieve berichten aan binnenkant
- ‘property of ATAG’ aan binnenkant van oven. Mensen triggered dat het doodnormaal is om hem terug te brengen.
- beloning -> sticker
- “X% van andere gebruikers leveren het in” -> “X% wordt gerecircled”

Re-Pack
- Samenwerking met Re-pack
G.4 | IDEAS COMBINED INTO CONCEPTS

CONCEPT 1

User can manually change UI
- Choose ambient light
- Choose colour of screen
- Choose what should be on front screen
- Choose name for oven, or how to call me
- Make it more personal by having to authenticate it.
Ask for: your name; what its name is; setting your own background colour for the touchscreen; setting your own menu style
- Oven knows your name.

Smiley character emotions
- Oven has a face with emotions
- Create a smiley character that reacts to different situations
- Create a smiley character that reacts to condition of the oven (sad face when it's dirty)

Create an emotional bond with the oven
- Pictures of fav. dishes and recipes in oven. -> log of all cakes -> connected to insta, where pictures of cakes are shared -> when stand-by, own pictures are shown.
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1. Clean up your appliance’s digital content.
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3. Reminisce on the time spent with your old appliance through visual memories.
4. Thank your old appliance, erase data and place it in the care of ATAG.

Personal communication
- Persoonlijke berichten; Hello Lisa; personal touch; I've got a new dish for you;
- Praten met je oven; complimenten geven;
- Oven zegt: "I love you. You look great" - oven terug laten houden van gebruiker;
- Oven krijgt ook credit voor baksels: Mensen laten beseffen dat ze dankzij hun oven altijd geweldige baksels maken;

Product relationship counsellor
- Acknowledge the end of the use cycle at the purchase.
- Soothing separation anxiety for returning the old appliance with a strong relationship.
- Poppelaar (2020) mentions the idea of a “product relationship counsellor” as part of an after service for handing in a used phone.
- Counselling and after service:
  - Data backup,
  - Appliance recycle options,
  - Appliance return,
  - General support.

Use the brand image
- ATAG keurmerk, 8 jaar garantie, super degelijk product; Kwaliteitskeurmerk;
- Reclame;
- Sympathieke merk;

LEGEND

From product care
From returning to ATAG
From refurbishment brainstorm
CONCEPT 2

Use light to indicate where care is needed
- Moving flashing lights to show where care is needed
- Highlight parts that need cleaning
- Spotlight showing what should be done.
- Use ambient light to show where you have to clean and what to do
- Blue ambient light around water tray
- Ambient light around door

Memory in cleaning
- Show stats
- User gets feedback on use
- Memory last time you cleaned
- Stats of use of clean function
- Track uses and cleaning moments
- Visual calendar when needed again
- Times of use vs. times of product care. -> You are doing okay 70% -> 30% to do better.

Use display to guide users
- Oven display: “Clean me!”- stappen om te doorlopen getoond in de display. Gebaseerd op bakuren; Oven die zegt: “Maak me schoon.”
- Subtle nudges, in user interface. (Beter voor smaak, even snel doen met tips en tricks);
- Timing van schoonmaak nudge is belangrijk;
- Na een bepaalde tijd na het koken/bakken geeft de oven een opdracht voor schoonmaken.
- Oven op slot; kunt hem niet gebruiken;
- Spiel ervan maken: ‘Zorg goed voor je oven, dan dit..!; Lol krijgen in schoonmaken, en lol houden;
- Gewoontje: doekje aanrecht -> meteen oven;
- Netjes schoonmaken -> Gratis reinigings set terug krijgen.

Button attracts attention
- Thing moving out when task is not done
- Button pops out attracting attention; push back because it is annoying

Text in/on oven
- Schrijf het op de oven zodat mensen het onthouden: “Hand in the oven when it is done.”
- “Wist je dat je deze oven in kunt leveren?”
- “Recycle sticker on the behuizing of the oven
- Warning stickers
- Positive messages on oven:
  - ‘property of ATAG’ aan binnenkant
  - ‘Hand in the oven when it is done.”
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  - ‘Hand in the oven when it is done.”
  - “Hand in the oven when it is done.”

Return when placing new oven
- Bij koop nieuwe, oude automatisch eruit; Ophaalservice van ATAG; Aan huis ophalen;

stekker
Stekker eruit -> eerst nog pop-up over end-of-life disposal.

