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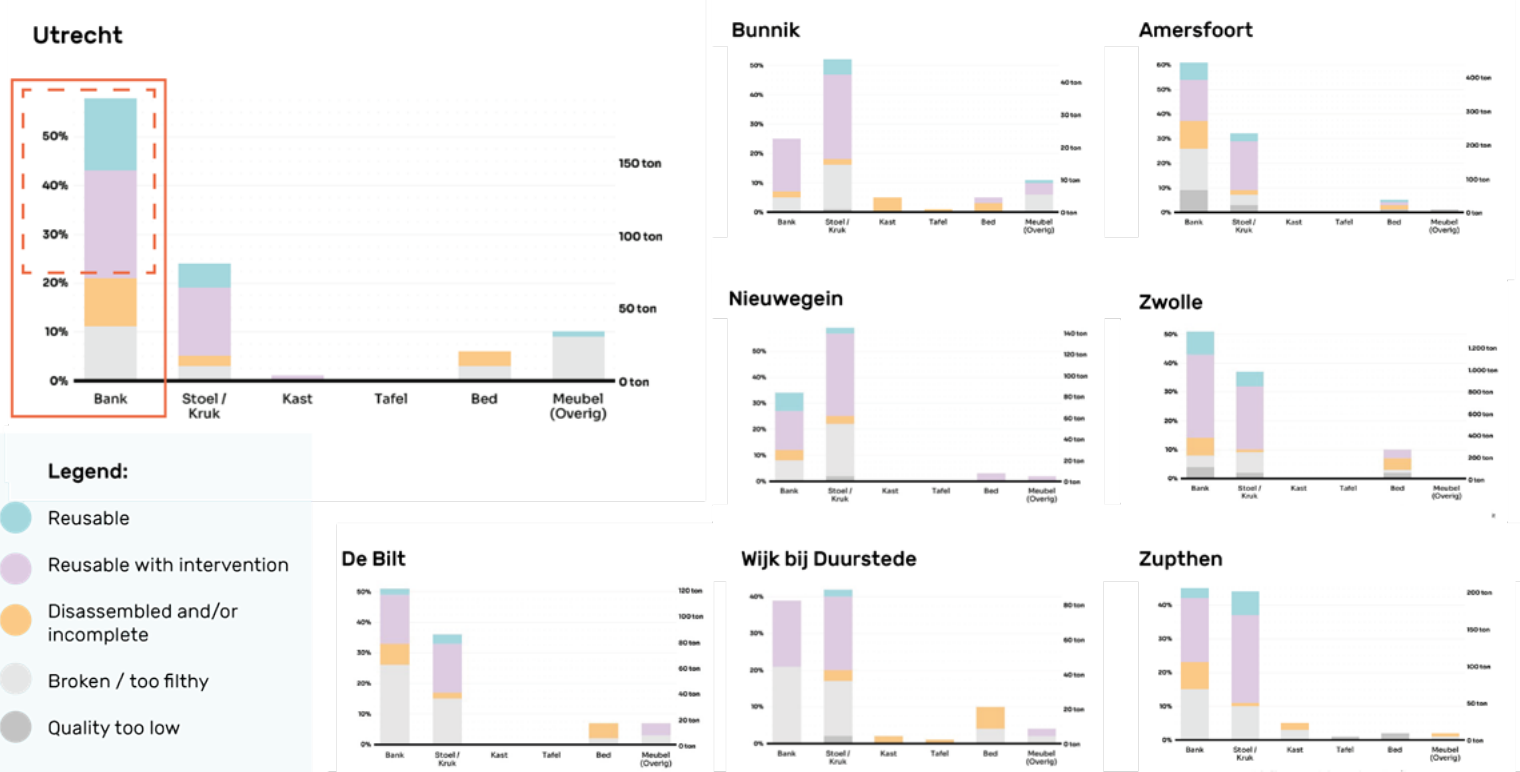
PUBLIC APPENDICES

APPENDIX P-A. VISUAL RESEARCH THE BIN

Research from The Bin in 2025 at municipal waste collection points shows that almost half of discarded couches can be saved through interventions.

Recorded furniture at municipal waste collection points (research The Bin, 2025)

From all recorded furniture, 58% were couches. From these couches, 26% is directly reusable (blue), and 38% after intervention (purple).



APPENDIX P-B. PROJECT BRIEF

Project Proposal form IDE Master Graduation Project

In this proposal the agreements made between student and supervisory team about the student's IDE Master Graduation Project are set out. This document needs to be prepared for the Kick-off meeting and should be submitted in MyCase.

Name student **Annabel Jonkman**

Student number **5024064**

Project title **Circular Couch Design - Transitioning To A More Sustainable Furniture Sector**

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

MSc programme ☐ Design for Interaction ☒ Integrated Product Design ☐ Strategic Product Design

☐ Other (in case of a double degree outside IDE):

Introduction

Describe the context of your project in the box below; What is the domain in which your project takes place? Who are the main stakeholders and what interests are at stake? Describe the opportunities (and limitations) in this domain to better serve the stakeholder interests. (max 250 words)

This graduation project takes place within the field of circular furniture design and focuses on extending the lifespan of upholstered furniture, specifically couches. The furniture sector emits approximately 1,76 Mton CO₂-eq annually (The ReUse Alliance, 2023), with large items such as couches contributing disproportionately due to their weight and material complexity. Additionally, couch lifespans have decreased, from 14 years in 1985 to 6 years in 2019, intensifying their environmental impact (Intven et al., 2022).

The main stakeholders are The Bin, furniture manufacturers like DQG, second hand shops and thrift stores, municipalities, municipal waste point collectors and end users. The Bin is interested in accelerating circular strategies within the furniture sector, while municipalities aim to reduce waste volumes and emissions. Furniture manufacturers face the challenge of balancing quality, brand value and sustainability, often within systems that are not designed for product return, repair or refurbishment.

→ space available for images / figures on next page

Introduction (continued): space for images

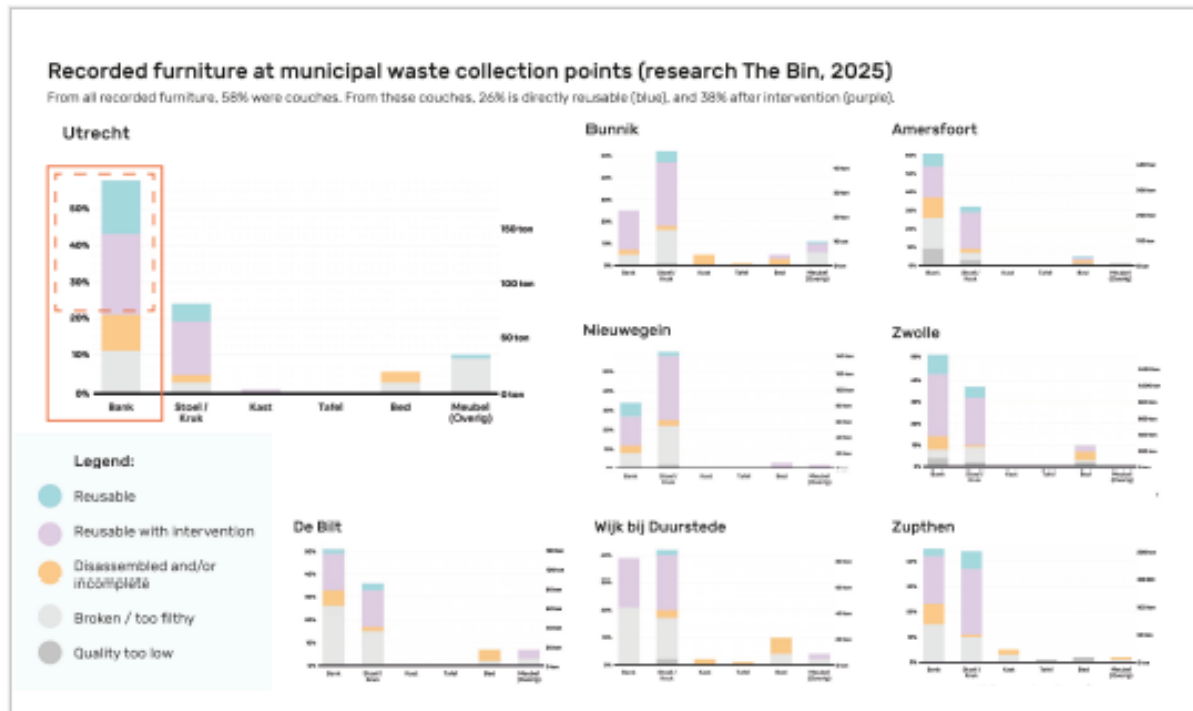


Figure 1: Potential reusability of furniture (research The Bin 2025)

