Rijksdienst voor Ondernemend
Nederland

The Impact of Right to Repair

Exploring RVO's Position in Supporting Businesses to Adopt Repairability Practices in the EED Sector

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Master thesis
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Preface & Acknowledgements

I wrote this thesis on a laptop that I bought back in 2015. This device somehow survived high school and all of my studies. I know this is rare, considering products these days are not always designed with the intention to last that long, but it ties perfectly into the theme of this thesis: durability and repairability. I have to admit that my laptop's best days are probably behind, as it sends me constant reminders that my memory is full and I should replace my battery urgently, signaling the end of it. Greatly symbolic, as this thesis also symbols the end of my studies.

This work marks the completion of my Master's in Strategic Product Design at Delft University of Technology, conducted in collaboration with the Rijksdienst voor Ondernemend Nederland (RVO). It has been an insightful journey filled with many learning opportunities. It allowed me to explore the implications of EU legislation in practice and how government institutions can support businesses in the transition to a circular economy. Along the way, I've gained a much deeper understanding of the challenges and opportunities involved in this transition.

This project would not have been possible without the contributions of many people involved. First, I would like to thank RVO for the opportunity to conduct this project within their organization, and the DICE team for welcoming me during my time as a graduation intern. I am thankful for their willingness to contribute and provide the necessary knowledge and tools. Special thanks to my supervisors, Machiel and Thies, for their guidance and support, who were always prepared to help me out and connect me to the right people. I also extend my gratitude to the businesses and experts who participated in the interviews, sharing insights that highly enriched this research.

Next, I would like to sincerely thank my TU Delft supervisors, Marina and Gert-Hans, for their guidance and patience through this not-always-so typical graduation project. I gained a lot from our feedback sessions, both on academic field and on personal level, which ultimately helped me become a better and wiser designer. Thank you for your honesty and flexibility during this project.

Lastly, I want to thank my family and friends for their supportive contributions along this journey who were there through the laughter and the tears. Thanks mom for letting me borrow your ipad (which I can now finally return!). Shout out to all my friends who showed me true friendship when I needed it, I could not have done it without your support.

I hope this thesis contributes to ongoing discussions about sustainable business practices and inspires further research and action towards creating a more circular, repairable economy. I hope this inspires to collectively work towards products that last.

Enjoy reading, or scanning, this thesis, and getting just a little wiser along the way

Clementine van Gelderen
Delft, October 2024

Executive Summary

The European Union's Right to Repair (R2R) legislation aims to reduce electronic waste and promote repairability by empowering consumers and encouraging businesses to adopt repair-oriented practices. However, the immediate impact of this directive on businesses in the Netherlands, specifically within the Electric and Electronic Devices (EED) sector, remained unclear. This thesis explores the implications of the Right to Repair legislation and assesses how Rijksdienst voor Ondernemend Nederland (RVO) can better support businesses in their transition to repairability.

Research Objectives

The primary objective of this thesis is to investigate how RVO can refine its support instruments to assist businesses in complying with the Right to Repair directive and transition towards adopting repairability practices. The study answers three key questions:

- What are the implications of Right to Repair for businesses?
- What challenges do businesses face in adopting repairability practices?
- How do RVO instruments align with supporting businesses for repair?

Methodology

The research adopts a mixed-methods approach, combining literature review and qualitative insights from semi-structured interviews with RVO employees, a business representative, and (NGO) experts. Additionally, case studies are used to demonstrate real-world challenges and opportunities in adopting repairability practices. Additional qualitative data was analyzed, including RVO documents, to identify key patterns and insights. In addition, a framework was developed to co-define support measures from RVO potentially suitable for repair support.

Key Findings

The findings showed that the Right to Repair directive will have limited short-term impact on businesses already compliant with the Ecodesign regulations, as the directive imposes minimal additional requirements and its scope remains limited. However, this also means the majority of products entering the European Market remain uncovered and many businesses can continue with their current practices.

Businesses that embrace repairability practices, such as Fairphone and Repeat, demonstrate that there are opportunities in a repair business model by appealing to environmentally conscious consumers and building long-term customer loyalty. Nevertheless, businesses in the EED sector also face significant challenges in adopting repairability practices, such as high costs, lacking consumer mindset, and logistical complexities of distribution and spare parts management. The research identified support measures to address those challenges, which include financial, knowledge and collaborative support on four key support domains: product redesign, research & development, infrastructure & logistics and stakeholder collaboration.

The research furthermore revealed a gap between RVO's available support instruments and supporting businesses for repair. I defined recommendations for RVO to bridge this gap, focusing on refining their existing instruments to provide more tailored repair support. The final design solution presented in this thesis integrates these findings into one coherent package for RVO: *How to deal with (Right to) Repair*. This package contains both strategic and instrument-specific recommendations, a social media post, and a summary visual of businesses' challenges. These elements are designed to effectively communicate the key research findings of this thesis. In addition, an implementation timeline is included to provide immediate and long term actions for effective implementation of the proposed recommendations.

The final findings and deliverables from this thesis serve as a basis for RVO to rethink and improve its support structures, ensuring they better meet businesses' needs for adopting repairability practices. This way, RVO can better contribute to the transition to a repair society in the Netherlands. The findings were well received and provided fresh perspectives on RVO's current way of working. Ultimately, this research paved the way for new initiatives and research opportunities to further support businesses in adopting repairability practices.

TABLE OF CONTENT

DEFINE

DEVELOP

DELIVER

Glossary

Frequently used terminology

RVO = Rijksdienst voor Ondernemend Nederland
in English: *Dutch Enterprise Agency*

R2R = Right to Repair

R2R legislation = directive on common rules promoting the repair of goods

Producers = entities that create, manufacture, or bring products to the market for sale under their own brand

Electric and Electronic Devices = products that use electrical energy or electromagnetic fields to operate, such as household appliances, computers, and consumer electronics

EED = short for Electric and Electronic Devices

NPCE = National Program Circular Economy

Member State = Country as member of the EU

Repairability practices = the activities a business undertakes to allow for the repair of its product. (Explained in more depth in chapter 3).

Instruments = refers to the tools provided by RVO. This includes their subsidy programs, and other programs that RVO offers to businesses, such as knowledge, advice or collaborative efforts. For example, in this context, the KIA CE subsidy program is considered an “instrument” of RVO (A Regeling in Dutch).

Structure of the report

The Double Diamond Model

The structure of this report is based on the Double Diamond model, a widely recognized framework for design thinking and problem-solving. The Double Diamond consists of four key phases: **Discover**, **Define**, **Develop**, and **Deliver**. This report is divided into several parts that reflect these phases. The first half corresponds to the **Discover** and **Define** phases, while the second half aligns with the **Develop** and **Deliver** phases.

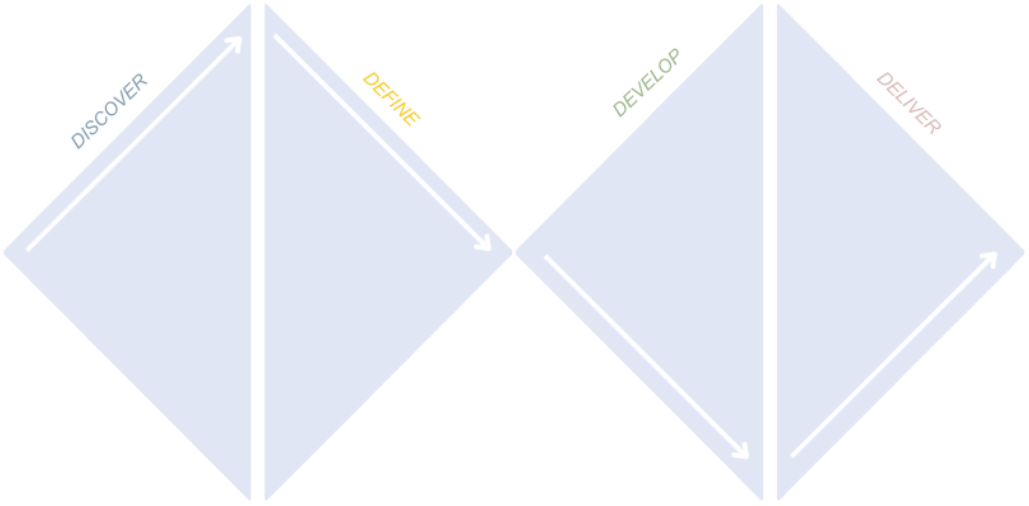


Figure 1: double diamond model

Structure of the Report

The structure of the report is visualized on the next page. I discuss three sub-research questions in three separate chapters, where I present the key findings related to that specific research question. This resembles the *discover* phase.

Each of these three chapters ends with a sub-conclusion, resulting in a total of three sub-conclusions on its research question. Chapter 5 synergises these three sub-conclusions and generates a general conclusion for the main research question. This, in turn, allows for the creation of a problem statement and a design challenge. This resembles the *define* phase.

The second half of the report covers the *develop* and *deliver* phase, which builds on the design challenge derived from the first phase. Here, in Chapter 6 and 7, I discuss the development for the solution to the design challenge. The subsequent Chapter 8 delves into the delivery phase of the proposed solution.

Structure of the report

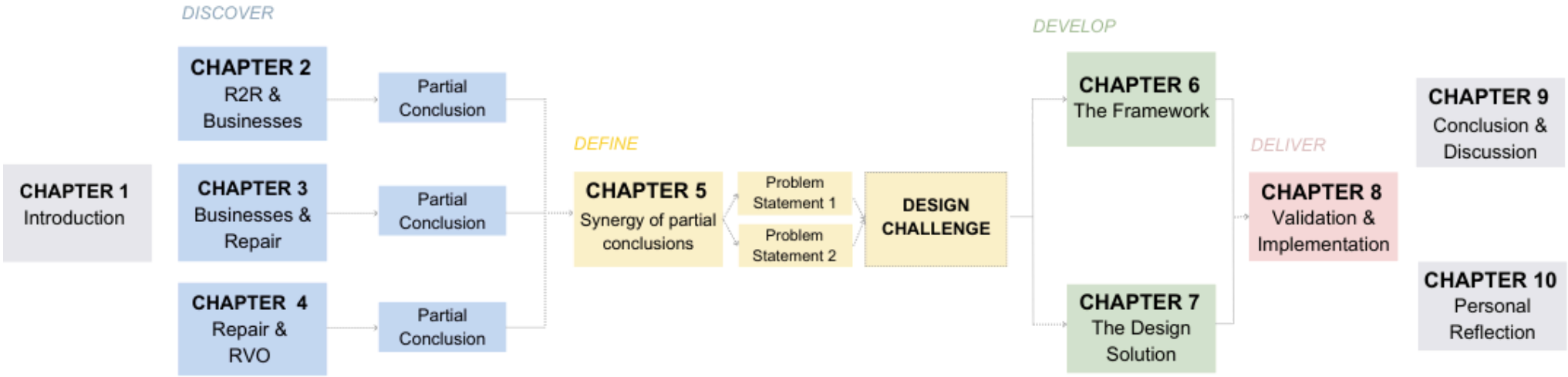


Figure 1: Structure of the report

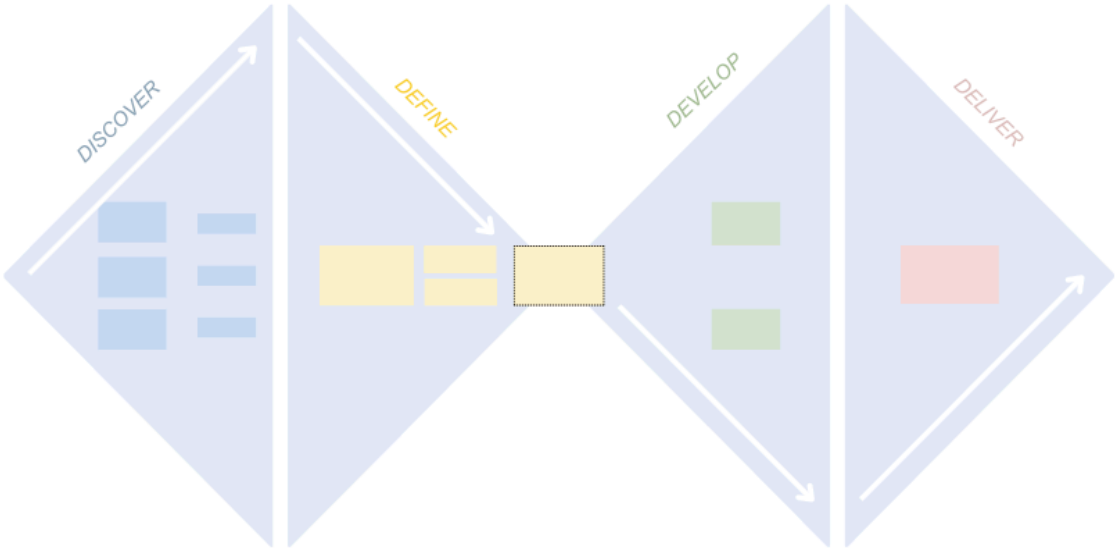


Figure 2: Structure of the report in relation to the double diamond method

01 Introduction

Content

1.1 Project Context & Background

The Netherlands has set an ambitious goal to achieve a fully circular economy by 2050. This objective demands significant transformations from the business sector. Rijksdienst voor Ondernemend Nederland (RVO) plays a crucial role in supporting entrepreneurs during this transition. By offering various incentive tools such as knowledge, networks, subsidies, and financing, they aim to remove barriers for entrepreneurs and stimulate more circular business practices (RVO, 2021).

The activities of RVO are influenced by various policies, trends and legislative developments. One of such developments is the more recent introduction of the Right to Repair legislation from the EU, which is soon to be translated into Dutch National Law. In short, Right to Repair allows consumers the right to repair his or her electronic devices rather than discarding them, representing an important step in the shift from a disposable society to a repair-oriented one (European Commission, 2023).

Up to this point, RVO has limited insights into the potential impacts of the impending Right to Repair legislation on businesses. They are unsure of their ability to adequately support them in preparation for this new legislation. What are the expected effects of the legislation for businesses? What hurdles might they encounter and what measures could effectively support them in this transition?

In this graduation project, research and design methods are combined to identify the potential impact of Right to Repair on the current operational practices of businesses. It assesses how this legislation disrupts current practices and identifies challenges businesses face in aligning with repair-oriented practices. RVO’s currents instruments are evaluated to assess its alignment with supporting the needs of businesses in their transitioning challenges. Ultimately, this project aims to assess how RVO's offerings meet the needs of businesses transitioning to repair-oriented practices and to propose a viable solution that supports entrepreneurs to implement these practices effectively.

1.2 Initial project assignment

With the impending translation of the EU's Right to Repair legislation into Dutch national law, RVO currently lacks a clear understanding of the potential impact of the legislation and the practical implications for businesses. Additionally, there is limited insight into what support measures are needed to support the adoption of repair-oriented practices. This section outlines the project assignment and research questions aimed to address these gaps, focussing on helping RVO better understand the challenges businesses may face in implementing repair practices and how best to support them.

1.2.1 Initial Design Goal

This project allows for the description of the following initial project assignment or design goal:
"Develop a tangible solution which supports and stimulates businesses in the transition towards embracing repair-oriented practices".

1.2.2 Value for Stakeholders

The research will provide the following added value for the main stakeholders:

RVO

- **Enhanced client understanding**: the research will provide RVO with a better understanding of the challenges businesses face under the Right to Repair legislation, enabling more targeted and effective support.

- **Strategic insight:** the research will offer RVO a deeper understanding of their clients' positioning within the repair-oriented landscape and generate insights that could inspire and encourage the adoption of repair-oriented practices.

Entrepreneurs & businesses

- **Legislation readiness:** Businesses will gain essential knowledge and support on how to prepare for and comply with the Right to Repair legislation, reducing potential disruptions.

- **Competitive advantage**: By adopting repair-oriented practices early, businesses can strengthen their position in a market that is increasingly placing more value on sustainability. The support provided by RVO can help them overcome significant barriers in this transition.

1.3 Research Questions

Building on the project assignment, the research is guided by the following main research question:
What is the impact of Right to Repair and how can RVO support and stimulate businesses to adopt repairability practices?

This research question encompasses three sub-research questions which are explored in the discover & define phase:

1. **What are the implications of Right to Repair for Businesses?**
2. **What challenges do businesses face in adopting repairability practices?**
3. **How do RVO instruments align with supporting businesses for repair?**

1.4 Project Scope & Focus

To ensure a focused research project, certain decisions have been made to narrow the scope. When referred to “businesses" or "entrepreneurs”, I specifically mean **Producers**—those involved in the manufacturing of products. It does not include retailers, suppliers, distributors or other businesses related to product repair. The scope of this research is further limited to **Electric and Electronic Devices** within the **B2C (Business-to-Consumer)** market. This means that other product categories, such as textiles, fashion, furniture, and industries serving the B2B (Business-to-Business) market, are explicitly out of scope. Additionally, the research will closely examine the role of **RVO** as a support institution, while other institutions such as ministries, consultancy bureaus, and NGOs are acknowledged but not central to the study.The following visual illustrates the choices of scope of this research:

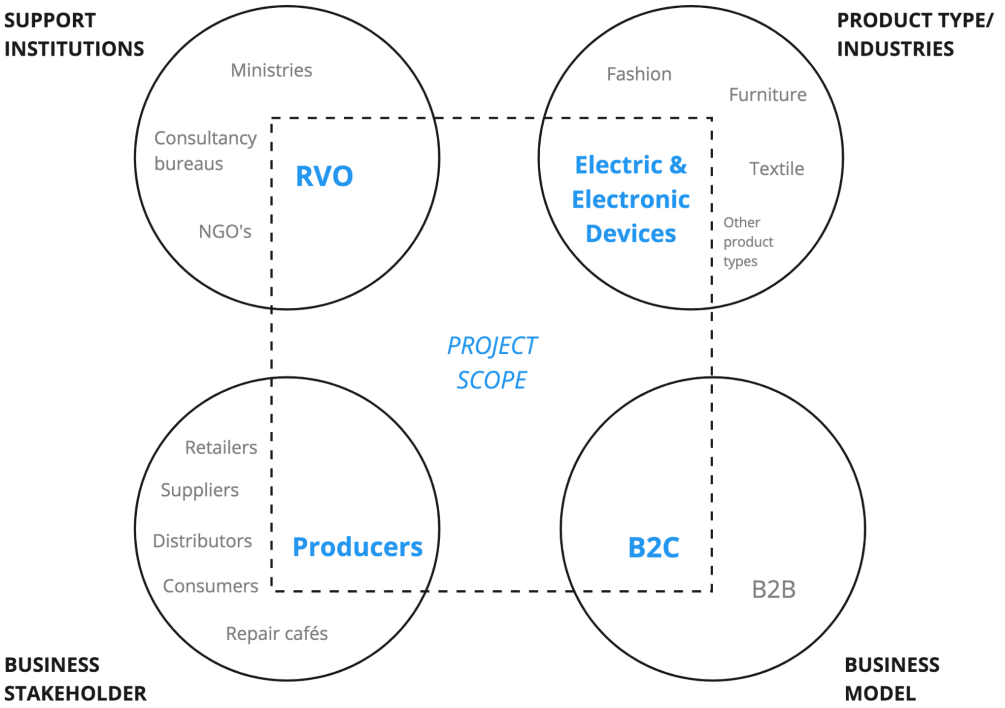


Figure 3: Project Scope

1.5 Initial Assumptions and Rationale

The introduction of the Right to Repair legislation raises questions about the implications of this new directive. This subsection outlines the initial assumptions regarding the anticipated impact of the legislation, focusing on its effects on **business operational practices** and **the role of the RVO** in supporting compliance. These assumptions were based on my interpretation of the European Commission's March 2023 proposal, and substantiated by external viewpoints.

1.5.1 Impact on Business Operational Practices

This EU Commission's initial proposal from March 2023 included new obligations for producers, both within and outside the legal guarantee. Key amongst these included an obligation for repair, spare parts availability for 7-10 years, transparency on product repairability and an obligation to provide repair information (Source: European Commission, 2023a).

Since the scope of products covered was not yet determined at this stage, I initially assumed that the new obligations would significantly impact business current operations, which typically include logistical, financial and strategic practices (Tomasis, 2024). Several sources and news articles at the time also speculated on significant changes, confirming my and RVO's assumptions on big impact (Rezende 2023; Sinclair, 2023).

Ongoing debates on potential legislative changes can significantly complicate strategic planning (Bischofberger, 2023). For instance, the requirement to offer repairs instead of replacements would require managing reverse logistics and spare parts supply, leading to increased logistical complexities. Furthermore, financial impacts would apply for businesses that have not prioritized repairability, such as increased inventory costs and investments in product redesign. In addition, businesses unprepared for these changes could experience rising operational costs as they adapt to the regulations (European Environmental Bureau, 2022). I visualized the connection to the proposed rules and how they affect various practices below.

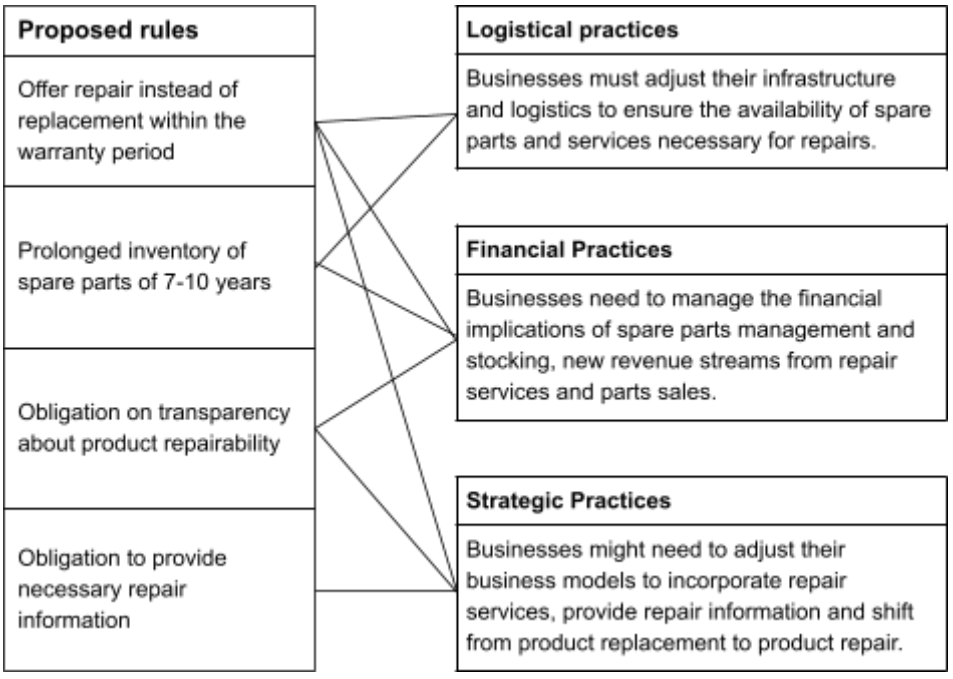


Figure 4: Impact assumptions based on R2R initial rules

I conducted **Scenario Planning** to further assess how businesses might respond to the Right to Repair legislation. I began by scanning multiple sources to map out the key developments, including when the legislation would be enforced, the compliance deadlines, and what operational changes businesses would need to implement. I plotted these factors on a timeline, covering both immediate and long-term responses from 2024 to 2050, the milestone of achieving circular economy (NPCE, 2020). As a result of this process, I identified several key short-term responses from businesses: increased searches for legal information, investment in Research and Development, ensuring spare parts availability, infrastructure development, and exploring collaborative efforts within supply chains.

1.5.2 The role of RVO

Furthermore, I assumed that businesses facing significant challenges due to the new rules of Right to Repair could benefit from support provided by RVO. Companies often experience initial disruptions when new regulations are introduced, but adequate support can help them achieve compliance and even find competitive advantages in the long term (Akirav, 2018). This support would help businesses, specifically those for whom the legislation applies, to effectively adopt measures to comply with the requirements.

1.5.3 Initial assumptions

Together, I comprised the initial assumptions on two key components:

1. The impact of Right to Repair is expected to be *significant* for a *wide range* of businesses.
2. RVO would provide a *supportive* role in assisting businesses *for whom the legislation applies*.

These assumptions are further researched. The next section covers the research methods.

1.6 Research Method & Approach

The method used to answer the research questions and test the assumptions can be organized into two main components: **literature review** and **qualitative research**. Each sub-question is answered through a combination of both approaches.

They are closely connected and complement each other, influencing the decision to address them simultaneously throughout the report. To clearly highlight whether findings originate from the reviewed literature or from interview findings, they are shown as followed throughout the report:

Insights from literature

Insights from interviews

This section provides an overview of the main research methods and analysis procedures. I will provide more detailed descriptions of the methods and analysis used in each chapter.

1.6.1 Literature Review

The literature review process involved identifying, evaluating, and synthesizing existing research and theories relevant to the research questions. This process helped contextualize the problem and identify knowledge gaps. The literature review was conducted using academic databases (such as google scholar). The literature was chosen thematically, corresponding to the different sub-research questions:

Sub-research questions and corresponding literature themes:

01. **What are the implications of Right to Repair for Businesses?**
    Themes: repair society, right to repair legislation, european legislation, impact assessment methods, stakeholders in a repair society, consumer electronics market industry, consumer behavior, regulatory compliance, future trend analysis.
02. **What challenges do businesses face in adopting repairability practices?** Themes: definition of repairability practices, challenges in a repair business model, business model innovation for repairability, case studies and examples of a repair business model.
03. **How do RVO instruments align with supporting businesses for repair?**
    Themes: NPCE, Governance support measures, incentive programs, collaboration and partnerships, foreign best practices.

I explain in each chapter the specific sources used.

1.6.2 Qualitative Research

In addition to the literature review, the qualitative research employed five different methodologies: **(1) semi-structured interviews, (2)** an **internal analysis of RVO instruments and documents, (3) informal conversations, (4) case-studies** and **(5)** an **in-house presentation**. These methods were selected to collect comprehensive and diverse data to address the identified knowledge gaps.

In this section, I will explain the interviews in detail, as the findings are discussed separately in the chapters. The other methods are briefly described here but will be explained further in their respective chapters.

1.6.2.1 Semi-Structured Interviews

In order to understand the potential impact of Right to Repair on businesses and to gain deeper insights into RVO's instruments, I conducted semi-structured interviews with seven individuals.

Participants:

The interviews included participants from various organizations and roles to provide diverse perspectives. The participants were selected based on their expertise in the circular economy, European legislation, and their hands-on experience working closely with businesses. Most participants were from RVO, while one (interviewee 7) was a business representative and another (interviewee 5) was from an NGO het Groene Brein. The roles and organizations of the participants are presented in the table below:

Table 1: Interview Participants

Person	Organization	Role	Team	What
1 + 2	RVO	Senior Advisor	DICE	brainstorm session
	RVO	Senior Advisor	DICE	brainstorm session
3	RVO	Advisor	DICE	interview
4	RVO + Ecodesign Regulatory Committee	Senior expert (EU regulation)		interview
5	Groene Brein / (ex RVO) vice-voorzitter transitie-agenda consumptie goederen	Directeur vice-chairman of the transition agenda for consumer goods		interview
6	RVO	Advisor (Instrument expert)	DICE	interview
7	Business Representative	Product Manager		interview

Procedure and analysis

The semi-structured interviews were conducted using a pre-designed interview guide with open-ended questions to allow for exploration of the topic. The interview questions were designed to test the assumptions, described in section 1.5, and explore different viewpoints, following a design thinking approach (Brown, 2009)

Participants were first informed about R2R's new obligations for businesses, which helped set the stage for more specific questions on the potential impact for businesses and RVO's role in supporting these changes. Sample questions included: "What do you expect the impact of Right to Repair will be on businesses?" or "What role do you think RVO plays in helping businesses meet these obligations?"

As the interviews progressed, I adjusted the questions with the subsequent interviews to explore areas requiring deeper investigation, aiming to confirm or validate emerging patterns. For example, while the initial interviews broadly addressed R2R potential impact, later interviews focused more specifically on RVO's support instruments and potential gaps. In addition, I tailored the questions to the specific expertise of the interviewees. For example, interview 7 was intended to explore the challenges and opportunities in a repair business model from a business perspective. Furthermore, intentional silence was used to prompt the interviewee to provide more detailed answers, encouraging the interviewee to expand on their responses and offer additional insights. This technique is particularly useful for uncovering underlying challenges and motivations (Gillham, 2005). I discuss the findings in more detail in the respective chapters. See Appendix 3 for the interview guides.

The interviews took place either face-to-face or via video calls, with an average duration of one hour. All interviews were conducted in Dutch except for the interview with the business representative, which was held in English. They were asked to sign a consent form and were informed about the purpose of the interview.

Data analysis:

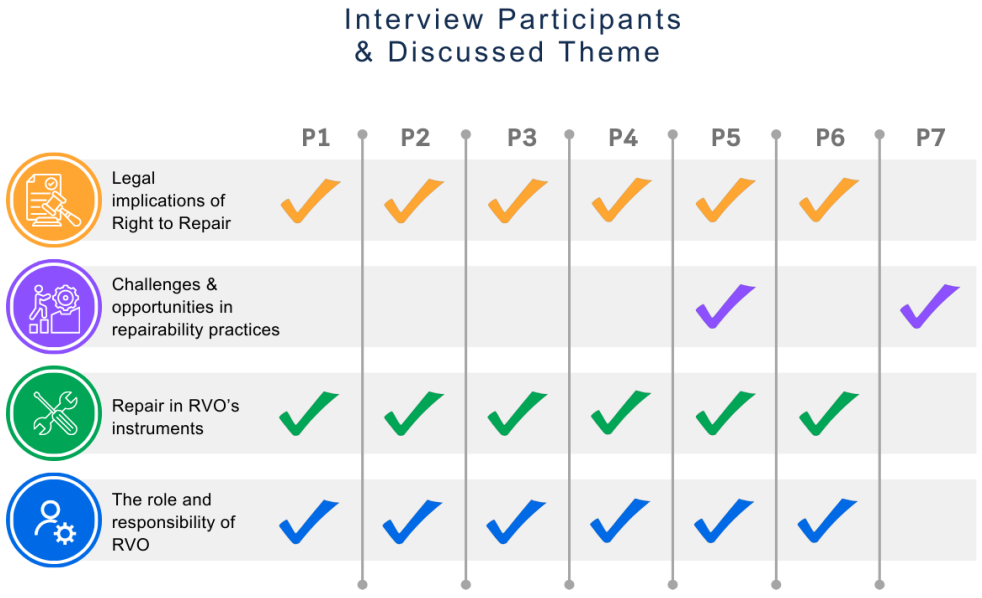
The interviews were recorded and then transcribed using the MS Office 365 transcribe tool. The transcripts were subsequently reviewed for accuracy. The qualitative analysis software Atlas.TI was used for coding the transcripts and I clustered relevant quotes using digital post-its on an online Miro board, organizing them into certain themes. Throughout the process, I conducted a final check on code formulation and potential overlap, following a systematic coding approach (Braun & Clarke, 2006).

I used a *hybrid approach* for thematic analysis, combining both deductive and inductive analysis. This approach was particularly suitable for the research objectives, which involved testing predefined assumptions (leading to deductive themes) while remaining open to new insights that were not initially anticipated (hence the inductive sub-themes).

The overarching themes (deductive approach)

1. **Legal implications of Right to Repair**
   This theme explored the legal implications of the legislation for businesses.
2. **Challenges and opportunities in adopting repairability practices**
   This theme explored the broader theme of challenges and opportunities in repair practices from businesses
3. **Repair in RVO' instruments**
   This theme examined how repair currently fits in RVO's instruments and how they align with supporting businesses for repair
4. **The role and responsibility of RVO**
   This theme discussed the role and responsibilities of RVO

Visual 1: illustration of theme discussed with each interview participant:



To establish the inductive sub-themes, I first familiarized myself with the data by reading the transcripts and the quotes. I clustered the generated quotes into sub-themes, which were iteratively reviewed, refined and (re)named. For example, within the overarching theme "Role and Responsibility of RVO," I identified the three sub-themes as 'the role of the ministry', 'the role of RVO' and 'the role of the market'. The appendix 4 shows the total clustering of all themes.

Integration of themes into the thesis' chapters:
The themes from the interviews align directly with the topics covered in each chapter. Consequently, the interview findings are integrated into the chapters to reflect specific standpoints on the research topics.

Chapter 2: Discusses the legal implications of Right to Repair (Theme 1).
Chapter 3: Explores the challenges and opportunities in adopting repairability practices (Theme 2).
Chapter 4: Examines the integration of repair in RVO's instruments and discusses RVO's role and responsibilities (Themes 3 and 4).

Overall, the semi-structured interviews allowed for a broad exploration of the research topic. They assisted in a better understanding of the R2R legislation, RVO's offering, and the challenges businesses face in adopting repairability practices. The insights gained from these interviews also played a guiding role in the shift of assumptions throughout the research process.

1.6.2.3 Informal Conversations

Furthermore, I gathered information by being present in the organization (RVO). I engaged in activities and informal conversations with RVO employees, specifically from the DICE team (Duurzame Industrie & Circulaire Economie). I have attended weekly meetings with my supervisors (3 people) and bi-weekly Teams meetings with the DICE team (±15 people) and I have attended several in-house events. These informal conversations and activities assisted in a better contextual understanding of RVO's structure and workings. I recorded conversations where possible and used Notion to document and gather relevant insights from these activities. A complete overview of these data sources through can be found in Table 4 in Chapter 4 (Repair & RVO).

1.6.2.5 Case Studies

I conducted three case studies to assess and compare challenges and opportunities in a repair business model, which I describe in more depth in Chapter 3 (Businesses & Repair).

1.6.2.4 Analysis of RVO Instruments and Documents

I reviewed and analyzed various RVO documents, reports, tools, and instruments to understand their practices and extract relevant information. This included, amongst others, an excel document on repair projects and examples. Insights from this analysis are presented in Chapter 3: RVO & Repair, with the full data collection detailed in Table 3 in that chapter.

1.6.2.5 In-house Presentation at RVO

Last, a presentation at RVO was used as a method to collect data for stakeholder input of the proposed design solution. This process is further described in Chapter 6.

The combination of literature review and qualitative research methods ensured a comprehensive approach to address the research questions and test the assumptions (referring to section 1.5). The literature review provided theoretical insights, while the qualitative research offered practical insights through direct data collection and analysis. A more detailed description of the methods for each of the individual (sub)-research questions is provided in the respective chapters.

Rijksdienst voor Ondernemend Nederland

02

Right to Repair & Businesses

DISCOVER

What are the implications of Right to Repair for Businesses?

Content

2.1 Introduction to the chapter

There are various perspectives on Right to Repair's potential impact. Where some calls this directive "one of the most ambitious steps taken towards a repair society" (Repasi, 2024b), there are also more critical viewpoints, which call this regulation a "long list of missed opportunities" (Rezende, 2024). In this chapter, I explore the **Right to Repair (R2R)** legislation, focusing on its purpose, key rules, and overall impact. Specifically, I examine how R2R will affect businesses and change their current operational practices. I begin by discussing the background of R2R, why the legislation was introduced and the issues it aims to address. I then outline the new rules, specifying the new obligations. Next, I assess the potential impact of R2R through literature and interview insights. Finally, I evaluate the implications for businesses operational practices and conclude with an overall assessment of R2R's impact, addressing the first central research question: **What are the implications of Right to Repair for Businesses?**

Table 2: Data sources for the implications of Right to Repair for Businesses

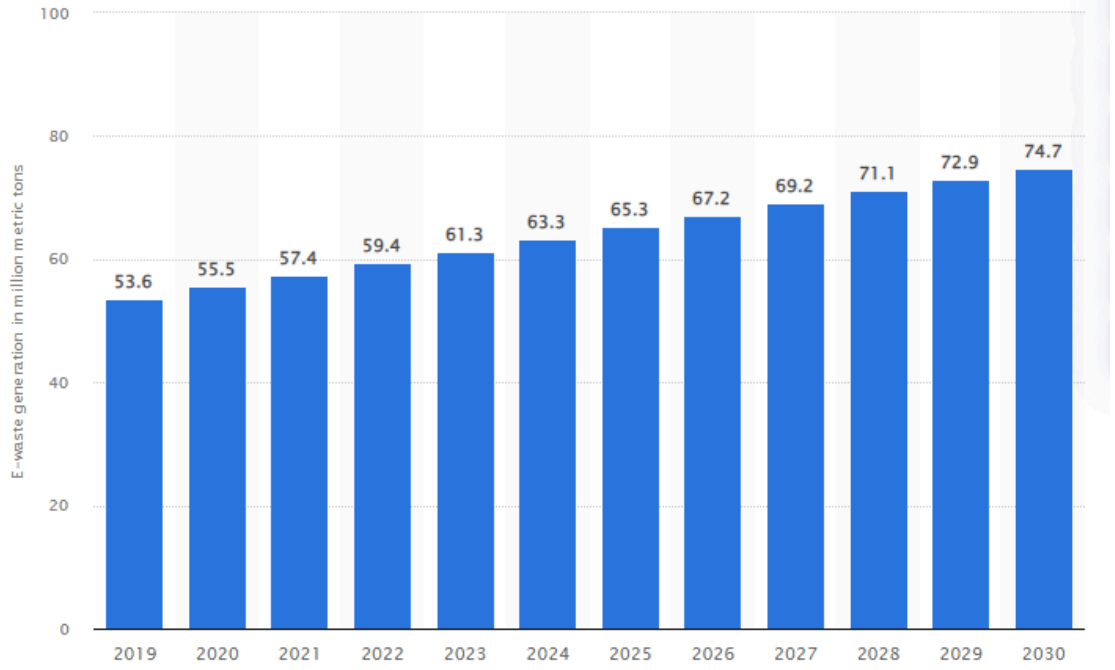
Data source	# of interviews/ events / documents	Date / period
Semi-structured interviews with:		
RVO employees (6 in total through 5 interviews, each one hour)		nov 2023 - feb 2024
NGO representative (Groene Brein, one hour, online)		
Events:		
Whitepaper Wegwerpmaatschappij Event at Firma van Buiten (30+ participants, notes collected in Miro)	1	13 nov 2023
Webinar EU Beleid (Week van de Circulaire Economie): wat komt er allemaal aan vanuit Brussel en wat betekent dat voor mijn bedrijf? (49 participants. Notes collected in Miro)	1	11 march 2024
Documents:		
Official EU R2R legislative documents:		
(1) Proposal for a Directive of the European Parliament and of the Council		
(2) Provisional Agreement Resulting From Interinstitutional Negotiations	4	22 march 202
(3) Position of The European Parliament		
(4) Directive on common rules promoting the repair of goods published in the EU Official Journal		15 feb 2024
Commission Staff Working Document **Impact Assessment Report**		23 april 2024
Executive Summary of the Impact Assessment Report		10 june 2024
European Commission's Proposal for a Directive on Common Rules Promoting the Repair of Goods - **Feedback of the European Law Institute**	1 1	22 march 2023
EcoDesign Directive Document	1	22 march 2023 25 may 2023
Media coverage of Right to Repair:		
(1) **EU Webinars** and **youtube videos** on R2R (2 hours total)	1	
(2) **EU Press Conference** René Resapi on the final vote of Right to Repair (1hour)		-
(3) Interim Press Releases of the Right to Repair Coalition	>10 3	11 march 2024
(4) Website publications and news articles		
Miele Case analysis	1	23 april 2024
	4	24 jan 2024, 2 feb 2024, 8 feb 2024, 23 april 2024
	>5	nov 2023 - april 2024

2.2 Background & Objectives

Why is this legislation brought to life?

Throwaway society & E-waste

In essence, the Right to Repair legislation emerges as a response to urgent environmental and resource challenges posed by our modern "throwaway society", which leads to massive amounts of waste, particularly in the electronic products industry, which are frequently discarded. In the European Union, electronic waste (or e-waste) forms the fastest-growing waste category, with projections indicating a rise from 53.6 million tonnes in 2019 to 74.7 million tonnes by 2030. In 2018 alone, the EU discarded four million tonnes of electronic products, equivalent to nearly eight kilograms per person. This not only results in 35 million tonnes of waste annually within the EU, but also wastes 30 million tonnes of valuable resources and contributes to 261 million tonnes of greenhouse gas emissions. In the Netherlands alone, around 100 million kilograms of electronic devices are discarded yearly, with only 45% of e-waste recycled in Europe (United Nations, 2021).