Memory in cleaning
- Show stats
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Return when placing new oven
- Bij koop nieuwe, oude automatisch eruit; Ophaalservice van ATAG; Aan huis ophalen;
**CONCEPT 3**

**Oven indicates need for cleaning**
- Indicate need for cleaning on screen
- Flashing screen - saying you need to do something
- Oven indicates when repair/maintenance is needed, where the problem is, and contact details of repair services.
- There should be cleaning on the main screen
- Oven lets you know when it’s time to clean it
- Care task info when you take out dish/dinner -> keep it there till other button pressed
- Use icons, use clear visual instructions -> minimum tekst.
- Clear instructions on screen, reminding you that you have to do small little things often
- Use screen to inform
- Smart oven -> know when to show user it has to be done.
- Learn routines of user
- Taking food out -> clean. ‘Wipe after use’

**Use aggressive light to show stains**
- White cavity to show stains
- Light needed to clean the oven. To see all stains
- Two hands needed for cleaning, extra hand for light?
- User has to empty the water reservoir: have visual cue on the outside whether there is still water in it or not.
- Show water is there (in water reservoir)
- Transparent window (water reservoir)

**Educate users**
- Handleiding: Hoe maak ik mijn oven schoon;
- Instructiefilmpje op youtube;

**Light**
- Keep light in oven on after use

**Tutorial mode first period of use**
- First use -> first month of use shows more instructions. Later less, instruct what to do. ‘Tutorial mode’

**Smart oven starts steamclean when temperature is right**
- Indication if oven is too hot (to use steam clean) on screen.

**Ability and knowledge to user**
- Give good cleaning supplies with oven
- Have cleaning tools close to oven
- Tool om gaatjes te bedekken wanneer je met zwaar geschut gaat schoonmaken
- Manuals
- Stick on oven with contact info in case of issues
- Show small maintenance tasks in manual or tutorials
- Product care tips always available on the touchscreen
- NFC Chip net als senseo apparaat in afstudie opdracht (van Jozine Bouma)
- Online tutorials
- Instructies with guidance on the screen -> with clean visuals
- Instruction videos -> access them on screen

**Self-diagnosis**
- Building in a self-diagnosis system to evaluate the performance of the device and help sell it after use
- It combines both the factors of financial compensation and effortless collection.

**Amount of money back depends on state of the oven**
- Netjes klasse:
  - A - 500eur,
  - B - 300eur,
  - C - 50eur;

**Buy-back**
- Financiele incentive;
- Terugkopen; statiegeld/borg wat je terugkrijgt;
- Bij inlevering oude oven korting geven (op nieuw product / op volgende ATAG oven / bij nieuwe keuken/oven);
- Garantie: Binnen garantie terugkopen;
- Terugroep actie;
- Verplichten, anders boete/deurwaarder;
G.5 | FEEDBACK ON THE CONCEPTS IN MIRO

DISCUSSION ON THE TOPICS THE DIFFERENT CONCEPTS REPRESENT

G.5 | FEEDBACK ON THE CONCEPTS IN MIRO

LEGEND

- Pros by ATAG
- Cons by ATAG
- Ideas by ATAG

Building a bond with your oven?

Leuk dat je een band creëert, zodat mensen beter met hun oven omgaan.

Ik geloof in hechting en vertrouwen dat je de oven ook beter onderhoudt.

I like the more indirect approach to taking care of the product.

Vergezocht. Veel moeite voor een oven.

Als het bedrijf het zo belangrijk vindt, kan verwachten ik ook wel de service aankomt en dienen ze mij niet mee lastig te vallen.

Recylen doen ze maar bij de start waar ik hem inlever. Als ik echt wil nemen dan zoek ik het zelf wel op (toch).

Gaat het over langer gebruik, of over wat je eruit kunt en de daad daarin?

Vuik is afhankelijk van het door de kookopdracht wordt aangewezen.

About designing the End of Life

Ik denk dat het meer gaat over verwarmen dat een band (bijvoorbeeld dat een toekomst minimaal 10 jaar op de markt is), dan moeten we daar service inzien lonen, dan krijg je vertrouwen.

Ik zou enkele ideeën kun vaststellen, totdat het moment dat het een betaalbare waarde is en voor te beleven waarde en dat de service échte waarde bringt en niet erin moet worden.

In samenhangend industriële levenscyclus worden diegenen in apparaten gesteld en die geven aan dat een onderdeel vervangen moet worden.

Concept 1: Ik mis vaak, waarom moet ik het doen.

About cleaning the oven

Schonenmaak is essentieel voor daarbij, wanneer de gebruiker veel energie geeft, is het even waar zelf te verwarmen en waarmee de andere voorzorgen. De ene groepen vertonen vaak geen groene groene huisvuren en het is niet met.