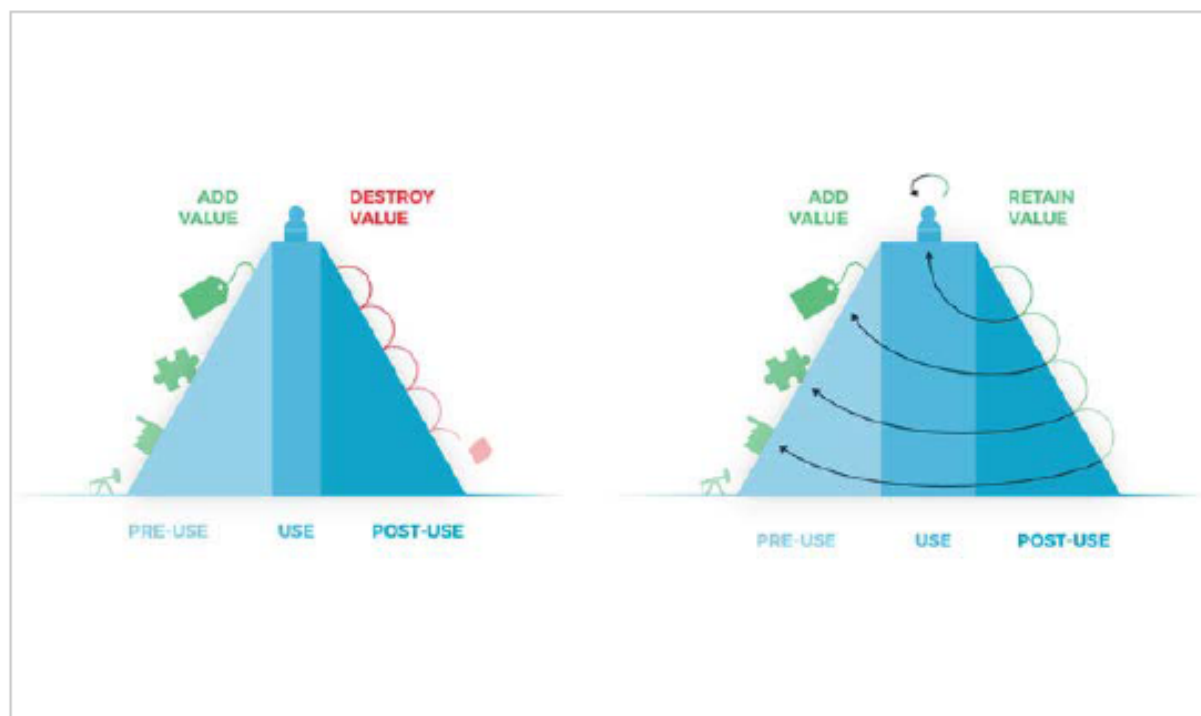


Figure 2: The Value Hill (The Value Hill - CIRCO, 2021)

Problem Definition

What problem do you want to solve in the context described in the introduction, and within the available time frame of 100 working days? (= Master Graduation Project of 30 EC). What opportunities do you see to create added value for the described stakeholders? Substantiate your choice. (max 200 words)

Couches are prematurely discarded and incinerated, causing unnecessary loss of material value. Across Europe, the furniture sector generates approximately 10.78 million tonnes of waste each year (Innovative Circular Solutions for Furniture | Programme | HORIZON, n.d.). As a reference, the EU generates 2233 million tonnes of waste annually, of which 9%, calculated to approximately 201 million tonnes, is made up of household waste (Waste Statistics - Statistics Explained - Eurostat, n.d.).

Logistical systems are not designed for furniture recall, which makes creating circular systems that make repair and refurbishing possible difficult for producers.

The high share of couches within municipal furniture waste streams, as demonstrated by The Bin, combined with the ability to save half of them through interventions (see figure 1), highlights the problem that this research project will tackle.

Value retention strategies such as refurbishment, repair, and recycling show great potential to reduce furniture waste volumes in the Netherlands and across Europe, retaining material and product value that would otherwise be lost (The Value Hill - CIRCO, 2021) (see figure 2).

For The Bin the added value lies in gaining an overview of the furniture market, and what aspects can stimulate reuse or refurbishing. For Dutch Quality Group, this project provides insight into what barriers currently prevent reuse or refurbishing, despite the high quality of their furniture. It will shine light on what opportunities lie in designing or positioning couches to make lifetime extension more realistic, also at low return rates. The project explores a scalable approach that is relevant for the entire furniture sector but is testable within the context of Dutch Quality Group.

Assignment

This is the most important part of the project brief because it will give a clear direction of what you are heading for. Formulate an assignment to yourself regarding what you expect to deliver as result at the end of your project (1 sentence. As you graduate as an industrial design engineer, your assignment will start with a verb (Investigate/Design/Validate/Create), and you may use the format:

(Investigate/Design/Validate/Create) a (what will be the deliverable → prototype/roadmap/process/intervention /approach/guideline/strategy/...) to (what should it do →(create/understand/evaluate/validate/improve/execute/ analyse/...) (the objective → experience/value/process/product/...) for (whom → target group/client/...) in (what context).

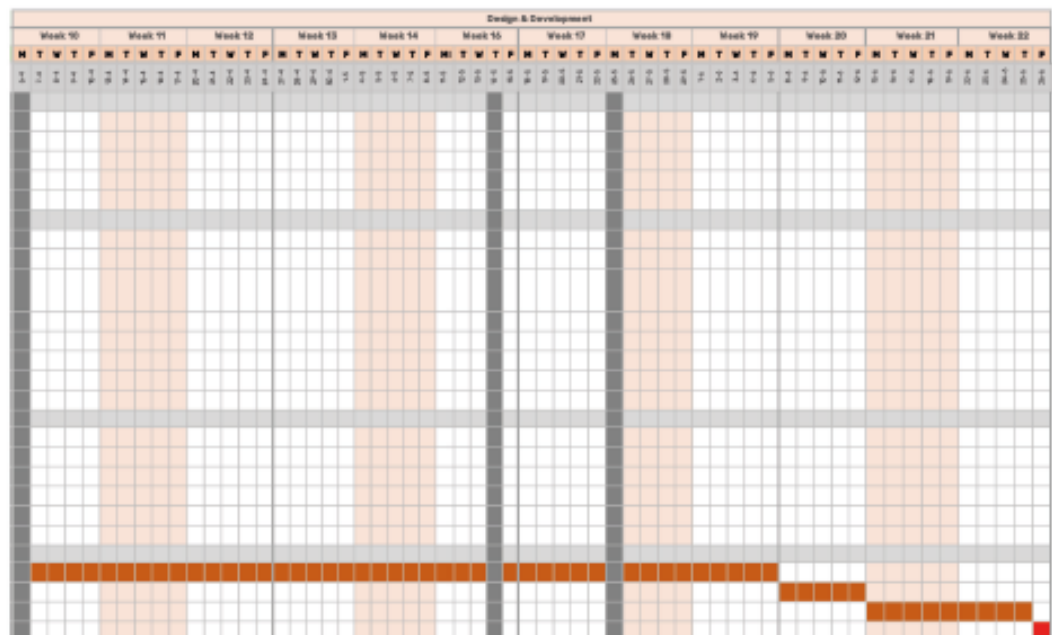
Design an intervention that enables producers to transition towards repairing and refurbishing their own couches.



Explain your project approach to carrying out your graduation project and what research and design methods you plan to use to generate your design solution (max 150 words).