A key concern driving the legislation is the depletion of critical raw materials needed for manufacturing electronics, with 90% of these materials imported into Europe, primarily from China (Rasbourgen, 2023). Additionally, a 2020 Eurobarometer survey revealed that while EU consumers prefer repairing products, they are often hindered by expensive spare parts, lack of repair design, and limited access to repair information (Bocken, 2016). Consumers lose approximately €12 billion annually by replacing goods instead of repairing them (EU Commission, 2023).

The Right to Repair legislation, part of the EU's Circular Economy Action Plan and the Green Deal, aims to address these issues. More specifically, the "Right to Repair" is a synonym for the ***directive on common rules promoting the repair of goods***. It seeks to promote repair over replacement both within and beyond the legal guarantee period, making repair more accessible and affordable for consumers (EU Commission, 2023). I describe the details of these new rules in the next section: 2.3 *Content of the legislation*

2.3 Content of the legislation

What are the new rules?

Throughout this research, Right to Repair was still under debate and went through various stages of decision making. The **EU Commission**'s proposal from March 2023 was adjusted and approved by the **EU Parliament** and **Council,** leading to a political agreement in February 2024. The final approval came in May 2024. The visual below shows the directive's negotiation timeline.

source visual: me
source timeline content: EU Website

This also means that my understanding and assumptions about the content and its potential impact evolved considerably throughout the research. This section focuses on the final approved rules and their anticipated impact on businesses, where I reflect on my initial assumptions regarding R2R's potential impact, detailed in section 1.5.

The Right to Repair directive, or the *"directive on common rules promoting the repair of goods"*, includes new measures with the main goal to make it *easier* and more *attractive* for consumers to opt for repair instead of replacement of consumer goods. The new rules apply both *within* and *outside* the legal guarantee period.

2.3.1 Summary table of new rules

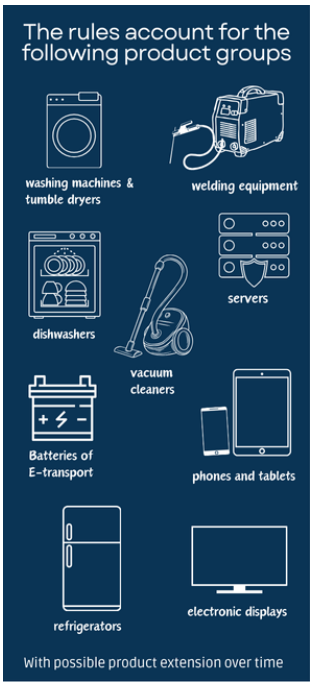
I summarize the new rules and measures in the table below. I provide more detailed explanations of the key newly introduced rules in Appendix 5.

				
12 month extension of guarantee	**Information obligation for producers**	**EU standardized repair information form**	**EU online repair platform**	**Additional local incentives to support repair**
If opted for repair instead of replacement inside the legal guarantee period, consumers get an additional guarantee extensions of 12 months.	Producers are obliged to provide necessary repair information (such as costs and repair conditions) Producers are obliged to provide spare parts and offer repair services for a reasonable price in a reasonable amount of time Soft- and hardware restrictions limiting repair are banned	The EU introduces a standardized form which can be used by producers and repair providers, to inform customers about crucial repair information (including price, repair time, etc.)	The EU introduces a centralized platform which assists consumers in finding local repair services and shops.	Each EU member state is obliged to include at least one additional measure to support repair initiatives at national, regional, or local level. These can include: information campaigns, repair vouchers, funds, support for community projects, training programs, or tax incentives.
Within legal guarantee	In & Outside legal guarantee	In & Outside legal guarantee	-	-

Source: European Parliament. (2024). DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on common rules promoting the repair of goods and amending Regulation (EU) 2017/2394, Directives (EU) 2019/771 and (EU) 2020/1828. [Report]

2.3.3 Scope covered:

To determine who is affected by the rules, I identified that the new rules apply only for specific product categories that fall under EU regulations on repairability, covered by the **Ecodesign Directive** (Ecodesign Annex ii, 2024). The EU Ecodesign Directive sets standards for energy efficiency, durability, and repairability throughout a product's lifecycle (Ecodesign, 2024) and covers the following nine product groups**: washing machines, tumble dryers, dishwashers, refrigerators, electronic displays (TV's), welding equipment, vacuum cleaners, servers, phones and tablets.** The scope will automatically be expanded by the European Commission within 12 months after the adoption of any new legal acts setting repairability requirements (European Commission, 2024)



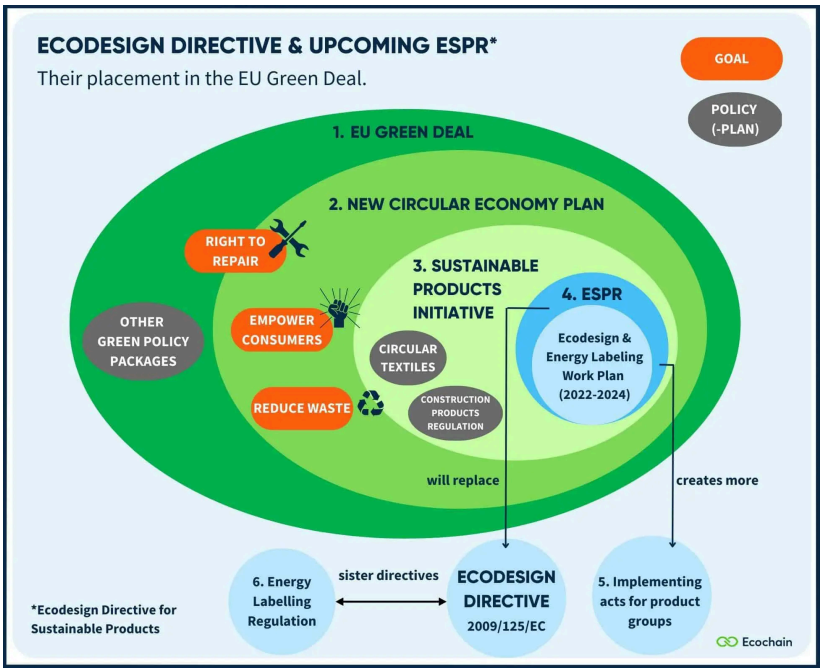


figure 5: The position of Right to Repair as part of the new circular economy action plan in relation to other EU initiatives such as Ecodesign

Having detailed the key provisions of the directive and for whom they apply, I will continue to analyze the expected impact and implications of these new rules on businesses operational practices in the next section, *2.4 Impact Analysis*.

2.4 Impact analysis

What is the expected impact of the Right to Repair legislation?

2.4.1. Defining the impact criteria:

To assess the expected impact of the new rules of Right to Repair, I first clarified key criteria:

1) **Impact Parameters:**

The impact of R2R can be evaluated across several domains, such as economic, consumer, and environmental effects. I concentrate on assessing the impact on producers' operational practices, specifically their logistical, financial, and strategic operations (Tomasis, 2024).

2) **The scope and target audience for impact assessment**

R2R affects various stakeholders in the repair infrastructure. A stakeholder map can be found in appendix 6. I focus on producers in the Dutch Electric and Electronic Devices (EED) market, leaving other affected stakeholders out of scope.

2.4.2. Method and analysis for the impact assessment

I used a mixed-methods approach, combining literature review, online research, and expert interviews. This approach ensures a comprehensive analysis by integrating multiple perspectives and data sources (Clark, 2016), which helps to identify key themes (Bryman, 2006). I choose this method to offer both theoretical and practical insights, ensuring a balanced and in-depth understanding of R2R's potential impact. The use of mixed sources also enables triangulation, strengthening the findings by cross-verifying information (Johnson, Onwuegbuzie, & Turner, 2007).

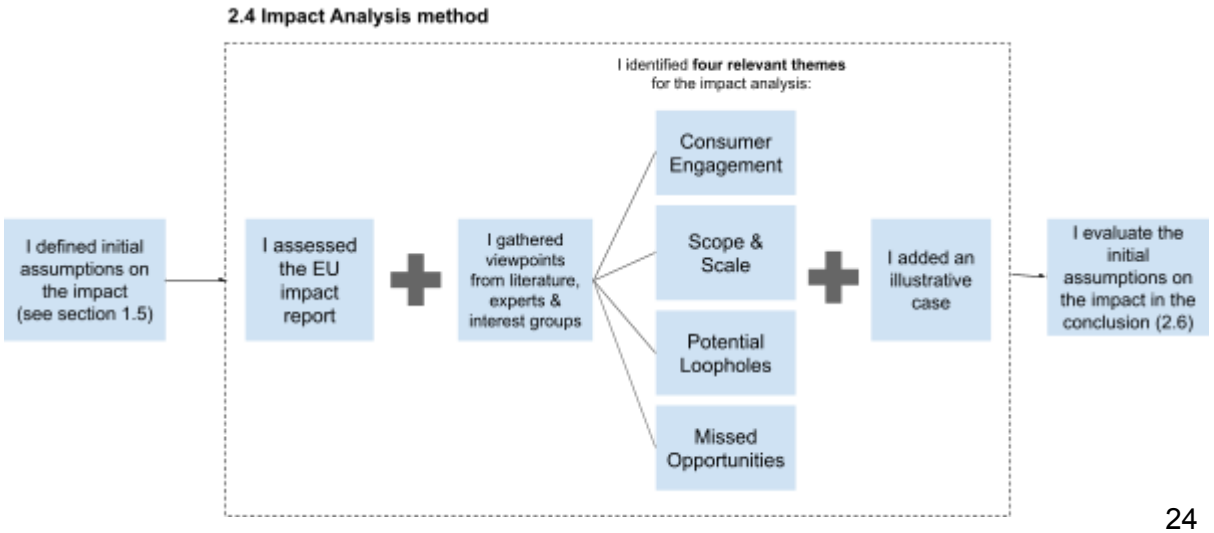
I used the European Commission's official impact assessment report (European Commission, 2023b) as the foundation for my analysis, supplemented by expert interviews and commentary from advocacy organizations, such as the Right to Repair Coalition and iFixit. In addition, I reviewed media coverage, webinars and press conferences. Last, I included an illustrative case to compare the current and future scenario for businesses under R2R. An overview of all data sources used for this impact assessment are provided in Table 2.

The analysis of the R2R directive revealed four key themes that determines its overall impact. These themes emerged organically from recurring patterns and common viewpoints observed across the different sources, which I collected and organized in Miro. They include:

1) **Reliance on consumer engagement,**
2) **Potential loopholes,**
3) **Scope and scale,** and
4) **Missed opportunities.**

In the following sections, I discuss each theme and its relevance in shaping the directive's impact.
I then revisit the initial assumptions outlined in Section 1.5 with the added depth of the gathered insights. The visual at the bottom of the page demonstrates the impact analysis method.

For clarity and readability, this section presents the key findings from the impact assessment, rather than detailing the process behind data gathering and analysis.



2.4.3. Key findings:

I first discusses the overall impact of the R2R directive, forming the basis for the next section (2.5), which explores the specific implications for business operational practices.

2.4.3.1. EU's Impact Report: economic and environmental impact

The EU's impact assessment report presents projections for the economic and environmental impact of the Right to Repair directive.

Environmentally, the directive aims to reduce 18.5 million tons of greenhouse gas emissions over 15 years, prevent 3 million tons of waste annually and save 1.8 million tons of natural resources. While those numbers are significant positive outcomes, it accounts for only 8.6% of the 35 million tons of annual waste in the EU, indicating a relatively small percentage of the overall wast problem in the EU. I visualized this relation below:

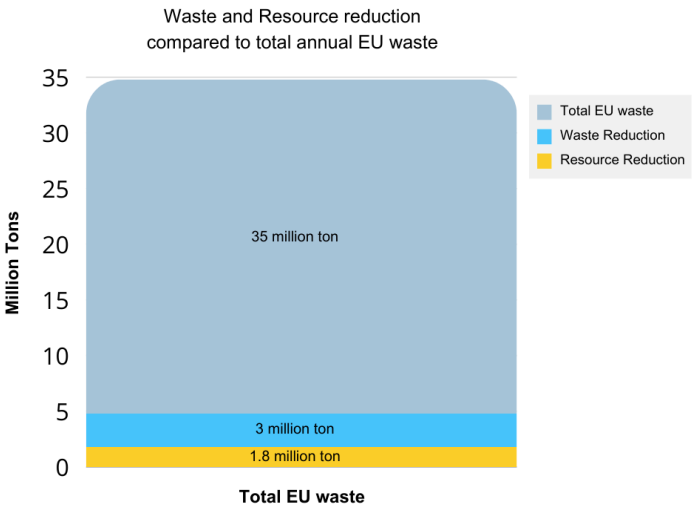


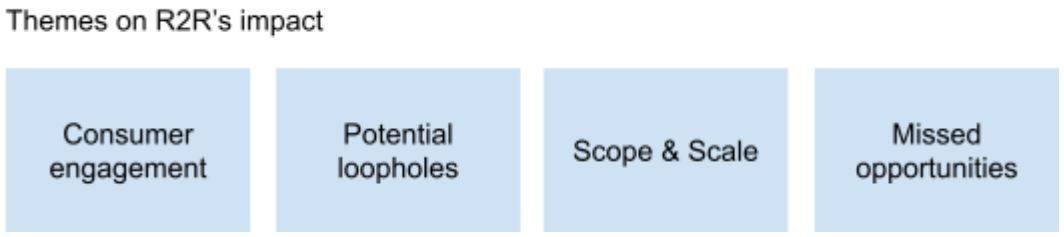
Figure 7: Waste and resource reduction comparison

Economically, the report further projects substantial savings for various stakeholders: €15.6 billion for sellers and producers, €175.5 billion for consumers due to extended product lifespans, and a €4.8 billion boost in growth and investment for the repair sector over the next 15 years.

For producers, the impact assessment report offers both opportunities and challenges. While repair services may generate additional revenue streams, the directive also predicts rise in costs. EU producers face €674.4 million in adjustment costs to expand repair infrastructure and €3.3 billion in compliance costs for maintaining spare parts and technical support. Furthermore, reduced new product sales, as consumers opt for repairs, are expected to lead to a €548.4 million loss in turnover and decreased gross value added (GVA).

These numbers seem to initially confirm my assumptions on R2R's high impact on producers, showing the significant costs associated with compliance. However, the overall success of these projections is heavily dependent on several (optimistic) assumptions, particularly regarding consumer behavior. I will discuss this in the next section, describing the four themes which determine R2R's overall impact.

2.4.3.2. Four themes on R2R's impact



RELIANCE ON CONSUMER ENGAGEMENT

A key factor in the success of these regulations is consumer engagement, particularly the extent to which consumers prioritize repair over replacement. The new rules aim to make repair easier and more affordable. However, if consumers continue to favor replacing defective products for convenience, its intended benefits may not be fully realized. While environmental awareness and willingness to repair may increase, the strong trend of buying new products for fashion or technological upgrades remains prevalent (Laitala et al., 2021). Furthermore, consumer's current confidence in the repair sector is low, with fewer than 30% of people viewing repair as preferable to replacement (Roskladka et al., 2023). Without significant changes in consumer attitudes, the trend is unlikely to shift in the near future (Nadro, 2024).

POTENTIAL LOOP HOLES

I further identified several ambiguities in the directive's rules that could create potential loopholes. Specifically regarding the definitions of "reasonable prices" for spare parts and providing repair within a "reasonable amount of time." The agreement states its price should be ***"set in such a way that consumers are intentionally deterred from benefiting from the manufacturers' obligation to repair"*** (European Commission, 2024: p.7). However, this definition leaves the door open for own interpretation by manufacturers. Similarly, penalties for non-compliance are vaguely defined, with member states determining effective penalties as**"effective, proportionate, and dissuasive"**(European Commision, 2024, p.28). How these penalties will be enforced in the Netherlands, which has until 2026 to implement the rules, remains unclear. Another potential loop hole, pointed out by Joao Rezende of the Right to Repair Europe Coalition, concerns the ban on practices that impede repair (hardware of software techniques), which includes an exemption: ***"unless justified by legitimate and objective factors including the protection of intellectual property rights"*** **(**European Commission, 2024, p.21**)** This leaves room for producers to use their IP rights as a legitimate claim to not comply. Furthermore, manufacturers may pass additional costs for repair infrastructure onto consumers through higher prices or lower product quality (Zimmerman, 2024). As a result, the directive's could even have unintended consequences.

SCOPE & SCALE

A key factor affecting the directive's impact is its limited scope, which currently covers only product groups already subject to repairability standards under the Ecodesign Regulation. While many stakeholders advocated for a broader range of products, including those I interviewed, this was not achieved in the final negotiations. Instead, the list of covered products will expand over time. The implementation timeline for product inclusion is further detailed in Appendix 7B. This process typically takes years, leaving the majority of products uncovered in the short term.

One expert interviewee from Groene Brein also expressed concerns about the directive's limited scope, stating, *"The regulations scope is very limited now—I think it needs to be both broader and stronger" (P5).* Similarly, Joao Rezende from the Right to Repair Europe Coalition criticized the directive's narrow focus, arguing, *"Considering the limited scope and ambition, we feel that the opportunity was missed to make this initiative into something that would actually merit the title 'Right to Repair directive' [..] but can be more described as an 'annex to the existing Ecodesign regulations.'"* Furthermore, Rezende noted that *"its main effect will be to somewhat increase the chances that the small number*

of products that already had to be repairable by law anyway, will actually end up being repaired."

Moreover, the EU's projected impact and waste reduction numbers likely overestimate the real impact, as they considered a broader range of consumer goods (like clothing and cars) not currently covered by the directive. These numbers therefore likely overestimate the real outcomes and may not be as substantial as estimated.

MISSED OPPORTUNITIES (from first proposals). During the negotiation phases, some of the first initiatives faced opposition from various stakeholders, including industry groups and member states, leading to their exclusion from the final directive. In the midst of the negotiation stages, this perspective was also shared by interviewee number 5: *"You see that the legislation is quite weak, because many players start to interfere with it, on the circular side" - P5.* For example, the original proposal aimed to prioritize repair over replacement within the legal guarantee and allow independent repairers to conduct in-guarantee repairs. These measures would have strengthened the independent repair sector, increasing competition and lowering repair costs for consumers, but they did not survive the negotiations. Other provisions were also removed, such as allowing member states to add product groups, or prioritizing repair over replacement in after-sales services, overall reducing the directive's scope and effectiveness.

2.4.3.3. Overall impact conclusion

Overall, R2R's initial proposal aimed for an ambitious coverage, but the final scope is more targeted, focusing on high-impact products and allowing for gradual implementation of additional product categories introduced over time. The final version of the Right to Repair Directive is widely seen as a compromise and can be perceived rather as an extension of existing consumer rights. While the regulation's long-term impact remains uncertain, it is unlikely to impose any impactful changes in the short term.

The insights from this impact analysis are visualized using **The Pyramid Principle**. This is a structured communication method that organizes information in a top-down hierarchy, starting with the main conclusion followed by supporting details (Joel, 2024) through the MECE (Mutually Exclusive, Collectively Exhaustive) principle, ensuring key limiting factors are covered without overlap (Kenny, 2024).

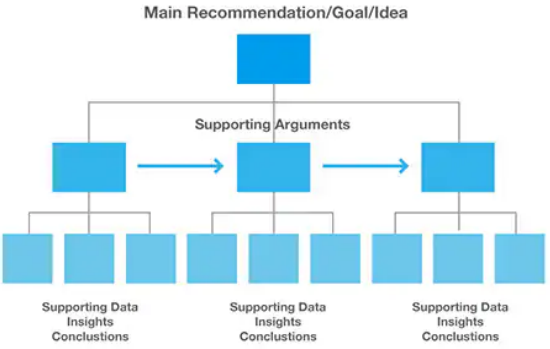
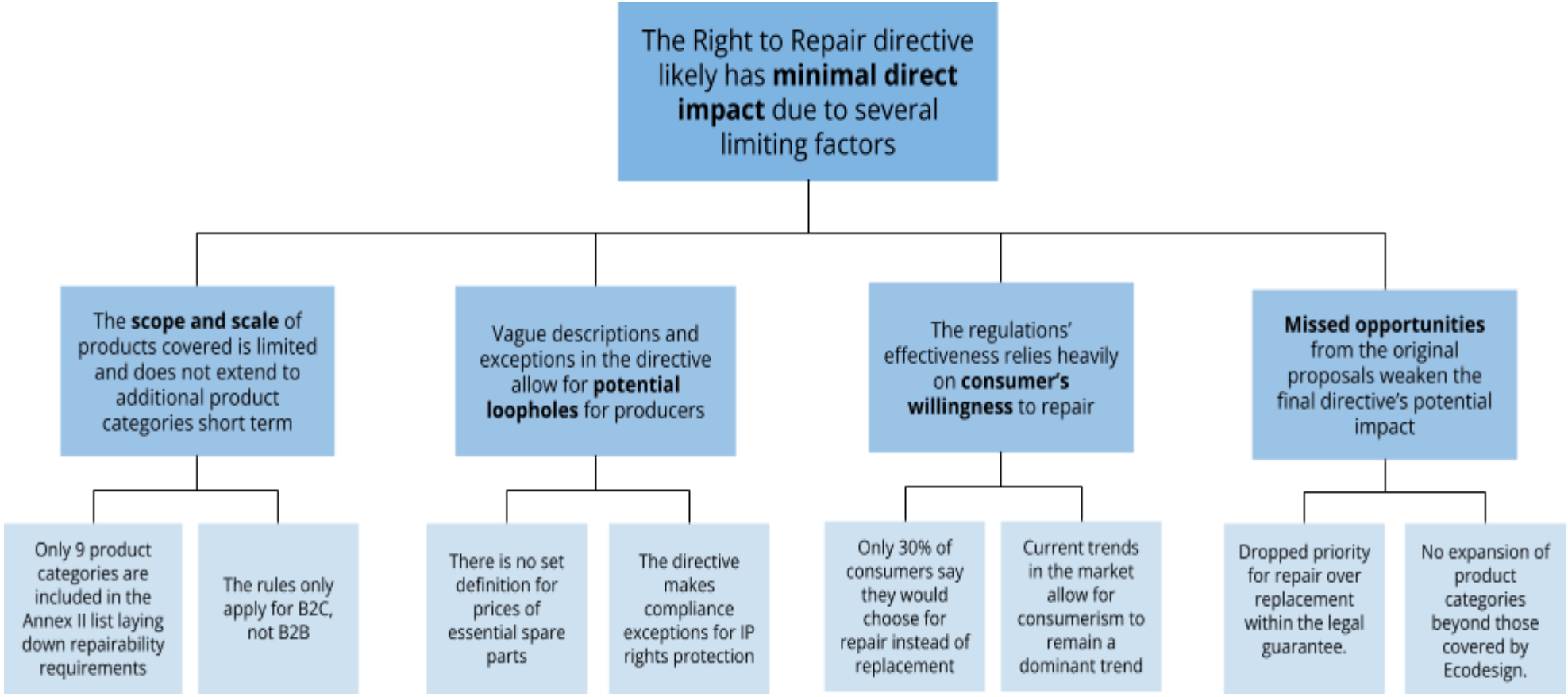


figure 8: Pyramid Principle (Kenny, 2024)

Pyramid on the expected impact of Right to Repair



2.5 Implications for businesses

What are the implications of Right to Repair for businesses?

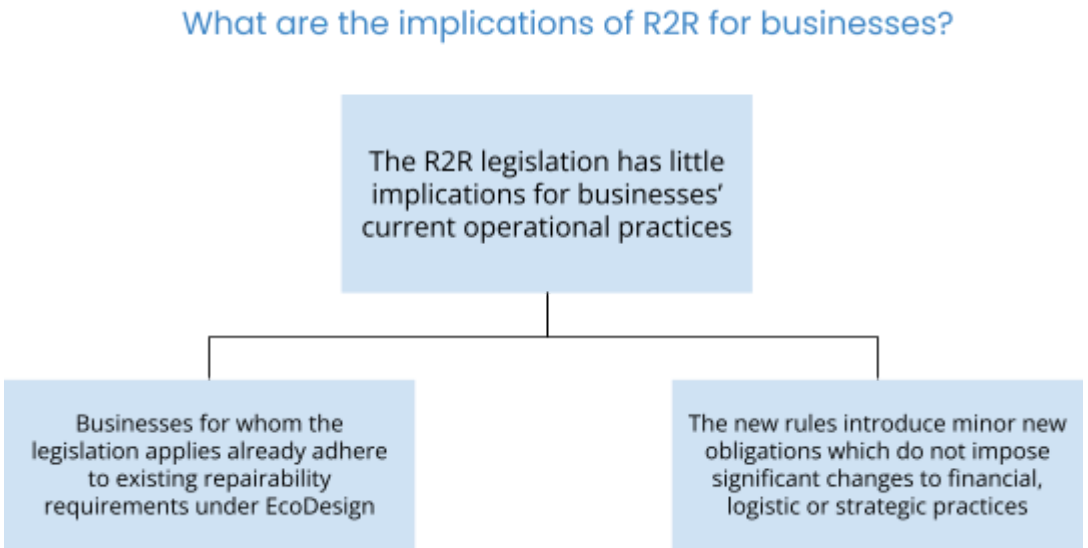
The previous section suggests that while the new rules primarily empower consumers, the overall implications for businesses seems to be minimal. This is largely due to the existing repairability requirements under the Ecodesign directive, which raises key questions: what do these repairability requirements mean in practice? And how does the current situation under Ecodesign change compared to the future situation under the Right to Repair Directive?

I use Miele as an illustrative case to showcase this comparison.

CURRENT SITUATION (under Ecodesign)
Miele, like many other companies producing household appliances, is currently required to comply with the Ecodesign Directive (EU Regulation 2019/2023). This directive mandates specific repairability standards, including providing access to repair and maintenance information, spare parts availability for 7-10 years, and ensuring that key components can be replaced. These regulations aim to promote durability, energy efficiency, and repairability. Miele's compliance already includes information on product disassembly, the availability of spare parts, and how to maintain their appliances.

FUTURE SITUATION (under the R2R Directive)
The Right to Repair directive builds on these existing Ecodesign requirements by potentially expanding repair access to professional repairers and consumers However, companies like Miele already meet many of these requirements. The directive's new provisions may require minor adjustments, such as increased transparency and accessibility, possibly leading to greater consumer awareness of repair options. While this could empower more DIY repairs and slightly shift Miele's information provision strategy, the overall operational impact remains minimal.

Miele already meets the standards under Ecodesign. Adjustments for Right to Repair will be minor, mainly affecting transparency and consumer information. The practical implications for businesses' logistics, financials, and strategic operations are therefore limited.



2.6 Conclusion & Reflection on initial assumptions

IMPACT ASSESSMENT

All in all, reflecting on the findings in this chapter, the impact of the new R2R legislation might not be as promising as initially anticipated. While the Right to Repair Directive represents progress toward a repair society, its final form is more limited in scope. Only nine product categories are covered for which repairability standards already apply, leaving the vast majority of products entering the EU market out of scope. Furthermore, the directive's potential to deliver significant environmental benefits depends on several factors, including changes in consumer behavior and how effectively the rules are interpreted and implemented by individual member states, in this case the Netherlands. Additionally, the exclusion of key initiatives, such as the broader inclusion of more product categories, has limited the directive's overall impact.

IMPLICATIONS FOR BUSINESSES

To reflect on the research question of this chapter, the immediate implications of the Right to Repair directive for businesses are minimal, as the directive introduces no major new obligations beyond existing Ecodesign requirements. Businesses already compliant with Ecodesign, like Miele, will face only minor operational changes. While future expansion of the scope may affect more product categories, the long implementation timeline provides sufficient time for those to adapt. In the short term, the overall impact on business operations remains limited.

REFLECTION ON INITIAL ASSUMPTIONS

In my initial assumption, I had expected a *significant* impact on a *broad scope* of businesses. Given the insights from the analysis, there is sufficient evidence to reject this component of the initial assumptions. Its expected impact can be described as quite the opposite: a *not-so-significant* impact on a *limited* scope of businesses.

FINAL THOUGHTS

Although a step in the right direction, the R2R directive falls short of its more ambitious goals. Further actions are required to truly stimulate a repair society and achieve the long-term vision of a circular economy. Next, I further analyze the challenges businesses face in adopting repairability requirements, in chapter 3: *Businesses & Repair.*

“If nothing changes, nothing changes”

- Courtney C. Stevens

Rijksdienst voor Ondernemend Nederland

03

Businesses & Repair

DISCOVER

What challenges do businesses face in adopting repairability practiceS?

Content

3.1 Introduction to the chapter

In this chapter, I address the research question: What challenges do businesses face in adopting repairability practices? I begin by exploring the definition of "repairability practices" through literature review. Then, I analyze case studies to illustrate how businesses adopt those practices differently. I integrate insights from literature and interviews to enrich these finding and reveal both opportunities and challenges in adopting repairability practices. Finally, I provide recommendations for support measures that could help businesses overcome these challenges. These recommendations form the basis for exploring how RVO can support businesses, which will be discussed in Chapter 4.

Table 3: data sources for RQ2: **What challenges do businesses face in adopting repairability practices?**

Data source	**Date / period**
Semi-structured interviews with: NGO representative (Groene Brein, one hour, online) Business representative (one hour, online) *3 Case Studies* *Documents* **Repairability Criteria Reports:** (1) Repair Index Report (Ritthoff et al., 2023) (2) Ecodesign Framework - Repairability Criteria and Requirements (DIN EN 45554) (3) Repair Scoring System of Joint Research Centre and BeNeLux countries (Bracquené et al.,2018) funded by the European Commission (2019) **Repairability Governmental Support Recommendations Documents** 1) NewForesight, Het Groene Brein, Rijkswaterstaat, & Transitie-agenda consumptiegoederen (2023). Plan van aanpak EEA Coalitie: Facilitatie van drie workshops voor de Elektrische en Elektronische apparaten coalitie. 2) Schenderling, P., Olthaar, M., & Sufficiency (2024). Beprijzingsmaatregelen opschalen circulaire verdienmodellen. 3) CE Delft (2023). Suggesties voor aanvullend circulaire economie beleid. 4) Dao, T., Cooper, T., & Watkins, M. (2021). Business innovation for product repairability: Implications for future policies. 5) LDE Universities (Leiden, Rotterdam, Delft) (2023). Whitepaper on Repairability. 6) Nationaal Programma Circulaire Economie (NPCE) (2023) *Further literature sources* Presented in reference list	nov 2023 - feb 2024

3.2 Definition of repairability practices

What do we mean with repairability practices?

Throughout this graduation project, I often refer to terms such as ‘repairability’, ‘repair’, ‘repairable products’ and ‘repairability practices’. It is essential to define these terms clearly.

3.2.1 Repair, repairability and repairable products

The concepts of *repair* and *repairability* are frequently discussed in the context of electronic devices, yet they have distinct meanings. **Repair** refers to the process of fixing or restoring a malfunctioning device to its original or functional condition (DIN EN 45554). **Repairability**, on the other hand, refers to the ease with which a product can be repaired. According to iFixit (2024), this means making it possible - and ideally easy - to repair a product. While repair focuses on *the act of restoring functionality*, repairability encompasses the broader attributes that *enable and facilitate this process* (Bracquené et. al, 2018). Therefore, engaging in “**repairability practices**” *allows for repair*.

When referring to ‘**repairable products**’, they contrast to those designed with *planned obsolescence*, produced with the intention of short economic lives to encourage frequent replacements (Valant, 2016). The primary characteristic that sets a repairable product apart from a non-repairable one is its capacity to be restored to an operational condition after failure (Dao et. al, 2020). Common examples of repairable products include cars, washing machines or dishwashers, whereas light bulbs and calculators are typically non-repairable (iFixit, 2024).

Like design for sustainability, design for repairability does not necessarily embody one clear definition, which, as evidenced in the literature, continuously evolves (Flipsen et al., 2016). Despite this, some commonly agreed-upon characteristics remain. A repairable product is designed with disassembly in mind, ensuring that spare parts, tools, service documentation, and software are readily available, without artificial barriers such as parts pairing. Bakker et. al (2021) specify this by defining a repairable product as one whose lifespan can be extended by replacing or repairing one or more of its parts. George & Baskar (2024) mention the feasibility and ease-of-repair. Others (Wandji et al, 2020) also consider the time-to-repair, defining repairability as “the ability to bring a product back to working condition after failure, in a reasonable amount of time and for a reasonable price” (Bakker et. al, 2021).

Altogether, these aspects create a comprehensive repair ecosystem and a repairable product can be defined as a product that meets the following criteria:

1. It can be repaired or have its components replaced when it breaks down.
2. It can be restored to its original or functioning condition.
3. The product opposes the notion of "programmed obsolescence," which refers to products designed with a limited lifespan.
4. The repair cost is economically viable and remains lower than the original purchase price of the product.

Now that I understand the different definitions of repair, repairability and a repairable product, I discuss what those specific repairability practices for businesses are:

3.2.1 Repairability Practices for Businesses

When a business "adopts repairability practices," it refers to **the activities a business undertakes to allow for the repair of its product**. In short, these activities include offering a repairable product and providing the necessary services and infrastructure for repair.

To define these practices more precisely, I reviewed the official methodology used for calculating the repairability index (Ritthoff et al., 2023). Additionally, I considered the repairability criteria and requirements outlined in the ecodesign framework (DIN EN 45554). The BeNeLux countries (Bracquené et al., 2018) and the Joint Research Centre funded by the European Commission (2019) have each developed scoring systems for the repairability of electrical and electronic products.

I compared the repair criteria and used the three main classifications from the repairability index score to specify activities under the following categories:

information provision, **product design**, and **repair services**. These categories form the basis of repairability practices, meaning that when a business adopts such practices, it *optimizes* its efforts across these three key domains:

1. **INFORMATION PROVISION**: Provide the provision, availability and accessibility of repair information
2. **PRODUCT DESIGN**: Improving product features and design strategies for repair,
3. **REPAIR SERVICES**: Promote services that facilitate product repair during use

I identified specific activities under these three themes by comparing various literature sources, which I classified in the table on the next page. The table demonstrates that adopting repairability practices encompasses a range of activities.

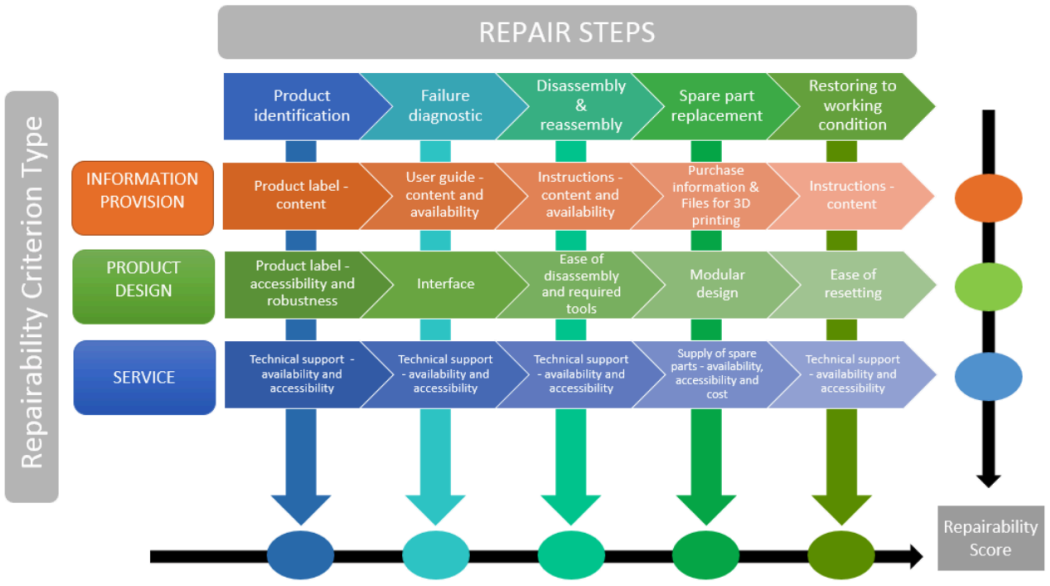


Figure 10 : scoring system used for the repairability index as defined by (Ritthoff et al., 2023

PROVIDE **REPAIR INFORMATION**		IMPROVE **PRODUCT DESIGN** FOR REPAIR		PROMOTE **REPAIR SERVICES**	
Business activity	**References**	**Business activity**	**References**	**Business activity**	**References**
Provision of diagnostic and repair manuals, and instructional support	Lee Woolf et al. (2012); Ellen MacArthur Foundation (2016); Ackermann, Mugge and Schoormans (2018); Bracquené et al. (2018); European Commission (2018, 2019)	Design for disassembly and upgrade	Dao et al. (2021)	Promotion of repair benefits and repairable products to the consumer	European Commission (2018)
A transparent spare parts supply chain	RREUSE (2013); Ellen MacArthur Foundation (2016); Raihanian Mashhadi et al. (2016); European Commission, (2018)	Standardization of components (such as screws and fasteners)	Dao et al. (2021) Flipsen et al. (2016)	Choosing repair over replacement within warranties	DEFRA (2011); Lee Woolf et al., 2012; Armstrong et al. (2015); Wieser and Tröger (2016)
Detailed component schematics (providing precise circuit diagrams for individual parts)	Sonego et al. (2022)	Safe to repair design	Dao et al. (2021)	Integration of repair and reuse	Lee Woolf et al. (2012); Parker et al. (2012); Ellen MacArthur Foundation (2016)
		Modular design (with components that can be easily replaced or upgraded)	Dao et al. (2021), Flipsen et al. (2016)	The exchange model and temporary replacement model (subscription-based repair services)	DEFRA (2011); Parker et al. (2012) George & Baskar (2024)
		Design for repair and codesign (including stakeholders in the design process)	Graham and Thrift (2007); Parker et al. (2012); RREUSE (2013); Charter and Keiller (2014); Wieser and Tröger (2016); Dewberry et al. (2017); European Commission (2018)	Incentivizing returns and recycling (fixed-cost model and fixed lead-time return model)	Parker et al. (2012), Sabbaghi et al. (2017)
		End-of-life considerations	Wandji et al. (2023)	Localized repair service network	Lee Woolf et al. (2012); Charter and Keiller (2014); Dewberry et al. (2017), Flipsen et al. (2016)
		Limitation of adhesives	Suppipat & Hu (2022)	Collaborative partnerships with repair stakeholders	Flipsen et al. (2016)

3.3 Examples & Case Studies

In this section, I examine three examples of products from brands and analyze them on how they score differently on the repairability practices domains, using the activity descriptions from the table. This analysis demonstrates real-life applications of (not) adopting repairability practices.

The cases were selected based on industry relevance (electronic goods industries) and product diversity to ensure comprehensive analysis. I gathered and analyzing information from company reports and third-party assessments, such as repairability scores from iFixit. The case studies are used to compare and contrast repairability practices of different businesses and their products and assist in identifying commonalities in (dis)advantages of adopting repairability practices.

FAIRPHONE

Starting with one of the most pioneering examples of a brand that optimized on repairability practices is Fairphone. Fairphone is a socially and environmentally conscious smartphone company that prioritizes ethical sourcing and modular design for easy repair (Fairhone, 2024).

I describe how fairphone adopts repairability practices in their Fairphone 5 model and why they score high on repairability practices, using the activity descriptions from the table, in the table below (source input table: Fairphone, 2024, iFixit, 2024).

REPAIR INFORMATION	They offer clear diagnostic information and manuals, making it easy for both consumers and third-party repair services to diagnose and fix issues (transparent diagnostic procedures). They also share how their spare parts can be accessed for independent repairers (transparent spare parts supply chain).
REPAIR PRODUCT DESIGN	The product is designed with modularity in mind, allowing users to easily replace or upgrade components like the battery, camera, and screen (modular design). They use standard screws, which makes it easier for users to open the device and replace parts without specialized tools (use of standardized screws and fasteners). The design minimizes the use of adhesives, making components easy to disassemble and repair (limitation of adhesives)
REPAIR SERVICE	They offer spare parts at reasonable prices and promote a community-driven approach to repairs, including partnerships with local repair shops (promotion of repair benefits and repairable products to the consumer). Fairphone encourages customers to return their old phones for recycling or refurbishment, often providing discounts or incentives for doing so (Incentivizing returns):

This demonstrates how Fairphone holistically optimizes on these three domains. That is also why iFixit gave this product a perfect **10** out of 10 on repairability (Haeussermann, 2024).

REPEAT

Another brand that scores high on these domains with a different product is Repeat (formely known as Gerrard Street). Repeat is an Amsterdam based company focused on creating modular headphones that are designed to be easily repairable and upgradable. They offer headphones with a leasing option and giving customers the free option for repair (*Over Ons - Repeat*, 2024).