Reason for maintenance is good to communicate

Denk wel dat het waartoe samenstellen van toegepast nu wat op kun, zodat stand het belang van direct dat hij je gaat aan lange, behoud, etc.

Concept 3: Ik mis vaak, waarom moet ik het doen.
FEEDBACK ON CONCEPT 1 - BUILD A BOND

Concept 1 - Build a bond

Scenario:
Oven asks Saar to give it a name.
First use, or perhaps later.

Oven asks Saar what to call her.

Oven gives suggestions
Saar enters a name that suits her

Name is used in following scenarios

Giving a name to the oven

Naamgeving van de oven is al geïntegreerd in de app, dit gelijk op het toestel kunnen doen is een leuke toevoeging.

Ik zou de naamgeving via de app doen, niet via de oven.

Concept 1: leuke toevoeging maar beperkt toepasbaar voor hergebruik.

Misschien beter als de oven al een naam heeft, net als Siri of Alexa.

Kun je de naamgeving verbinden met Alexa/Siri? Spraakgestuurd.

Naamgeving is essentieel in een connected kitchen om de specifieke appliance te identificeren.

I like the part where the user gives their name to the oven, because that adds a layer of personalization.

Leuk dat de oven je aanspreekt, 'good morning'.

dat je wordt genoemd, 'good morning'.

Houd je wel rekening met meerdere gebruikers in een huishouden?

Good morning, Good

Appendix G.5 | Feedback on the concepts in Miro
Scenario: Uploading pictures

Saar uses the app on her phone. Uploads a few pictures. Choose setting when to show them. Oven shows the pictures.

Saar feels happy with the oven.

Saar can choose a background of the stand-by screen, or the timer.

Scenario: End of Product life

Guide to a respectful goodbye

Clean up appliances digital content. Make a back-up to transfer the data to the new appliance for a fresh start. Reminisce on the time spent with the old appliance through visual memories. Thank your old appliance, erase data and place it in the care of ATAG.

Saar feels happy with the oven.

Saar can choose a background of the stand-by screen, or the timer. Keep clock visible, user can arrange composition of the screen or choose from a few templates.

Uploading a picture to the screen

FOTO UPLOADERIS EEN VELLEN. NET ALS EEN FOTO DIE IK OP DE ACHTERGROND VAN HET HANDBORD VAN Mijn MOEDERS AUTO LIET GEZET.

Ik zou één foto doen. Net als de achtergrond op je telefoon. Of moet het een digitaal fotolijstje zijn?

Tech-geeks vinden het misschien wel leuk.

Leuk als de suggesties geeft voor andere dingen. Omdat ik het niet zo vaak doe. Ook zijn ao's het oude schrijven voor schermen, maar niet voor de saar.

Heb ook wat standaard opties, zodat je iets kunt kiezen dat bij je keuren past.

Other new ideas deriving from this concept

Kun je kansen duidelijk maken wat er gedaan is om een product te bouwen? Meer insicht in productie en logistieke proces.

Timers kun je veel meer. Mogen kunnen zelf meer gespreksinstellingen, hoe vaak ze willen zien over het niet ver de oven is.

Misschien kun je de herinneringen ook gebruiken tijdens de bewerking. Inspiratie door wat je zonder hebt gezien. Misschien een visualisering van tijd gedeelten.
**FEEDBACK ON CONCEPT 2 - GUIDING THE USER**

**Reminders of cleaning tasks**
- De hints zijn makkelijk te gebruiken voor diverse gebruikers.
- Zie ik wel zitten. Na een half uurtje melding is wel nice.
- Non-intrusive. Fijn dat je op een subtiële manier een herinnering krijgt.
- Irritatie... te veel sturen kan juist bemoeilijken overkomen.
- Handig. Praktisch. Als de oven zegt dat je alleen dit plekje even moet doen, is fijn.

**Use of light as visual cues**
- Lichtjes wel handig
- Licht is ook leuk

**User should be able to skip things**
- Denk dat de gebruiker wel elementen moet kunnen overslaan.
- Moet de herinnering wel moeten kunnen dismissen/skippen.
- Users choose how they are guided
- Je moet de melding ook wel weg kunnen klikken.
- Iedere gebruiker is anders, dus laat de gebruiker kiezen wanneer en hoe die getriggerd wil worden.

**Other new ideas deriving from this concept**
- Klair in de oven, dat het licht in de cavity aangeeft hoe ver de oven is.
- Uneven laat een soortje zien en in de app kun je zien wat het betekent en wat je moet doen.
- Discolichten in de oven.
Scenario: End of Product life

When power is off, screen shows user where to put the oven for refurbishment.