The research will firstly map the couch lifecycle from manufacture to end of life, using data from returned couches from DQG, dealers and municipal waste collectors, while studying consumers' use behaviour and views on refurbishment as well as the perspectives of manufacturers and waste collectors on sustainability in order to identify where barriers to sustainable action occur. It will focus on standardised couch components by analysing which elements, such as frames, cushioning systems and upholstery assemblies, have the highest environmental and material impact and are most suitable for reuse. In the first period, ten thrift stores will be visited to document couch segments, conditions and sales, complemented by interviews with staff, a global survey of around 100 users and the dismantling of three couches from different market segments to map disassembly and key components. Additionally, around 15 users who are hesitant towards repair or refurbished furniture will be interviewed to identify key concerns. In the second period, ideation and design experiments will be carried out using a research through design approach, applying 3D-printed prototypes directly onto a test couch at the workshop. These experiments will lead to a final design intervention that is of value to Dutch Quality Group and The Bin.

*To make visible how you plan to spend your time, you must make a planning for the full project. You are advised to use a Gantt chart format to show the different phases of your project, deliverables you have in mind, meetings and in-between deadlines. Keep in mind that all activities should fit within the given run time of 100 working days. Your planning should include the **Kick-off, Midterm Evaluation, Green Light and Finalisation (ceremony)**. Please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any (for instance because of holidays or parallel course activities). Add (an image of) the planning in the box below. If it is not readable, you can add the planning as an attachment to My Case along with this Proposal.*



Motivation and personal ambitions

Explain why you wish to start this project, what competencies you want to prove or develop (e.g. competencies acquired in your MSc programme, electives, extra-curricular activities or other).

Optionally, describe whether you have some (max 5) personal learning ambitions which you explicitly want to address in this project, on top of the learning objectives of the Graduation Project itself. You might think of e.g. acquiring in depth knowledge on a specific subject, broadening your competencies or experimenting with a specific tool or methodology (200 words max).

For a long time I've been frustrated about how slowly the product sector is moving towards sustainability. During my internship at a product design company, I saw that even when sustainability was considered, the steps felt small. In my Master's I took elective courses to learn as much as I could about sustainability so I could apply it later in meaningful ways. I wanted to be doing something that could trigger real change. That is why The Bin caught my attention, their vision and practices put sustainability at the core. A graduation project with them would let me combine my knowledge and passion for sustainability with my product design experience and understanding of consumer behavior.

I want to go all in on this project, challenging myself to deliver a solution I can be proud of, something that demonstrates my skills as a designer and engineer. Often in bigger projects that I work on individually, I find it difficult to keep motivated and focused, and not let myself be lost in the information and decisions. For this project my personal learning ambitions are to keep focused, trust my gut and keep working hard to achieve the best outcome possible. I also want to become an expert on sustainability in the furniture sector, expand my network, and gain hands-on experience with the Research Through Design method, which suits my working style but I haven't yet fully mastered.

Project brief - List of sources

Innovative circular solutions for furniture | Programme | HORIZON. (n.d.). CORDIS | European Commission. Retrieved 12 January 2026, from https://cordis.europa.eu/programme/id/HORIZON_HORIZON-CL6-2024-CircBio-01-3

Intven, M., De Haes, S., & Van 't Zelfde, J. (2022). Grootzitmeubilair | Productstromen en materialen in kaart gebracht. In Rijkswaterstaat (No. R001-1282572JZE-V02-nnc-NL).

Tauw. Commissioned by Rijkswaterstaat (RWS). + Addendum.

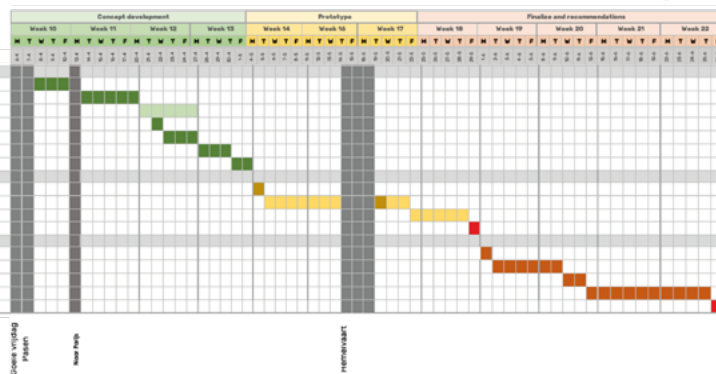
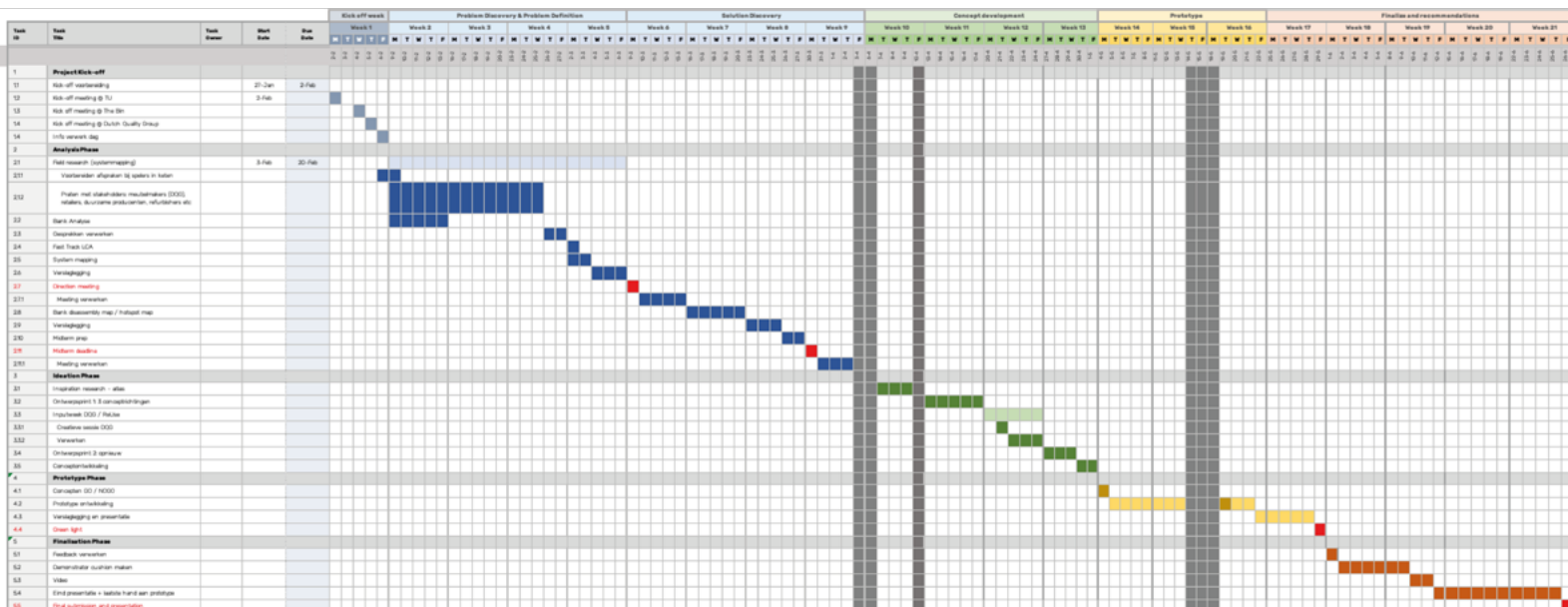
The ReUse Alliance. (2023). Op naar een circulaire meubelsector waarin meubels langer meegaan. Goldschmeding Foundation.

Value Hill - CIRCO. (2021, April 26). CIRCO. <https://www.circonl.nl/kennis/circular-business-with-the-value-hill/>

Waste statistics—Statistics Explained—Eurostat. (n.d.). Retrieved 13 January 2026, from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Waste_statistics#Highlights

APPENDIX P-C. UPDATED PROJECT PLANNING

PLANNING



APPENDIX P-D. FAST TRACK LCA CALCULATION

Aikon Lounge 13 can be configured by connecting two modules. This configuration is representative of the sofa size that most people have in their living rooms (see *Figure 101*).

The weight of the model and its different components was derived from a SolidWorks model provided by Dutch Quality Group. The weights of the individual components are presented in *Table 5*.