Why Repeat scores high:

REPAIR INFORMATION	Repeat provides clear and accessible repair guides, ensuring that users can easily understand how to maintain and repair their headphones. The company offers straightforward diagnostic information, making it simple for customers to identify and fix common issues (provision of diagnostic and repair manuals, and instructional support).
REPAIR PRODUCT DESIGN	Repeat headphones are designed with modularity, allowing users to easily replace or upgrade parts like ear cups, speakers, and cables (modular design). They use standardized components and simple assembly methods (use of standardized screws and fasteners) The design avoids adhesives, making it straightforward to open the headphones and replace individual parts (limitation of adhesives).
REPAIR SERVICE	Gerrard Street offers a subscription model where customers can easily swap out broken parts for new ones (subscription-based repair services). The company encourages customers to return old or broken parts, which are then repaired or recycled (Incentivizing returns and recycling). They even take a step further and offer a life-long option for free repair, extending the legal guarantee (choosing repair over replacement within warranties).

APPLE: EARPODS

Another familiar product is the wireless airpods from Apple. Here is why Apple scores low on repairability practices for this specific product.

REPAIR INFORMATION	They do not provide any information on getting the airpods repaired (provision of diagnostic and repair manuals, and instructional support), nor do they provide information on their spare parts (a transparent spare parts supply chain)
REPAIR PRODUCT DESIGN	The airpods are put together using adhesives (going against limitation of adhesives), making them hard to open up and get to the essential parts (design for disassembly and upgrade). Since the batteries in the AirPods are attached, the lifespan of the earphones is not very long. Once the batteries no longer function well, you can essentially throw the AirPods away (end-of-life considerations), nor do they allow for the product to be back in place after disassembly without destroying the airpods (design for disassembly).
REPAIR SERVICE	Apple does not provide any spare parts (spare parts availability) for the airpods, nor do they provide any services to get your broken airpod(s) repaired (localized repair service network and collaboration). In addition, they do not have partnerships with repair businesses (collaborative partnerships with repair stakeholders)

This is also why iFixit gives this product a score of **0** out of 10 on repairability (Noronha, 2016), stating it as “impossible to repair”.

3.3.1 Comparative analysis

These cases illustrate how brands score differently on repairability practices for specific products. The examples are reference points of how repairable products should (not) be designed and that high scoring products do not just offer repairable products, but also enable the repair of those products by offering repair related information and services. It shows that adopting repairability practices composes of many different elements and it can show up differently: there is no 'one way fits all'.

Other than demonstrating its practicalities, the case studies also revealed insights into some of the general (dis)advantages of adopting repairability practices: why it seems to be a strategic choice for some businesses but not for others, what factors determine the adoption of repairability practices and what the value proposition is of brands like Fairphone and Repeat. I discuss these findings in more detail in the next section, substituted by literature findings and interview insights, in 3.4: *Challenges and opportunities in adopting repairability practices*.

3.4 Challenges and opportunities in repair practices

What are challenges and opportunities in adopting repairability practices?

Identifying challenges in adopting repairability practices is crucial, as it allows for the identification of potential support measures from within RVO to assist businesses in these challenges. Below, I outline the general advantages and opportunities, followed by the disadvantages and trade-offs, to provide a balanced perspective.

In both sub-sections, I first discuss findings from the case studies supported by literature findings. Following this, I present the interview findings separately, as they offer more detailed and specific insights. This approach compares theoretical insights and practical, real-life experiences.

3.4.1 Advantages & opportunities

Insights from the case studies and literature:
Adopting repairability practices can create viable business models. For example, Fairphone and Repeat demonstrate how focusing on repairability creates customer loyalty and brand differentiation. By offering repair services and subscription models for parts replacement, these companies build strong relationships with environmentally conscious consumers, which can help position them in a niche market and higher market segments.

The literature supports these findings, indicating that repairability practices can enhance brand management, customer satisfaction, and loyalty (Kassinis & Soteriou, 2003). Communicating repairability signals corporate social responsibility and durability, positively impacting brand perception (Munten & Vanhamme, 2023). These practices can also create communities centered around repair and maintenance (Svenson, 2019). Brands that focus on customer-centric practices, including repair services, can better meet both short-term and long-term business goals by aligning with customer needs and values (Bajaj, 2023). Frequent interactions through repair services can further transform customer service into a positive experience, maintaining market position and customer trust (Kennedy et al., 2020). Both case studies and literature demonstrate that incorporating repairability into brand strategies can improve customer perceptions and strengthen brand loyalty in an increasingly competitive marketplace (Linnenluecke, 2022).

Interview insights:
The interview with an expert from Het Groene Brein, an NGO who support businesses to integrate sustainable practices, provided deeper insights into the perceived opportunities in a repair business model.

The interviewee has great experience and knowledge in this field and experiences first-hand trends in sustainable business initiatives. He emphasized customer loyalty as a significant benefit of offering repair services: *"I really see that customer loyalty, that positioning, increasing significantly."* This aligns with the case from Fairphone and Repeat.

Furthermore, the interviewee noted that even if repair services are not immediately profitable, they can still provide substantial customer loyalty benefits. He mentioned, *"For example, Bever offers repairs on Black Friday. For their business model, it is still beneficial, despite generating less revenue, again because of that customer loyalty. In that respect, repairs are very interesting because consumers really appreciate it."* This example illustrates the benefit of repair services for customer retention, despite lower immediate financial returns.

He also observed a growing recognition of the benefits of repair services among larger businesses, stating *"The funny thing is that these are also quite big players, like Philips, who are making real strides in this area and taking it seriously [...], When companies choose PaaS (Product as a Service), it becomes interesting from a revenue perspective if your product is easily repairable."* This indicates that even large companies like Philips perceive value in adopting repairability practices.

In addition, he mentioned that repair practices are already performing well in higher market segments: *"Repairs in the higher-end segment are actually going quite well."* but also mentions for cheaper products it is not *"Products under 100 euros are not very interesting for PaaS - when it comes to repairs, it never works out. If it breaks, people buy a new one"*. Lastly, the interviewee highlighted a noticeable decrease in resistance towards adopting repair practices: *""I really see that the resistance has decreased."* indicating a positive trend in business acceptance and implementation of repairability practices.

Key takeaways on **advantages and opportunities** in a repair business model:

- ➔ **Customer loyalty** and **brand differentiation** are key advantages of a repair business model
- ➔ Repair business models tend to be viable in the **higher product segment,** for a specific customer base **in a niche market**
- ➔ Businesses are increasingly adopting repair related elements, with **growing trend of its perceived value**

3.4.2. Challenges & trade-offs

Adopting repairability practices also involves trade-offs, especially when balancing innovation, sustainability, and market positioning, as revealed by the case studies and literature.

Case studies and literature insights

Taking the example of the AirPods: the decision to use adhesives in their design, which goes against repairability principles, enhances the product's waterproofing and compactness. This design choice provides benefits such as increased durability and a better user experience. Had the product been designed with easily removable components, these benefits might have been compromised. This trade-off is common in many products. Innovations that enhance product functionality or efficiency, such as new materials or compact designs, often conflict with the principles of repairability (Laitala et al., 2021). For instance, sealed units enhance water resistance or achieve a smooth design but make repair difficult (Jaeger-Erben et al., 2021), as evidenced by Apple's approach to product design, which has prioritized sleekness and performance over the ease of repair (iFixit, 2022). Furthermore, critics point that Fairphone's focus on repairability comes with trade-offs in performance, such as "lackluster performance and mediocre battery life" (Fairphone 5 Review, 2023). Thus, design for repairability can introduce **trade-offs with** both **innovation** and **product quality**.

Moreover, optimizing for repairability does not always align with sustainability. In some cases repairability can sometimes even have negative environmental impacts (Gulseliler et al., 2022). For instance, a repairable refrigerator may be less energy-efficient over time compared to newer models, making replacement more environmentally beneficial in the long run (Milios & Dalhammer, 2023).

The case of Repeat demonstrates further trade-offs. Their higher priced products reflect a focus on quality and repairability, targeting a niche audience that values durability and modularity and have a strong attachment to their headphones. However, this limits their market appeal to customers who appreciate subscription-based ownership over full ownership. Moreover, Repeat's niche position could face competition if larger manufacturers adopt similar repairable practices at lower prices. Fairphone faces a similar challenge, as mainstream brands might replicate its modular and repairable design. This suggests that brands prioritizing repairability may face increased competition if their practices are adopted by mainstream brands, risking their unique value proposition.

Key takeaways on **disadvantages and trade-offs in a repair business model**:

- ➔ Adopting repairability practices involves several trade-offs, including:
  - potential friction with innovation,
  - friction with sustainability and durability
  - higher pricing, limited market appeal, and potential competition from mainstream brands adopting similar practices.
- ➔ Balancing these trade-offs while maintaining their unique value proposition will be crucial for sustained success. Key factors influencing the approach to repairability include:
  - ◆ product's size,
  - ◆ its customer's perceived value and
  - ◆ consumer attachment to the product

Interview insights

To explore the business perspective, I interviewed a senior product manager at a consumer electronics company known for its sustainability efforts. The company designs products like keyboards, mice, and webcams. I compared the interview findings to the insights from literature and case studies to identify whether commonalities existed in the challenges. See Appendix 3B for the interview guide and coding process. This interview revealed practical insights that complemented the literature findings. I categorized the challenges into the following five themes, which I will discuss in more detail.

1. Product design constraints
2. Infrastructure & logistics
3. Consumer mindset
4. Stakeholder collaboration
5. Costs

1. Product design constraints

One key theme highlighted the challenges of designing for repairability, which introduces significant complexity and cost. Particularly for smaller electronic products where repairability is less feasible. The interviewee explained, *"The smaller the product, the more complex it's going to be. If you want to make it repairable, you have to make it super, super easy to do so. And so yeah, the whole design cost is significant."* This statement shows the additional engineering and manufacturing complexities involved in making smaller, cheaper items repairable.

The interviewee further noted that repairability is generally more viable for higher-priced items. He explained, *"By definition, when you offer a $30 product you have to cut a bit more corners to be able to sell it at this price point than a $150 product."* The implication here is that cost constraints on lower-end products force manufacturers to prioritize affordability over repairability. As the interviewee concluded, *"So it also means that a cheaper product is going to be less repairable by nature. If you really want to make the product repairable, it's gonna have to get more expensive."*

The interviewee also reflected on the challenge of ensuring long-term repairability, stating, *"Creating new products that will be repairable in the future means they'll hit the market in a very long time."* This forward-looking challenge emphasizes the difficulty of ensuring repairability throughout a product's lifecycle.

Additionally, knowledge gaps in identifying common failure points complicate efforts to design for repairability. The company relies on external sources to track post-market data, as the interviewee explained: *"We have teams looking at Reddit to figure out the most common issues with our products."* He added, *"Once the product is out of the box, people might throw it away and complain on Reddit, but we don't always know what happened."* This lack of visibility into consumer behavior and product designs.

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2. Infrastructure and logistics

The interview furthermore highlighted logistical challenges associated with scaling repair operations. Implementing repairability requires adjustments in supply chain management and logistics, particularly regarding the availability of spare parts and the handling of returns and repairs.

A key issue was the need for sufficient scale to make a repairability a viable strategy. Without enough product volume and demand for repair services, the logistical effort required to ship, repair, and return individual products becomes financially unsustainable. He elaborated, *"Because right now, if we have to ship all the mice, individual mice that people are sending back... it's just so expensive we can't afford it."* illustrating the high transportation costs of handling returns.

Another critical aspect highlighted was the reliance on external partners for key spare parts. He explained, *"For example, in this mouse, the sensor, we don't make it; the battery, we don't make it; the PCB, we don't make it. We all outsource this to partners."* This reliance makes it harder to ensure long-term availability of parts for repairs.

Additionally, predicting the demand for spare parts and maintaining an adequate inventory presents another significant logistical challenge. The interviewee expressed concerns about how long certain components, like chips and sensors, would have to remain available. He stated, *"How long do we need to have chips or be retro-compatible with other devices? This is sometimes out of our control because we don't manufacture our chips or sensors. We need to push our suppliers to keep them in production."* This highlights the uncertainty of ensuring spare parts over time, which is often beyond the company's control.

3. Consumer mindset

Another big challenge in the adoption of repairability practices is the current consumer attitude towards repair, which often tends to favor convenience and low cost over replacement.

The interview revealed that most consumers, especially in the B2C market, show little interest in repairing products, even if the option is available. As the interviewee observed, *"The consumer mindset, if you want, is not there. Even if we do make the product repairable, they won't use it. They won't care for it, and it will be treated exactly the same as if it wasn't repairable."* This mindset is particularly present for smaller, lower-cost items, where consumers view products as disposable. The interviewee noted, *"Whatever mice or keyboard is broken, it is just consumable, so they'll discard them. If they can recycle them, they'll recycle them. They nearly never send them back."* This reflects a broader trend where lower-priced products are more likely to be replaced than repaired.

However, consumer attachment to high-value or niche products can lead to a greater willingness to invest in repairs. *"For example, gaming mice. Again, these are items that people are more attached to. There's a lot more cognition going into the buying process. And so we know that these people are more likely to actually repair their mice than others and are going to be willing to spend 10 bucks more to actually have a repairable mouse."* This demonstrates that consumers may be willing to pay more for repairable options when they have a stronger emotional or functional connection to the product.

4. Stakeholder collaboration

Effective repairability practices further highly depends on collaboration across the supply chain, involving manufacturers and suppliers. The interview showed that this collaboration is often seen as too complex and costly to implement. The interviewee highlighted the challenge by stating, *"It would mean that all these partners in this network would have to work together... at the end of the day it's a team sport we're talking about."*

Despite this, the necessary collaborative structure is not in place, as stakeholders are hesitant due to the perceived complexity and financial burden. The interviewee explained, *"You cannot do it alone. To have a model that is repairable, we need all the channel and all the installers ready to do this. And they're not. It's too complex and too expensive for them."* This illustrates a major obstacle in the current repairability landscape due to the lack of coordination among supply chain partners.

5. Costs

Overall, one of the most frequently mentioned theme is the cost. The financial risks that come with reduced sales of new products and the high expense of building and maintaining repair infrastructure was frequently mentioned during the interview.

As repairability can reduce the frequency of product replacements, this can significantly impact the profitability of companies that rely on high product turnover. As the interviewee noted, *"If instead of selling my mouse every 10 years, I sell one every 15 years because people repair it, that means my profit is going down by 50% over time. And no decision maker, no CEO, no executive is going to take that decision. It's way too risky."*

The interviewee also highlighted the high costs of creating repairable products, stating, *"Just speaking about the batteries, for example, it costs a lot to make a battery you can remove and put back in."* Although there is enthusiasm for repairability as a concept, financial pressures seem to push businesses to prioritize short-term profits over long-term sustainability. He remarked,*"What I'm noticing is money is really the nerve. People talk a lot about it, but when you get to the end of the quarter and the numbers aren't good, all of this just sort of gets thrown out the window because it costs a lot."*

The interviewee emphasized that financial hurdles make it difficult to fully commit to a repair-based model: *"At the end of the day, in any company, it's sad but true, we're in a capitalist world."* This quote also refers to the fact that despite their efforts and willingness to adopt repairability practices, the current global economic climate makes the viability of repair models a significant bottleneck. As he also mentioned: *"We have done some pilots, but we never managed to crack the code."* Suggesting that it is not so much about a lack of mentality towards repair oriented practices, but more a lack of financial feasibility.

Table 6: Summary of challenges in adopting repairability practices from the interview insights.

Aspect	Challenges
Product design constraints	Designing for repairability adds complexity and cost, particularly for smaller and cheaper products. Ensuring repairability and predicting future trends add further technical challenges. Knowledge is often missing on what design components contribute to breaking down of products.
Infrastructure and logistics	Establishing the infrastructure for spare parts and handling returns is complex and costly. Predicting spare parts inventory and relying on supply chain partners specifically complicate this.
Consumer mindset	There is a lack of consumer demand for repairable products due to the convenience of replacement. Consumers often treat lower-cost items as disposable, even if they are repairable. The repair mindset is not there.
Stakeholder collaboration	Close collaboration with all stakeholders in the supply chain is highly necessary for effective repair practices, but currently lacking. This collaboration is perceived as too complex and expensive by many partners
Costs	Transitioning to a repair-based model involves financial risks, such as reduced sales of new products and high costs of establishing a repair infrastructure. Offering repair services and making repairable products come with significant costs.

These interview findings substitute literature findings and share great commonalities. Next, it is essential to determine what support measures could potentially assist businesses in overcoming these challenges. This is described in the next section: Recommendations for Support.

3.5 Recommendations for Support

3.5.1 Assessing support measures

Given the numerous challenges for businesses in adopting repairability practices, it is crucial to identify potential support measures that align both with businesses' needs and RVO's capabilities. I reviewed literature and documents related to repairability practices to assess possible support measures. The documents reviewed for this analysis are listed in the table below, next to the identified contribution I found on their support recommendations.

Table 7: Key sources and recommendations for repairability

Source	**Key support recommendations for repairability**
NewForesight, Het Groene Brein, Rijkswaterstaat, & Transitie-agenda consumptiegoederen (2023). Plan van aanpak EEA Coalitie: Facilitatie van drie workshops voor de Elektrische en Elektronische apparaten coalitie.	Recommended creating a **repair register** and improving **collaboration** to support repairability in electrical devices.
Schenderling, P., Olthaar, M., & Sufficiency (2024). Beprijzingsmaatregelen opschalen circulaire verdienmodellen.	Proposed **financial** mechanisms, such as a **circular economy fund or repair fund**, to reduce costs and support repair and refurbishment.
CE Delft (2023). Suggesties voor aanvullend circulaire economie beleid.	Identified **tax incentives**, such as VAT reductions for repair services
Dao, T., Cooper, T., & Watkins, M. (2021). Business innovation for product repairability: Implications for future policies.	Emphasized **stakeholder collaboration, financial incentives** and **knowledge support** to promote innovation in product repairability. The support measures identified include:(i) financial investment, (ii) human resources, (iii) facilities for product development, testing and repair services, and (iv) initial ideas, on-going feedback, or efforts to deliver information that promote repairable products and support repair practices
LDE Universities (Leiden, Rotterdam, Delft) (2023). Whitepaper on Repairability.	Recommended o.a. design for repair, repair networks, financial support and **consumer education**. See Appendix 8B for complete recommendation overview.
Nationaal Programma Circulaire Economie (NPCE) (2023).	Advocated for a **national repair register,** support for spare parts distribution, repair infrastructure, and initiatives to extend product lifecycles through legislation and financial incentives.

3.5.2 Findings from analysis:

The findings showed various support measures for stimulating repair practices. They included more general government support measures such as tax reforms and VAT reduction on repair practices, as well as funding for research on partnerships between businesses and research institutions. Collaboration between stakeholders and effective communication was frequently identified as crucial for successful business innovation in repairability (Antikainen & Bocken, 2019).

Synergizing the findings from these sources with the findings from the research from the previous section, 3.5: Challenges and opportunities in a repair business model, I identified key support types and support domains.

Support types

The three key *support types* identified as essential for businesses to adopt repairability practices include:

- **Knowledge support:** offering access to expertise, information, and training.
- **Collaborative support:** offer support in partnerships and collaborative efforts.
- **Financial support:** providing financial assistance, such as subsidies and loans.

These types of support are also aligned with those offered by RVO (further discussed in **Chapter 4: Repair & RVO**)

Support domains

I further identified four key domains where financial, knowledge, and collaborative support are most critical, which include:

- **Research & Development:** Supporting research and design initiatives for innovation and improvements for repairability.
- **Repair Infrastructure & Logistics:** Assistance in overcoming logistical and economic barriers related to managing repair services and spare parts distribution.
- **Product (Re)Design**: Support in addressing knowledge gaps on improving product design to enhance repairability
- **Stakeholder Engagement & Collaboration**: Support in stakeholder engagement and encourage cooperation with key supply chain partners.

3.6 Chapter Conclusion

Referring back to this chapter's research question: **What challenges do businesses face in adopting repairability practices?** This chapter demonstrates that integrating repairability practices into a business is more complicated than it seems. The primary challenges identified include significant issues related to logistics and infrastructure for repair services, product design constraints, a lack of consumer mindset and engaging all stakeholders in the supply chain. The research shows that there is insufficient knowledge and financial resources to address these challenges in the current economic climate, making it particularly difficult for many businesses to maintain a viable model under repairability. The significant costs associated with addressing these challenges and reforming business models for repairability present a substantial bottleneck, especially for smaller products.

Although the findings in this chapter also highlight some opportunities for viable business models centered on repairability and indicate a rising trend in the adoption and perceived benefits of repair business models, it remains a tough competitive environment for most electronic consumer goods. The examples from the case studies illustrate that this requires a strong and unique market positioning to remain viable. This means a repair business model is not by definition a viable option for every case and every product group, which was further emphasized in the interview findings.

Moreover, overcoming some of the identified challenges necessitates governmental support measures. The literature mentions broader policy measures such as TAX reforms and repair funds, yet also indicate a necessity for providing more targeted financial, knowledge and collaborative support measures. In the context of repairability, specifically on the domains of product design, stakeholder engagement, repair infrastructure and logistics and research and development. The next crucial step in this research is to evaluate how well RVO's current offerings align with these identified support needs, which I will discuss in the next chapter 4: Repair & RVO

**“At the end of the day,
in any company,
it's sad but true,
we're in a
capitalist world”**

- Business Interviewee

Rijksdienst voor Ondernemend Nederland

04

Repair & RVO

DISCOVER

How do RVO instruments align with supporting businesses for repair?

Content

4.1 Introduction to the chapter

The previous chapter discussed key challenges businesses face in adopting repairability practices and identified opportunities for potential support measures. However, there remains a knowledge gap regarding whether RVO currently has the in-house support to help businesses with these challenges. In this chapter, I address this gap by answering the research question: **How do RVO instruments align with supporting businesses for repair?** I analyze RVO's instruments and internal documents and include insights from interviews with RVO employees to assess their stance on supporting repairability practices. I conclude the chapter by identifying opportunities in RVO's current instruments to further stimulate repairability practices.

Table 4: Data sources for the third research question: **How do RVO instruments align with supporting businesses for repair?**

Data source	**Number of interviews/ meetings / events / documents**	**Number of participants**	**Date / period**
Semi-structured interviews with:			
RVO employees	5	6	nov 2023 - feb 2024
Observations during meetings:			
Weekly meetings with RVO thesis supervisors	24	3	sep 2023 - june 2024
Bi-weekly meetings with RVO DICE team	12	8-16	sep 2023 - june 2024
Days working at location (incl. informal conversations)	24	1-20	sep 2023 - june 2024
Informal teams or phone calls	4	2	feb 2024 - august 2024
Observations during events:			
RVO Blue City Meetup for Businesses CKP (Rotterdam)	1	15+	18 jan 2024
Presentation Circulair Economy including guest speaker at RVO (Utrecht)	1	20+	15 feb 2024
RVO instruments and documents:			
Meeting notes, strategy documents, slide decks	12		
RVO repair database excel sheet	1		
CKP evaluation document	1		
RVO recent repair project document examples	3		
RVO sub-target groups document	1		
Persona's Versnellingshuis	1		
RVO Website links	20+		

4.2 A closer look at RVO's instruments

As outlined in Chapter 1.6, "Research Method and Approach," I undertook various activities to understand RVO's instruments and address the third research question. My presence within the organization, along with informal conversations and document reviews, provided valuable insights into RVO's structure and its instruments. A summary of the documents used for this analysis is provided in the table, with visual representations available in Appendix 9.

4.2.1 Key conclusions from analysis:

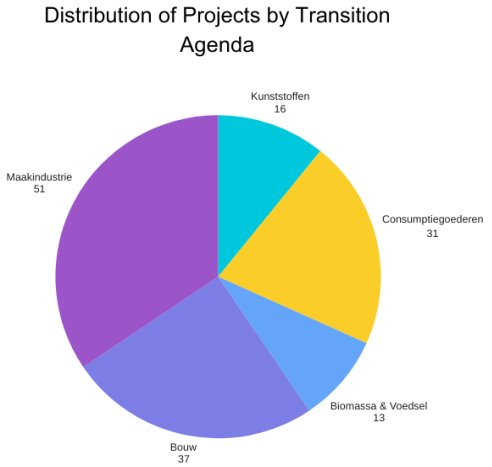
- RVO's offering is extensive, with around 500 subsidy programs that continuously evolve.
- Their support measures are categorized into financial, knowledge, and collaborative support, including subsidies, tax benefits and collaborative initiatives
- Each subsidy program has specific conditions, and subsidy advisors evaluate individual requests
- RVO's typical clients include SMEs (small and medium enterprises)
- 60% of subsidy requests come from intermediaries, such as consultancies, and not directly from the business themselves.

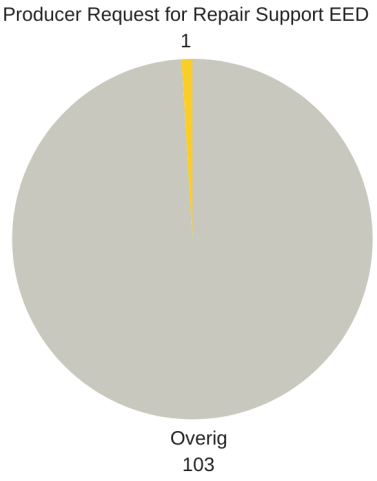
4.2.2 Repair Database Analysis

Furthermore I analyzed a database containing 101 repair-related projects that received RVO support between 2015 and 2021. From this data, I aimed to extract the following information:

1. The number of projects related to repairability in electronic consumer goods from producers.
2. The subsidy or instrument used. (subsidie regeling and instrument)
3. The type of project. (project type)
4. The business or institution requesting the subsidy. (hoofd uitvoerder)

Findings:
From all projects, 31 projects (21%) were related to consumption goods (which relates back to the transition agenda's in the NPCE). However, only five projects (5%) were focused on repairability in electronic devices, with just one project (<1%) initiated by a producer (Fairphone). The remaining projects were submitted by research institutions, such as TU Delft, or were non-producer related. No other requests from producers were identified.





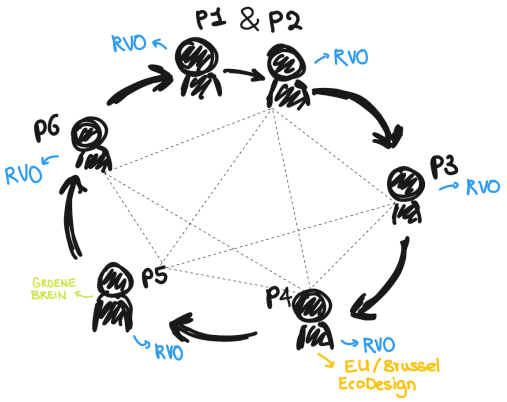
Conclusion on analysis:
What the findings from this database analysis suggest that the amount of project requests from producers who want support to improve their adoption of repairability practices has been significantly low. The underlying reason for this, however, is still unknown. This could be due to two likely reasons:

1. There are no programs available or suitable for this purpose
2. Supply and demand do not meet

In addition to this database analysis, I conducted interviews to further explore RVO's alignment with supporting businesses for repair, described in the next section

4.3 Interview Insights

The goal of the interviews was to better understand RVO alignment with supporting businesses for adopting repairability practices. In total, I interviewed six (ex) RVO employees. I refer to the method and approach section for the interviews outlined in Chapter 1.6 **Research Method and Approach.**



REPAIR IN RVO'S INSTRUMENTS

The interviews revealed a clear absence of repair-focused initiatives within RVO's current instruments. All respondents consistently indicated that they did not recognize repair being actively present in any subsidy programs. Participant 5 reflected on this gap: "Design for recycling is indeed part of the regulations, but design for repair?" (P5)

While recycling has been integrated into various support measures, repair has not yet been given similar attention. Participant 1 further elaborated:"We actually focus more on renewal or innovation, not on repair." (P1) This suggests that innovation-driven initiatives, such as those aimed at developing new technologies or processes, tend to dominate RVO's policy instruments. Similarly, Participant 2 added: "We don't, for example, stimulate second-hand [products]." (P2) This lack of attention to repair was further confirmed during an informal conversation with a DICE team manager: "This is true. We currently don't do anything with repair in our instruments. However, we are interested in exploring how we could do that and move higher up the R-ladder." Suggesting interest in exploring how it can be better integrated into RVO's instruments.

Some respondents also identified areas where repair could be incorporated into existing instruments. Participant 5 mentioned: "I don't see it yet, but there are possibilities. They [policy] already say now that they should look higher on the R-ladder, and repair is one of them." (P5). This points to future opportunities for RVO to incorporate repairability into their current instruments. Participant 3 also saw room for adjustment: "There is already so much, I'm sure something can be adjusted. I see opportunities in current instruments." (P3) Participant 5 mentioned: "You see different types of regulations that might be interesting here, for example, around warranty schemes. Maybe RVO can play a role in repair in this regard." (P5) These comments suggest that while repair is not a focus now, existing instruments could be adapted to support it.

However, despite these possibilities, some respondents pointed to complexities and challenges in navigating RVO's current offerings. Participant 6 commented: "The 'offering of RVO' - that is really a complicated matter." (P6) This emphasizes that RVO's wide and varied range of instruments makes it difficult to easily quantify or determine their alignment with repair, meaning it is not straightforward to assess whether repair support is adequately present within RVO's offerings.

THE ROLE AND RESPONSIBILITY OF RVO

The interviews led to discussions about RVO's role and responsibility. It became clear that this this role is, shaped by its close ties with businesses, its executive position, and policies set by ministries.

1. The role of RVO

Key insights is that RVO's tasks are mainly determined by ministries, since they are the executive agency. Many participants described what RVO is *not* responsible for: "As RVO, we can't just decide to do something ourselves." (P6) This highlights RVO's function as an agency that acts on policy directions set by ministries, reinforcing that RVO's autonomy is limited. This is a critical point, as it illustrates that RVO is not positioned to independently initiate support measures like repairability. Participant 3 reinforced this by adding: "We are not policymakers. We don't determine what we do." (P3), emphasizes that RVO is primarily an executor of policy rather than a policy creator, a role that limits its ability to directly respond to new challenges, such as those related to repairability, unless the ministries prioritize them.

Despite these limitations, interviewees also recognized areas where RVO plays a meaningful role, and where RVO *is* responsible for: For instance, Participant 6 mentioned: "We do play a facilitating role - I think we're really good at setting the agenda. That's the minimum. Setting the agenda in our area." (P6) While RVO might not create policies, it can still influence policy discussions by identifying and raising relevant topics, such as repairability, for the ministries to address. Similarly, Participant 2 highlighted RVO's role in guiding businesses: "We mainly refer people to the right resources." (P2) and "We're really the link between businesses and policy. We understand what happens in practice." (P5). The value of knowledge within RVO was also expressed: "We know a lot. And a lot of people at RVO know a lot. The challenge is how to bring all that knowledge together and make it accessible. That's always a big issue." (P6) This also suggests that translating that knowledge to stakeholders is a challenge.

2. The role of the market

Another key insight from the interviews was the clarification of the market's role, particularly in relation to businesses' obligations to comply with legal obligations. Interviews revealed that many participants saw this primarily as the responsibility of the businesses themselves. For example, Participant 3 stated: "The producers bear the responsibility, they should solve their own needs. Especially when it's a legal requirement - it applies to everyone, so they just have to deal with it." (P3) This insight is particularly important in this context, as businesses are expected to adapt to legal changes independently, rather than relying on public support from RVO. This also aligns with Participant 2's comment: "When it's a legal obligation, we can't just provide support." (P2)

He further noted that RVO typically supports proactive businesses, not those lagging behind, aligning with the Diffusion of Innovation Theory (Rogers, 1971). "We are really here to support the businesses that are ready to take action. Focusing on those that lag behind is a waste of resources." (P2) suggesting RVO's current focus is on assisting businesses that actively seek support in areas.

3. Role of Ministry

Another recurring theme in the interviews was the complex relationship between RVO and the ministries that define its scope of work. Participants frequently pointed out that RVO's activities are ultimately shaped by ministry directives, which determine what RVO can and cannot do. As Participant 6 put it: "Who is responsible for what? We may say it's RVO, but in reality, that's the ministry's role." (P6) This highlights the blurred boundaries between policymaking and execution. This means that RVO's role in potentially supporting repairability is heavily reliant on ministry priorities:
"We have a lot of ideas, but really it's the ministry that needs to approach companies. We execute policy, but we don't make it." (P6)

In conclusion, the interviews highlighted several important insights:

- RVO's role in supporting businesses for repair is unclear and there seems to be no priority for repair in its current instruments
- While RVO can facilitate and connect businesses to resources, it is not responsible for helping them meet legal obligations, which are seen as the responsibility of the businesses themselves
- The blurred lines between RVO and ministry responsibilities create challenges in defining the role of RVO and how RVO can exactly support repairability.

4.4 Conclusion and Opportunity identification

The findings from RVO's instrument analysis and the interviews show RVO's role in supporting repairability practices and revealed several key challenges. Currently, there seems to be a gap in RVO's current instruments with no priority given to repair. While RVO acts as a facilitator, it is not responsible for helping businesses meet legal obligations, which are seen as the businesses' own responsibility. Furthermore, the unclear boundaries between RVO and ministry roles complicate RVO's ability to initiate measures independently to support repairability.

Despite these challenges, there are clear opportunities for RVO to adjust its existing instruments. By refining its offerings and focusing more on businesses outside the immediate scope of R2R legislation, RVO can better promote repair initiatives. There is potential for RVO to incorporate repairability into current support measures.

This asks for a re-evalution of what target group you are aiming for with this repair support, which I explore and specify in the next section:

4.5 The ideal target audience

As the findings from previous sections suggest, not all businesses might benefit from adopting repairability practices, nor from RVO's support. This section sets the criteria domains for assessing and determining the target audience for repair support. Identifying the ideal target audience lays down criteria on these four key elements:

This section covers the first and second element: compliance with regulation and current stance on repair. Methods used for each criteria domain to determine the ideal target audience include:

1. **Compliance with regulation:** visual with mental models demonstrating both the influence of legislation and business' attitude towards embracing repair. This visual shows the differences in business' perceived benefit towards repair and the differences in being affected by legislation. (See Appendix 10A).
2. **Current stance on repair:** The innovation diffusion theory to identify which businesses' mental models would be most strategic to focus on (Appendix 10B).

4.4.1 Findings:

The research identified the relevance of businesses who do *not* comply with regulation, as well as businesses with a *positive* or *proactive* attitude towards embracing repair.

The ideal target audience based on compliance with regulation and current stance on repair can therefore be described as businesses who sell products ***not* covered by legislation on repairability standards,** and **those who are *proactively* seeking support** to adopt repairability practices**.** The third and fourth element, business size and product category, are explored in Chapter 6.

Rijksdienst voor Ondernemend Nederland

05

Synergy of Conclusions

DEFINE

What is the challenge?

Content

5.1 Evaluation of conclusions

5.1.1. Conclusions combined

The main research of this question includes: What is the impact of Right to Repair and how can RVO support and stimulate businesses to adopt repairability practices?

The sub-research questions covered:

1. What are the implications of Right to Repair for Businesses?
2. What challenges do businesses face in adopting repairability practices?
3. How do RVO instruments align with supporting businesses for repair?

In short, the conclusions to those questions include:
Conclusion 1: Right to repair has little implications for businesses' current operational practices. The implications are minimal, as the new rules do not introduce any additional obligations in terms of repairability requirements beyond what businesses already adhere to, and no new product groups are included.

Conclusion 2: Challenges businesses face in adopting repairability practices include challenges on product design, infrastructure and logistics for spare parts, consumer mindset, and stakeholder collaboration. Identified support measures include the need for knowledge, financial and collaborative resources on product (re)design, infrastructure and logistics, stakeholder collaboration and engagement, and research and development.

Conclusion 3: RVO's current instruments currently do not support businesses for repair.
While the potential for using and adjusting their current instruments for this purpose was acknowledged.

5.1.2. Reflection on initial assumptions

Now, referring back to the initial assumptions on Right to Repairs' impact and RVO's role, they comprised of two key components:

1. R2R's impact is expected to be *significant* for a *wide range of businesses.*
2. RVO would provide a *supportive* role in assisting businesses *for whom the legislation applies*.

Instead, given the research findings, the impact can be expected as *not-so-significant* for a *limited scope* of businesses. Where RVO might still have a supportive role in assisting businesses in their needs to adopt repairability practices, the target audience of businesses for whom Right to Repair applies can be considered irrelevant.

So instead:

1. The impact is n*ot-so-significant* for a *limited scope* of businesses
2. RVO has a supportive role for businesses for whom the legislation does *not* apply

This leads to the following problem statements:

5.2 Problem Statements

1. **The expected impact of Right to Repair can be considered minimal**
2. **The target audience of Right to Repair is not the right target audience for RVO's support**
3. **RVO currently lacks sufficient resources to support and stimulate businesses for repair**

Since the first problem statement is out of control for the parties involved in this research project, the later two are problem statements we can further work with. They are used as a basis to formulate the design direction:

5.3 Design direction (how can you... ?)

Despite the Right to Repair's minimal impact on current business practices, the urgent environmental challenges remain unaddressed, and RVO's measures seem insufficient to actively promote repairability. From an environmental advocacy standpoint, achieving a repair society requires more than just Right to Repair.

This raises the key question:

How can RVO further support and stimulate businesses to adopt repairability practices?

Given that RVO already has many instruments in place, there is no need to design entirely new measures. Instead, the focus should be on optimizing existing instruments to target businesses willing to adopt repairability practices.

This leads to the final refined design direction:
"How can RVO use their current instruments to further support and stimulate businesses that are proactively seeking to incorporate repairability practices?"

5.4 Rephrasing the initial Design Goal

The initial design goal of this thesis was: *"Develop a tangible solution to support businesses in transitioning toward repair-oriented practices."*

However, based on the research findings, the target audience of this design goal evolved. Instead of designing something to directly support businesses, the focus shifted to supporting RVO. More specifically, in aligning their instruments to better support businesses with repairability. The final design goal is now: *"Develop a tangible solution for RVO to better align their instruments to support businesses for repair."*

This revised design goal still supports the broader, initial goal, but it is more focused on a crucial component of achieving it, making RVO the primary target audience.

Rijksdienst voor Ondernemend Nederland

06

The Framework

DEVELOP

How can RVO use their instruments to support repair?

Content

6.1 Introduction

This chapter focuses on the first step in answering the design question: “How can RVO use their current instruments to further support and stimulate businesses that are proactively seeking to incorporate repairability practices?" The primary objective is to identify and optimize RVO’s existing instruments to better align them with the goal of promoting repairability.

To achieve this, I first developed a framework to identify the current instruments relevant for this purpose. In the first section, I cover the method and purpose behind the development of this framework. Next, I discuss the process of filling in this framework, along with the output of each step in this process. In the subsequent section, I describe the criteria added during this process to further refine the target audience. I then present the findings from the target audience analysis and discuss their strategic relevance in relation to RVO’s role and position.

Finally, I conclude the chapter by summarizing the findings and offering specific, actionable recommendations for RVO, highlighting the need for further research and validation to fully optimize the support provided for repairability initiatives.