Also text/sticker in or on the oven. (about increasing triggers)
## Feedback on Concept 3 - Teaching the User

### Oven tracks activities and use. And knows when certain activities should be done.

**Idris uses the oven.**

### Learning stage One.

**Idris can first enjoy dinner.**

**Scenario:** User has to dry or clean the inside of the cavity.

### Timing:

- **When oven programme ends, door open and closed, then after 3 seconds no new programme has started:** show screen.
- **After half an hour:**
  - **Screen:** Background of task starts moving, in calm, light-wave-like movements.
  - Different ‘motion’/colour combination for every task.

### Learning stage Two.

**Idris does the task.**

### Learning stage Three.

**Oven attracts attention again.**

**Idris can finally enjoy dinner.**

### The instructions for cleaning should not be a course.

<table>
<thead>
<tr>
<th>Negative</th>
<th>Concept 3 is OK voor beginnende users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Het moet niet te belerend worden dat mensen zich eraan gaan irriteren.</td>
<td>Als ik voor de tweede keer zo een oven zou kopen, zou ik gek worden.</td>
</tr>
<tr>
<td>Het moet alleen niet voelen als een volledige cursus e.d.</td>
<td>De learning stages gaan mensen van afhaken dank ik</td>
</tr>
</tbody>
</table>

### Different learning stages throughout use cycle.

<table>
<thead>
<tr>
<th>Concept 3 is OK voor beginnende users</th>
<th>Vooral beginnende gebruikers zullen instructies waarderen en volgen.</th>
<th>Goed dat je in het begin wordt meegemaakt. In het begin maakt je het veel schoon en daarna in je routine.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Als ik voor de tweede keer zo een oven zou kopen, zou ik gek worden.</td>
<td><strong>Learning stages zijn wat lastig te begrijpen</strong></td>
<td><strong>De learning stages gaan mensen van afhaken dank ik</strong></td>
</tr>
<tr>
<td>Verwarrend als de informatie/uit leg ineens er niet meer is.</td>
<td><strong>Volgende stage al veel sneller. na twee keer schoonmaken snap ik het wel</strong></td>
<td><strong>Laat zien hoe ver je bent, in de learning stages... expert level enzo. Laat zien dat het gebeurt/gaat gebeuren.</strong></td>
</tr>
<tr>
<td><strong>Online leerstof zoals bij concept 3 als een soort videoles.</strong></td>
<td><strong>Zorg dat de stappen zichtbaar zijn. Dat het stapsgewijs is</strong></td>
<td><strong>Bereikbaarheid: Als je informatie nodig hebt, dat je er makkelijk bij kan.</strong></td>
</tr>
</tbody>
</table>

### Let the users be in control of when/how/what they are guided in.

| De interval/manier waarop moet door de consument ingesteld worden. Het is duidelijk de gebruikersnoden, afhankelijk van hoe vaak je info krijgt en ook benadruk dat hij het niet wil. | Diak om balans en relevantie, laat de klant bepalen hoe vaak, hoe hij info kreeg en ook benadruk dat hij het niet wil. |

### Timing is important.

| Ik wil graag hebben om de oven te doen van de lage termijn is dat nog niet iets waar ik mee bezig ben. Maar het is op een luchtig overzicht en dan zelf last te maken. Je moet er veel over nadenken. | Je moet het wel afstellen of in waarde de mensen informatie willen, dat je het niet gaat negeren, omdat er te veel informatie is. |

| Er zou een niveau ingesteld moeten worden mbt informatie wat men min/max verwacht... | Er zou een niveau ingesteld moeten worden mbt informatie wat men min/max verwacht... |
Scenario: End of Product Life

Self-diagnostics: Earning points throughout the use.
Buy-back. Amount is done by the self-diagnostics.
‘Property of ATAG’ more present

Other new ideas deriving from this concept

- If you’ve used the product, you can earn points for your use, or re-sell it, or even return it.
- Imagine adding a digital marketing component to educate users about the benefits of the product.
- Consider a ‘Property of ATAG’ stick or label to indicate ownership.

‘Property of ATAG’ sticker

- ‘Property of ATAG’ is nice.

Self-diagnostics: Tracking use so buy-back value can be determined

- Gained the diagnosis: the oven gets an obv.
- Earning points through use.
- Buy-back amount is done by self-diagnostic.

Buy-back

- Cashback.
- Good incentive.
- Buy-back is a very nice idea.

There has to be an incentive to not throw the appliance in municipal waste.

Appendix G.5 | Feedback on the concepts in Miro