AIKON LOUNGE '13 VOORBEELDOPSTELLINGEN

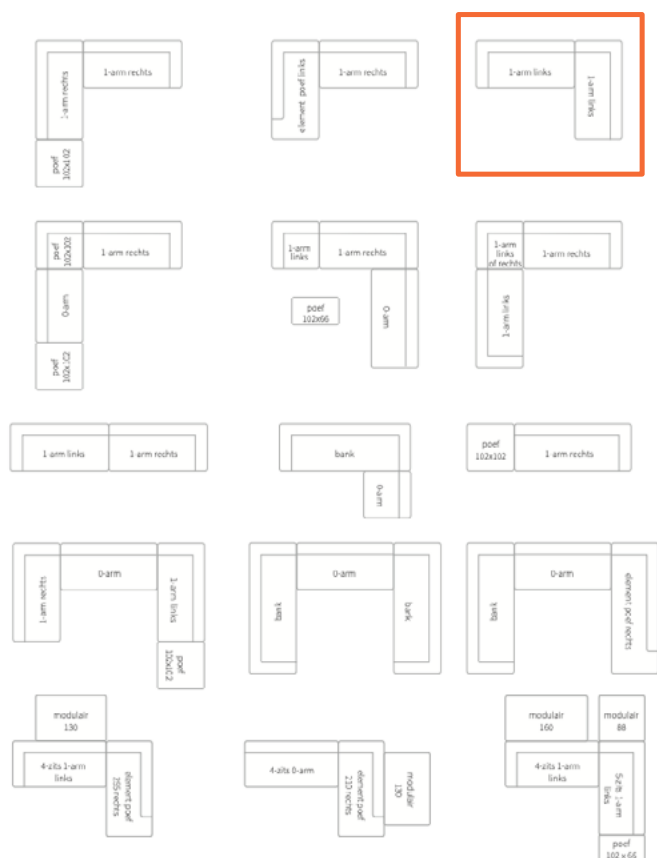


Figure 101: Compositions of different elements of Alkon Lounge '13

The total weight of the Aikon Lounge '13 (right module) is 54,59 kg. Based on these weights, a fast-track LCA was conducted *see Table 6*.

The functional unit used in this assessment is two Aikon Lounge 13 sofa elements (right modules). The assessment includes raw material production, transport of materials to the manufacturer and distribution to dealers, manufacturing, and end-of-life incineration. The use phase was excluded as it does not significantly contribute to emissions for

MATERIAL	WEIGHT (KG)
Wood: Plywood	17,53
Wood: Spruce solid	5,74
Wood: MDF	4,08
Wood: Beech solid	3,66
Foam	7,81
Upholstery	4,10
Nosag springs (steel)	3,48
Metal feet (alu)	3,40
Dacron	0,509
Felt	1,05
Plastic clips for springs (PP)	0,34
<i>Total</i>	<i>54,59</i>

Table 5: Materials of Aikon Lounge '13 element with weight (kg)

upholstered furniture.

Emission factors were taken from the Idemat database, and processed in a fast-track LCA Excel tool created for a university course (Delft University of Technology, 2023). It provides generic emission factors for common materials based on LCA databases and literature. Other emission factors were gathered from internet sources.

Selected is the most sold fabric from Dutch Quality Group, **Milton**, sold on 34% of all couches (sitting element) (see *Figure 102*). The composition of this fabric is: 51% acrylic, 16% cotton, 11% linnen, 11% viscose, 11% polyester.

Polyacrylic: 11.53 kg CO₂-eq (CO₂everything, n.d.)

Cotton without global sea transportation: 1.21 kg CO2-eq.

Linen: 4,5 kg CO2-eq (CO2everything, n.d.)

Polyester: 6.4 kg CO₂-eq (CO₂everything, n.d.)

Viscose production: 1,50 kg CO2-eq.

Material extraction A1							
Component/description	Weight per component (kg)	Material category	Category average Carbon Footprint CO2 eq	Actual material	Actual material Carbon footprint CO2 eq	Uncertainty %	
Multiplex	35,06	Wood	1,549	Idemat2023 Plywood, indoor use (softwood 600 kg/m3)	0,654	5%	
Spruce solid	11,48	Wood	1,549	Idemat2023 Spruce, European FSC/PEFC 460 (kg/m3)	0,170	5%	
Beech solid	7,32	Wood	1,549	Idemat2023 Beech, European FSC/PEFC 710 (kg/m3)	0,176	5%	
MDF	4,08	Wood	1,549	Idemat2023 MDF at factory gate	0,638	5%	
Foam					3,041		
	17,12	Foam (PUR)	3,082	Idemat2023 PUR flex. block foam TDI		30%	
Textile	8,20	Textile (synthetic)	4,508	Own calculation from case reference	7,434	20%	
Nosag springs	6,96	Steel	41,500	Idemat2023 Steel (21% sec = trade mix average) EU	0,958	5%	
Feet	6,80	Aluminium	7,631	Idemat2023 Aluminium trade mix (80% prim 20% sec)	7,631	5%	
Other	1,40	Thermoplastic	3,344	Idemat2023 PP (Polypropylene) chemical upcycled	1,853	20%	
Manufacturing A1							
Manufacturing process description	Weight per component (kg)	Process category <Unit>	Category average Carbon Footprint CO2 eq	Actual manufacturing process	Actual material Carbon footprint CO2 eq	Uncertainty %	
CNC'ing the multiplex parts	60,34	Wood processing(per kg)	0,146	Idemat2023 Chain sawing	0,001	10%	
Textile production	12,00	Textile (e.g. knitting, spinning, weav	4,809	Idemat2023. weaving 200 dlex	0,000	50%	
Casting metal feet	6,80		0,000	Estimation made with ChatGPT with info from AMT Die Casting (20	0,000	10%	
Coaten metal feet	6,80	Metal coating(per m2)	2,522	Idemat2023 Powder coating aluminium	4,045	10%	
Distribution A1							
Distribution process description	Weight per component (ton)	Distance per component (km)	Process category	Category average Carbon Footprint CO2 eq	Actual transport process	Actual material Carbon footprint CO2 eq	Uncertainty %
Transport of the couch to the dealer	0,0984	300,00	Truck EU	0,001	Idemat2023 Truck+trailer 24 tons net (min weight/v	0,091	30%
Transport wood to factory	0,0539	2000,00	Truck EU	0,001	Idemat2023 Truck+trailer 24 tons net (min weight/v	0,091	10%
Transport fabric to factory	0,01	1500,00	Truck EU	0,001	Idemat2023 Truck+trailer 24 tons net (min weight/v	0,091	10%
Use phase A1							
Use process description	Amount for the total timespan	Process category	Category average Carbon Footprint CO2 eq	Actual use process	Actual material Carbon footprint CO2 eq	Uncertainty %	
-	Unit		0,000		0,000	10%	
End of Life A1							
End-of-life process description	Weight per item (kg)	Process category	Category average Carbon Footprint CO2 eq	Actual end-of-life process	Actual material Carbon footprint CO2 eq	Uncertainty %	
Municipal solid waste incineration	98,42	Incineration paper and wood (municip	-0,300	Idemat2023 DMC waste incineration with electricit	1,007	10%	

Table 6: Calculation for Fast-track LCA Aikon Lounge '13

Total kg CO2-eq: 5,88 + 0.19 + 0,495 + 0.704 + 0,165 = **7,434 kg CO2-eq.**

The following assumptions were made:

1. Dacron was assumed to weigh 1.5 kg but from the hotspot mapping during disassembly the real weight appeared 0,509 kg.
2. The upholstery cover was assumed to weigh 6 kg but from the hotspot mapping during disassembly the real weight appeared 4,10 kg.
3. Transport distances were estimated based on typical European supply chains. Wood-based materials are assumed to originate from Sweden (2000 km by truck) and the upholstery fabric from Italy (1500 km by truck).
4. At end-of-life, the sofa is assumed to be incinerated as bulky municipal waste with energy recovery, which reflects common waste management practices in the Netherlands.
5. ChatGPT was used to make a prediction of the environmental impact of casting, with information from AMT Die Casting (2022).