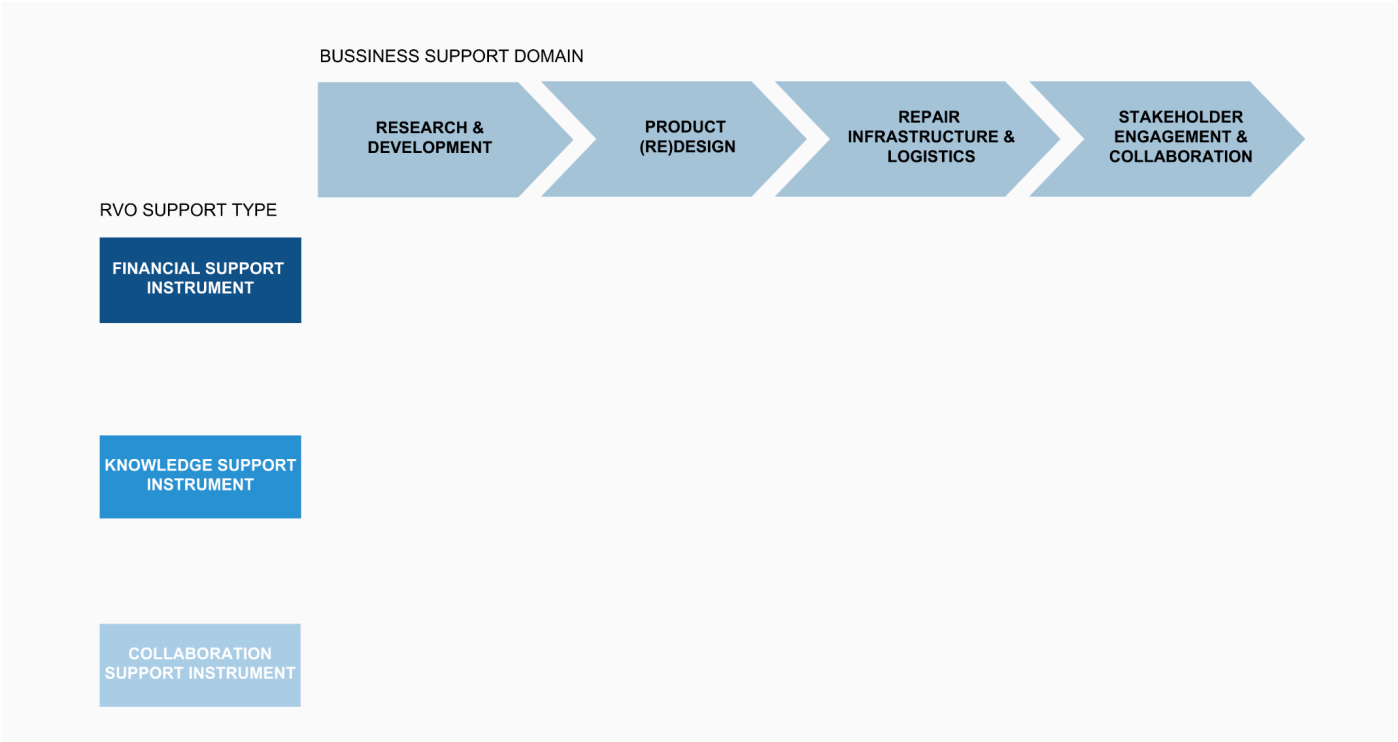
6.2 The purpose and method of developing the framework

6.2.1 Purpose of the framework

The primary purpose of this framework is to identify and gather existing RVO instruments that are either already aligned with the goal of promoting repairability, or have the potential to be adapted for this purpose. The blank framework serves as a foundational tool designed to assess and organize the instruments across various support domains and support types, laying the groundwork for recommendations on how to refine and optimize these instruments for the purpose of stimulating repairability practices within businesses. Additionally, the framework provides insights into potential gaps between RVO's current support offerings and the specific needs of businesses, revealing areas where further development or new support measures may be required.

6.2.2 Explanation and definitions of axis

The framework is shaped using a dual-axis approach. One axis (the vertical axis) categorizes the support types provided. The other axis (the horizontal axis) categorizes the areas or domains where support is needed. The image below shows the blank framework:



Visual 10: the framework

Vertical axis: support types

The vertical axis categorizes the various types of support that RVO offers, more specifically, these entail:

- **Financial support instruments**: Instruments providing financial assistance, such as subsidies and loans.
- **Knowledge support instruments**: Instruments offering access to expertise, information, and training.
- **Collaborative support instruments**: Instruments that offer support in partnerships and collaborative efforts.

Horizontal axis: support domains
The horizontal axis identifies the key areas or domains where businesses might require support in their efforts to adopt repairability practices. These domains originate from the findings outlined in Chapter 3: *Businesses & Repair*, and relate to challenges businesses face in implementing repairability practices. Short descriptions of these support domains include:

- **Research & Development:** Supporting research and design initiatives for innovation and improvements for repairability.
- **Repair Infrastructure & Logistics:** Assistance in overcoming logistical and economic barriers related to managing repair services and spare parts distribution.
- **Product (Re)Design**: Support in knowledge gaps on improving product design to enhance repairability
- **Stakeholder Engagement & Collaboration**: Support in stakeholder engagement and cooperation with key supply chain partners.

I defined specific descriptions of these support domains and the types of request or question from businesses, which can be found in Appendix 11.

6.2.2 How it works

In this framework, each support domain (on the horizontal axis) can intersect with each type of support (on the vertical axis) to create a grid. Each cell within this grid represents the intersection of a specific domain with a specific type of support. For example, a cell could represent "Financial support" for "Research & Development." By structuring the framework in this way, I can identify not only which existing instruments are relevant but also where there may be gaps in support.

The next section describes the process behind filling in the grids of this framework and the activities I performed to determine relevant instruments.

6.3 Filling the framework: process, input and output

After developing the structure of the framework, the filling in of this framework started. Next, recommendations were formulated on the output. In total, this process included three key steps:

1. Identifying the instruments
2. Understanding the instruments
3. Defining and validating recommendations for each instrument

6.3.1. Identifying the instruments

The process of identifying the potentially relevant instruments included several activities, which each allowed input for filling in this framework. In total, the activities included four key steps:

1. a presentation given at RVO
2. e-mail interaction with RVO employees
3. scanning RVO's website
4. a validation session with RVO employees

The process behind gathering this input is visualized below (figure 11). The steps allowed for an iterative process which ensured validation of the findings. The presentation provided the first input for the framework. After this presentation, an email was sent to RVO employees, including participants from the presentation, to further supplement the framework. I scanned RVO's website, using their "subsidiewijzer", to identify additional relevant input. Finally, a validation session at the RVO office was held to validate and adjust the total findings in the framework. The precise input and output after each step in this process and its collection in the framework, can be found in Appendix 12.

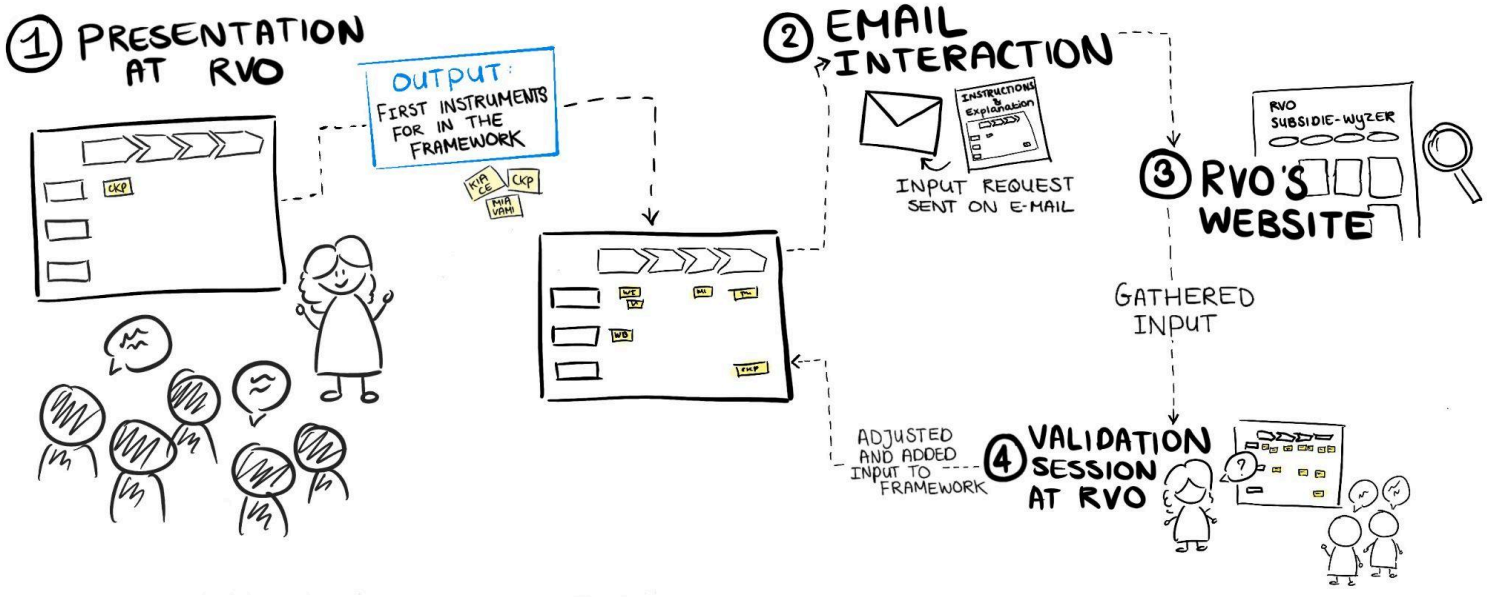


Figure 11: process behind identifying relevant instruments

Altogether, the activities resulted in the total collection of 10 different instruments in the framework. Unsurprisingly, considering RVO's position, the framework showed that the majority of instruments fall under the "financial support instrument" type. In addition, it showed that some overlap exists between certain instruments in the grid, for example, the WBSO instrument is applicable for research and design at both financial support and collaborative support. The findings of all activities are merged and combined in the framework, shown below. The yellow post-its show the subsidy programs. The orange post-its show non-subsidy related instruments.

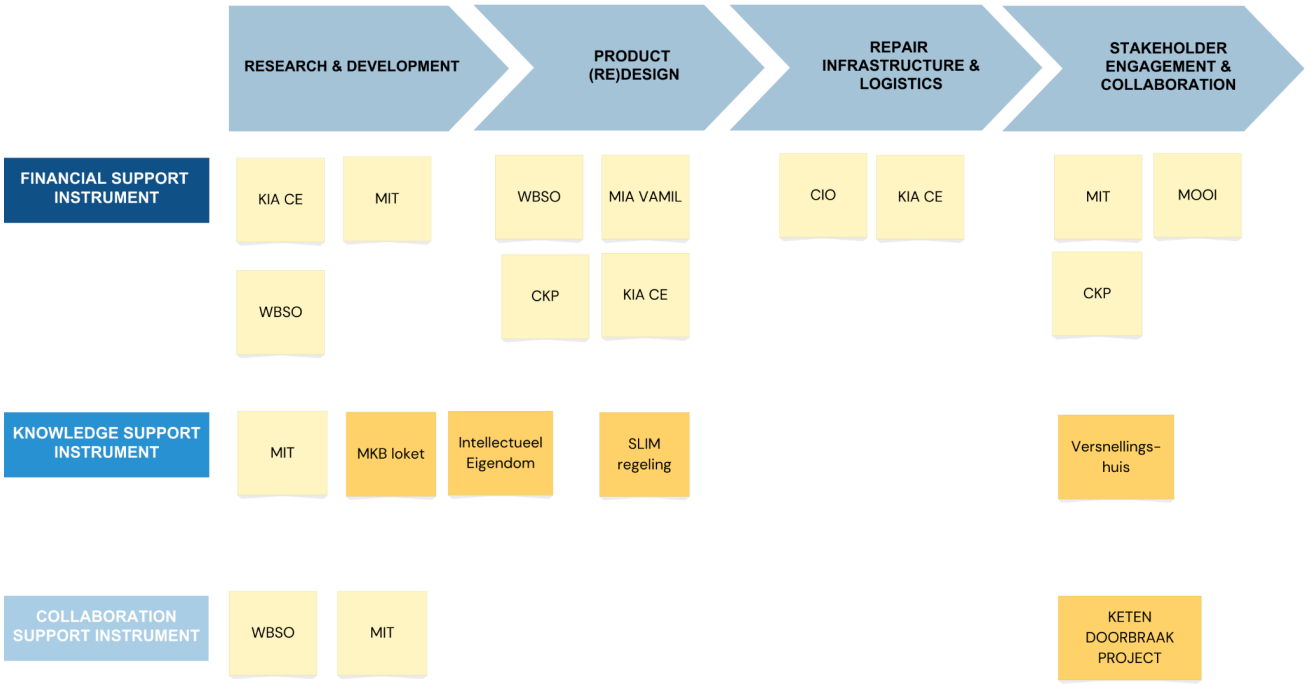


Figure 12: total relevant instruments identified

6.3.2 Understanding the instruments

The next step was to comprehend the different instruments gathered in the framework, to determine its already current suitability for stimulating repair, and whether recommendations could be formulated to optimize its suitability for stimulating repair.

For a clear overview, all instruments gathered in the framework were placed in a table. I added to this table the following key information for each instrument:

- The name of the instrument
- Description: what the instrument is and what you get
- The target audience: for whom the instrument is intended
- Conditions: under what conditions you are allowed to request this instrument
- Potential application for repair: how this instrument could be applicable to stimulate repair

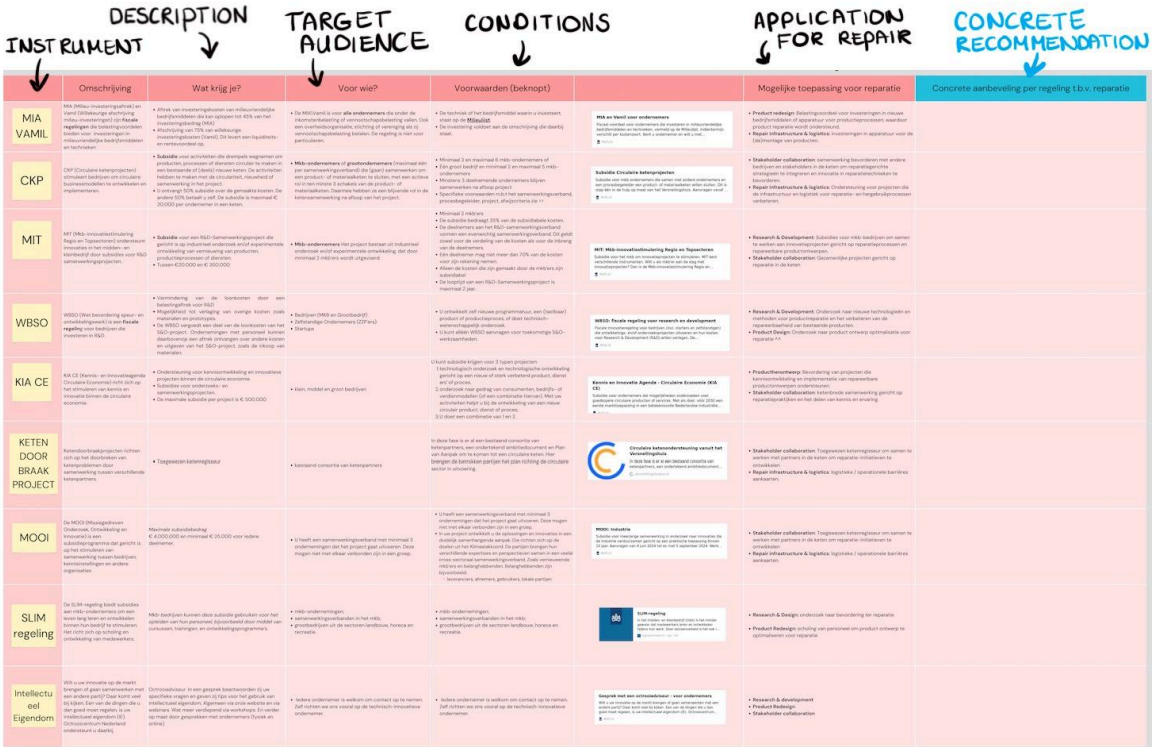


Figure 13: Recommendations Table

The input for the descriptions in this table are derived from both the RVO website, along with additional information provided by RVO employees through email and phone conversations (See Appendix 18A for conversational notes). Next, I added recommendations per instrument to the table.

6.3.3 Defining and validating the recommendations

The goal of formulating the recommendations for each instrument is that it should both be possible and understandable that businesses can use this particular instrument for the purpose of optimizing for repairability. The recommendations may range from simple adjustments to the website text to more detailed notes in the conditions of the instruments.

I first identified recommendations based on my interpretation of the instruments and publicly available information. Then, I validated these through email conversations and a phone call with an RVO employee, Senior Advisor Circular Economy. During the call, I presented my initial recommendations for discussion. The purpose of the call was to ensure the validity of the proposed recommendations. The call lasted 45 minutes, I relistened to the recording, after which I collected and grouped notes in Miro. A summary of the insights from this call can be found in Appendix 13. The RVO employee lastly provided an instrument evaluation document, showcasing relevant recommendation types. The visual below shows the complete process of formulating the recommendations:

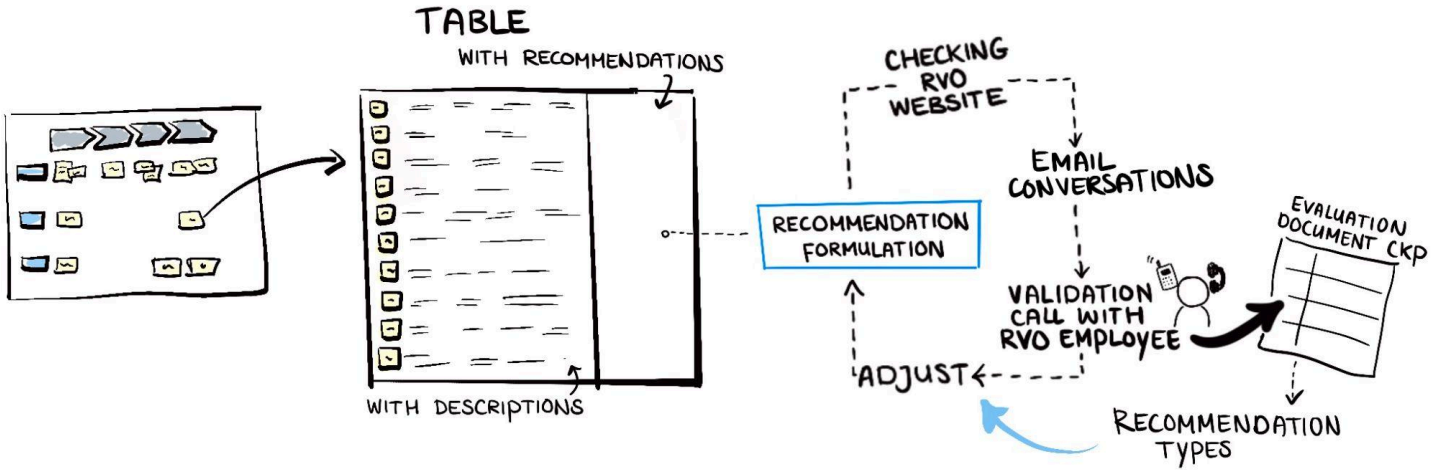


Figure 14: process behind formulating recommendations

Through this validation process, I learned various relevant insights, on the differences between the various instruments and about the standard procedure within RVO behind creating recommendations.

For instance, to demonstrate the **variety of recommendation types** per instrument, the RVO employee mentioned: *"On the MIA Vamil (Milieu Investering Aftreklijst) the environmental list is updated every year or every six months. In this way, it is reviewed annually to see what is removed from the list and what is added. With a CKP (Circulaire Ketenprojecten), you see that it runs for a few years, and after a few years, it is fully evaluated: will it still be available next year? Or will it first be evaluated and then reopened in a different way? Recommendations would for instance be on focusing more on specific product groups."* Which shows the that recommendations can range from focusing on specific product groups to adjusting subsidy conditions, or to adjust the scope: *"If there is a broad need, and funding, you can also adjust the scope of an existing instrument if the instrument owner at the policy level also agrees (and if there is sufficient budget). For example, this could involve adding a topic to an instrument like the KIA-CE or adding a product group to the CIO, which is currently in development."* highlighting policies involvement.

In addition, I learned this evaluation process typically involves a **"policy-owner"** (or regeling-eigenaar in Dutch) within RVO, who gathers input from employees to make necessary adjustments. For example, at the CKP (Circulaire Ketenprojecten), the RVO employee mentioned: *"All the people involved internally are asked to share their experiences, provide feedback or explanations. Based on such an internal evaluation, the policy owner then takes action: deciding what needs to be adjusted internally regarding communication to the outside world, or how to steer the content to request different things in the subsidy. This is then communicated to policy."*

I proceeded to review a document provided after this call, detailing the re-evaluation of this CKP instrument. This document categorizes **three types of recommendations,** which include adjustments on:

1. **Textual adjustments in the instruments' regulations**
2. **Updates to website content and communication**
3. **Changes in instrument assessment criteria or format**

I used these categories to further guide the recommendations I developed for the identified instruments. The total recommendations for each instrument I described through this process are detailed in the table in Appendix 14.

6.3.4 Findings from the framework

In total, the process of filling in the framework and the recommendations table resulted in:

- a total of 10 instruments with the potential relevance for stimulating repair on specific support domains
- a description of how each instrument could be applied within these domains to support repairability
- a concrete recommendation for each instrument to optimize it for promoting repairability.

Key insights from the analysis:

- Many instruments could theoretically support repair, each with distinct conditions and requirements.
- Some instruments are more suited to specific audiences (e.g., start-ups), while others have broader relevance (e.g., research institutions or large organizations).
- The majority of instruments provide financial support, particularly benefiting smaller organizations.
- Some instruments are already suitable for promoting repairability, but "Repair" is often missing from descriptions.
- Recommendations focus on improving visibility and clarity, such as reframing programs like MIA Vamil to highlight repair, not just recycling or removing textual barriers on application requirements from websites.

However, as these recommendations for adjustments are relatively minor and specific, it remains to be validated whether they would add significant value overall. Additionally, providing valid recommendations for all the identified instruments would require expert input for each, as this typically involves a thorough and timely process. Given the limited time and resources for this research, I decided it would be valuable to prioritize the instruments, determining which instruments would have the highest potential impact and benefit most from actively integrating valid recommendations.

An essential step missing in the prioritization is the specification of the overall target audience for these instruments. By clearly identifying the target audience, I can better align the elements of the framework with the audiences that have the highest potential impact. This will also clarify which instruments are most critical and relevant for developing actionable recommendations. I will discuss this in the next section: 6.4.

6.4 Adding prioritization criteria by specifying the target audience

This section outlines and discusses the key target audiences and their strategic relevance for RVO's support. In Chapter 4, I identified two critical elements for determining RVO's ideal target audience: compliance with regulation and current stance on repair. Beyond defining the target audience as "those proactively seeking repairability support," it is necessary to further specify the target audience with the highest potential for impact. Building on this foundation, I will explore and refine the **third and fourth** element: **product category** and **business size and segmentation**.

I use an upside-down pyramid model to illustrate the process of narrowing the focus. The model helps prioritize business segments that are most likely to adopt and benefit from repairability practices as well as RVO's support, narrowing the definition of the ideal target audience.

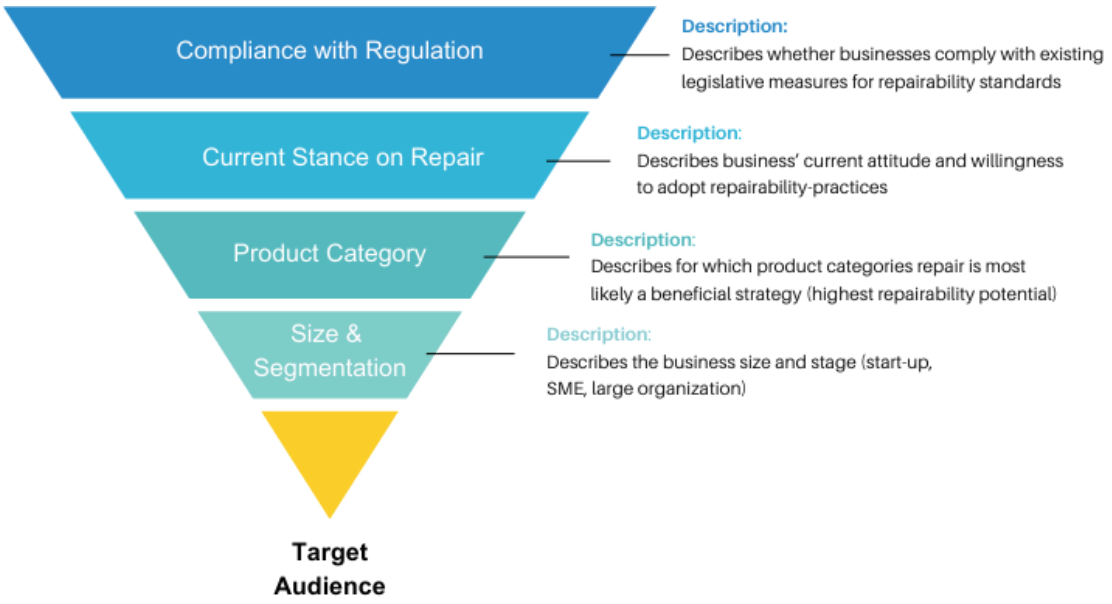


Figure 15: Upside Down Pyramid for Target Audience

6.4.1 Product Category

Research in Chapter 3 showed that not all businesses and product categories equally benefit from a repair business model. I focused on identifying product categories with the highest repairability potential - those most likely to be repaired and economically viable for both consumers and businesses. Understanding which products have lower repairability potential is equally important, as it allows me to exclude them from the strategic focus. In general, categories that have less repairability potential are those were:

- The repair cost exceeds the price of replacement. Those typically include products priced under €100 (Roekens, 2019)
- Customer attachment to the product is low

As illustrated by Terzioğlu's study on Repair Motivation & Barriers Model (2021), products that serve critical functions or hold sentimental value, such as household appliances, are more likely to be repaired. However, determining product categories with the highest repairability potential remains a challenge due to the highly personal and subjective nature of customer attachment. Despite this subjectivity, **Repair Café** data offers insights into product categories with higher perceived repair motivation. Based on this data, which showcases products frequently brought in for repair, I identified several product categories with high repairability potential. These include items like irons, coffee machines, and electric kettles, which are not yet covered by legislation. Additionally, the data showed most frequently repaired products often come from well-known brands like Philips and Sony, overall larger businesses.

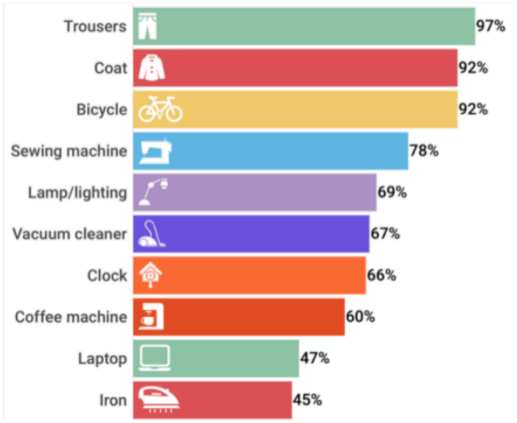


Figure 4: Repair success rate of the ten most presented products (n=7,857)

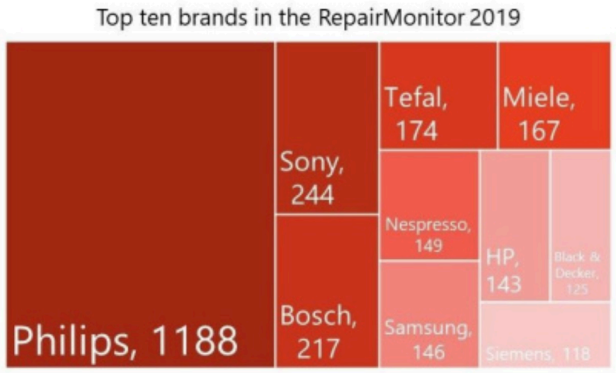


Figure 5: Top ten brands in the RepairMonitor in 2019 (n=2.671).

Figure 16: Data from Repair Café statistics (2019)

6.4.2 Business size & segmentation

Identifying the target audience also involves creating various sub-target groups on business segmentation and size, to determine which sub-target group is likely to have the greatest environmental impact and are most relevant for RVO's support.

An 'Impact-Feasibility Matrix' is a strategic tool used to prioritize actions by evaluating them based on their potential impact and the feasibility of implementation (Tamarack Institute, 2024). To reflect the relation to RVO's support, I adjusted the 'feasibility' criteria from the impact feasibility matrix to 'relevance for RVO support', creating an **Impact-Relevance Matrix**. In this matrix, the vertical axis represents sub-target groups with the lowest to highest environmental impact. The horizontal axis shows businesses with the lowest to highest relevance for RVO support. This is shown below:

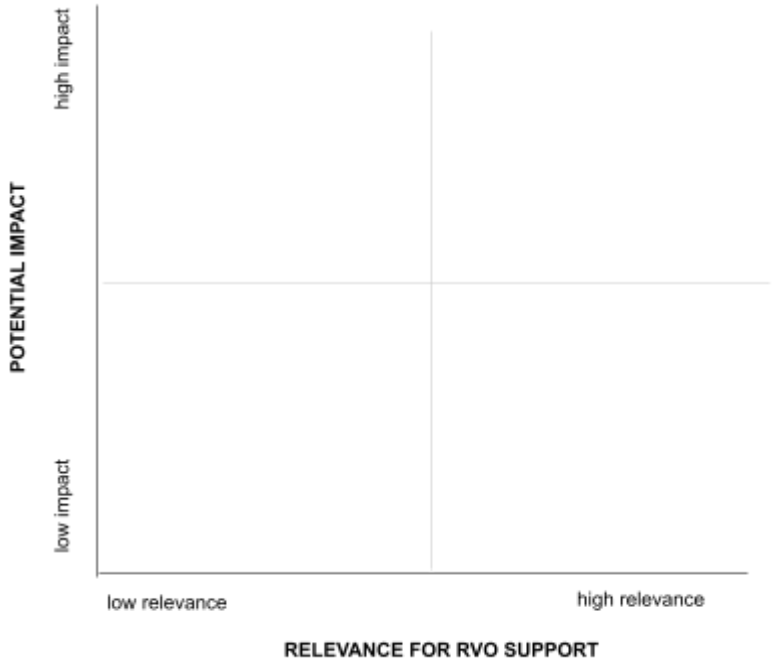


Figure 17: Impact-Relevance Matrix

Geographic segmentation:
Not all businesses are eligible to apply for RVO's support. RVO's support is available to businesses already active in the Netherlands or planning to establish a presence there. For foreign companies, eligibility requires significant economic activity within the country, such as setting up a subsidiary, joint venture, or branch, and registering with the Dutch Chamber of Commerce (KvK). Therefore, Dutch-based businesses are the most relevant and eligible for RVO's support.

Sub-target groups:
The different target groups can be determined by dividing amongst business size and stage of development. I describe these sub-target groups as classified by RVO, which I extracted from a sub-target-group document provided by RVO. I took the ones relevant within the scope of this thesis, limited to businesses, which include the following three target audiences:

1. **New circular entrepreneurs (start-ups)** (10-49 employees)
2. **Existing transforming SMEs (small and medium-sized enterprises)** (<250 employees)
3. **Existing transforming large enterprises** (>250 employees)

From an environmental point of view, ideally, larger organizations or **existing transforming large enterprises** are the ideal target audience. This is also in line with the findings from section 6.4.1: *product categories*, which demonstrate that the vast majority of products with repairability potential come from large organizations, such as Philips and Sony or Bosch.

I further researched and distributed various brands in the EED industry on business size, using LinkedIn to determine their employee size. This identification of brands demonstrated that the majority of EED businesses fall in the large enterprise category. I only identified a relatively small number of SMEs and start-ups, reaffirming the strategic relevance of focussing on larger businesses for maximizing environmental impact.

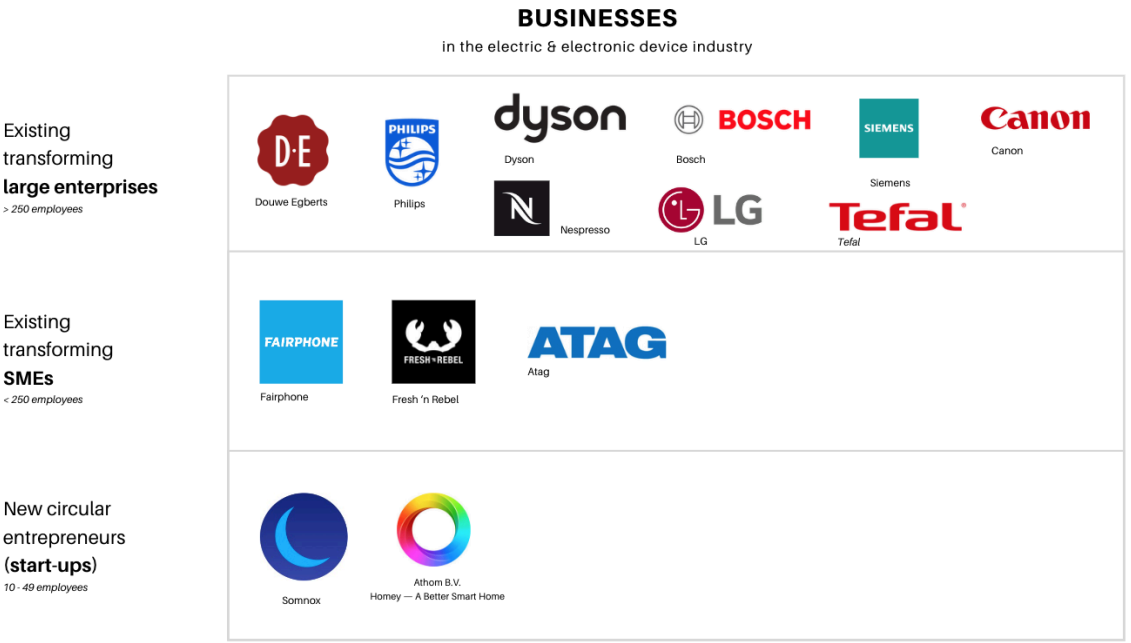


Figure 18: Impact-Relevance Matrix

6.4.3. Narrowing the target audience

Combining the insights from the analysis with the pyramid model, the ideal target audience for maximizing repairability impact can be limited as follows, focusing on the four key elements:

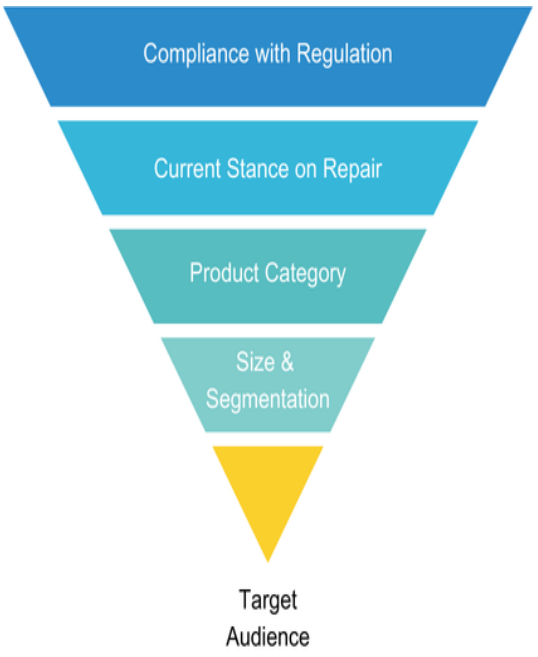


Figure 19: Ideal Target Audience Description

1. Compliance with Regulation:
Start by filtering out businesses that produce product categories that are already compliant with existing repairability legislation. These (11) categories are less of a priority for RVO's support as they are already regulated.

2. Current Stance on Repair:
Next, focus on businesses that are willing to adopt repairability practices and exclude those that are resistant. While this element is qualitative and not easily quantifiable, it is essential for targeting those most likely to engage with RVO's support.

3. Product Category:
Focus on high repairability potential categories by excluding products with low repairability potential, such as those priced under €100 with low customer attachment. Prioritize categories that are economically viable for repair and where customers have a strong attachment to the product.

4. Business Size and Segmentation:
Finally, prioritize *larger* organizations that dominate the EED market, as they have the greatest capacity to implement repairability practices on a large scale and drive significant environmental improvements.

This leads to the following formula for the ideal target audience:
Ideal target audience = (total EED product categories - legislated categories - low repairability potential categories - resistant businesses - non-NL based businesses) x larger organizations

I present an example of a hypothetical persona resembling this ideal target audience profile on the right.

Figure 20: Hypothetical Example of Ideal Target Audience Persona

6.4.4. Relevance for RVO support

Having identified the ideal target audience, it is essential to evaluate how well this audience aligns with RVO's support. One of the main goals of identifying the target audience was to assign prioritization to the instruments in the table. Recognizing that business size is a critical element in this prioritization, I focused specifically on which instruments are relevant to businesses of larger sizes (see Appendix 14).

The majority of subsidy programs offered by RVO are overall mostly relevant for smaller businesses. Generally, larger businesses only benefit from collaborative support instruments (see 6.3). As illustrated in the phone conversation with the RVO employee: *"In those Ketendoorbraakprojecten, large companies are involved; they are allowed to participate because you don't give them the money directly - the money goes to the chain manager. In the CKP, large companies can also participate, but it's the smaller parties that receive the funding. These large companies often join in to, for example, bind small SMEs to them within the chain."* This means larger organizations do not receive financial support, but can benefit from collaborative initiatives.

This also relates to the fact that large businesses typically have sufficient (financial) resources and in-house expertise, restricting their need for additional governmental support, whereas smaller organizations often lack these resources. I visualized this division of RVO's different types of support and their relevance based on business size in the figure below (see figure 20).

RVO SUPPORT RELEVANCE BY BUSINESS SIZE	COLLABORATIVE SUPPORT	KNOWLEDGE SUPPORT	FINANCIAL SUPPORT
Existing transforming **large enterprises** *> 250 employees*	✓	✓	✗
Existing transforming **small enterprises** *< 250 employees*	✓	✓	✓
New circulair entrepreneurs (**start-ups**) *10 - 49 werknemers*	✓	✓	✓

Legend:
- ✓ Possible and Relevant
- ✓ Possible less Relevant
- ✗ Not Possible or Relevant

Figure 20: RVO support relevance by business size

Combining these insights, there seems to be a clash here in terms of RVO's support and its suitability for environmental impact. In practice, as businesses grow in size, their relevance for RVO's support diminishes, while their environmental impact increases. I visualized this paradoxical relationship shown below:

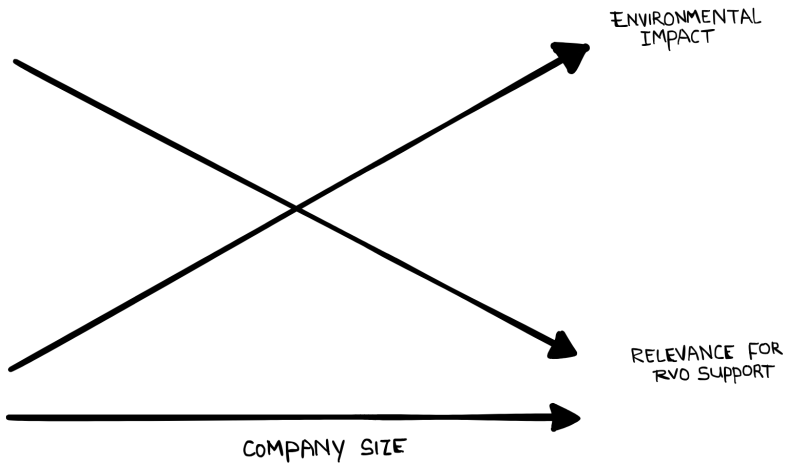


Figure 21: paradoxical relationship

I integrated the insights and plotted the different sub-target audiences in the Impact-Relevance matrix. This reveals that there appears to be a "blind spot", showing a gap where the potential for high impact and high relevance for RVO support should align.