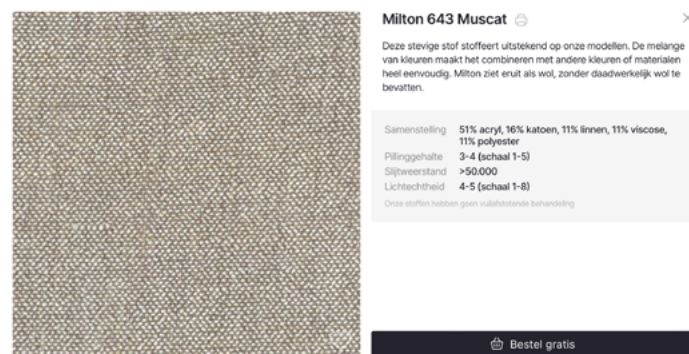


Figure 102: Compositions of fabric Milton

APPENDIX P-E. HOTSPOTMAPPING

Hotspotmapping is performed to see what priority parts are. They are rated on five aspects and the parts are added.

Red flags:

1. Time
 - a. Backrest Foam
 - b. Armrest Foam
2. Accessibility
 - a. Tacks on white seat cushion band
 - b. Tacks removal in corners of upholstered seat cushion
3. Priority part
 - a. Fabric cover (textile)
 - b. 3 foam parts (foam)
4. Economic value
 - a. Fabric cover (textile)
 - b. Foam seat cushion
5. Environmental impact
 - a. Backrest foam
 - b. Foam seat cushion

HotSpot Mapping Datasheet

General project information

Brand name	Design on Stock
Product category	Aikon Lounge '13
Authors	Annabel Jonkman
Date	Mar/26
Location	

	General				Activity					Accessibility				
	Step number	Name	Subassembly?	Part of ...	Type of activity	Required tool	Tool size	Task frequency	Total time to disconnect (sec)	Force	Accessability	Positioning	Maintenance	Function
1	Extender plate	no	main assembly	Unscrew	Screwdriver	T8	2	30	level 0 -	level 0 -	level 1 -	level 0 -	level 0 -	
2	Extender plate	no	main assembly	Remove	Hands		1	5	level 0 -	level 0 -	level 0 -	level 0 -	level 1 -	
3	Feet	no	main assembly	Remove	Hands		4	35	level 0 -	level 0 -	level 0 -	level 1 -	level 1 -	
4	Unzip underlayer	no	main assembly	Other	Hands		1	10	level 0 -	level 0 -	level 0 -	level 1 -	level 0 -	
5	Pull off seat cushion pullstrips	no	Upholstered seat cu	Remove	Hands		6	38	level 0 -	level 1 -	level 0 -	level 0 -	level 0 -	
6	Remove tacks on white cushion band	no	Upholstered seat cu	Other	Lever / Prybar	4,5	3	58	level 2 -	level 1 -	level 2 -	level 0 -	level 1 -	
7	Tacks removal in corners	no	Upholstered seat cu	Other	Screwdriver	4,5	20	120	level 2 -	level 1 -	level 2 -	level 0 -	level 1 -	
8	Peel off Velcro	no	Upholstered seat cu	Peel off	Hands		4	71	level 1 -	level 0 -	level 2 -	level 0 -	level 1 -	
9	Strip fabric	no	Upholstered seat cu	Peel off	Hands		1	43	level 2 -	level 0 -	level 0 -	level 0 -	level 1 -	
10	Upholstered seat cushion	yes	main assembly	Remove	Hands		1	48	level 1 -	level 0 -	level 0 -	No to low precision		
11	Unzip fabric seat cushion	no	Upholstered seat cu	Remove	Hands		1	59	level 0 -	level 0 -	level 0 -	level 0 -	level 0 -	
12	Remove tacks	no	Upholstered seat cu	Other	Lever / Prybar	4,5	45	264	level 2 -	level 0 -	level 2 -	level 0 -	level 1 -	
13	Fabric cover	no	Upholstered seat cu	Remove	Hands		1	114	level 0 -	level 0 -	level 2 -	level 2 -	level 2 -	
14	Dacron	no	main assembly	Peel off	Hands		5	118	level 0 -	level 0 -	level 0 -	level 1 -	level 1 -	
15	Metal beam	no	main assembly	Unscrew	Screwdriver	T20	11	90	level 0 -	level 0 -	level 0 -	level 0 -	level 0 -	
16	Rebond foam	no	main assembly	Cut	Knife		1	75	level 1 -	level 0 -	level 0 -	level 0 -	level 1 -	
17	Top foam layer	no	main assembly	Cut	Knife		1	309	level 0 -	level 0 -	level 0 -	level 2 -	level 2 -	
18	Back foam layer	no	main assembly	Cut	Knife		1	278	level 0 -	level 0 -	level 0 -	level 2 -	level 2 -	
19	Seat cushion foam	no	main assembly	Remove	Hands		2	13	level 0 -	level 0 -	level 0 -	level 2 -	level 2 -	

Overall HotSpot Results

Total:			Average:		
- time to disassemble	1778 sec		- time per step	93,6 sec/step	
- number of tasks	111		- force	4	[1=low .. 5=high .. 10=extreme]
- number of steps	19		- accessibility	2	[1=clear .. 5=moderate .. 10=difficult]
- number of tools	3		- positioning	4	[1=easy .. 5=moderate .. 10=difficult]

Functional		Material		HotSpot Indicators				
Functionality	Material group	Weight (g)	Time	Activity	Priority part	Environmental	Economic	Notes
Steel	60							Allen key
Wood	614							MDF with metal brackets
Thermoplastic	199							
Textile (synthetic)								Unzip
Textile (synthetic)								
Steel	1							Priem/awl
Steel	1							Flathead screwdriver, 30 sec per corner (approx 5 tacks per corner)
Textile (synthetic)								
Textile (synthetic)								
on								
Textile (synthetic)								Unzip
Textile (synthetic)	1							Priem/awl
Textile (synthetic)	4157							
Textile (synthetic)	509							
Steel	3166							torx
Foam	?							Saw, does not need to be removed for refurbishing
Foam	759							saw
Foam	764							saw, 3:15 min for cutting loose the top of the armrest
Foam	13154							Includes one wooden beam but not important for disassembly



APPENDIX P-F. IDEATION POSTER

IDEATION CONCEPTS

BEZOEK TEXTIELMUSEUM



STRETCH COVER



Holly mcquillan

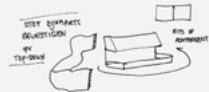
toplaag om vaker te vervangen?



DE DUBBEL
BEVESTIGING
HANGMAT
SYSTEEM
MET RADE SHOCKLAGE?
ZACHTER
SCHUIM
RIBB



VERTICAAL BEVESTIGEN
KNIPPEN IN TEXTIEL
"SHOCKLAGE"
AANGENOMEN
STUK. KANST-ACHTER
VERBODEN?



LOOSERBANK PRINCIPLE
"OTTO!"
"LOOSERBANK PRINCIPLE"
"OTTO!"
"LOOSERBANK PRINCIPLE"
"OTTO!"

ONDERZOEKSVRAGEN UIT MIDTERM

1 Volgorde van demontage vereenvoudigen

2 Besparen van materiaal tijdens refurbishment

CONCEPTRICHTINGEN

Conceptrichting 1

Sneller stof verwijderen

- Kost meeste tijd
- Disassembly nu trial and error

Conceptrichting 2

Terugdraaibare bevestiging van schuim en stof

- Tacks in hout = pijnpunt
- Gelijmde schuimlagen moeilijk in disassembly en recycling = destructief
- 1. Schuim op schuim
- 2. Stof aan schuim
- 3. Stof aan frame
- 4. Schuim aan frame

CONCEPTRICHTING 1 FABRIC REMOVAL

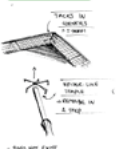
Zipper on fabric cover + Easy removal



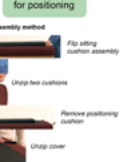
Zipper on fabric cover



Grouping tacks



Extra cushion for positioning



Positioning sitting cushion on frame



Clip-on frame system



Upholstery strip



Clamp fabric with frame



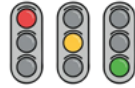
Upholstery wrapping



concept 3
 het doorgezakt schuim vervangen
 materiaal besparen
 de milieupact van schuim en stof
 agen
 en zijn nog her te gebruiken

Stopregels

- Concepttrichtingen:
- Als ik de concepten in 1 zin kan uitleggen
 - Welk knelpunt het concept oplost
 - Als ik er een klein prototype van kan maken
 - Als DQG er enthousiast over is
 - Als het concept de list of requirements haalt



List of requirements

.....

DOEL KOMENDE WEKEN

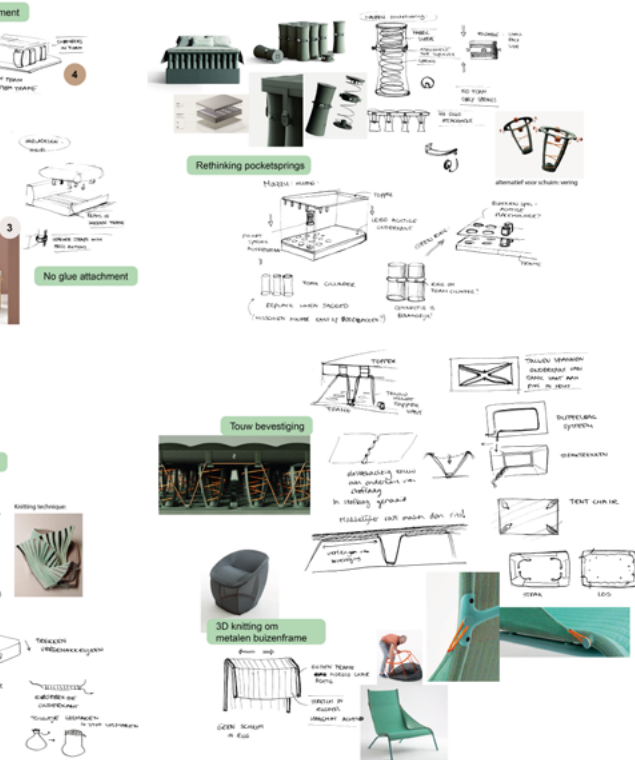
1. Van 3 concepttrichtingen naar 2 concepten
2. Creatieve sessie met team DQG dinsdag
3. Input gebruiken voor keuze voor 2 concepten
4. Ontwerpsprint 2 verdiepend op 2 concepten
5. Prototyping

List of requirement duidelijk opzetten
 Feedback verwerken Luc Inspiratieboekje
 a% pagina's inleiding

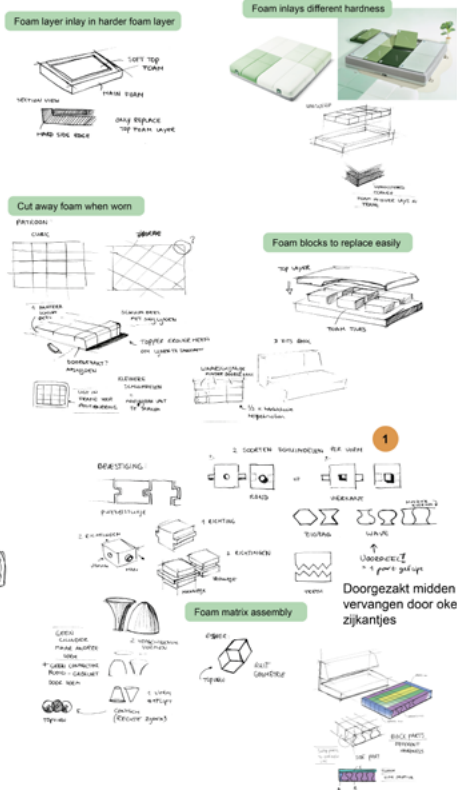
thema's?
 modulariteit

Na groenlicht testessie - daarover schrijven en
 rapport afmaken

CONCEPTRICHTING 2 REVERSIBLE ATTACHMENT



CONCEPTRICHTING 3 SELECTIVE REPLACEMENT



APPENDIX P-G. IDEATION SKETCHES LARGE

CONCEPTRICHTING 1 FABRIC REMOVAL

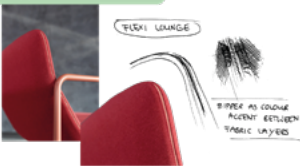
CONCEPTRICHTING 1

Zipper on fabric cover

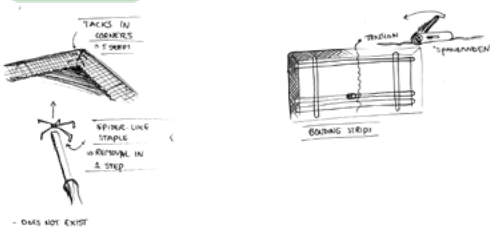
+ Easy removal



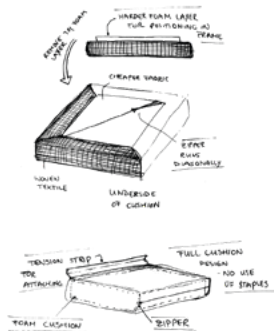
Zipper on fabric cover



Grouping tacks



Extra cushion for positioning



Positioning sitting cushion on frame

+ Easy removal
- More fabric necessary



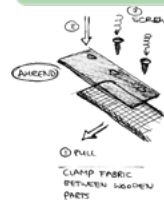
Clip-on frame system



Upholstery strip



Clamp fabric with frame



Upholstery wrapping



No glue attachment



No glue attachment



Stof sok om bank



BANK SOK



OP PLATTE STUKKEN

OP VERTEGALE STUKKEN

OF STUKJES MET STRETCH IN HOEKEN

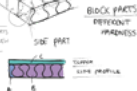
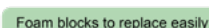
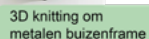
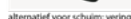
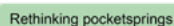