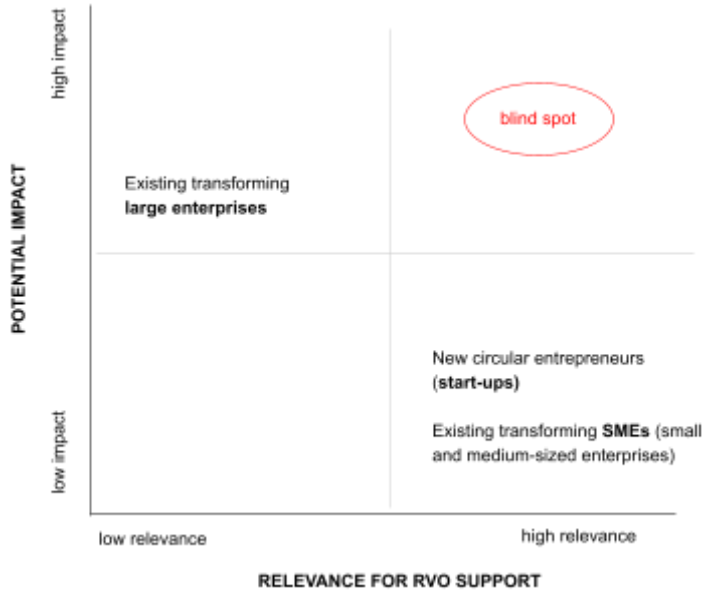


Figure 22: Blind Spot in Impact-Relevance Matrix

While RVO's current support may not be equally relevant for targeting larger businesses, they potentially miss an opportunity to achieve greater environmental impact, particularly in this context of repairability in the EED sector. This asks for an evaluation of how to strategically approach this blind spot:

6.4.5 Analysis of strategic approach:

Together, there would be two strategies to address the gap, as demonstrated in the Impact-Relevance matrix:

1. **Realigning RVO's resources to large corporations**:
   Targeting larger corporations could theoretically lead to higher environmental impact, particularly in the EED industry where most products with high repairability potential are produced by larger organizations. However, this strategy likely remains unviable due to the self-sufficiency of these businesses, meaning that RVO's involvement may still be unnecessary or ineffective. In addition, the vast majority of these companies are not based in the Netherlands, meaning they are not directly eligible for RVO's support, making it challenging for RVO to address this sector effectively.
2. **Focusing on start-ups and SMEs with growth potential:**
   This strategy might hold potential for long-term environmental benefits, however, it offers limited short-term benefits, since the most significant environmental contributions currently come from larger corporations, falling short of the overall goal of maximizing environmental impact reduction.

Altogether, instead of focussing efforts on adjusting strategies, perhaps another point of view would be to question RVO's position in this context, which may not be optimal for maximizing impact for supporting repairability practices in the EED sector.

Referring back to the findings from the repair database in Chapter 4: *Repair & RVO*, this might explain why the overall requests from producers seeking support for repair has been so significantly low. This may not stem from a lack of available instruments, but more likely from insufficient demand within the current market landscape, and RVO's role in assisting smaller businesses who lack resources larger organizations typically have.

All in all, there are **two potential paths forward to maximize impact:** either recognizing that RVO's existing focus on smaller organizations limits its strategic position in this context, or adjusting its offerings and strategy to target larger organizations.

6.5 Conclusion and Recommendations for RVO

6.5.1 Conclusion from activities and analysis

To conclude, this chapter focused on developing a framework to identify instruments which could be optimized for promoting repairability practices within businesses. The key activities undertaken included: **the framework development, Instrument analysis and recommendation formulation** and **prioritization through a target audience analysis.**

The findings suggest that while RVO's current focus is on smaller businesses, greater potential for environmental impact exists within larger organizations, especially in the EED industry. This suggests a misalignment between RVO's focus and its potential for impact, questioning RVO's strategic position in this context.

However, the analysis also highlights positive shifts, such as the development of newer instruments like the CIO (Circular Innovation Orientation), which are aimed at larger enterprises. Although the CIO is still under development, it represents a promising policy change that aligns with this research's findings by offering opportunities to engage larger enterprises and maximize impact.

To conclude, the findings from this chapter directly address the original design question: how RVO can use their existing instruments to further support and stimulate businesses in adopting repairability practices. I identified RVO instruments with the potential to support repairability practices, as well as recommendations to optimize their effectiveness. To maximize this effect, key recommendations for RVO should be considered:

6.5.2 Recommendations for RVO

The recommendations for RVO include both specific, instrument-related recommendations and more generic ones. In total, the recommendations of RVO include:

Specific Recommendations:

- **Communicate and implement instrument improvements**: Ensure that the proposed recommendations from the table are communicated to the policy owners of the instruments. This will help ensure that the improvements are considered, validated, and implemented, aligning existing instruments more effectively with repairability goals.

- **Update instrument descriptions on the website:** Revise descriptions on the RVO website, such as for MIA Vamil, to explicitly mention 'repair' and clearly indicate support for repairability. This will help businesses easily identify relevant instruments for repair initiatives.

Generic Recommendations:

- **Enhance the overall visibility of repair support**: highlight relevant instruments and target audiences on the RVO website, possibly including case studies to inspire broader utilization.

- **Enhance support for SMEs and start-ups:** Continue to focus on SMEs and start-ups, prioritize those with high growth potential and a clear commitment to repairability practices.

- **Engage larger businesses**: Promote existing programs that are relevant for larger companies, particularly those designed for collaboration, such as the Ketendoorbraakproject and the CIO.

    - **Consider developing new strategies for large enterprises:** To maximize impact in the EED industry, consider designing new instruments specifically for large enterprises, focusing on repairability projects in the EED sector.

    - **Strengthen partnerships**: Strengthen collaborations with other organizations to extend RVO's reach, particularly in engaging larger corporations, such as (sustainable) consultancy bureaus.

    - **Collaborate with international organizations**: Partner with internationals to create joint initiatives that encourage large multinational corporations to adopt repairability practices, even if their headquarters are not in the Netherlands (RVO International).

- **Educate and raise awareness**: consider launching campaigns to increase consumer awareness of repairability. By driving consumer demand for repairable products, RVO can indirectly influence larger companies to adopt these practices.

6.5.3 Limitations of the study

The findings and recommendations presented in this chapter are subject to several limitations. These are discussed and further reflected upon in Chapter 8: Conclusion and Discussion.

The next step is to communicate the key findings to relevant stakeholders. This is covered in the next chapter 7: The Design Solution

Rijksdienst voor Ondernemend Nederland

07

The Design Solution

DEVELOP

How to deal with (Right to) Repair

Content

7.1 Chapter introduction

This chapter focuses on the final stages of the "Develop and Deliver" phases from the Double Diamond model. The goal of this phase is to turn key insights of this research into practical deliverables for key stakeholders, aligning with the overarching design goal of this thesis: to help RVO better align their instruments to support businesses in adopting repairability practices.

This chapter presents a specific design solution addressing a critical part of that goal: effectively communicating the research findings to key stakeholders: RVO and businesses. I will outline the final design goal, its requirements, the deliverables, and the process behind its creation, presented in the form of an advice envelope for RVO, titled *How to Deal with (Right to) Repair*. This chapter explains each component of the envelope and the validation steps taken to ensure the deliverables meet their intended purposes.

7.2 Design Goal and Design Requirements

7.2.1 Design goal of the design solution

The goal of the design solution is to **communicate the findings of this research to key stakeholders**: RVO and Businesses. These findings are organized around the following three research questions:

1. **The impact and implications of Right to Repair**;
2. **The challenges businesses face in adopting repair practices**; and
3. **The alignment of RVO's instruments with supporting repair practices**.

The visual below clarifies how these research topics relate to the key stakeholders involved, highlighting the flow of communication. Since multiple findings need to be communicated, the design solution also consists of multiple components.

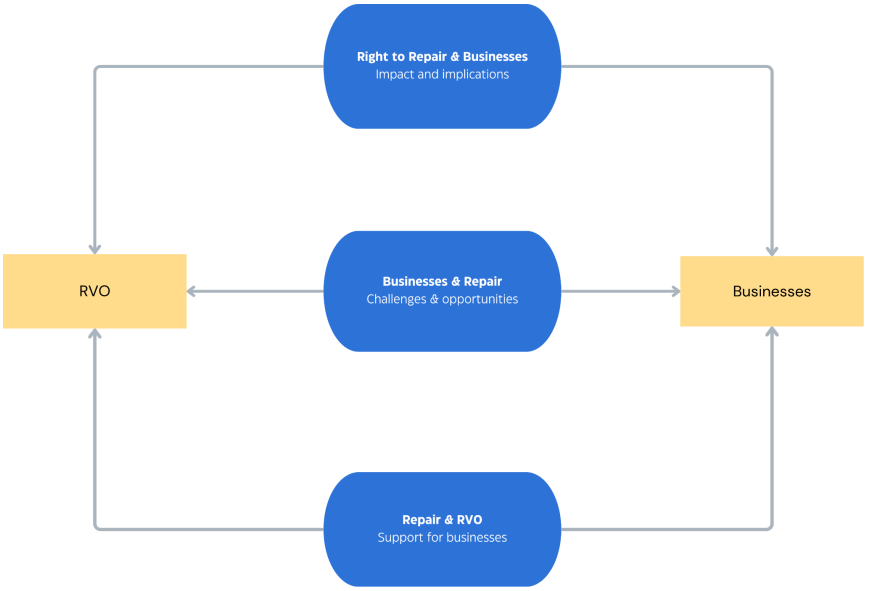


Figure 23: Research Topics & Key Stakeholders

The design solution is delivered to RVO as the client and primary target audience. It is designed with the aim to support RVO in communicating the findings both internally and externally to businesses, rather than targeting businesses directly. Overall, the aim is to create a coherent solution for short-term adoption and integration by RVO.

7.2.2 Design Requirements

Before developing the deliverables, I developed specific requirements the design solution must meet. Developing requirements specify functionalities, characteristics and capabilities essential for the to-be-designed solution (Van Boeijen et.al, 2014). Since the design solution is primarily aimed at communicating findings, its components should be:

1. **Informative:** The solution should convey the research findings clearly and factual, helping RVO understand key insights in an engaging way.
2. **Self-explanatory**: Each component should be clear and easy to understand without requiring much additional explanation.
3. **Easily implementable**: The solution should be easy to use and integrate smoothly with RVO's current practices.
4. **Relevant**: While the solution focuses on short-term implementable steps that address the design goal, it should also remain relevant to RVO's long-term strategies and future needs.

Each individual component of the design solution also has distinct goals and requirements. The requirements are set to align with the "sweet spot" of innovation (Wilcot, 2023b), with the aim to be feasible (can it be done?), desirable (does it address RVO's needs?) and viable (does it have lasting value strategically?).

7.2.3 Design Requirements

I began with a brainstorming session, an essential tool in the design process to generate and evaluate a wide range of ideas (Van Boeijen et al., 2014). I explored various possibilities for communication methods, such as videos, presentations, podcasts, or visuals. A second session with a fellow design student helped further refine these options and connect them to the appropriate research topic (see Appendix 15). These sessions clarified which communication methods were best suited to align with the previously established design requirements. I proceeded with the options that were most feasible and effective within the available time frame.

7.2.4 Results: communication means and methods

The visual below presents the research topics to be communicated, phrased as a question, alongside the chosen communication method for each topic to each stakeholder.

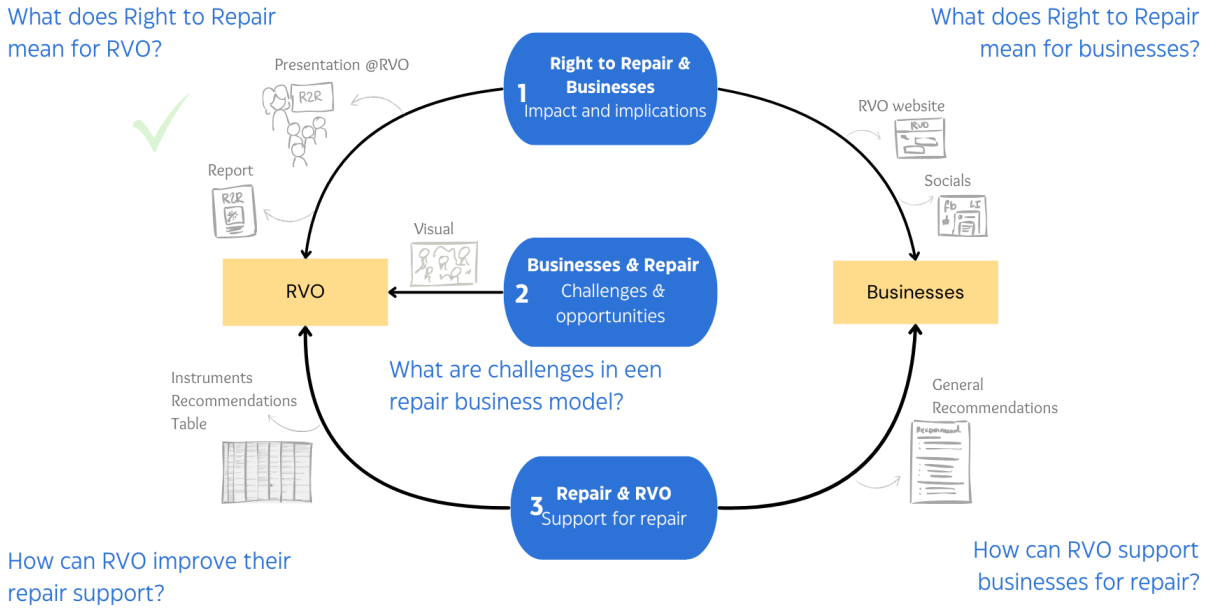


Figure 24: Communication means & methods

Some methods already fulfilled its purpose, such as the presentation I held at RVO to communicate the implications of Right to Repair (see Chapter 6). Others needed development, such as communicating the challenges in a repair business model to RVO (topic 2) and communicating what Right to Repair means for businesses (topic 1). I refer to each component as (design) deliverable. I will present the final version of these deliverables and explain the process behind their creation.

7.3 The Advice Envelop

The final deliverable of this thesis is the "Advice Envelop for RVO: *How to Deal with (Right to) Repair*". It is a comprehensive package containing five components related to the three research topics, as discussed in the previous sections. The five components include:

1. General Recommendations (D1)
2. Instrument specific Recommendations (D2)
3. Social Media Post (D3)
4. Visual (D4)
5. (Thesis report)

Figure 25: Advice Envelope: How to deal with (Right to) Repair

I will explain each component of the envelop including its overall design process, which included distinct stages of the following steps, as typically described in the design thinking process (Van Boeijen et al., 2014):

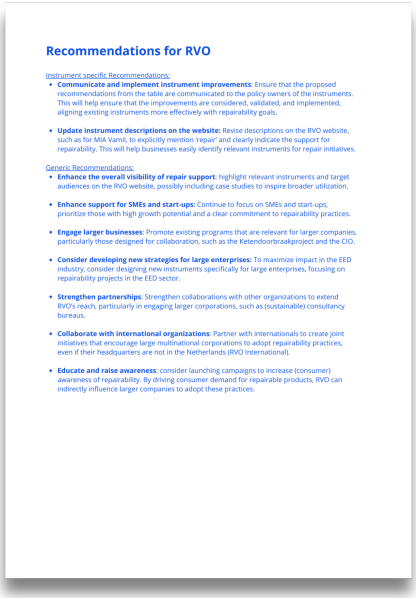
1. **Ideation**: Initial sessions to generate ideas and prepare for the design.
2. **Creation**: Translating those ideas into tangible deliverables.
3. **Validation**: Testing the deliverables and gathering feedback.
4. **Refinement**: Adjusting the deliverables based on the feedback.

The validation steps outlined here involved testing with multiple individuals. The final validation with key stakeholders (RVO and businesses) is presented separately in Chapter 8. I chose to validate the designs with individuals first, as their input provided valuable feedback on the clarity and usability of the deliverables before presenting them to RVO.

S1: General Recommendations

This component of the envelope includes the general recommendations as outlined in the previous Chapter 6. I refer to this chapter for the process and development of these recommendations.

The recommendations I proposed here are intended to be effective as they currently stand, serving their purpose by providing practical and strategic recommendations for RVO to better align their support for repair.



Recommendations for RVO

Instrument specific Recommendations:

- **Communicate and implement instrument improvements**: Ensure that the proposed recommendations from the table are communicated to the policy owners of the instruments. This will help ensure that the improvements are considered, validated, and implemented, aligning existing instruments more effectively with repairability goals.
- **Update instrument descriptions on the website:** Revise descriptions on the RVO website, such as for MIA Vamil, to explicitly mention 'repair' and clearly indicate the support for repairability. This will help businesses easily identify relevant instruments for repair initiatives.

Generic Recommendations:

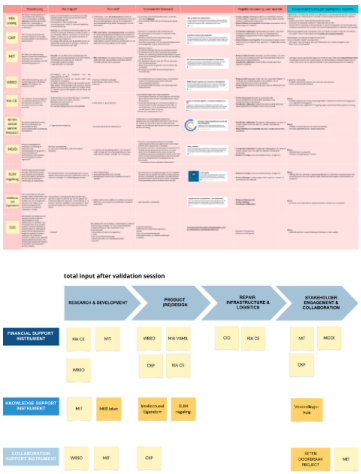
- **Enhance the overall visibility of repair support**: highlight relevant instruments and target audiences on the RVO website, possibly including case studies to inspire broader utilization.
- **Enhance support for SMEs and start-ups:** Continue to focus on SMEs and start-ups, prioritize those with high growth potential and a clear commitment to repairability practices.
- **Engage larger businesses**: Promote existing programs that are relevant for larger companies, particularly those designed for collaboration, such as the Ketendoorbraakproject and the CIO.
- **Consider developing new strategies for large enterprises:** To maximize impact in the EED industry, consider designing new instruments specifically for large enterprises, focusing on repairability projects in the EED sector.
- **Strengthen partnerships**: Strengthen collaborations with other organizations to extend RVO's reach, particularly in engaging larger corporations, such as (sustainable) consultancy bureaus.
- **Collaborate with international organizations:** Partner with internationals to create joint initiatives that encourage large multinational corporations to adopt repairability practices, even if their headquarters are not in the Netherlands (RVO International).
- **Educate and raise awareness**: consider launching campaigns to increase (consumer) awareness of repairability. By driving consumer demand for repairable products, RVO can indirectly influence larger companies to adopt these practices.

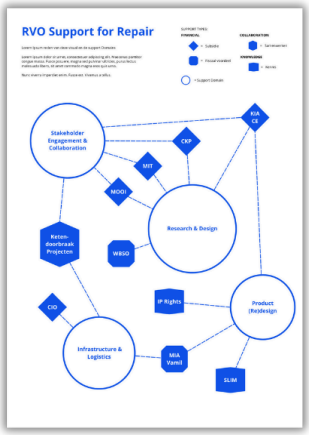
Figure 26: General Recommendations

S2: Instrument Specific Recommendations

This deliverable focuses on the recommendations for the specific instruments, identified through the framework described also in Chapter 6. I initially presented the instrument specific recommendations in a table and matrix format. However, I decided a different visual method would be suitable cto demonstrate the overlapping dynamics between the different instruments and its possible applications, as the matrix in its current form did not effectively convey. Below I show the transition from one to the other. I did a few design iterations, mainly experimenting with color and layout, and discussed those iterations with 2 individuals for feedback. The final result and its iterations are presented below.

Figure 27: Instrument Specific Recommendations





S3 The Social Media Post:

The social media post is designed to inform businesses about the new Right to Repair rules through one of RVO's communication platforms. The goal is to explain the legal implications and direct businesses to the official EU document.

IDEATION: Before designing the social media post, I analyzed RVO's existing communication platforms such as RVO's website, and identified two key insights:

1. RVO does not typically communicate specific legal implications,
2. RVO typically refers to other (governmental) websites for legal information.

Based on these findings, I concluded that RVO's social media platform would be the most suitable communication platform method for three reasons:

- It is a less formal platform, which is relevant because the message does not need to be entirely factually correct at this stage, as the Dutch Government still needs to translate the specifics of R2R into national law.
- By using the social media platforms instead of their website, other governmental websites remain the central source for such information, avoiding potential confusion
- It can effectively direct businesses to the EU website, reaching a broader audience while ensuring the message targets those for whom it is relevant.

CREATION: For the creation of the social media post, I first established the goal and intention. I aimed for the post to be informative. I incorporated social media principles such as an attention-grabbing opener, a clear key message, and a strong call-to-action (Pepper, 2022). I used a slider format to break the legislative content into manageable parts and followed RVO's current layout style to ensure consistency with their strategy. Several iterations were made to refine the text and design.

VALIDATION:

I presented the final designed post to 4 individuals for feedback, focusing on whether the post achieved its purpose. The feedback provided suggestions to simplify language, but further confirmed the post was clear, informative, and easy to understand. Responses like: "*If I were a business, this would be nice to know*," indicated its effectiveness in communicating the message.

REFINEMENT: Based on the feedback, final iterations were made to the post, which included simplifying language and textual adjustments to convey the message more effectively.

Figure 28: Design process Social Media Post

S4 The Visual

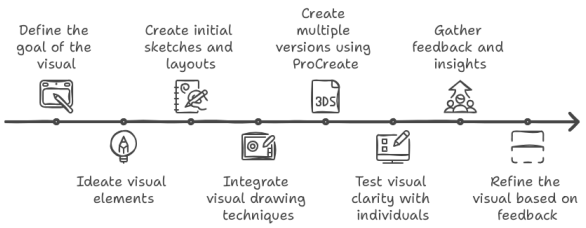
The goal of the visual is to quickly and accessibly communicate the main challenges businesses face in adopting repairability practices.

IDEATION: I first brainstormed visual elements to represent key findings from Chapter 3, using original quotes from the business interview. I sketched multiple layouts to show relationships between the five challenges, using inspiration from infographics and Visual Doing (Brandt, 2018) for communication and drawing techniques.

CREATION: I used ProCreate to design the visual and iteratively refined the layout, balancing text and imagery to ensure clarity and conciseness.

VALIDATION: To ensure the visual was clear without requiring background knowledge, I tested it with 14 individuals unfamiliar with the project. Using Google Forms, I asked nine questions, including open-ended questions on perceived goals and first impressions, as well as rating questions (1-10) on aspects like informativeness and visual appeal. Additionally, I consulted a graphic designer to gather expert feedback. The feedback confirmed that the visual effectively communicated its intended message, while also providing suggestions for improvements (See appendix 17 for detailed questions and results).

REFINEMENT: Based on the collected feedback, I made final changes, such as enlarging the "businesses" title for emphasis and adjusting quotes to improve clarity.



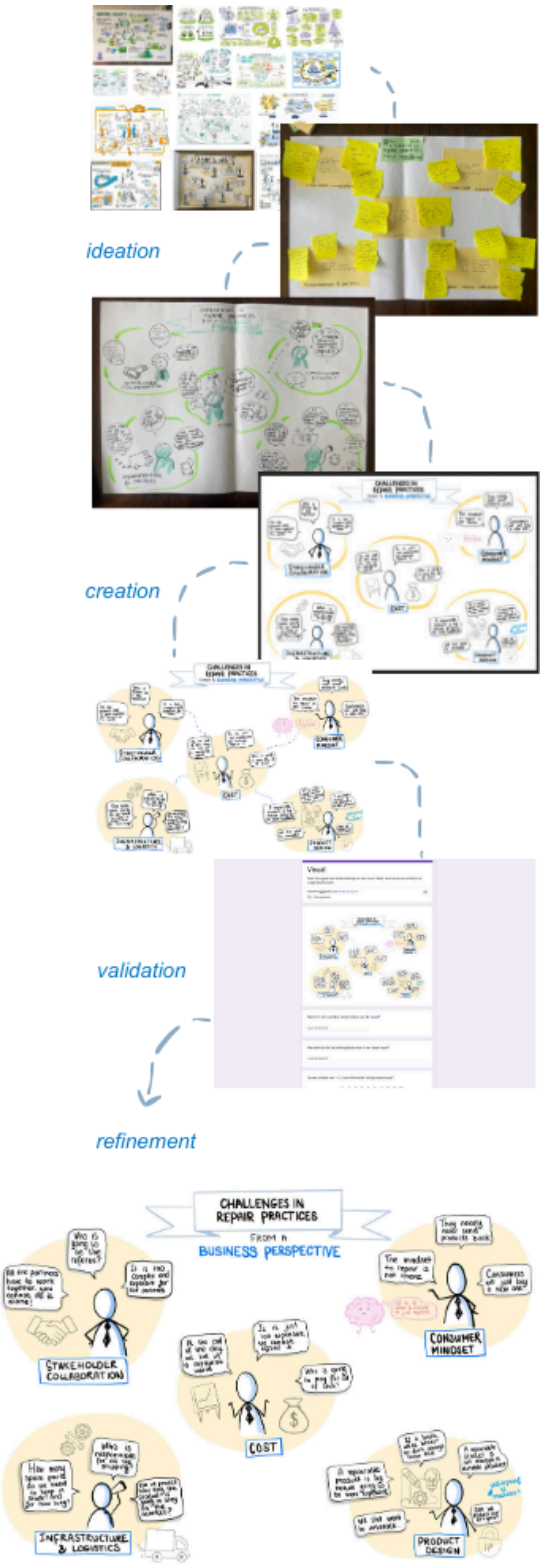


Figure 29: Design process Visual

In total, the 5 elements in the envelop each serve a different purpose and goal, collectively communicating key findings from this thesis to key stakeholders. The table below summarizes the different elements of this envelop, their individual purpose and methods of validation (by individuals).

Table 7: Summary deliverables Envelope:

(Design) Deliverable	**Intended target audience**	**What is the goal and design requirements**	**Goal achieved?**	**How tested and validated?**
1. General Recommendations	RVO	Goal: provide practical and strategic recommendations for RVO to better align their practices in supporting businesses for repair.	To be validated by RVO	-
2. Instrument Specific Recommendations	RVO	Goal: Align RVO instruments with Repairability	To be validated by RVO	-
3. Social Media Post	RVO & Businesses	Goal: Inform businesses on the implications of right to repair for them Design requirements: - DR1: informative - DR2: self explanatory - DR3: easily implementable - DR4: relevant	Sufficiently To be validated by RVO	Individual Feedback: - 4 individuals live (test interaction and intention)
4. Visual	RVO	Goal: Inform RVO on challenges in repairability practices from a business perspective Design requirements: - DR1: informative - DR2: self explanatory - DR3: easy to understand - DR4: relevant - Additional: visually structured and appealing	Sufficiently To be validated by RVO	Individual Feedback Google forms by 14 participants (Appendix 17) 1 graphic design expert input (Appendix 17a)
5. Thesis report	RVO	Inform about research findings and approach	-	-

As the summary table shows, the final steps missing in the validation include testing with the direct end-user: RVO. I discuss this in the next Chapter 8.

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08

Final Validation & Implementation

DELIVER

Content

8.1 Introduction

This chapter covers the final *deliver* phase of the double diamond method. In this chapter I describe the final validation session with the target audience of the design solution: RVO. Several steps were taken to validate and communicate the final findings and design deliverables of this research. These activities allowed for an evaluation on the desirability, feasibility and viability of the innovation matrix. I reflect on the deliverables under those criteria. Additionally, I introduce an implementation timeline: featuring key milestones and actions related to the effective implementation of the proposed recommendations. In the end, I summarize key findings and describe the final iterations and remarks.

8.2 Evaluation of the deliverables: final validation with RVO

Besides testing the components of the design solution separately through individual feedback, I also validated the design solution with RVO, its target audience. The validation focused on feasibility, desirability, and viability, the "sweet spot" of innovation (Wilcot, 2023). These three evaluation criteria are often used to assess whether the solution is relevant to its users, if it can be implemented with the current resources and whether it is likely to be adopted and sustainable in the long term.

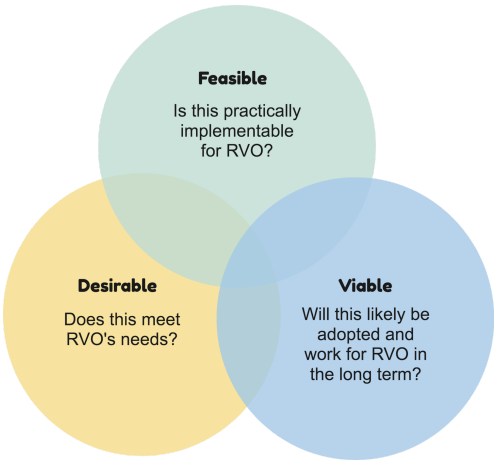


Figure 30: Evaluation Criteria RVO

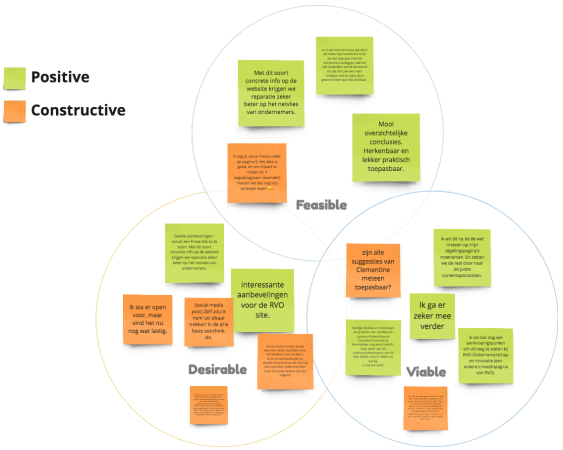
Method for feedback & validation
I presented the advice envelope components to RVO employees through online meetings and email exchanges. The discussions assessed how well the design solutions aligned with the evaluation criteria and their intended purpose. Validation activities included:

- 1 teams calls with an RVO Senior Advisor (45 minutes)
- 1 teams calls with an RVO Communication advisor (20 minutes)
- 12 email interactions with 7 different RVO employees, including two communication advisors, two instrument owners, one social media expert, two senior advisors.

These interactions provided broad input from individuals with the relevant expertise for practical implementation. To avoid influencing feedback, I asked both open questions, like “What is your overall impression of the proposed deliverables?” and direct questions, such as “Do the recommendations align with RVO’s needs and long-term strategies?” and “Is this visual practically useful for RVO?”

The feedback was constructive and provided insights into how the solutions could be fine-tuned to improve their practical application. While the feedback sessions mainly focused on the components of the advice envelop, the discussions also reflected on the overall findings from this research, such as the impact of the R2R directive, which I had presented earlier this year.

I organized all the feedback from the validation sessions in Miro and connected them to the three evaluation criteria, which I color coded to positive (green) and constructive (orange) feedback. See appendix 18B.



Visual 31: process of feedback clustering

Overall, the feedback on the deliverables was positive and aligned with its intended purpose. However, the feedback also included some remarks and confirmed my viewpoint that further validation and refinement steps are necessary.

I will present a summary of the final feedback results under the three criteria. Instead of discussing each deliverable individually, I will discuss the overall impressions, highlighting only key relevant remarks of the specific deliverables. Last, I will present the last iteration steps and final recommendations.

DESIRABILITY - is it desired?

The final findings and deliverables of this thesis were overall positively received. Not only did the research findings align with RVO's desire - to understand R2R's impact and implications - but the translation of the research findings into concrete actions for RVO was also appreciated. For example, one senior advisor mentioned:

"*At first it was like a big black cloud, that Right to Repair. It is really nice that you In terms of results, I think it's great that you've gone into that depth and mapped out, well guys: this is coming and that's all there is to it*" (P1).

The feedback showed that the deliverables communicated findings in a clear and actionable way. The visual deliverables were also seen as relevant and user-friendly, supporting the overall intention of making the findings practical and accessible:

"*Those four different angles, I think it's a nice result. Normally you just get a graduation thesis with a lot of text in it, so this is very nice, that you summarized key findings in a usable way, very pragmatic.*" (P1)

Further, the structure of findings was positively received for its clarity and approach. One communication advisor added:

"*When I saw your findings there were really things I got really excited about, also about your approach and structure. You actually first explain what is coming in terms of laws and regulations, about Right to Repair, then you explain how that works in practice, and then to us, like, get started as well.*" Communication Advisor (P2)

The feedback also touched more specifically on the proposed recommendations, with employees appreciating the format and fresh perspective. Comments included:

"*Nice to see [the recommendations] and especially a good format.*" (P7)

Another employee added:

"*Good recommendations – from a fresh perspective so it seems. With this kind of concrete info on the website, we will definitely get repair more on the radar of entrepreneurs".* (P4)

"This is clearly from a different light we usually look at" (P2)

One also remarked on the overview of identified instruments (design deliverable 2): "*That's what I think is so great about something like this, you have to do this in co-creation, and that co-creation is always a bit of a search because you always have to have the right people at the table, at the end also with that presentation, that you then went and picked these things up, in my opinion some really surprising things came out of that, there are a few in there that I think, oh surprising: like that SLIM, I would never have thought of that.*" and *"it's also nice that it's written from this repair perspective*"

However, there were also some (constructive) remarks, which confirmed that further validation of the instrument specific recommendations is desired by gathering expert input and involving ministries. Additionally, there were questions regarding the social media post. While its potential was recognized, one employee noted:

"I am open to it, but I still find it a bit difficult [...]" Social media content succeeds when it is immediately clear what it means to our client "

This suggests that the post requires further refinement to ensure clarity for its target audience and align it with RVO's communication strategy.

Overall, with some remarks, the feedback indicates that the findings and deliverables directly align with and address a key need for RVO, in addition to offering a different perspective. Scoring positively on the desirability.

FEASIBILITY - can it be done?

The feasibility of the proposed solutions was also discussed, with feedback confirming that the deliverables aligned with the intention of direct implementation within RVO's current operations. Multiple RVO employees expressed to start working with the deliverables immediately. For example, one employee mentioned:

"*I would like to immediately include this on my regulation pages. [...] And we'll pass the rest on to the appropriate content specialists*" (P4)

This indicates its immediate practicality, suggesting that the deliverables were clear and actionable. Similarly, another employee noted:

"Clear and concise conclusions. Recognizable and very practically applicable" (P2)

Confirming they were overall sufficiently self explanatory and easy to understand.

However, there were also some remarks about the instrument specific recommendations, particularly from the communication advisors. A desire was expressed for clarification on which of the recommendations needed further validation, which were directly implementable by RVO and which, for example, involved external stakeholders such as the ministries.

This remark was not unexpected or surprising, as the recommendations were designed for further discussion and validation internally within RVO. However, it does suggest a need for further specification.

Overall, the feedback confirms that the deliverables are feasible to implement with RVO's current resources. However, the feedback also suggested that clarifying the involvement of external stakeholders and additional required resources and actions would further enhance its feasibility.

VIABILITY - Will this likely be adopted and is it strategically relevant for RVO?

Viability in this project is measured by both the alignment of the deliverables with RVO's long-term strategic vision and the practical probability of implementation. Feedback from RVO confirmed that the proposed deliverables aligned well with RVO's strategic goals. For example, one employee mentioned:

"*You might have heard about our reorganization, the recommendations really align with where we want to move towards [relates to RVO's transition to "opgave-gericht werken"]. Your recommendations really resonate with the way we want to communicate." (*P2)

This reflects the deliverables' relevance not just for immediate implementation but also for RVO's long-term strategy. Another employee confirmed this alignment:

"*Nice recommendations for the website."*

In terms of the practical implications of the proposed recommendations, I received many enthusiastic responses. As I quoted earlier, RVO employees expressed their willingness to take direct action on the deliverables and saw opportunities for implementation in more departments. For example, the social media expert said:

"I also see opportunities to place this with RVO Entrepreneurship and Innovation" (P3)

However, as mentioned earlier, there were some remarks about the probability of implementation. While employees recognized the potential of the recommendations, some concerns were raised about their current form

"Are the recommendations directly implementable?" (P4)

This was also the case for the social media post. Suggestion were made to structure the post into clearer phases, such as see-think-do, to better align it with RVO's communication strategy:

"*I would 'pull it apart' into the three phases see-think-do"* (P2)

Nevertheless, RVO employees clearly expressed an interest in discussing this further, suggesting that with some finetuning and clarification, the proposed recommendations would be feasible to implement.

"*There are some starting points, but we still need to make it a bit more digestible for entrepreneurs. If you want, I am very open to discuss it further" (P3).*

Overall, the feedback on viability was positive and aligned with RVO's long-term strategy, but some recommendations, particularly regarding the social media post and the instrument specific recommendations, will need refinement and further discussion to ensure successful implementation.

8.3 Summary of validation

The design solution was positively received, scoring well on desirability, as it aligned with RVO's needs and offered fresh and practical insights. The solution was considered feasible with RVO's current resources, though further refinement on the recommendations and a clarification on the implementation timeline and stakeholder involvement is desired. The viability was also strong, aligning with RVO's long-term strategic vision, but ensuring long-term adoption will depend on specifying certain recommendations, particularly for the specific instruments the social media post.
Summary table reflection on design requirements:

8.4 Actions and iterations after validation feedback

The validation sessions resulted in feedback that allowed for final iterations to the proposed design solutions, which were feasible to implement within the given time frame. Some included minor adjustments such as textual changes on the visuals, others required more specific actions. During the validation process, a key feedback was the need for clarification on which recommendations could be directly implemented by RVO and which involved additional actions and external stakeholders, such as policy owners (P2: Teams meeting).

The total actions following validation feedback included:

- Implement **minor iterations** to refine textual elements, these included for example to rename Research & Design to Research & Development on the visual (to avoid confusion with Product Design).
- Implement feedback from the mail on the instrument specific instruments
- Develop an **implementation timeline** for the recommendations.
- Schedule and conduct two **implementation meetings:**
    - One with the *social media team* to refine the post structure.
    - One with *communication advisors* to discuss the findings and recommendation.

8.5 Implementation Timeline

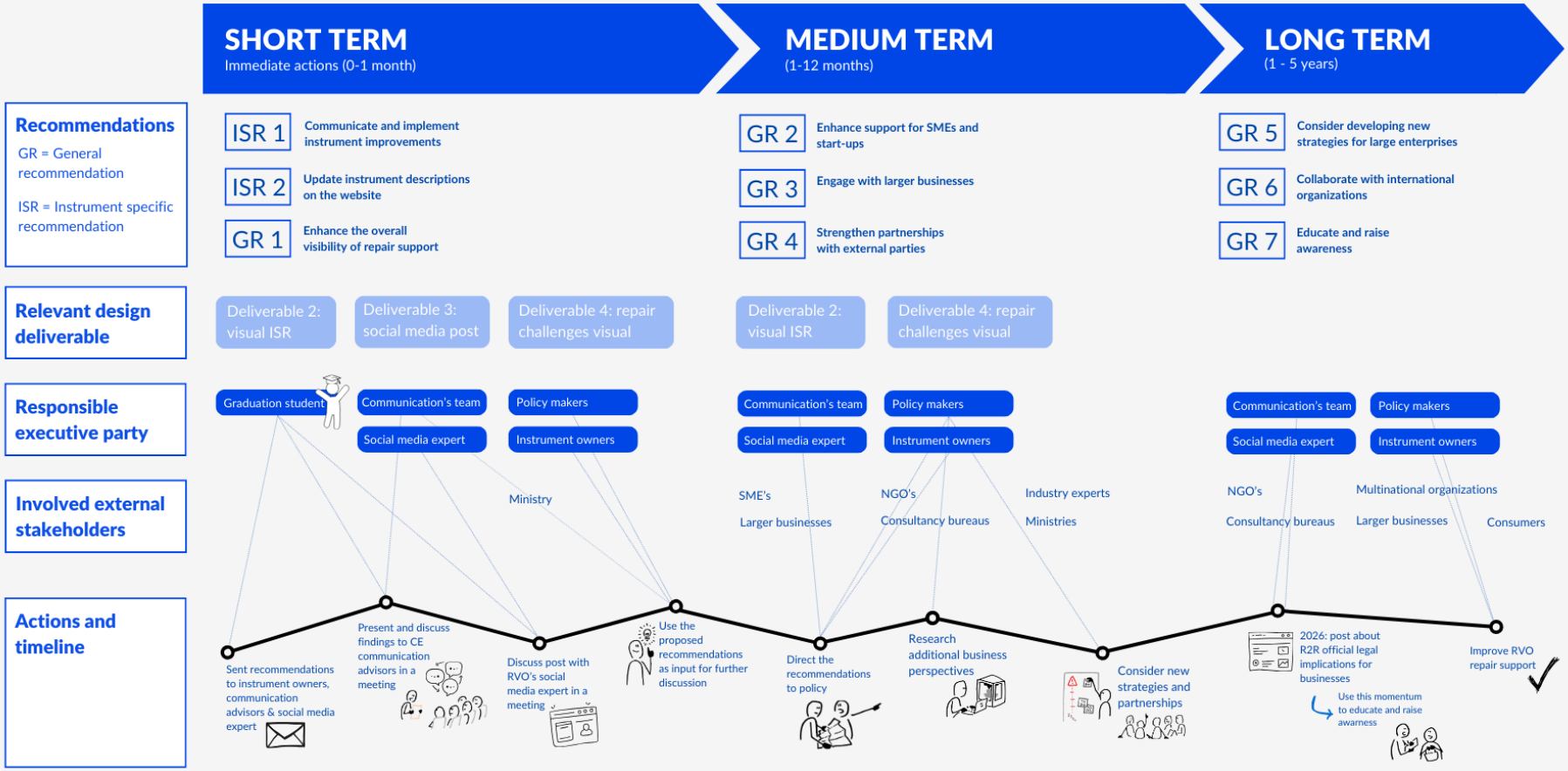
In response to the feedback, I developed an implementation timeline to outline the specific actions, responsible parties, and external stakeholders for each general recommendation. A roadmap combines strategy (the "why"), actions (the "what"), and a timeline (the "when") (OfficeTimeline, 2022). This timeline clarifies which recommendations are implementable by RVO, connects the responsible parties, involves external stakeholders, and details the actions required for effective implementation. It also breaks down the recommendations into short-, medium-, and long-term horizons.

To show which horizon each recommendation belongs to, I revised the format from bullet points to numbers and abbreviations: ISR for instrument-specific recommendations and GR for general recommendations.

In the short-term phase, three immediate actions involve meetings with communication advisors and the social media expert. To ensure effective implementation, I chose to directly participate in these meetings.

IMPLEMENTATION TIMELINE

How to deal with (Right) to Repair



8.6 Remarks after last implementation session

During the final validation and implementation activities, I presented the deliverables and discussed recommendations with key RVO stakeholders, including a 30-minute meeting with communication experts, senior advisors, social media experts, and instrument owners, as well as a separate 45-minute meeting with RVO's social media expert. These sessions provided essential feedback and helped refine and implement the recommendations. Both meetings were recorded, and key feedback quotes were added to Miro (see Appendix 18).

The meeting with RVO's social media expert was constructive. I presented the current format of the post and discussed further opportunities with him, where he expressed his opinions and proposed valuable suggestions and perspectives. Key adjustments included:

- Connecting the post to RVO support. Not only communicate what the legal implications are, but also bridge how RVO support is relevant for businesses
- Translate the post into Dutch
- Using a multi-post strategy: starting with more accessible content to introduce the topic on Instagram and then transitioning to deeper, more detailed posts for LinkedIn and Facebook.

We also discussed visual consistency, sourcing RVO imagery, and text adjustments. Overall, he was enthusiastic about the direction of the content and expressed a strong willingness to continue with it. He said, *"I think we had a good conversation, and I believe we have a strong starting point to make something nice out of this."* Confirming its intended goal is reached. We agreed to stay in contact and finalize the post by the following week. See Appendix 19B for feedback notes.

The feedback during the session with RVO's communication team was also informative. Overall, the stakeholders were positive about the knowledge and the fresh perspective I had introduced. One communication advisor mentioned *"I am really inspired by this and I am also really thinking about whether we can also set up a kind of landing page for repair on the website. I really like what you have researched and it encourages to think about this further*", confirming earlier feedback and showing the deliverables reached their goal for further action and inspiration.

However, there were also some critical feedback points. For instance, one employee raised curiosity about international program opportunities, and emphasized that businesses must see potential in these initiatives, stating: *"The moment the demand from the target group actually comes, I think the commercial parties will realize: hey, wait, I can do something with this."* This reinforced the need for further research on whether RVO's support is desired by businesses.

Finally, the team expressed a strong willingness to act on the findings and communicate them to policy. For example, one employee commented on the MIA VAMIL instrument recommendation: *"There's a real chance that this recommendation will end up on the environmental list if we discuss it with the ministry. Right now, it's simply not findable at all."* adding, *"I will definitely continue with it,"*

8.7 Conclusion & Final Recommendations

To conclude, the primary focus of this validation phase was ensuring RVO's alignment with the deliverables, and further stakeholder involvement such as business's perspectives could be considered for future research. To ensure statistical relevance, this would require input from multiple additional stakeholders, which is why I choose to further leave this out of this thesis' scope. These sessions allowed for the final validations and recommendations which were no longer feasible for me to implement, which include:

- Validate the instrument specific recommendations with all instrument owners.
- Engage ministries to discuss the strategic recommendations at policy level.
- Research relevant instruments for international repair support (RVO internationaal).
- Identify and showcase example projects on the RVO website to provide actionable perspectives for businesses.

Overall, the design deliverables as presented in the envelop: *how to deal with (Right to) Repair*, was positively received by RVO and allowed for further momentum to reach its intended goal: to better align their instruments to support businesses for repair. The next step is for RVO to continue their efforts on the final recommendations and engage with the relevant stakeholders.

Final End Deliverable: Advice Envelop: How to deal with (Right to) Repair

From left to right: social media slider, implementation timeline, instrument specific recommendations, the envelop, the thesis document, the general strategic recommendations, and the repair challenges visual

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Conclusion & Discussion

Content

9.1 Conclusion and research findings

The primary research question of this thesis was: **What is the impact of Right to Repair and how can RVO support and stimulate businesses to adopt repairability practices?** The findings of this study provide a comprehensive and nuanced answer to this question.

Initial assumptions predicted a significant impact across a broad range of businesses, with RVO playing a key role in supporting those affected by the legislation. However, the findings revealed that the impact of R2R is more limited, affecting businesses already compliant with existing repairability laws. The directive's narrow scope, potential loopholes, and dependence on stakeholders such as consumers and policymakers, further limit its short-term impact. While R2R promotes repairability, additional actions are necessary to achieve the long-term goal of a repair-oriented society.

The research also identified that RVO's current support structures are not fully aligned to support businesses with repairability. Key business challenges and critical support domains were highlighted. The recommendations for RVO focus on improving the alignment between RVO's existing instruments and these support domains. The framework presented in this thesis served as a tool to identify ten RVO instruments and offered actionable steps for improving repair support. The findings from this thesis are presented in a comprehensive package titled *How to Deal with (Right to) Repair*, containing several deliverables for RVO that meet the thesis's design goal to "*Develop a tangible solution for RVO to better align their instruments to support businesses for repair*".

9.2 Theoretical and practical implications

This research furthermore contributes to the existing literature on circular economy practices, particularly repairability, in several ways. First, it highlights the interconnectedness of legislation, business operations, and governmental support structures. While previous studies, such as Dao et al. (2020), have proposed support measures for promoting repairability, this research goes a step further by investigating the practical implementation of these recommendations within a governmental institution (RVO), bridging the gap between theory and execution. Furthermore, this study addresses the underrepresentation of business perspectives in current literature, by specifically examining the challenges surrounding repairability from a business standpoint. This research delves further into the specific challenges businesses face by combining literature findings to practical real-life experiences.

Another contribution of this research is the integration of multiple sources of literature on repairability practices. By comparing these sources and finding common ground, as presented in the table in this thesis, I was able to categorize repairability practices and connect them directly to real-world case studies. This enriches existing literature by synthesizing theoretical insights and demonstrating their practical application through concrete examples.

Additionally, the analysis of the Right to Repair directive's impact helps reduce uncertainty around its implications for businesses and government bodies, making the findings of this study highly relevant for key stakeholders.

Furthermore, this research did not only highlight a significant gap in RVO's current support measures to stimulate repair, but also present concrete recommendations to address these gaps. The designed advice envelop serves as both a communication package and a practical toolkit that RVO can use to effectively implement these recommendations. This demonstrates how design can bridge theoretical insights and real-world implementation, ensuring that RVO and policymakers can better align their support with the needs of businesses. Ultimately, the findings from this research provide a solid foundation for further initiatives to support repairability and contribute to the broader goal of a circular economy.

9.3 Limitations & Opportunities for future studies

While this research offers valuable insights, it is important to acknowledge several limitations that provide opportunities for future study.

First, I conducted interviews with seven participants, which was sufficient for the studies' goals. However, additional interviews would enhance the significance of the findings. The interviews primarily involved RVO employees and just one business representative. Including more business viewpoints would allow for greater consistency and comparisons across different product groups.

In addition, the scope of this thesis focuses on electric and electronic devices in the B2C sector, while other product groups such as textile or furniture might equally benefit from repair support. Future research can add significance by exploring multiple business perspectives and B2B markets.

Furthermore, the interview questions were initially designed to explore RVO's role in assisting businesses in response to Right to Repair. However, due to the changing developments around Right to Repair's implications throughout my research, this initial focus evolved to be irrelevant. While the findings from the interviews remained useful, as the needs related to adopting repairability practices remain similar regardless wether due to legislative mandates or personal motivation, it should be acknowledged that the original focus may have influenced the results. A more direct exploration of RVO's alignment with repairability support might have led to different insights.

While the framework identified instruments relevant for stimulating repair and included recommendations for improvement, it lacks confirmation from final end-users. Future research could focus on validating whether the identified support measures truly align with business needs. Another key aspect that was not considered in this thesis is how to actively engage businesses in using RVO's instruments. Furthermore, the framework focused primarily on national subsidy programs, potentially overlooking relevant European instruments. The data and insights were further derived from a selective group of RVO employees, which may not fully represent the entire spectrum of expertise and perspectives within the organization. While the recommendations described for each identified instrument are well-considered, they would benefit from further validation and deeper exploration from expert input from policy level on each subsidy program. This viewpoint was also confirmed through the final validation sessions held with RVO employees.

Finally, while I explored the input from RVO employees and their standpoints, I did not fully account for upcoming policy changes, which could affect the relevance and effectiveness of the identified recommendations. Future research should explore how policy shifts and improved communication between businesses, RVO, and ministries can ensure that policies align with business needs for sustainable practices. While the research offers insights into RVO's instruments, it did not consider the full range of potential support mechanisms outside RVO, such as private or international initiatives, which may also play a role in promoting repairability.

In conclusion, while this research provides a strong foundation for understanding the role of RVO in supporting repairability, further studies are necessary to refine and validate the findings and explore additional factors, such as business engagement and broader sectoral impacts, to fully optimize the potential of stimulating repairability practices.

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Personal Reflection

Content

10.1 Project Reflection

Initially, I had chosen this project because I am passionate about sustainability and what motivates businesses to adopt circular practices. The final scope of the project had a slightly different angle, focusing more on legislation, but I gained a lot of extra knowledge and expertise, which I am positive will be valuable for my future career.

I knew beforehand that taking on this project might be a challenge, but I believe I underestimated this challenge a bit. I thought I had some basic knowledge about the circular economy, but if there is one thing this project taught me it's that there is always more to learn. I remember a quote from the business interviewee who said: "*you think you know everything, but when you think you do, you're on the wrong track*" which perfectly summed up this experience.

It was difficult at times to understand the topics I was working with and my position as a strategic designer in this context, but I also learned the value of a designer here: that it lies not so much in trying to understand every detail, but in capturing the big picture and bridging different perspectives. This project reminded me that, in theory, you can really be placed in any context.

Prior to this research, I knew very little about what the Dutch government actually did to support a circular economy. Now, I've experienced it firsthand and have a much deeper understanding of the problems we face in the circular transition, from legislation to business perspectives and government incentives. Although small, I am proud of the contribution this project made towards the broader goal of stimulating the circular economy, aligning with my initial project ambition, and I am happy that RVO received it so positively in the end.

10.2 Reflection on personal ambitions

While there is definitely room for improvement, I've also grown a lot on my personal ambitions outlined in the design brief. I practiced asking for help, presented to larger audiences, and experimented with interview techniques. I was surprised to find that I enjoyed conducting the interviews a lot. My communication skills were also frequently tested, which I aim to further improve. It was not always easy to manage multiple stakeholders while staying true to my own vision. I sometimes had a tendency to prefer reaching out only when I thought I had all the answers, but I practiced on maintaining better connections throughout the process, which I gradually improved.

With the project shifting direction multiple times, it also showed me I have the skills to be flexible and adapt quickly. However, that can also come at the cost of keeping findings organized, but I eventually did a decent job in repairing most of that, which I am also proud of.

Protecting (your) boundaries

In a project where there is so much relevant information and stakeholders, I had to set clear boundaries on who and what to include. I tend to naturally search for out-of-the box solutions, and I occasionally caught myself taking a little detour because of this. However, this experience also reinforced what I enjoy the most about being a designer: exploring different perspectives and challenging existing ideas.

Not only was setting boundaries a challenge for this project, but also for myself. As designers, we often emphasize the value of "resilience", where we are typically encouraged to push through difficult moments and keep going. I have experienced the value of that mindset, resulting in a thesis I can now say I am proud of I finished. However, if there's one crucial lesson I've learned this year, it is also the value of its opposite companion: recognizing when *not* to push through. It ties closely with one of Gert-Hans many wise quotes: "*wees streng in wanneer je mild mag zijn voor jezelf*", advice I will carry on forward.

I further learned that while personal ambitions can sometimes exceed your capabilities, you are often far more capable than you give yourself credit for. As my supervisors also pointed out, by being overly reflective and critical, I sometimes became my own biggest obstacle, and that's something I'll continue to work on.

Graduation may not have made it to my list of favorite hobbies, but it did make me appreciate the things that I enjoy most even more - like how much I love working together with other people. I've experienced a fair share of bumpy roads, setbacks and failures, but as cliché as it sounds, those failures taught me the most.

In the end, I can say I really gave it my all, and with that I want to end on a positive note: that I am now truly proud of what I've achieved.

I'll carry these lessons forward and continue to improve my skills. First, I'll practice my new definition of resilience: by taking a big break. After that, I'm looking forward to all the opportunities ahead, which this graduation has surely prepared me for. Ciao!

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Rijksdienst voor Ondernemend Nederland

References & Appendices

Appendix 1 - Project Brief

DESIGN FOR our future

TU Delft

IDE Master Graduation Project

Project team, procedural checks and Personal Project Brief

In this document the agreements made between student and supervisory team about the student's IDE Master Graduation Project are set out. This document may also include involvement of an external client, however does not cover any legal matters student and client (might) agree upon. Next to that, this document facilitates the required procedural checks:

- Student defines the team, what the student is going to do/deliver and how that will come about
- Chair of the supervisory team signs, to formally approve the project's setup / Project brief
- SSC E&SA (Shared Service Centre, Education & Student Affairs) report on the student's registration and study progress
- IDE's Board of Examiners confirms the proposed supervisory team on their eligibility, and whether the student is allowed to start the Graduation Project

STUDENT DATA & MASTER PROGRAMME
Complete all fields and indicate which master(s) you are in

Family name		IDE master(s)	IPD ☐ DfI ☐ SPD ✔
Initials		2nd non-IDE master	
Given name		Individual programme (date of approval)	
Student number		Medisign	☐
		HPM	☐

SUPERVISORY TEAM
Fill in he required information of supervisory team members. If applicable, company mentor is added as 2nd mentor

Chair		dept./section	
mentor		dept./section	
2nd mentor			
client:			
city:		country:	
optional comments			

! Ensure a heterogeneous team. In case you wish to include team members from the same section, explain why.

! Chair should request the IDE Board of Examiners for approval when a non-IDE mentor is proposed. Include CV and motivation letter.

! 2nd mentor only applies when a client is involved.

APPROVAL OF CHAIR on PROJECT PROPOSAL / PROJECT BRIEF -> to be filled in **by the Chair** of the supervisory team

Sign for approval (Chair)

Marina Bos-de Vos — Digitally signed by Marina Bos-de Vos Date: 2023.12.06 11:35:40 +01'00'

Name Marina Bos-de Vos Date 6 Dec 2023 Signature

CHECK ON STUDY PROGRESS
To be filled in **by SSC E&SA** (Shared Service Centre, 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 ____ EC

Of which, taking conditional requirements into account, can be part of the exam programme ____ EC

★	YES	all 1st year master courses passed
	NO	missing 1st year courses

Comments:

Sign for approval (SSC E&SA)

Name Date Signature

APPROVAL OF BOARD OF EXAMINERS IDE on SUPERVISORY TEAM -> to be checked and filled in by IDE's Board of Examiners

Does the composition of the Supervisory Team comply with regulations?

YES		Supervisory Team approved
NO		Supervisory Team not approved

Comments:

Based on study progress, students is ...

	ALLOWED to start the graduation project
	NOT allowed to start the graduation project

Comments:

Sign for approval (BoEx)

Name Date Signature

DESIGN FOR our future

TU Delft

Personal Project Brief – IDE Master Graduation Project

Name student **Student number**

PROJECT TITLE, INTRODUCTION, PROBLEM DEFINITION and ASSIGNMENT
Complete all fields, keep information clear, specific and concise

Project title Designing for the Circular Economy: Support Businesses towards a Repair-Oriented Society

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.

Introduction

Describe the context of your project here; 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)

The Netherlands has set an ambitious goal to achieve a fully circular economy by 2050. This objective demands significant transformations in the business sector. Rijksdienst voor Ondernemend Nederland (RVO) plays a crucial role in supporting entrepreneurs during this transition. By offering various incentive tools such as knowledge, networks, subsidies, and financing, they aim to remove barriers for entrepreneurs and stimulate more circular business practices.

The activities of RVO are influenced by various policies, trends and legislative developments. One of such developments is the more recent introduction of the Right to Repair legislation from the EU, which is soon expected to be translated into Dutch National Law. In short, the Right to Repair allows consumers the right to repair his or her (electronics) devices rather than discarding them, representing an important step in the shift from a disposable society to a repair-oriented one.

Up to this point, RVO has limited insights into the potential impacts of the impending Right to Repair law on businesses. They are unsure of their ability to adequately support them in preparing for this law. What are the expected effects of the law for businesses? What hurdles might they encounter and what measures could effectively support them in this transition?

In this graduation project, research and design methods will be combined to identify challenges businesses face in aligning with repair-oriented practices and to propose a viable solution which supports entrepreneurs in effectively adopting repair-oriented practices. Through qualitative research methods and iterative design steps, this project aims to discover strategies for stimulating the desired behavior necessary for successful adoption of repair-oriented practices. A specific focus in this research will be directed at understanding the "why" behind businesses that do not yet embrace repair focused practices, and how we can stimulate and support them into the coming transition.

SCOPE of the research: Dutch B2C Businesses in Electronic Devices.

→ *space available for images / figures on next page*

DESIGN FOR our future

TU Delft

Personal Project Brief – IDE Master Graduation Project

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)

With the impending translation of the EU's Right to Repair legislation into Dutch national law, RVO lacks a comprehensive understanding of its practical implications for businesses and the necessary support measures for the adoption of repair-focused practices.

This is because:
- There is a lack of understanding about the expected effects of the law and how well businesses are prepared for this
- There is a lack of knowledge about what effective measures can be applied to stimulate the desired behavior of businesses not yet embracing repair practices

VALUE STAKEHOLDERS:
RVO:
- A deeper understanding of their clients' position within the repair-oriented landscape.
- Inspiration through Research & Design that could potentially stimulate and support repair-oriented practices.

Entrepreneurs & businesses:
- Support in effectively navigating challenges in preparing for a repair oriented business landscape.

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 (Design/Investigate/Validate/Create), and you may use the green text format:

Develop a tangible solution which supports and stimulates entrepreneurs in the transition towards embracing repair-oriented practices.

Then 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)

In short, the approach to achieving this result will be done in the following phases. The phases will be in an iterative process (rather than linear). More detailed explanation can be found in the method visual.

Literature & Research phase:
Understand the Right to Repair legislation, the roles of different stakeholders and the specific position of entrepreneurs in the landscape of a repair-oriented society (system mapping and scenario planning)
Research & Design phase:
Identify and discover knowledge gaps in understanding the challenges and define design opportunities (qualitative research)
Design & Develop phase:
Develop a solution addressing identified challenges, supporting entrepreneurs in adopting repair-focused practices.

The criteria for a "tangible solution" will be determined and specified after completing the research phase. Its suitability and feasability within the scope of RVO will then be critically analyzed.

introduction (continued): space for images

image / figure 1 Method visual. Detailed explanation can be found in apendix.

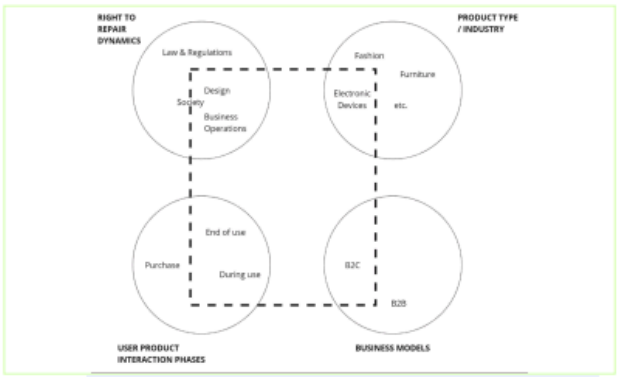


image / figure 2 Scope of project. Dimensions will be iterated on and scoped throughout the project.

CHECK ON STUDY PROGRESS

To be filled in by SSC E&SA (Shared Service Centre, 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 _____ EC

Of which, taking conditional requirements into account, can be part of the exam programme _____ EC

★	YES	all 1st year master courses passed
☐	NO	missing 1st year courses

Comments:

Sign for approval (SSC E&SA)

Name _____ Date _____ Signature _____

APPROVAL OF BOARD OF EXAMINERS IDE on SUPERVISORY TEAM -> to be checked and filled in by IDE's Board of Examiners

Does the composition of the Supervisory Team comply with regulations?

YES	☐	Supervisory Team approved
NO	☐	Supervisory Team not approved

Comments:

Based on study progress, students is ...

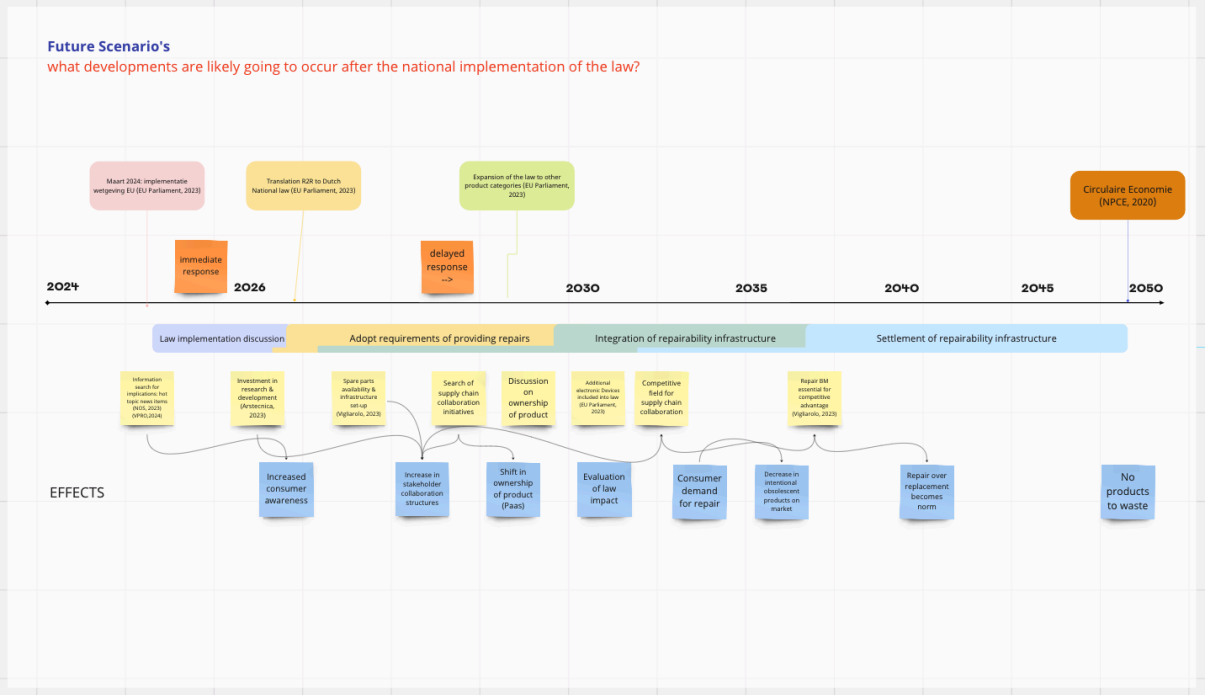
☐	ALLOWED to start the graduation project
☐	NOT allowed to start the graduation project

Comments:

Sign for approval (BoEx)

Name _____ Date _____ Signature _____

Appendix 2 - Scenario Planning



The scenarios focused on different time horizons and explored various business behaviors in response to the new R2R obligations. These included:

- **Short-term** (2024-2026): Businesses are expected to focus on understanding and meeting the new legal requirements. Likely responses include:
    - Increased research into legal obligations.
    - Investments in R&D to redesign products for easier repair.
    - Establishing infrastructure for reverse logistics and spare parts management.
    - Exploring collaborations within the supply chain to mitigate costs and share resources.

Appendix 3 - Interview guides

3A: Interview guide (RVO employees)

INTRODUCTION

Ik heb het in mijn afstudeeronderzoek over het Right to Repair onderwerp. Dus vooral ook bezig met de vraag wat dat precies gaat betekenen voor bedrijven, wat het gewenste en verwachte effect is.
Je hebt veel verschillende partijen die een belangrijke rol spelen in het speelveld van product reparatie, zoals de consument, beleidsmakers, afvalverwerkers, reparatiecentra. Ik focus in mijn onderzoek specifiek op de rol van bedrijven.
Wat zij kunnen verwachten, welke veranderingen zij gaan moeten doorvoeren door deze wetgeving, en hoe RVO hen daar mogelijk in zou kunnen ondersteunen. Dus ook analyseren of RVO de juiste middelen in huis heeft om hierop te kunnen anticiperen. Daar probeer ik met dit soort gesprekken ook een beter beeld van te krijgen. Dus ik ga daar een paar oriënterende vragen over stellen en voel je vooral vrij om tussen de vragen door ook je visie erop te delen.

In het kort over Right to Repair

Binnen garantie
Verplichte reparatie boven vervanging
(mits reparatie goedkoper is dan vervangen)

Buiten garantie
Aanvraag voor reparatie binnen garantie moet mogelijk zijn

Verplicht tot:

- Reserve-onderdelen beschikbaar voor periode van 7-10 jaar
- Transparantie repareerbaarheid van product
- Beschikbaar stellen reparatie-informatie (voor consumenten & reparateurs)

Dus voor bedrijven betekent dit een aantal zaken en daar heb ik wat vragen over. Mocht je het antwoord niet weten geef het dan vooral aan:

QUESTIONS

Interview Questions:
BREDE VRAAG (INTRODUCTIE): zet aan het denken

O. Allereerst ben ik benieuwd wat jij verwacht wat de impact van de wetgeving gaat zijn op Nederlandse bedrijven in de elektronicasector voor wie dit wetsvoorstel gaat gelden?
0A: Hoe denk jij dat bedrijven hierop gaan reageren?

understanding the implications
1. Naar verwachting wordt de wetgeving in maart 2024 doorgevoerd naar nederlandse wetgeving. Dan heeft Nederland 2 jaar de tijd om dit te implementeren.
Bedrijven gaan waarschijnlijk op zoek naar informatie over aan welke verplichtingen ze gaan moeten voldoen.

Welke informatieve bronnen zijn er beschikbaar via RVO om bedrijven te helpen hun verplichtingen onder deze nieuwe wetgeving te begrijpen?

redesign of products
Je wordt onder andere ook verplicht om je product in zijn essentie repareerbaar te maken.

3. Zijn er specifieke programma's of bronnen die RVO biedt om bedrijven te helpen bij het herontwerpen van producten voor repareerbaarheid?

4. Biedt RVO financiële ondersteuning / subsidies voor bedrijven die de nodige veranderingen doorvoeren om te voldoen aan de Right to Repair-vereisten?

provision of spare parts
2. Bedrijven worden onder andere verplicht om **reparatie informatie en reserveonderdelen** beschikbaar te stellen. Zowel voor geautoriseerde service centers en onafhankelijke reparatie winkels als de consument zelf.

Wat verwacht je dat bedrijven nodig gaan hebben om de infrastructuur en platforms op te zetten voor de distributie hiervan?

afsluiting algemeen:
Vanuit jouw perspectief, zijn er gebieden waar de huidige ondersteuningsmaatregelen van de RVO mogelijk niet volledig voldoen aan de behoeften van bedrijven die geconfronteerd worden met de Right to Repair-wetgeving?

Wat voor extra ondersteuning denkt u dat bedrijven nodig zouden kunnen hebben om effectief aan te passen aan de Right to Repair-wetgeving in termen van bronnen, begeleiding of advies?

3B: Interview guide Business

INTRODUCTION

- Brief introduction to the research: this interview aims to understand how businesses approach repairability practices in the context of Right to Repair legislation. Additionally, it seeks to understand what governmental support measures can help businesses in overcoming key challenges.
- Overview of Right to Repair: introduce key new rules and potential implications for businesses
- Purpose: The goal is to identify obstacles and opportunities in adopting a repair business model.

QUESTIONS

Main questions:

understanding the company's current stance and position on repairability

1. How does company currently incorporate repairability into its product design and business operations?
2. How does repairability fit into company's broader goals, such as sustainability or product innovation?
3. What happens if a product is being shipped back for repair to company? Can you explain the process and procedure (introduce own case of my mouse)

stance and knowledge on Right to Repair / repair regulation

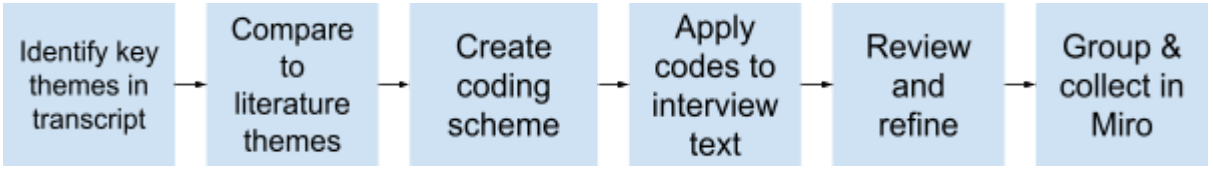
4. What is your stance on Right to Repair and repairability regulations from a business standpoint?
5. What changes, if any, has Business had to consider to align with current or upcoming repair-related regulations?

specific on challenges and opportunities in a repair business model

6. What are biggest challenges from a business perspective in offering repair services?
7. What would you say is necessary to overcome these challenges?
8. What is your experience in terms of product design for repair?

>> allow for further exploration and targeted questions based on given answers

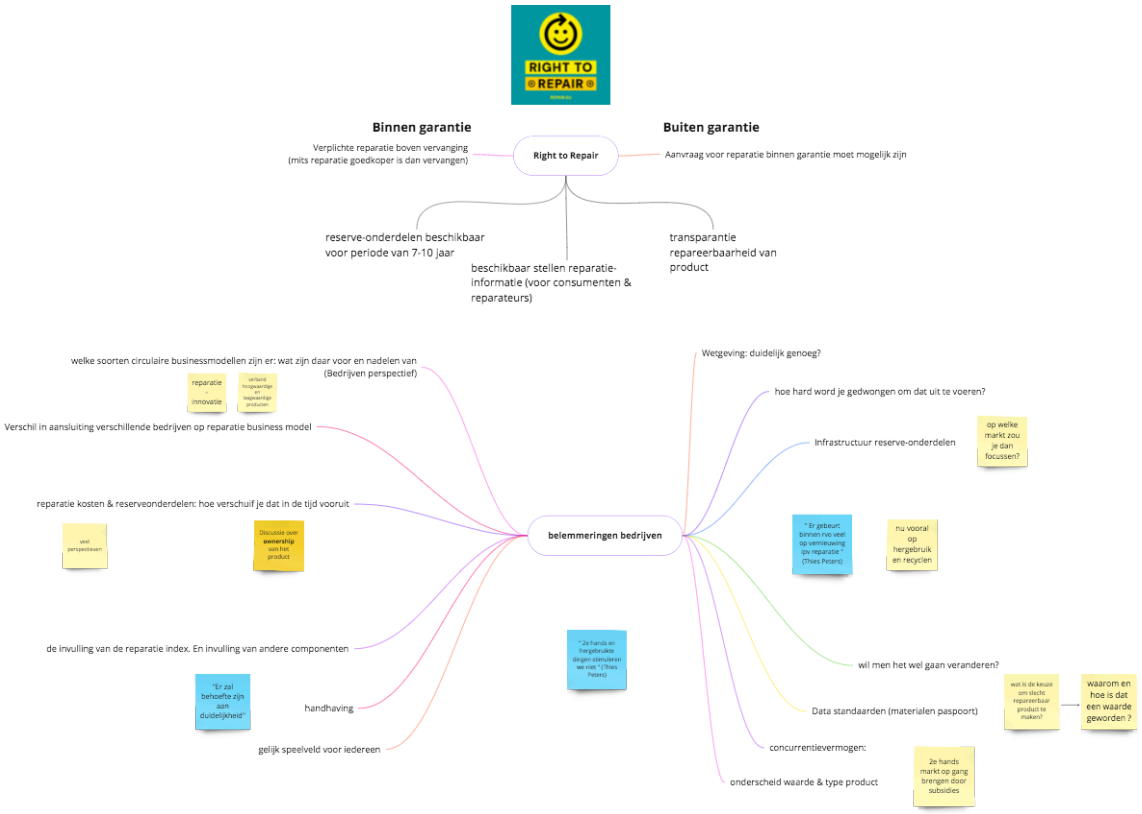
The interview coding process for the business interview (see appendix 4D for codes):



Appendix 4 - Interview coding & clustering

Appendix 4A: Theme 1: Legal Implications of Right to Repair

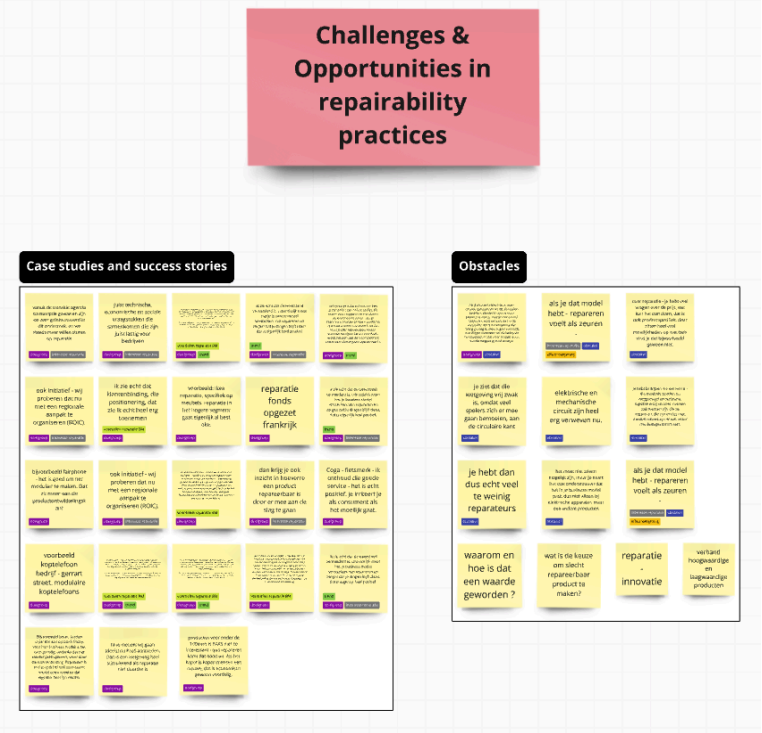
Appendix 4B: Co-consultation session (P1&P2)



Appendix 4C: Theme 2: Challenges & Opportunities in a repair business model

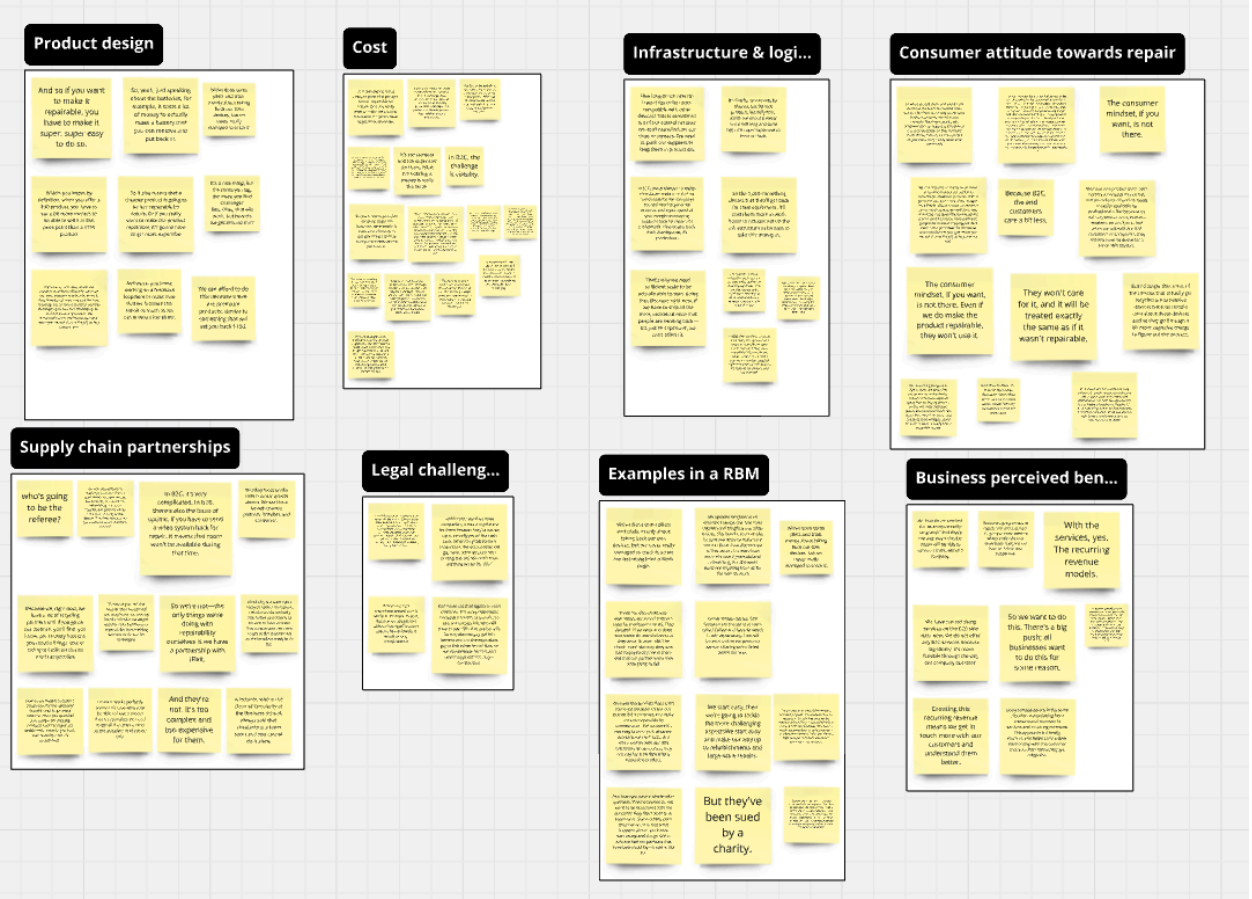
Interview P5 (NGO): Sup themes: right to repair - effect & implications, success stories, repair and rvo,

Summarized sub themes: 1) case studies and success stories & 2) obstacles



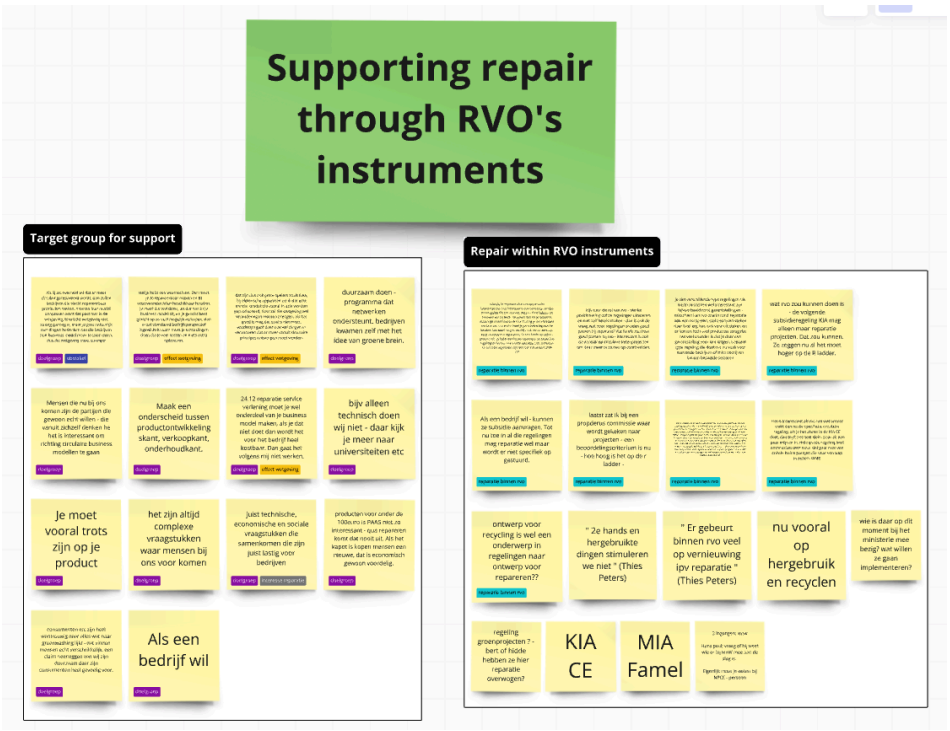
Appendix 4D: Theme 2: Challenges & Opportunities in a repair business model

Sup themes: 1) product design 2) cost 3) infrastructure and logistics, 4) consumer attitude towards repair 5) supply chain partnerships 6) legal challenges 7) case examples 8) business perceived benefit



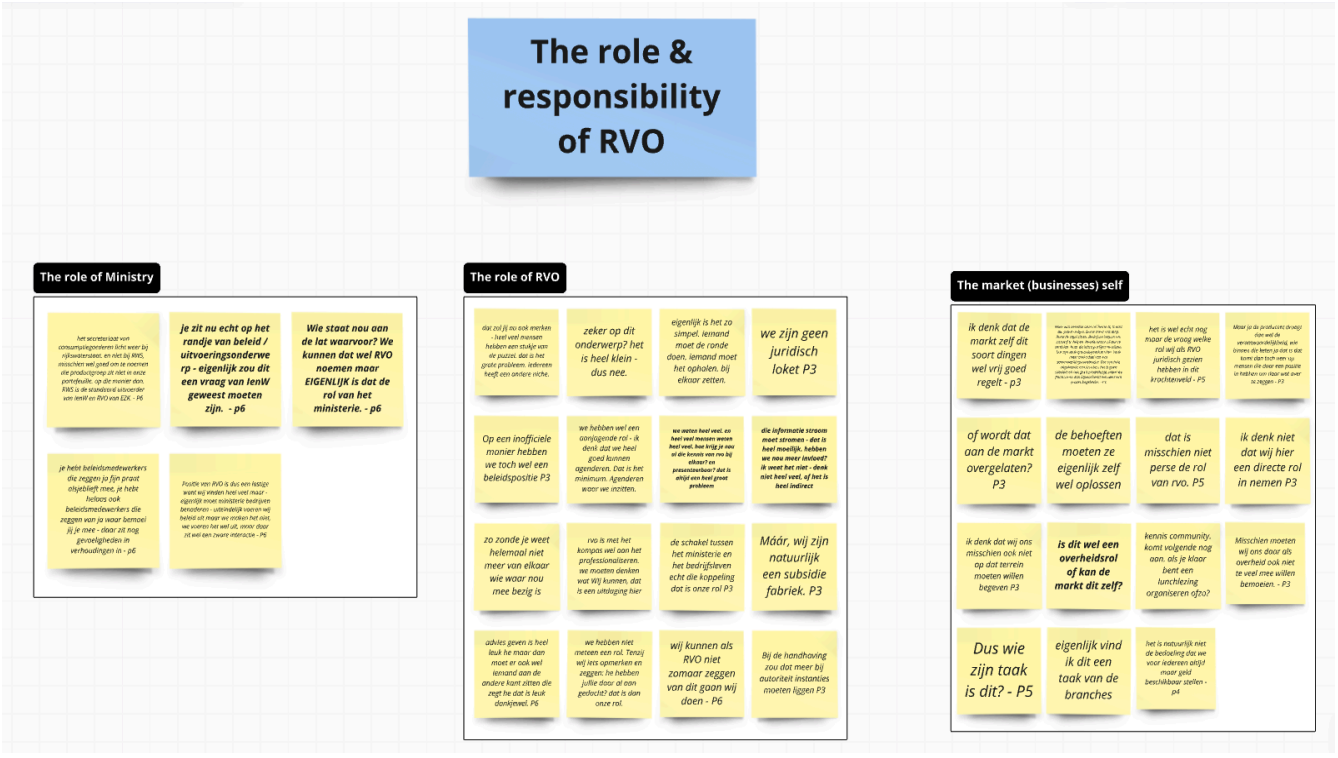
Appendix 4E: Theme 3: Repair & RVO

sub themes: 1) target group for support and 2) repair within RVO instruments



Appendix 4F: Theme 4: The role & Responsibility of RVO

Sub themes: 1) role of Ministry, 2) role of RVO, 3) role of The Market



Appendix 5 - Summary rules Right to Repair Directive

source: EU Commission 2023b
summary: self written

12-month extension of legal guarantee
As part of its efforts to encourage repair over replacement, the directive includes a provision that extends the legal guarantee period by an additional year if a product is repaired by the consumer within the original guarantee period. This extension provides consumers with added assurance that their products will continue to be covered under the guarantee, incentivizing them to opt for repairs.