GROOTSTE WERK

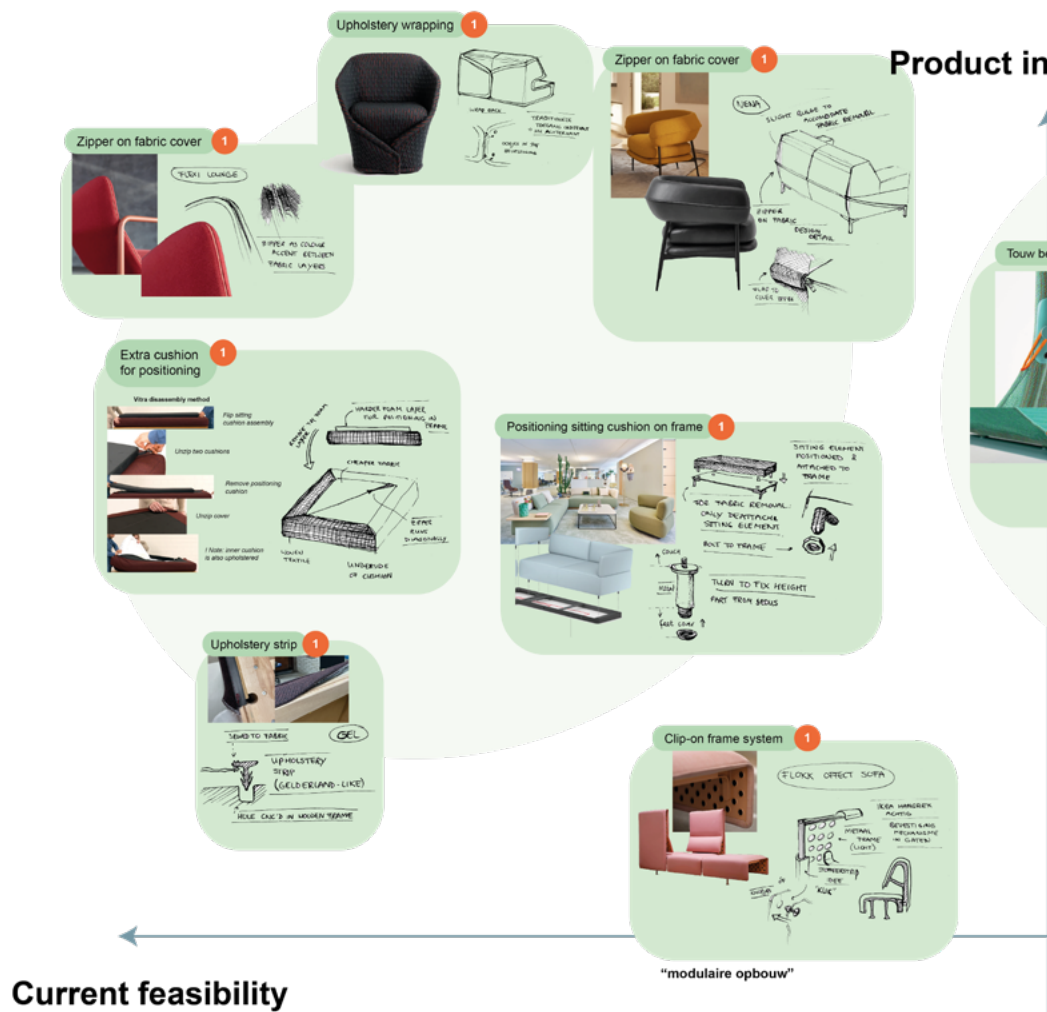
KLEINSTE WERK

TOEGEVOEGDE LASHAKEN

CONCEPTRICHTING 3 SELECTIVE REPLACEMENT



APPENDIX P-H. C-BOX LARGE



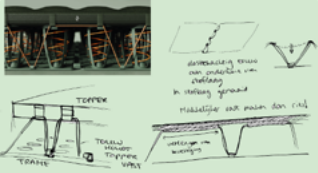
intervention

bevestiging

No glue attachment



Touw bevestiging



3D knitting om metalen buizenframe



"slimme bevestigingen"

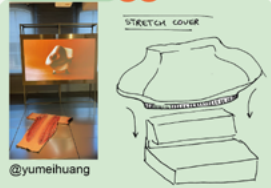
Ideation session

Richting kiezen meeting

Midterm meeting

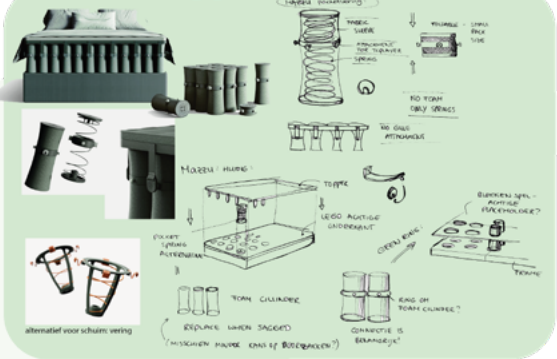
Stof sok om bank

"eenvoudig te deassembleren"

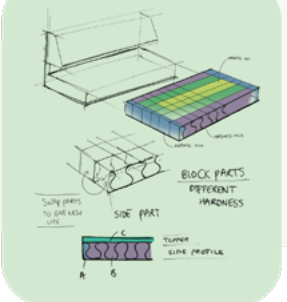


Future potential

Rethinking pocket springs



Foam matrix assembly

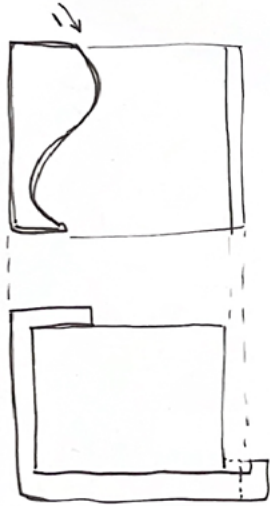


"compartimenten"

intervention

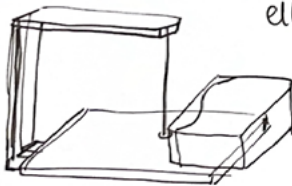
APPENDIX P-I. CUTTING SETUP IDEATION

Schuim snijden prototype
extruderen-achtig



bloch posi

optie: gloeidraad scape



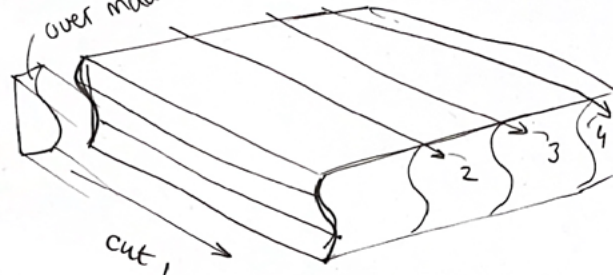
elh blok apart
in gloeidraad



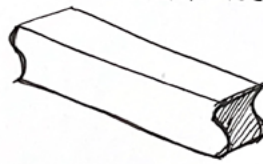
Affekeren
met houten
tool.

elh blok + 10mm voor.wegsnijden

over maar wel nodig! VAN PLAAT...



NAAR REPEN...

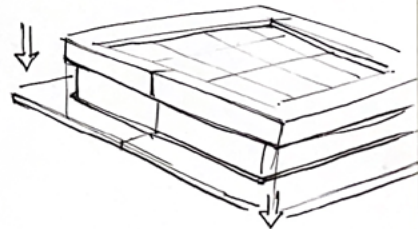
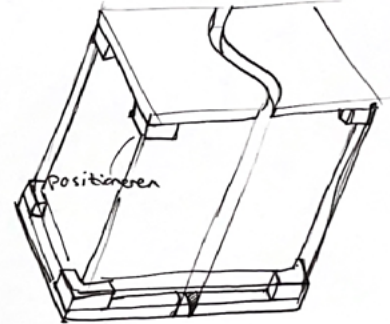


NAAR BLOKKEN...

IN HET ECHT ZOU
DIT ZO GAAN

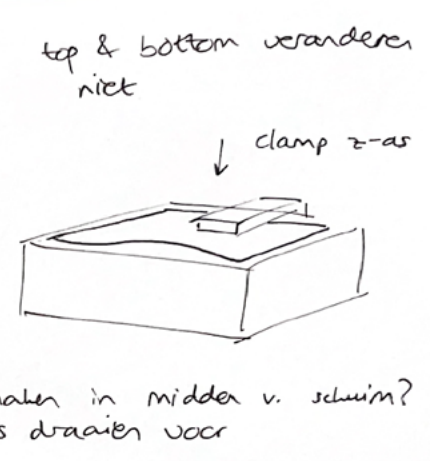
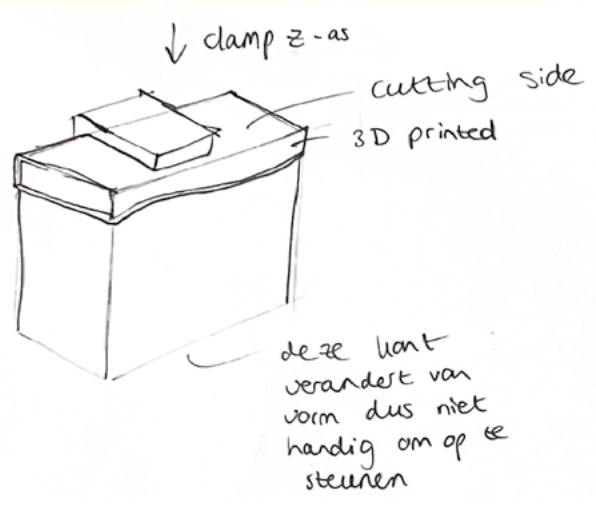
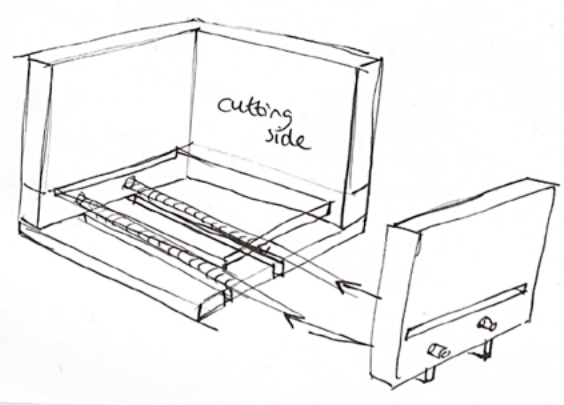
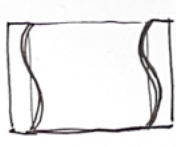
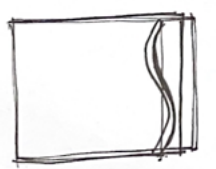
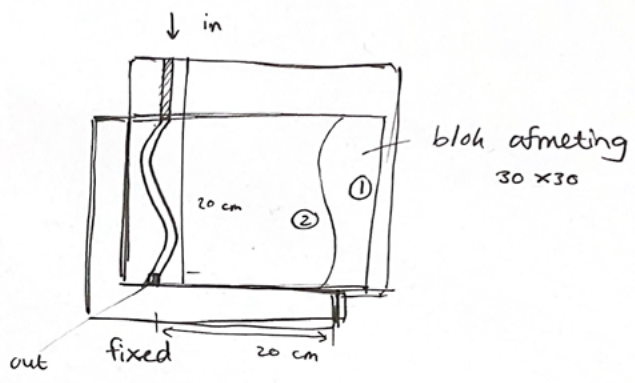
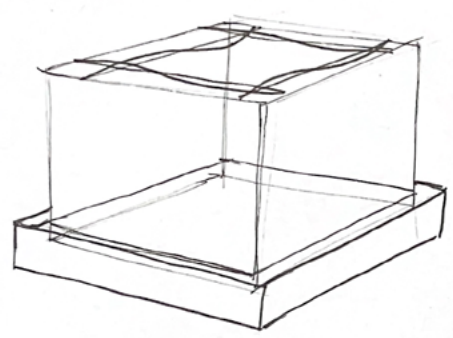
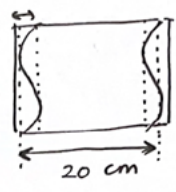
ZALMMES $\approx 31-33$
cm