Obligation to repair
One of the fundamental new rules established by the EU Right to Repair Directive is the obligation imposed on manufacturers to repair goods, that fall under specific EU regulations on repairability, as listed in Annex II of the directive. This obligation extends beyond the legal guarantee period, ensuring that consumers can opt for repair rather than replacement even after the guarantee has expired. Manufacturers must offer these repairs either free of charge or at a reasonable price, and the repairs must be completed within a reasonable timeframe.

Introduction of European Repair Information Form
The directive also introduces a standardized European Repair Information Form, which repairers may provide to consumers. This form includes key information such as the identity of the repairer, the nature of the defect, the type of repair suggested, and the estimated price and time required for the repair. The form is designed to make it easier for consumers to compare repair offers and make informed decisions. If a repairer provides this form, they must honor the conditions stated within it for at least 30 calendar days, ensuring transparency and reliability in repair services.

European Online Platform for Repair
To further enhance consumer access to repair services, the directive establishes a European online platform for repair. This platform will serve as a centralized platform where consumers can find and compare repair services. Member States are required to either integrate their existing national platforms into this European system or create new platforms that meet the directive's standards. The platform is designed to simplify the process of finding repair services and to increase the visibility of repair options across Europe, thereby supporting the growth of the repair industry.

Subcontracting of repairs
To ensure that repairs are carried out efficiently, the directive allows manufacturers to subcontract repair services to third parties. However, the manufacturer retains full responsibility for the repair, regardless of who performs it. This provision ensures that the quality and reliability of repairs are maintained, even if the repair is conducted by an external service provider.

Prohibition on impeding repairs
The directive further introduces stricter rules to prevent manufacturers from creating barriers to repairability. Manufacturers are prohibited from using contractual clauses, hardware, or software techniques that could impede the repair process. This also includes preventing manufacturers from restricting the use of original, second-hand, or 3D-printed spare parts by independent repairers. The goal of this rule is to stimulate competition in the repair market and ensure that consumers have access to affordable and accessible repair options.

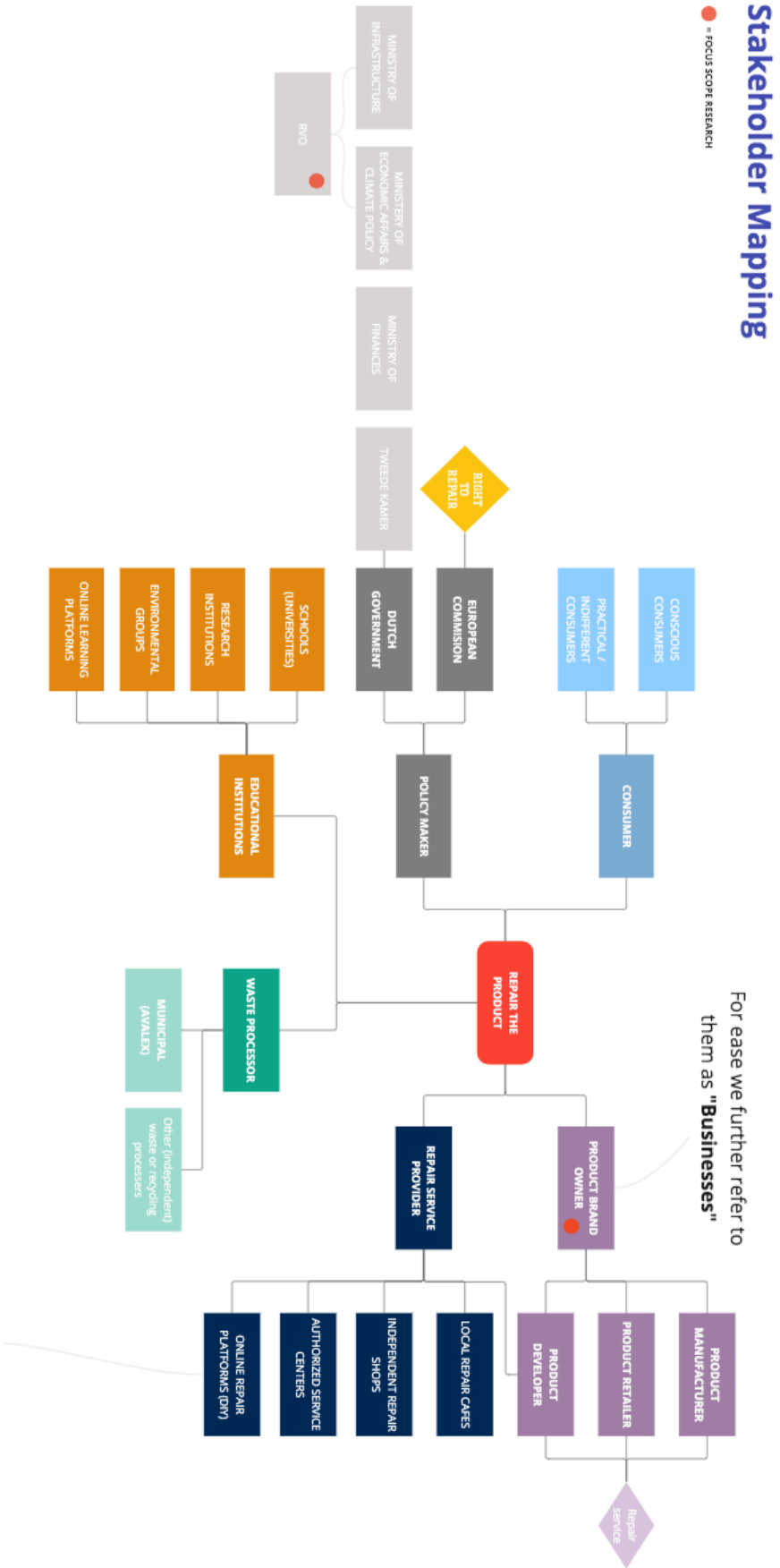
Availability of spare parts and tools
A key aspect of the directive is the requirement for manufacturers to make spare parts and repair tools available at reasonable prices. This provision ensures that the cost of repair does not become a discouragement for consumers. By making spare parts and tools affordable, the directive supports the long-term usability of products and encourages consumers to choose repair over replacement.

Transparency and information disclosure
Manufacturers, or other relevant entities such as authorized representatives, importers, or distributors, are now required to provide consumers with clear and accessible information about their repair services. This information must be available for the entire duration of the manufacturer's obligation to repair the product. The directive mandates that this information be provided on a public, free-access website, including details such as indicative repair costs and the availability of spare parts and tools.

Access to repair services
Consumers are granted the right to seek repair services from any repairer of their choice, not just from the manufacturer. This provision enhances consumer freedom and supports the development of a competitive repair market. Additionally, manufacturers are prohibited from refusing to repair goods simply because they have been previously repaired by another party, further protecting consumer rights and ensuring that repairs remain accessible.

Appendix 6 - Repair Landscape Stakeholder Map

Including key stakeholders affected in the Repair Landscape



Appendix 7 - Right to Repair & Ecodesign

Appendix 7A: Annex ii Ecodesign

Product groups covered for Right to Repair

ANNEX II

LIST OF UNION LEGAL ACTS

LAYING DOWN REPARABILITY REQUIREMENTS

1. Household washing machines and household washer-dryers according to Commission Regulation (EU) 2019/2023[1]
2. Household dishwashers according to Commission Regulation (EU) 2019/2022[2]
3. Refrigerating appliances with a direct sales function according to Commission Regulation (EU) 2019/2024[3]
4. Refrigerating appliances according to Commission Regulation (EU) 2019/2019[4]
5. Electronic displays according to Commission Regulation (EU) 2019/2021[5]
6. Welding equipment according to Commission Regulation (EU) 2019/1784[6]
7. Vacuum cleaners according to Commission Regulation (EU) 666/2013[7]
8. Servers and data storage products according to Commission Regulation (EU) 2019/424[8]
9. [Mobile phones, cordless phones and tablets according to Commission Regulation (EU) .../...[9]]

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[1] Commission Regulation (EU) 2019/2023 of 1 October 2019 laying down ecodesign requirements for household washing machines and household washer-dryers pursuant to Directive 2009/125/EC of the European Parliament and of the Council, amending Commission Regulation (EC) No 1275/2008 and repealing Commission Regulation (EU) No 1015/2010 (OJ 315, 5.12.2019, p. 285).

[2] Commission Regulation (EU) 2019/2022 of 1 October 2019 laying down ecodesign requirements for household dishwashers pursuant to Directive 2009/125/EC of the European Parliament and of the Council amending Commission Regulation (EC) No 1275/2008 and repealing Commission Regulation (EU) No 1016/2010 (OJ 315, 5.12.2019, p. 267).

[3] Commission Regulation (EU) 2019/2024 of 1 October 2019 laying down ecodesign requirements for refrigerating appliances with a direct sales function pursuant to Directive 2009/125/EC of the European Parliament and of the Council (OJ 315, 5.12.2019, p. 313).

[4] Commission Regulation (EU) 2019/2019 of 1 October 2019 laying down ecodesign requirements for refrigerating appliances pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulation (EC) No 643/2009 (OJ 315, 5.12.2019, p. 187).

[5] Commission Regulation (EU) 2019/2021 of 1 October 2019 laying down ecodesign requirements for electronic displays pursuant to Directive 2009/125/EC of the European Parliament and of the Council, amending Commission Regulation (EC) No 1275/2008 and repealing Commission Regulation (EC) No 642/2009 (OJ 315, 5.12.2019, p.241).

[6] Commission Regulation (EU) 2019/1784 of 1 October 2019 laying down ecodesign requirements for welding equipment pursuant to Directive 2009/125/EC of the European Parliament and of the Council (OJ 272, 25.10.2019, p. 121).

[7] Commission Regulation (EU) 666/2013 of 8 July 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for vacuum cleaners (OJ 192, 13.07.2013, p. 24).

[8] Commission Regulation (EU) 2019/424 of 15 March 2019 laying down ecodesign requirements for servers and data storage products pursuant to Directive 2009/125/EC of the European Parliament and of the Council and amending Commission Regulation (EU) No 617/2013 (OJ 74, 18.03.2019, p. 46).

[9] ...

Appendix 7B: Timeline and procedure of adding product groups to EcoDesign - explained by interview P4 (EU expert)

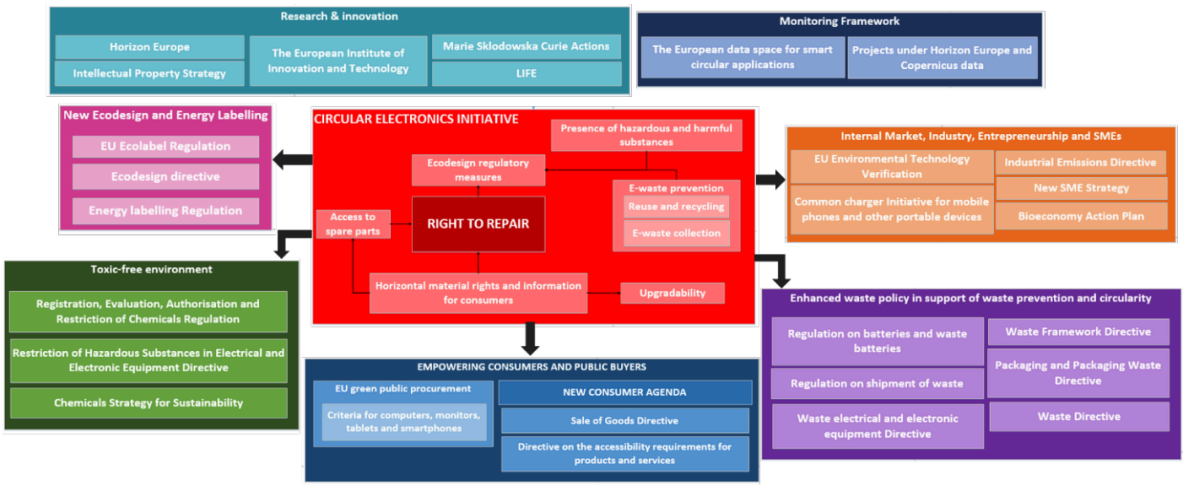
Demonstrating the timely and intensive implementation timeline of adding product groups to Right to Repair

Een ecodesign verordening is een vrij lang traject voor specifieke producten. Het begint met een studie die veelal door consultants wordt uitgevoerd, soms intern van de Commissie, maar vaak ook extern. Als het een nieuw product betreft, dan is dat een soort verkenning van wat de scope moet zijn, wat er op de markt is, of er al gegevens zijn over wat je wilt reguleren, of de meetmethoden beschikbaar zijn. Dat is ook altijd belangrijk. En dan aan het eind van zo'n studie staan een aantal voorstellen van of je keuzes zou kunnen stellen of je zo'n label zou kunnen opstellen. Meestal gebeurt dit voor ecodesign verordeningen en energielabel verordeningen tegelijkertijd. Dat neemt zo'n een tot twee jaar in beslag. Daar zit een aantal vergaderingen bij met stakeholders, dat zijn inderdaad mensen uit de industrie, NGO's, en experts van lidstaten. Daarna neemt de Commissie het stokje over en maakt, op basis van het rapport of de studie, een soort concept verordening die dan ook weer besproken wordt met alle belanghebbenden in wat heet een consultatie forum. Nou, dan volgt er nog een intern proces binnen de Commissie, de interservice consultatie, om te kijken wat andere NGO's ervan vinden. Het moet ook nog geratificeerd worden bij de WTO. Er is ook een publieke internetconsultatie en uiteindelijk komt dan een min of meer definitief voorstel terecht bij het wetgevend comité. En in zo'n vergadering wordt dat regel voor regel doorgelopen. Er komen voorstellen om dingen te veranderen en daar zitten alleen experts van lidstaten in. En uiteindelijk wordt er naar gestreefd om een zodanige tekst op te stellen dat er een gekwalificeerde meerderheid mee instemt. Nou, daar wordt net zo lang aan gesleuteld tot dat het geval is. En dan hebben we de Raad en het Parlement, die kunnen daar nog ja of nee tegen zeggen. Meestal is dat ja en dan wordt de wetgeving gepubliceerd. En dan staat er in dat bijvoorbeeld bij het energielabel, zoals ik net noemde, of je smartphone, twee jaar na publicatie worden de eisen of de regels ook echt van kracht. Nou, die termijnen variëren en dan is het dus wetgeving en is het een verordening, dan is het direct geldig en van toepassing in alle lidstaten, dus hoeft niet meer in nationale wetgeving omgezet te worden. Omdat het verplichte wetgeving is voor ecodesign.

Appendix 7C: Right to Repair in relation to other EU Policies

Figure 13 depicts the EU regulatory framework and policy landscape around the Right to Repair:

Figure 13. EU Policy landscape around the Right to Repair



Appendix 7D: Environmental, economic and social impact R2R

source: **Impact assessment report,** p.101-p.122

	Benefits for 15 years	Costs for 15 years
Environmental impact	CO2 savings: 18.5 million tons CO2-eq = EUR 3.3 billion Resource savings: 1.8 million tons = EUR 1.1 billion Waste savings: 3 million tons = EUR 493.4 million Total monetised: EUR 4.9 billion,	
Economic impact	Savings in production costs: EUR 15.6 billion Growth and investment (in Europe - GVA traders, producers, repairers): EUR 4.8 billion Consumer savings: EUR 176.5 billion (25 EUR per consumer per year)	Business adjustment costs: EUR 8.1 billion Business administrative costs: EUR 69.8 million
Social impact	8,872 jobs, corresponding to EUR ~ 3.3 billion in personnel costs	
Impact on public administration		Implementation and enforcement costs: EUR 105.5 million

Appendix 7E: Additional expert viewpoints on Right to Repair

Collected in Miro: more critical viewpoints

Expert / stakeholder opinions on right to repair

From the internet:

Cristina Ganapini, Right to Repair Europe coordinator said: "Despite the limited scope, this right to repair directive is a step in the right direction. This progress shows that campaigning for a real circular economy pays off: we will keep pushing the EU Commission to include a wider range of products. We will also closely monitor the enforcement of the ban on anti-repair practices and continue to speak out on the implications of its loopholes."

Katrin Meyer, Runder Tisch Reparatur coordinator said: "The ball is now in the Member States' court: it is up to them to turn the toned down European right to repair into a truly ambitious framework for the promotion of repair infrastructure and options for their citizens. In addition to a legally sound implementation of the European requirements, they are now obliged to introduce at least one national support measure. The repair bonus has already proven to be a successful incentive system in some European countries, such as France and Austria, to make repairs more affordable and accessible. Other member states should follow their example and introduce corresponding systems, ideally financed through Extended Producer Responsibility fees."

Thomas Opsomer, Repair Policy Engineer at iFixit, said: "This Directive is a good start but its scope is actually quite limited. An opportunity was missed for measures applying to all electric and electronic products. Given that the newly voted rules do not, nor will in the foreseeable future, apply to the vast majority of short-lived products flooding the EU market, it would be very optimistic to expect that they would even make a dent in the use of resources and the production of e-waste. We will keep pushing for horizontal measures enacting a true right to repair."

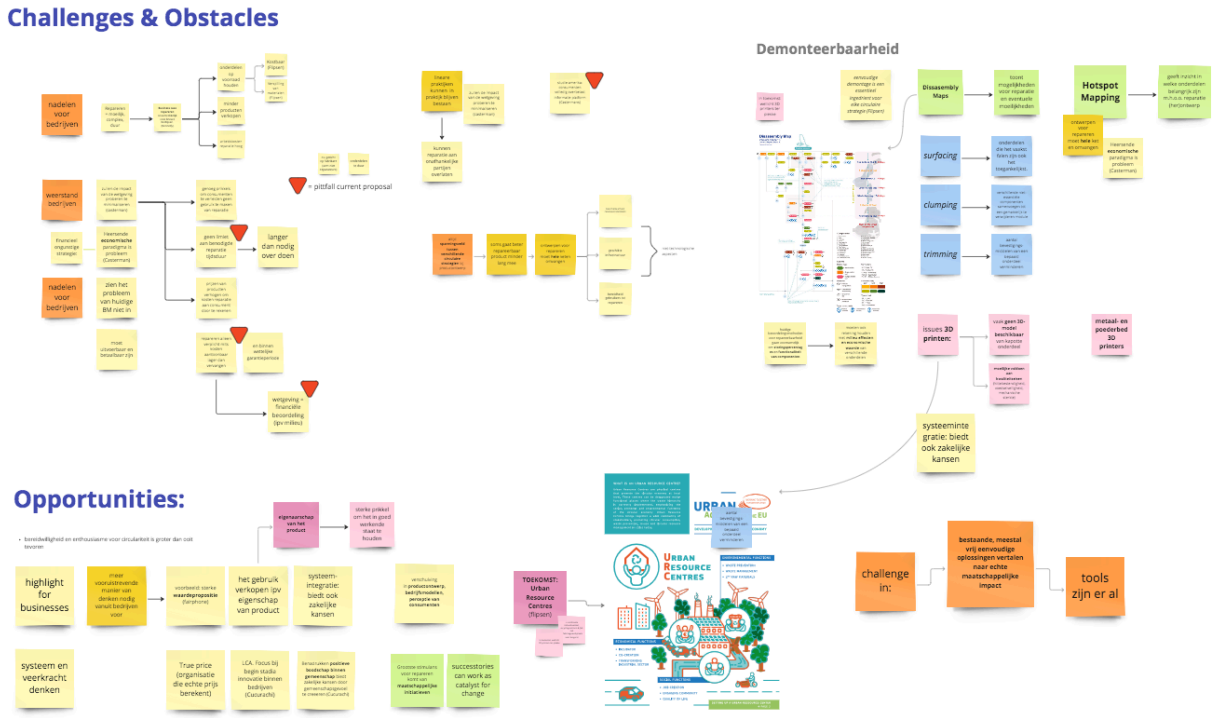
Ugo Vallauri, Co-Director, The Restart Project said: "Price is a decisive factor between a product being theoretically repairable and actually repaired. This directive regrettably fails to define what a "reasonable" cost for repair is, and it only recommends - rather than demanding - that EU member states set financial incentives for repair. The Right to Repair movement will have to increase pressure for the adoption of repair vouchers and financial measures in support of community repair initiatives in each country."

Cristina Ganapini Coordinator of Right to Repair Europe
we must note that with the adoption of the law, a major chance is being missed to create a truly fair repair market in Europe and to ensure affordable repair solutions for the majority of products on the European market. We regret that the scope of products covered remains very narrow and that many loopholes were introduced. We call for a swift implementation of these rules, including Commission guidelines on a clear definition of "reasonable" prices for spare parts, a solid execution of the ban on anti-repair practices and the introduction of national financial incentives for repair by EU Member States.

Appendix 8 - Recommendations for Repair Support

Appendix 8A: Clusters of challenges, obstacles and opportunities in Repair Economy

Source: Whitepaper Repair in Circular Economy (2023)



Thema's

Legislation & Consumer Law	Design & Manufacturing	Business Models & Economic Impacts	Consumer Behaviour	Infrastructure (Spare Parts availability)	Educational & Skill Development	Environmental & Social Impacts
challenge	challenge	challenge	challenge	challenge	challenge	challenge
Issues in balancing consumer rights, manufacturers responsibilities & environmental considerations	Many products are not designed with repairability in mind, causing difficulties in disassembly & increased repair cost.	Current traditional linear business models focused on continuous growth and sales conflict with repair-oriented approaches	Consumer mentality focuses on convenience and novelty, where trends favor new purchases over repairing existing products	There is limited access to essential spare parts and repair guides provided from manufacturers	There's shortage of repair skills and knowledge in the workforce,	It is difficult to assess repair benefits with broader environmental and social implications. Design for repair does not *always* equate durability and longevity.

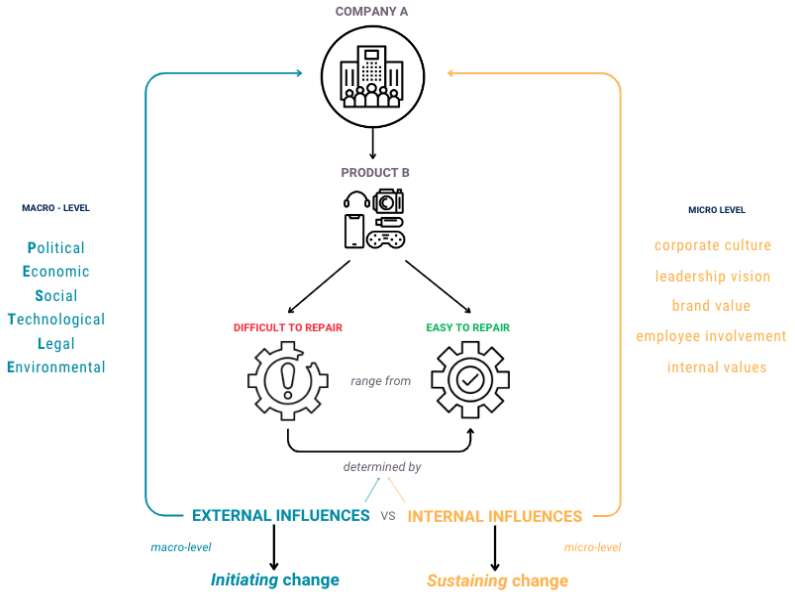
Appendix 8B: Cluster of recommendations for repair support with responsible executive party

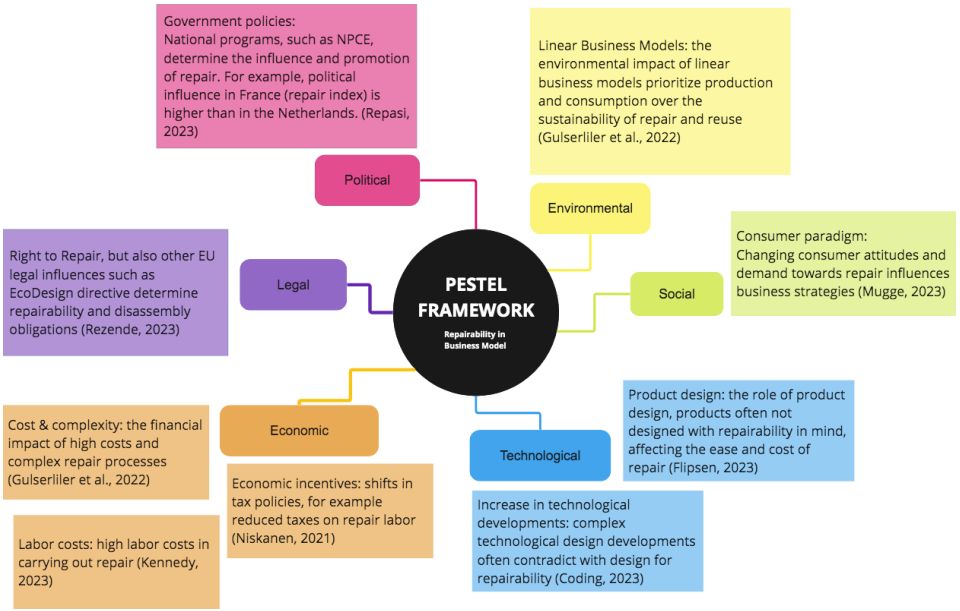
Source: Whitepaper Repair in Circular Economy (2023)

Appendix 8C: Visual and Pestle Framework of factors adopting Repairability Business Model

Visual showcasing the factors influencing a business's adoption of repair practices differentiating between micro and macro level influence. Focusing on PESTEL (macro level) challenges.

source: self-made

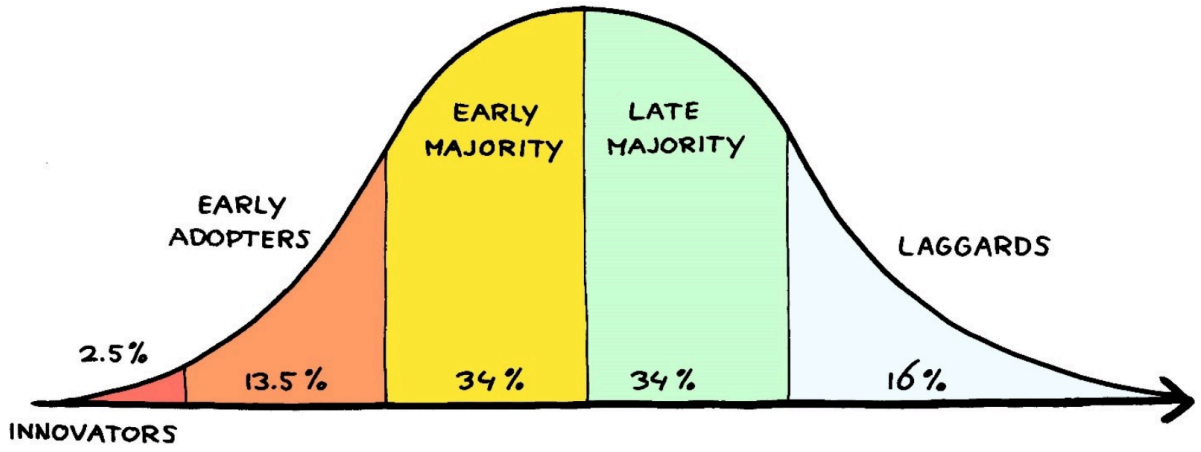




Appendix 10 - Target Audience Analysis

Appendix 10A: Strategic Approach for target audience through diffusion theory

In order to reach the broader Right to Repair objectives, towards a society where repair is the norm in a circular economy, two different strategies can be applied using the innovation model.

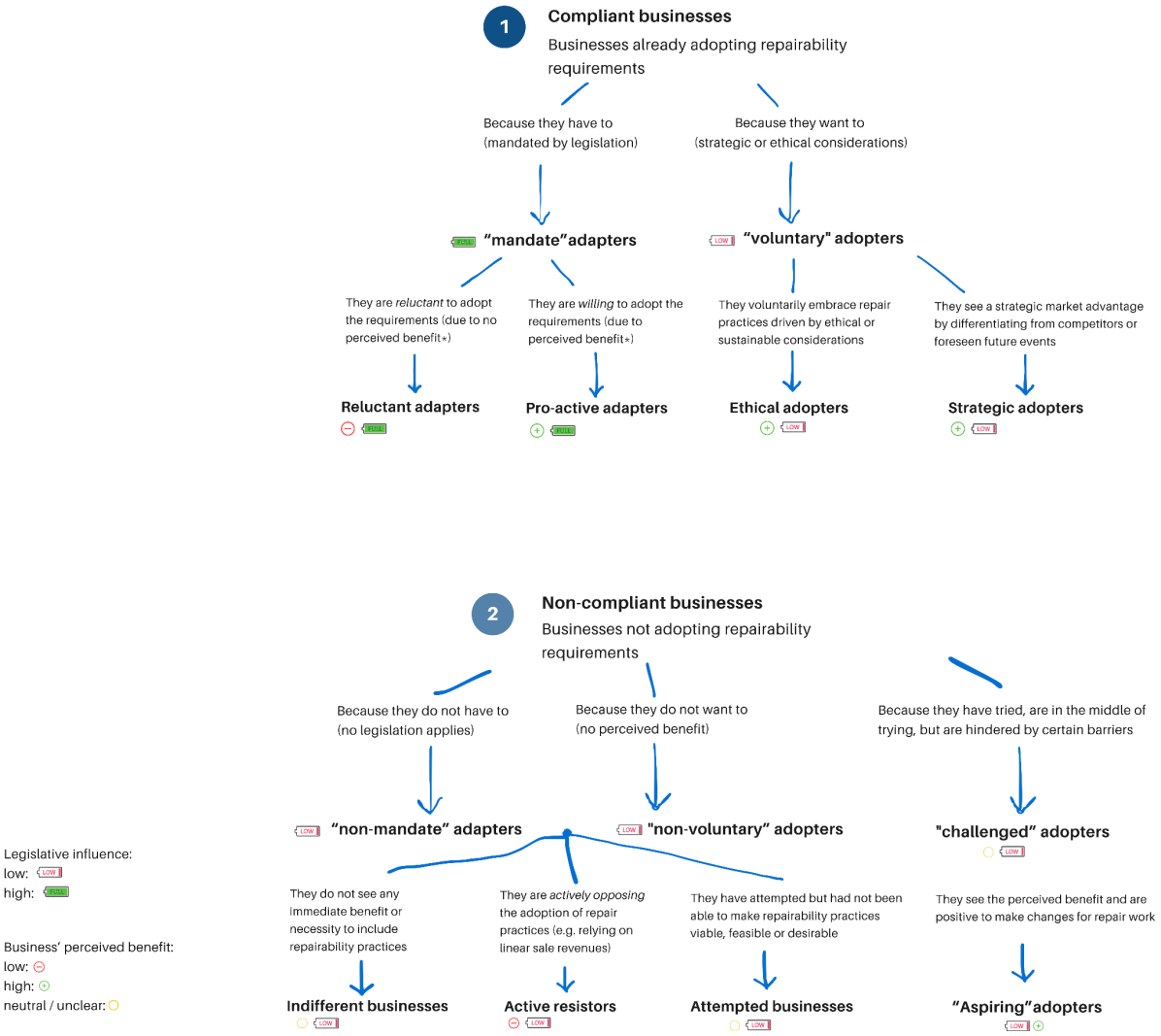


Strategy 1:
The primary goal of this strategy is to encourage businesses that have yet to incorporate repair-oriented practices within their operational models to reconsider their stance. This approach targets businesses traditionally resistant to change, aiming to highlight the inefficiencies and limitations of non-repairable product models. The strategy seeks to convert these "late majority" or "laggards" into active participants in a repair-centric economy. The aim is to foster a business ecosystem where repairable products become the norm.

Strategy 2:
This strategy focuses on businesses that have already integrated repair-oriented models into their operations and have demonstrated significant success. These "early adopters" serve as pioneers within the circular economy. The goal here is to leverage their success stories to create a momentum that not only celebrates their achievements but also establishes a competitive edge that challenges and eventually diminishes the market share of businesses adhering to traditional, linear models. This approach aims to create a dynamic where the success of repair-oriented practices becomes a compelling force for industry-wide transformation, leaving little path for businesses that resist adapting to repairability principles.

Appendix 10B: Business compliance status and legislative influence mental model

Visual showcasing mental attitude towards adopting repair, its perceived benefit and the influence of legislation.