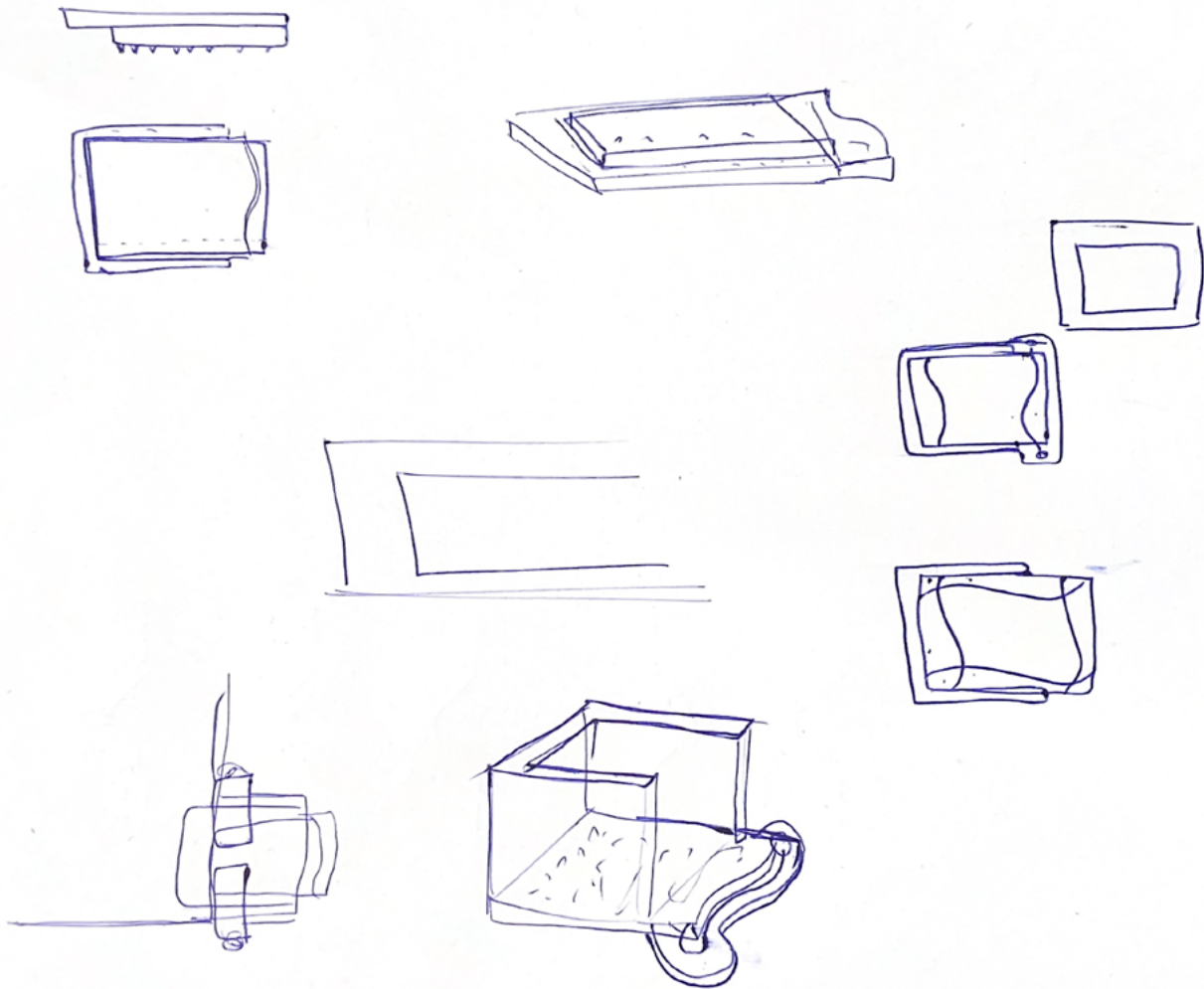
SLIDING RAIL
FILIERMES



NODIG: heel lange
machine met heel
lang gloeidraad/laser.

SNIJ SETUP

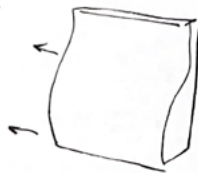
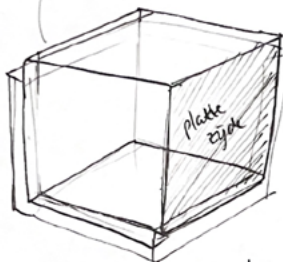




multiplex 15 & 18 mm
mdf 3 & 9 mm

blok 11x11x11
vorm 12x12x12

← Blok is groter dan positionering

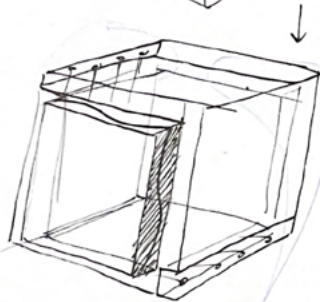


insert
voor
gesneden
zijde?

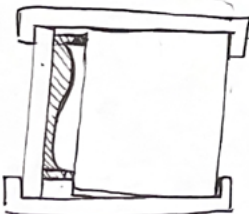
DAG:
Fysiek 1-op-1 uitwerken!
Aiken lounge schuim

dan mega
interessant

Garen beige?

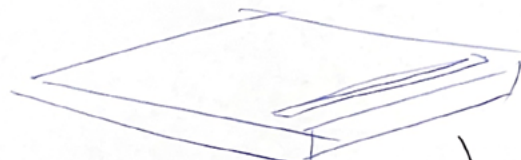


← klemmen of
vast spijlen?



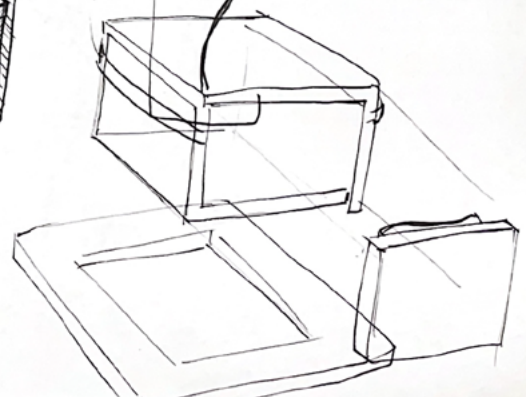
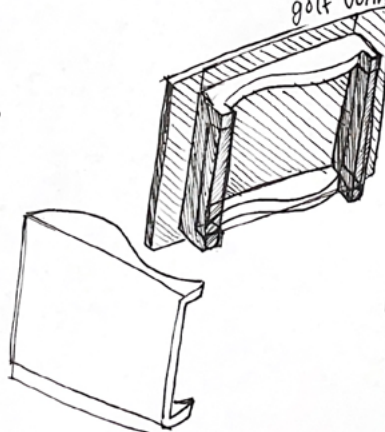
postelastieken?

top
view



3D print
golf vormen?

postelastisch



APPENDIX P-J. FABRIC COVER DETAILED DRAWING