Appendix 11 - The framework: sample requests

Example requests from businesses for each support domain of the framework

EXPLANATION AND DEFINITIONS

TYPE OF SUPPORT MEASURE

- F — Financial support
- K — Knowledge support
- C — Collaborative support

REPAIRABILITY CRITERIA DOMAIN

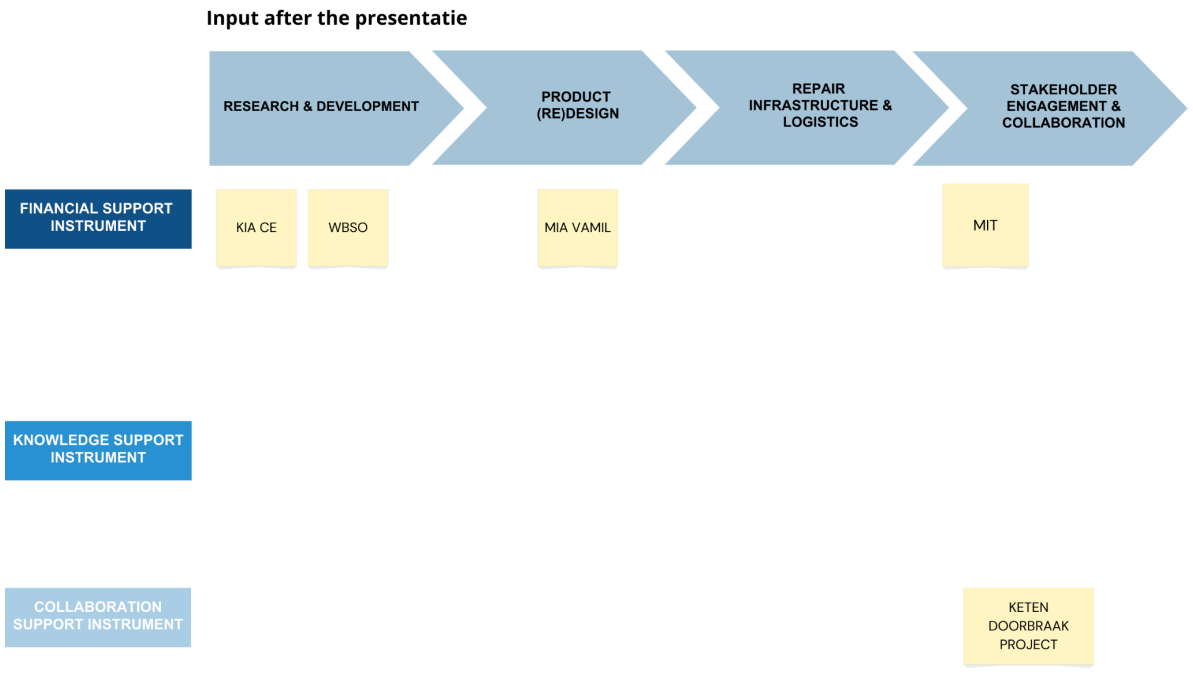
- IP — Information Provision
- PD — Product Design
- RS — Repair Service

SUPPORT DOMAIN	Example request or question from business:	Support needed
IP PD RS **RESEARCH & DEVELOPMENT**	• "Are there subsidies available to support our R&D projects focused on repairability?" • "Where can we access prototyping and testing facilities for new repairable designs?"	K F • Funds for research related to repairability • Knowledge on advantages and disadvantages of repair business models
PD **PRODUCT (RE)DESIGN**	• "How can we redesign our products to make them easier to repair?" • "What funding is available to help us incorporate repairability into our product designs?"	K F • Funding for product redesign • Design consultation on product design for repairability • Information on product IP rights
RS **REPAIR INFRASTRUCTURE & LOGISTICS**	• "How can we reduce the costs of our **spare parts** and manage inventory more effectively?" • "How can we optimize our logistics for spare parts distribution?" • "How can we build a more efficient supply chain for repairable products?"	C K F • Funding for investment costs in spare parts • Improvement of logistics systems for spare parts
IP RS **STAKEHOLDER ENGAGEMENT & COLLABORATION**	• "How can we enhance collaboration with our supply chain partners to support repairability?" • "What programs exist to help us build strategic partnerships for repairable products?" • "How can we engage stakeholders to support our repairability initiatives?"	C K F • Partnership facilitation and networking events • Collaborative projects and funding for partners in the supply chain

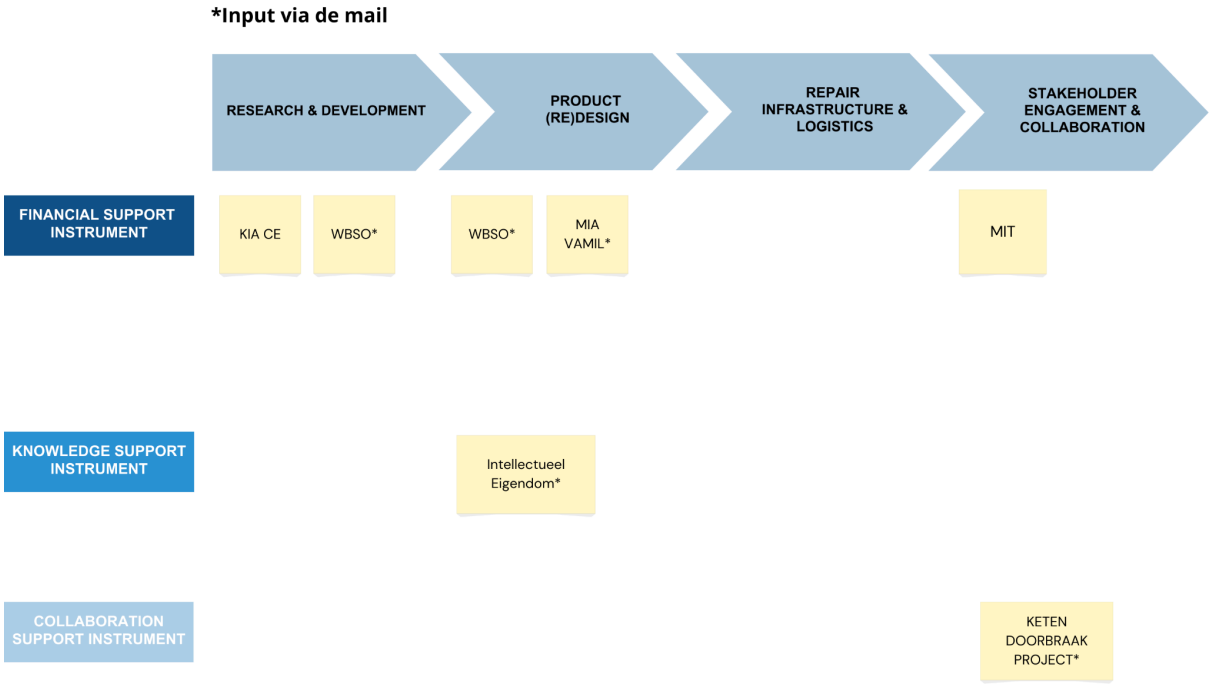
Appendix 12 - The framework: input, output & process

Appendix 12A: step 1: Presentation at RVO (CE Community)

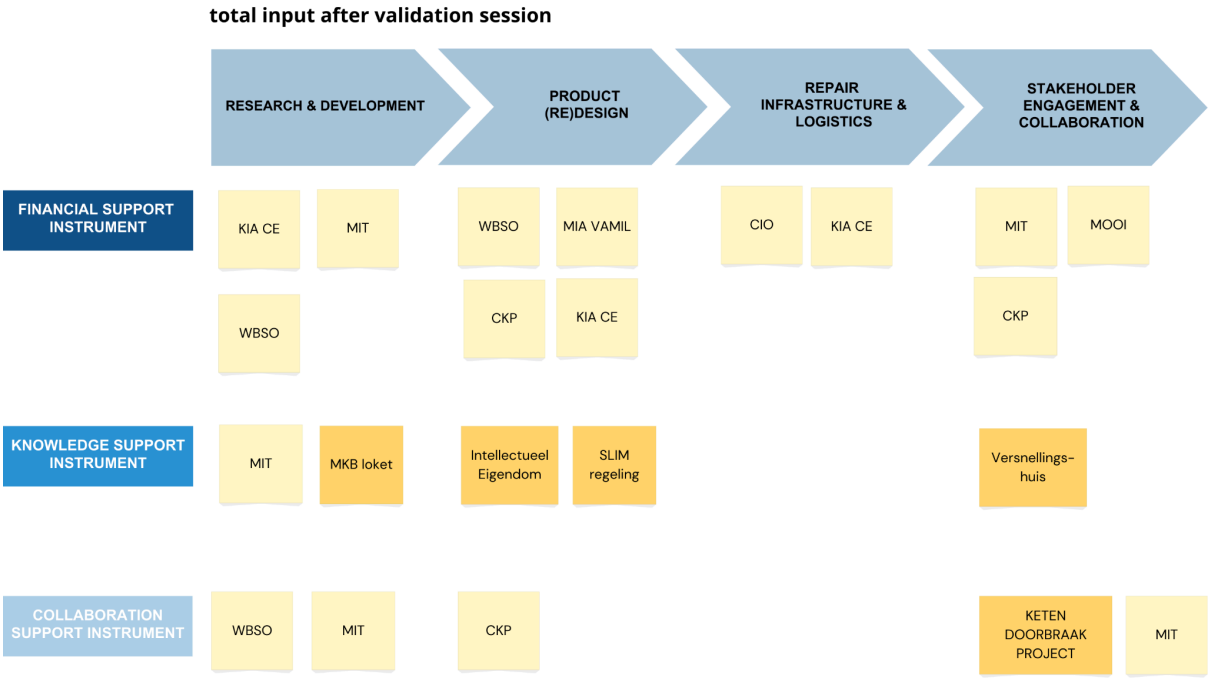
Appendix 12B: framework input after the presentation



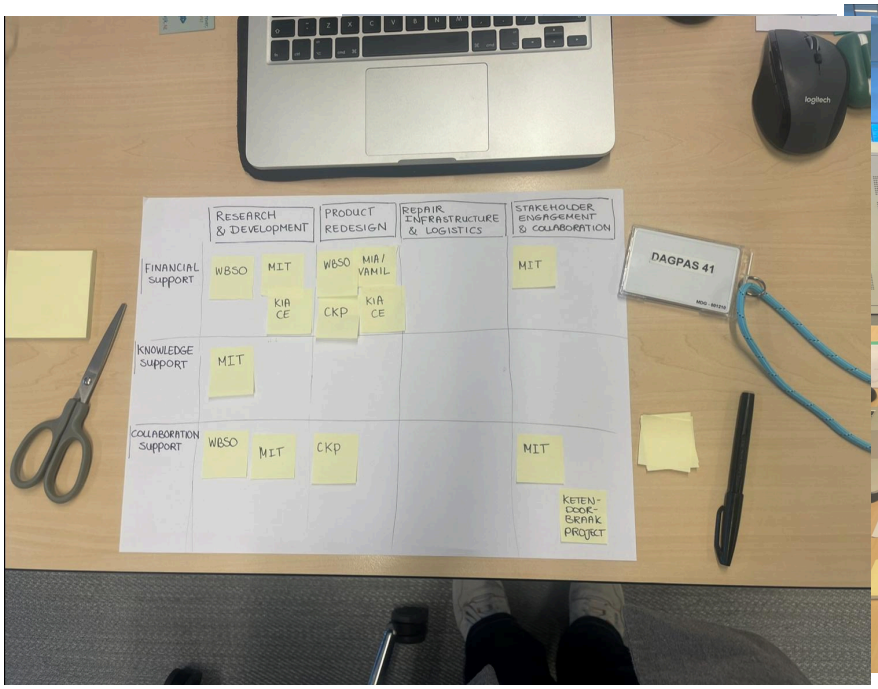
Appendix 12C: framework after the e-mail input

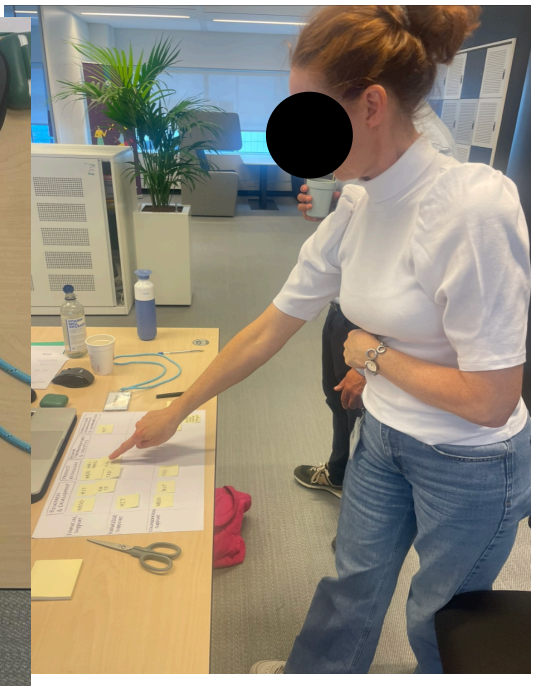


Appendix 12D: framework after the final validation session at RVO: total input



Appendix 12E: Step 3 validation session set-up at RVO





Appendix 12F: step 2: e-mail sent to RVO employees and explanation document

EMAIL REQUEST:

Beste allemaal,

Vorige week heb ik tijdens de CE community een presentatie gehouden over Right to Repair. Voor de aanwezigen wil ik jullie graag nogmaals bedanken voor jullie aandacht en waardevolle input! Zie de bijlage voor de presentatieslides.

Tijdens de slotdiscussie hebben we stilgestaan bij welke regelingen binnen RVO geschikt kunnen zijn om reparatiepraktijken bij bedrijven verder te stimuleren. Om dit in kaart te brengen, heb ik onderstaande matrix opgesteld en kort met jullie besproken. De toelichting voor de matrix, inclusief voorbeelden, is als apart bestand aan deze mail toegevoegd.

Graag aan jullie het vriendelijke verzoek om deze matrix verder in te vullen. Je kunt dit doen d.m.v. een reply op deze mail, of het bijgevoegde word bestand te gebruiken. Jullie input wordt zeer op prijs gesteld en zal mij enorm helpen in de afrondende fase van het onderzoek.

Als je nog op-of aanmerkingen hebt of verder over dit onderwerp in gesprek wil gaan, aarzel dan vooral niet om contact met me op te nemen!

Alvast hartelijk bedankt!

FOUR PAGES OF THE EXPLANATION DOCUMENT:

Introductie

Matrix for supporting repairability practices

Welke *huidige* regelingen van RVO zouden ingezet kunnen worden om reparatie-praktijken bij bedrijven te stimuleren?

Deze invuloefening is gericht op het identificeren van RVO-regelingen die kunnen worden ingezet om reparatiepraktijken bij bedrijven te stimuleren. In de onderstaande matrix kunnen zowel bestaande regelingen worden ingevuld die momenteel worden gebruikt voor reparatiedoeleinden, als regelingen waarvan het potentieel bestaat maar die momenteel nog niet specifiek daarvoor worden benut. Zie de Matrix achterin.

DOEL:

- Beeld schetsen van huidige regelingen die momenteel en potentieel geschikt zijn voor de ondersteuning van reparatie-praktijken
- Identificeren van witte vlekken

Uitleg en definities

TYPE OF SUPPORT MEASURE: Financial, Knowledge, Collaboration

SUPPORT DOMAIN	Example request or question from business:	Support needed
RESEARCH & DEVELOPMENT	• "Are there funds available to support our R&D projects focused on repairability?" • "Where can we access knowledge for the prototyping and testing of our new reparable designs?"	• Funds for research related to repairability • Knowledge on advantages and disadvantages of repair business models
PRODUCT (RE)DESIGN	• "How can we redesign our products to make them easier to repair?" • "What funding is available to help us incorporate repairability into our product designs?"	• Funding for product redesign • Design consultation for product design for repairability
REPAIR INFRASTRUCTURE & LOGISTICS	• "How can we cover the costs of our spare parts and manage inventory more effectively?" • "How can we optimize our logistics for spare parts distribution?" • "How can we build a more efficient supply chain for repairable products?"	• Funding for investment costs in spare parts Loan advantages for repair • initiatives Improvement of logistics • systems for spare parts
STAKEHOLDER ENGAGEMENT & COLLABORATION	• "How can we **enhance collaboration with our supply chain partners** to support repairability?" • "What programs exist to help us build strategic partnerships for repairable products?" • "How can we engage consumers and other stakeholders to support our repairability initiatives?"	• Partnership facilitation or networking events Collaborative projects • Funding for partners in the repair ecosystem

Uitleg & definities

Matrix for supporting repairability practices

HORIZONTALE AS: SUPPORT INSTRUMENT
Op de horizontale as zijn de "support measures" beschreven. Deze bestaan uit de drie verschillende categorieën:

1. **Financial support measures:** Regelingen waarbij er aanspraak gedaan kan worden op ondersteuning met betrekking tot financiering, zoals subsidies en leningen
2. **Knowledge support measures:** Regelingen waarbij er aanspraak gedaan kan worden op ondersteuning met betrekking tot kennis, zoals advies, training en toegang tot informatie.
3. **Collaborative support measures:** Regelingen waarbij er aanspraak gedaan kan worden op ondersteuning met betrekking tot samenwerkingsverbanden, zoals netwerken en partnerschappen.

VERTICALE AS: SUPPORT DOMAIN
Op de verticale as zijn verschillende domeinen gecategoriseerd waaronder bedrijven mogelijk ondersteuning nodig hebben. Deze ondersteuning heeft betrekking tot uitdagingen in de adaptatie van reparatie-praktijken.

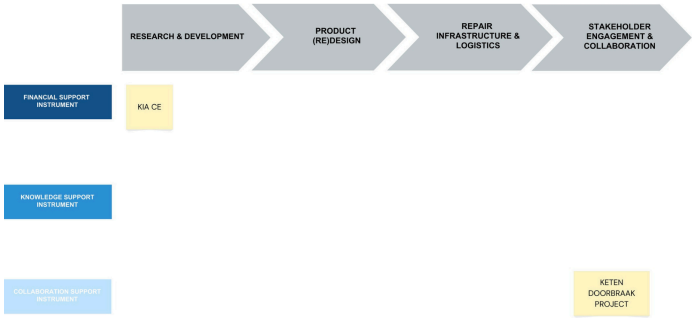
RESEARCH & DEVELOPMENT
Ondersteuning voor innovatie en onderzoeksinspanningen gericht op de ontwikkeling van nieuwe processen en technologieën om de repareerbaarheid van producten te verbeteren

REPAIR INFRASTRUCTURE & LOGISTICS
Ondersteuning om reparatiefaciliteiten te optimaliseren, om reserveonderdelenbeheer te verbeteren en logistieke systemen te versterken voor efficiënte reparatiediensten.

STAKEHOLDER ENGAGEMENT & COLLABORATION
Initiatieven om partnerschappen en samenwerking tussen partners in de toeleveringsketen te bevorderen en belangrijke stakeholders te betrekken.

PRODUCT (RE)DESIGN
Ondersteuning bij het (her)ontwerpen van producten om hun repareerbaarheid te verbeteren door middel van modulair ontwerp, standaardcomponenten en gemakkelijke demontage.

De Matrix



Appendix 12E: e-mail input for the framework from RVO employees

Hoi Clementine,
Hierbij mijn bijdrage, zie bijlage.

MIA-Vamil is een belastingvoordeel voor bedrijven en voor CE met name gericht op apparatuur voor productieprocessen (bv grondstoffenbesparing of biobased reststromen productie) en op circulair bouwen (utiliteit en huurwoningen).

We hebben ook een specifieke code voor refurbishen code F 1300. Voor die code wordt ook apparatuur aangevraagd voor het maken van gerefurbishte producten bv electronica repareren, afgekeurd tapijt of oude beglazing hergebruiken.
Tot nu toe zo'n 10-15 aanvragen hiervoor.

Adviseur MIA\Vamil

Beste Clementine,

Ik was niet aanwezig bij de bijeenkomst maar heb waarschijnlijk nog wel een aanvulling op de matrix. MIA\Vamil stimuleert marktrijpe bedrijfsmiddelen die bijdragen aan CE. Dit gaat om productieprocessen zoals:
Productieapparatuur voor refurbishen of hergebruik (1300)
Apparatuur of voorziening voor demontage ten behoeve van hergebruik of recycling (1301)

Evenuele andere codes met raakvlak:
(Nieuwe en innovatieve) grondstofbesparende productieapparatuur (1200, 1201)

Adviseur MIA\Vamil

Beste Clementine,

Helaas kon ik niet aanwezig zijn bij je presentatie. Hierbij wel mijn inbreng. Misschien kun je het gebruiken .

Er zijn best veel regelingen bij RVO die ondernemers financieel ondersteunen bij innovatie. Bijvoorbeeld de WBSO-regeling. Ik verwijs ondernemers altijd naar de algemene website van RVO voor de details, omdat ik geen specialist ben op dit vlak.

Een ander aspect is intellectueel eigendom. Daarin geef ik voorlichting aan ondernemers. Dit zou een punt kunnen zijn bij "knowledge" in de matrix, vooral de eerste twee kolommen en de laatste kolom. Hier gaat het bijvoorbeeld om je eigen rechten, de rechten van anderen (waar je rekening mee moet houden) en hoe je dit alles slim gebruikt om waarde toe te voegen aan je bedrijf of product. Dit is vrij algemeen, niet specifiek voor ondernemers in de circulaire economie. Maar wel nuttig.
Denk bijvoorbeeld aan goede afspraken als je gaat samenwerken; op tijd je rechten vastleggen als je iets innovatiefs doet en goed inzicht in de stand van de techniek houden. En ook wat mag je wel/niet als het gaat over reparatie of hergebruik.

Adviseur Intellectueel Eigendom Noord-Nederland

Hoi Clementine,
Deze had je nog van me te goed.

Hierbij de publieke database waarin gezocht kan worden zoek je op fairphone krijg je volgnede melding.

https://data.rvo.nl/subsidies-regelingen/projecten?query-content=fair+phone&undefined=Zoeken
https://data.rvo.nl/subsidies-regelingen/projecten/modular-and-fair-5g-smartphone-industrialization-feasibility

Ze hebben gebruik gemaakt van de MIT
https://www.rvo.nl/subsidies-financiering/mit

Filmpje van Fair phone en RVO.
https://www.linkedin.com/posts/martin-duits-904a323_fairphone-eerlijke-telefoon-voor-mens-en-activity-7135234605980241920-LWQK/?originalSubdomain=nl

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Hi Clementine,

Als er een brede behoefte (en geld) is, kan je ook de scope van een bestaand instrument aanpassen als de regelingeigenaar bij beleid dat ook wil (en er genoeg budget is). Denk dan bijvoorbeeld aan het toevoegen van een onderwerp aan een regeling als de KIA-CE of het toevoegen van een productgroep aan de CIO (in ontwikkeling).

Soms kan je als er ook apart budget voor is een apart luik maken in bestaand instrument. Dat is bijvoorbeeld gedaan met de DEI+ (in dat geval voor waterstof) of de MOOI (voor biobased circular).

Het aanpassen van subsidieregelingen kost natuurlijk wel tijd. Het maken en inregelen van een hele nieuwe subsidieregeling kost nog meer tijd. Dan gaat het snel om een periode van een half tot een heel jaar.

Appendix 13: summary of validation call with RVO employee

Date of Call: 4-7-2024 **Duration**: 45 mintues
Participant: Senior Adviseur Circulaire Economie

Variety of recommendations and subsidy types

"Bijvoorbeeld de MIA VAMIL: die wordt elk jaar of half jaarlijks wordt die milieulijst bijgesteld. Op zo'n manier wordt er elk jaar gekeken: wat valt er van de lijst af en wat komt erbij."\

"Grofweg heb je subsidies, fiscale voordelen (mia vamil), regelingen gericht op samenwerken (ketendoorbraak), intellectueel (leg je je idee vast)."

"Ketendoorbraakproject: Is geen subsidie, als je groot consortium hebt."

"Alle verschillende schakels in de keten, stuk of 40, die partijen die meedoen kunnen wel gebruik maken van andere subsidies, CKP en wbso bijvoorbeeld.""Eigenlijk heb je nu ook nog de nationale subsidies, maar je hebt ook de europese subsidies."

Role of the policy owner

"De instrumenthouder bij RVO: die moet signalen opvangen in het veld, en dat aan beleidsmedewerkers doorgeven, van goh als deze volgend jaar weer open gaat dan kunnen we dat aanpassen."

"Dat is dus, bij zo'n CKP zie je dat die een paar jaar loopt, na een paar jaar wordt die helemaal ge-evalueerd: gaat die volgend jaar nog open? Of gaat die eerst geevalueerd worden en dan op een andere manier open?"

"Ja. bij zo'n CKP, alle mensen die er intern bij betrokken zijn, wordt gevraagd, geef even je ervaringen (inhoudelijk of toelichting), op basis van zo'n interne evaluatie gaat Hidde dan aan de slag als regeling eigenaar: dit moet ik intern aanpassen op communicatie naar buiten, of hoe ik inhoudelijk kan gaan sturen om andere dingen uit te vragen op de subsidie."

"Als er een brede behoefte (en geld) is, kan je ook de scope van een bestaand instrument aanpassen als de regelingeigenaar bij beleid dat ook wil (en er genoeg budget is). Denk dan bijvoorbeeld aan het toevoegen van een onderwerp aan een regeling als de KIA-CE of het toevoegen van een productgroep aan de CIO (in ontwikkeling)."

Instrument characteristics

"Met de nieuwe openstelling van het jaar, ga je sturen op andere onderdelen. Dat zie je bijvoorbeeld ook bij de KIA CE, daarvan is gezegd: dit jaar, er zijn bepaalde productgroepen genoemd, elektrische apparaten."

"Met CKP: is echt bedoelt, je hebt een lineaire keten maar je wilt een circulaire keten. 3 tot 6 partijen moeten afspraken gaan maken over hoe ze reparatie dienst willen opzetten, hoe gaan we onderling goede afspraken maken?"

"KIA CE zit in een andere fase. Binnen 2 jaar: hoe ga je anders samenwerken? De ander is echt op meerjarig, een dienst te ontwikkelen, zit veel meer op binnen 5 en 10 jaar hebben wij die dienst gewoon draaiend."

"Het repareren van zonnepanelen, en de dienstverlening erachter, die zit op de KIA CE. Anders dan een demonstratie, die is dan weer algemeen, wbso en de MIT, zit ook weer op samenwerkingsprojecten."

Participation of different stakeholders

"80% van de partijen waar wij mee praten zijn subsidie-adviseurs die mensen helpen om te kijken waar zou jouw diensten of product het beste passen, waar moet je dat indienen en wij gaan jou daar ook nog mee helpen. Dat is een hele fabriek op zich."

"De kwaliteit van de aanvragen neemt daardoor wel toe. Daardoor worden er misschien ook wel meer aanvragen gedaan. Dus heeft positieve en negatieve kanten."

"Bij die ketendoorbraakprojecten zitten wel grote bedrijven, die mogen wel meedoen omdat je hun geen geld geeft, je geeft het geld aan de ketenregisseur. Bij de CKP mogen grote bedrijven wel meedoen, maar de kleine partijen krijgen geld. Die doen dan vaak mee om bijv kleine mkb bedrijven te binden vanuit de keten."

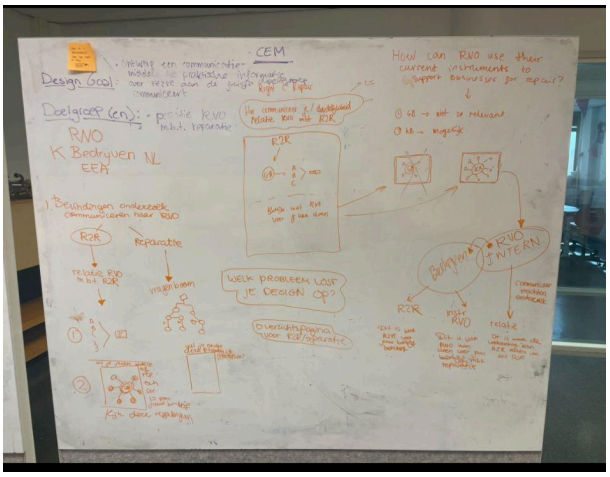
Appendix 14: Recommendations table

	Omschrijving	Wat krijg je?	Voor wie?	Voorwaarden (beknopt)		Mogelijke toepassing voor reparatie	Concrete aanbeveling per regeling t.b.v. reparatie
MIA VAMIL	MIA (Milieu investeringsaftrek) en Vamil (Willekeurige afschrijving milieu-investeringen) zijn **fiscale regelingen** die belastingvoordelen bieden voor investeringen in milieuvriendelijke bedrijfsmiddelen en technieken	• Aftrek van investeringskosten van milieuvriendelijke bedrijfsmiddelen die kan oplopen tot 45% van het investeringsbedrag (MIA) • Afschrijving van 75% van willekeurige investeringskosten (Vamil). Dit levert een liquiditeits- en rentevoordeel op.	• De MIA\Vamil is voor **alle ondernemers** die onder de inkomstenbelasting of vennootschapsbelasting vallen. Ook een overheidsorganisatie, stichting of vereniging als zij vennootschapsbelasting betalen. De regeling is niet voor particulieren.	• De techniek of het bedrijfsmiddel waarin u investeert, staat op de **Milieulijst**. • De investering voldoet aan de omschrijving die daarbij staat	**MIA en Vamil voor ondernemers** Fiscaal voordeel voor ondernemers die investeren in milieuvriendelijke bedrijfsmiddelen en technieken, vermeld op de Milieulijst. Indientermijn verschilt per kostensoort. Bent u ondernemer en wilt u met... RVO.nl	• **Product redesign**: Belastingvoordeel voor investeringen in nieuwe bedrijfsmiddelen of apparatuur voor *productieprocessen*, waardoor product reparatie wordt ondersteund. • **Repair infrastructure & logistics**: investeringen in apparatuur voor de (de)montage van producten.	Mogelijkheden voor belastingvoordelen voor apparatuur of voorzieningen die geschikt kunnen zijn ter bevordering van reparatie zijn er in principe al. Aanbevelingen ter bevordering van reparatie-praktijken: • Actiever op sturen of promoten door gerichte informatie • Promoten van bestaande codes (4) >> 1300, 1200, 1201 en 1301 • Website RVO: Formulering in de beschrijving is nu gericht op apparatuur of voorzieningen voor *hergebruik (refurbishen)* of *recycling*. Deze omschrijving aanpassen of uitbreiden naar *reparatie*.
CKP	CKP (Circulaire ketenprojecten) stimuleert bedrijven om circulaire businessmodellen te ontwikkelen en implementeren.	• **Subsidie** voor activiteiten die drempels wegnemen om producten, processen of diensten circulair te maken in een bestaande of (deels) nieuwe keten. De activiteiten hebben te maken met de circulariteit, nieuwheid of samenwerking in het project. • U ontvangt 50% subsidie over de gemaakte kosten. De andere 50% betaalt u zelf. De subsidie is maximaal € 20.000 per ondernemer in een keten.	• **Mkb-ondernemers of grootondernemers** (maximaal één per samenwerkingsverband) die (gaan) samenwerken om een product- of materiaalketen te sluiten, met een actieve rol in ten minste 3 schakels van de product- of **materiaalketen. Daarmee hebben ze een blijvende rol in de ketensamenwerking na afloop van het project.**	• Minimaal 3 en maximaal 6 mkb-ondernemers of • Eén groot bedrijf en minimaal 2 en maximaal 5 mkb-ondernemers • Minstens 3 deelnemende ondernemers blijven samenwerken na afloop project • Specifieke voorwaarden m.b.t het samenwerkingsverband, procesbegeleider, project, afwijscriteria zie >>	**Subsidie Circulaire ketenprojecten** Subsidie voor mkb-ondernemers die samen met andere ondernemers en een procesbegeleider een product- of materiaalketen willen sluiten. Dit is stap één in de hulp op maat van het Versnellingshuis. Bent u ondernem... RVO.nl	• **Stakeholder collaboration**: samenwerking bevorderen met andere bedrijven en stakeholders in de keten om reparatiegerichte strategieën te integreren en innovatie in reparatietechnieken te bevorderen. • **Repair infrastructure & logistics**: Ondersteuning voor projecten die de infrastructuur en logistiek voor reparatie- en hergebruikprocessen verbeteren.	Belemmering weghalen in de voorwaarden m.b.t. de R-ladder. Nu staat er onder de voorwaarden: • Uw project staat zo hoog mogelijk op de R-ladder van circulaire strategieën. Aanbeveling ter bevordering van reparatie-praktijken: Deze voorwaarden (tijdelijk) vervangen door: • Uw project krijgt voorrang als deze op R-4 Reparatie van circulaire strategieën staat. • Meer sturen op voorbeelden
MIT	MIT (Mkb-innovatiestimulering Regio en Topsectoren) ondersteunt innovaties in het midden- en kleinbedrijf door subsidies voor R&D samenwerkingsprojecten.	• **Subsidie** voor een R&D-Samenwerkingsproject die gericht is op industrieel onderzoek en/of experimentele ontwikkeling van vernieuwing van producten, productieprocessen of diensten. • Tussen €20.000 en € 350.000	• **Mkb-ondernemers Het project bestaat uit industrieel onderzoek en/of experimentele ontwikkeling, dat door minimaal 2 mkb'ers wordt uitgevoerd.**	• Minimaal 2 mkb'ers • De subsidie bedraagt 35% van de subsidiabele kosten. • De deelnemers aan het R&D-samenwerkingsverband vormen een evenwichtig samenwerkingsverband. Dit geldt zowel voor de verdeling van de kosten als voor de inbreng van de deelnemers. • Eén deelnemer mag niet meer dan 70% van de kosten voor zijn rekening nemen. • Alleen de kosten die zijn gemaakt door de mkb'ers zijn subsidiabel • De looptijd van een R&D-Samenwerkingsproject is maximaal 2 jaar.	**MIT: Mkb-innovatiestimulering Regio en Topsectoren** Subsidie voor het mkb om innovatieprojecten te stimuleren. MIT kent verschillende instrumenten. Wilt u als mkb'er aan de slag met innovatieprojecten? Dan is de Mkb-innovatiestimulering Regio en... RVO.nl	• **Research & Development**: Subsidies voor mkb-bedrijven om samen te werken aan innovatieprojecten gericht op reparatieprocessen en repareerbare productontwerpen. • **Stakeholder collaboration**: Gezamenlijke projecten gericht op reparatie in de keten	• Aanvragen worden afgehandeld volgens het tenderprincipe. Onder de **4 rangschikkingscriteria** (vernieuwing, economische waarde, kwaliteit van samenwerken en positieve impact), zou een aanbeveling kunnen zijn om reparatie (tijdelijk) in deze rangschikkingscriteria te integreren.
WBSO	WBSO (Wet bevordering speur- en ontwikkelingswerk) is een **fiscale regeling** voor bedrijven die investeren in R&D.	• Vermindering van de loonkosten door een belastingaftrek voor R&D • Mogelijkheid tot verlaging van overige kosten zoals materialen en prototypes. • De WBSO vergoedt een deel van de loonkosten van het S&O-project. Ondernemingen met personeel kunnen daarbovenop een aftrek ontvangen over andere kosten en uitgaven van het S&O-project, zoals de inkoop van materialen.	• Bedrijven (MKB en Grootbedrijf) • Zelfstandige Ondernemers (ZZP'ers); • Startups	• U ontwikkelt zelf nieuwe programmatuur, een (tastbaar) product of productieproces, of doet technisch-wetenschappelijk onderzoek. • U kunt alléén WBSO aanvragen voor toekomstige S&O-werkzaamheden.	**WBSO: fiscale regeling voor research en development** Fiscale innovatieregeling voor bedrijven (incl. starters en zelfstandigen) die ontwikkelings- en/of onderzoeksprojecten uitvoeren en hun kosten voor Research & Development (R&D) willen verlagen. De... RVO.nl	• **Research & Development**: Onderzoek naar nieuwe technologieën en methoden voor productreparatie en het verbeteren van de repareerbaarheid van bestaande producten. • **Product Design**: Onderzoek naar product ontwerp optimalisatie voor reparatie AA	Nu generiek. Aanbeveling: • (Tijdelijk) specifieker promoten voor onderzoek naar reparatie. • Actief promoten onder bedrijven
KIA CE	KIA CE (Kennis- en Innovatieagenda Circulaire Economie) richt zich op het stimuleren van kennis en innovatie binnen de circulaire economie.	• Ondersteuning voor kennisontwikkeling en innovatieve projecten binnen de circulaire economie. • Subsidies voor onderzoeks- en samenwerkingsprojecten. • De maximale subsidie per project is € 500.000	• klein, middel en groot bedrijven	U kunt subsidie krijgen voor 3 typen projecten: 1. technologisch onderzoek en technologische ontwikkeling gericht op een nieuw of sterk verbeterd product, dienst en/ of proces. 2. onderzoek naar gedrag van consumenten, bedrijfs- of verdienmodellen (of een combinatie hiervan). Met uw activiteiten helpt u bij de ontwikkeling van een *nieuw* circulair product, dienst of proces; 3. U doet een combinatie van 1 en 2.	**Kennis en Innovatie Agenda - Circulaire Economie (KIA CE)** Subsidie voor ondernemers die mogelijkheden onderzoeken voor goedkopere circulaire producten of services. Met als doel: vóór 2030 een eerste markttoepassing in een betekenisvolle Nederlandse industriële...	• **Productherontwerp**: Bevordering van projecten die kennisontwikkeling en implementatie van repareerbare productontwerpen ondersteunen. • **Stakeholder collaboration**: ketenbrede samenwerking gericht op reparatiepraktijken en het delen van kennis en ervaring.	**Advies:** • (Tijdelijk) projecten binnen de consumptiegoederen - elektrische en elektronische apparaten - m.b.t. reparatie voorrang geven. • Bijvoorbeeld: bij de volgende KIA CE regeling krijgen reparatie specifieke projecten voorrang
KETEN DOOR BRAAK PROJECT	Ketendoorbraakprojecten richten zich op het doorbreken van ketenproblemen door samenwerking tussen verschillende ketenpartners.	• Toegewezen ketenregisseur	• Bestaand consortia van ketenpartners	In deze fase is er al een bestaand consortia van ketenpartners, een ondertekend ambitiedocument en Plan van Aanpak om te komen tot een circulaire keten. Hier brengen de betrokken partijen het plan richting de circulaire sector in uitvoering.	**Circulaire ketenondersteuning vanuit het Versnellingshuis** In deze fase is er al een bestaand consortia van ketenpartners, een ondertekend ambitiedocument... versnellingshuisce.nl	• **Stakeholder collaboration**: Toegewezen ketenregisseur om samen te werken met partners in de keten om reparatie initiatieven te ontwikkelen • **Repair infrastructure & logistics**: logistieke / operationele barrières aankaarten.	**Advies:** • (Tijdelijk) voorrang op projecten gericht op reparatie. • Promoten geschiktheid voor reparatie doeleinden
MOOI	De MOOI (Missiegedreven Onderzoek, Ontwikkeling en Innovatie) is een subsidieprogramma dat gericht is op het stimuleren van samenwerking tussen bedrijven, kennisinstellingen en andere organisaties	*Maximale subsidiebedrag* € 4.000.000 en minimaal € 25.000 voor iedere deelnemer.	• U heeft een samenwerkingsverband met minimaal 3 ondernemingen dat het project gaat uitvoeren. Deze mogen niet met elkaar verbonden zijn in een groep.	• U heeft een samenwerkingsverband met minimaal 3 ondernemingen dat het project gaat uitvoeren. Deze mogen niet met elkaar verbonden zijn in een groep. • In uw project ontwikkelt u de oplossingen en innovaties in een duidelijk samenhangende aanpak. Die richten zich op de doelen uit het Klimaatakkoord. De partijen brengen hun verschillende expertises en perspectieven samen in een veelal cross-sectoraal samenwerkingsverband. Zoals vernieuwende mkb'ers en belanghebbenden. Belanghebbenden zijn bijvoorbeeld: ◦ leveranciers, afnemers, gebruikers, lokale partijen	**MOOI: Industrie** Subsidie voor meerjarige samenwerking in onderzoek naar innovaties die de industrie verduurzamen gericht op een praktische toepassing binnen 10 jaar. Werkt u samen met andere partijen in een consortium aan... RVO.nl	• **Stakeholder collaboration**: Toegewezen ketenregisseur om samen te werken met partners in de keten om reparatie-initiatieven te ontwikkelen • **Research & Design**: onderzoek naar bevordering ter reparatie	**Advies:** • Specifiek sturen op reparatie • Expertise van regelingexpert inzetten
SLIM regeling	De SLIM-regeling biedt subsidies aan mkb-ondernemers om een leven lang leren en ontwikkelen binnen hun bedrijf te stimuleren. Het richt zich op scholing en ontwikkeling van medewerkers.	*Mkb-bedrijven kunnen deze subsidie gebruiken voor het opleiden van hun personeel, bijvoorbeeld door middel van cursussen, trainingen, en ontwikkelingsprogramma's.*	• mkb-ondernemingen; • samenwerkingsverbanden in het mkb; • grootbedrijven uit de sectoren landbouw, horeca en recreatie.	• Als ondernemer kun je subsidie aanvragen voor het ontwikkelen of invoeren van een methode. De methode is primair gericht op het leren en ontwikkelen van werkenden in de onderneming en stimuleert werkenden structureel om hun kennis, vaardigheden en beroepshouding verder te ontwikkelen tijdens het werk.	**SLIM-regeling** In het midden- en kleinbedrijf (mkb) is het minder gewoon dat medewerkers leren en ontwikkelen tijdens hun werk. Door seizoensarbeid is het ook l... rijksoverheid.nl / sep '20	• **Research & Design**: onderzoek naar bevordering ter reparatie • **Product Redesign**: scholing van personeel om product ontwerp te optimaliseren voor reparatie	**Advies:** • Gebruik SLIM voor scholing in reparatievaardigheden en -technieken. Voeg deze optie in de omschrijving toe. Dit is voor reparatie zeker interessant als het gaat om herontwerpen van producten
Intellectueel Eigendom	Wilt u uw innovatie op de markt brengen of gaan samenwerken met een andere partij? Daar komt veel bij kijken. Een van de dingen die u dan goed moet regelen, is uw intellectueel eigendom (IE). Octrooicentrum Nederland ondersteunt u daarbij.	Octrooiadviseur. In een gesprek beantwoorden zij uw specifieke vragen en geven zij tips voor het gebruik van intellectueel eigendom. Algemeen via onze website en via webinars. Wat meer verdiepend via workshops. En verder op maat door gesprekken met ondernemers (fysiek en online).	• Iedere ondernemer is welkom om contact op te nemen. Zelf richten we ons vooral op de technisch-innovatieve ondernemer.	• geen specifieke voorwaarden	**Gesprek met een octrooiadviseur - voor ondernemers** Wilt u uw innovatie op de markt brengen of gaan samenwerken met een andere partij? Daar komt veel bij kijken. Een van de dingen die u dan goed moet regelen, is uw intellectueel eigendom (IE). Octrooicentrum... RVO.nl	• **Research & development** • **Product Redesign** • **Stakeholder collaboration**	**Advies:** • promoten voor IE specifiek op reparatie & product ontwerp voor modulariteit
CIO	Het ministerie van Infrastructuur en Waterstaat (IenW) bereidt een **subsidieregeling 'circulair implementeren en opschalen' voor.** De subsidie richt zich op circulaire projecten, waardoor materialen en producten langer en vaker gebruikt worden. Dit kan bijvoorbeeld door hergebruik, reparatie of opnieuw produceren van producten en materialen in plaats van de standaard productie-gebruik-afval keten. Deze subsidie helpt bedrijven bij het starten en opschalen van vernieuwende circulaire projecten.	• Subsidie	De subsidie richt zich op midden- en kleinbedrijven (mkb) of samenwerkingsverbanden van mkb met grootbedrijf die circulaire activiteiten willen ondernemen in de productgroepen: • elektronische en elektrische apparatuur; • textiel; • luier- en incontinentiemateriaal; • herbruikbare bekers en maaltijdverpakkingen; • meubilair.	in de productgroepen: • elektronische en elektrische apparatuur; • textiel; • luier- en incontinentiemateriaal; • herbruikbare bekers en maaltijdverpakkingen; • meubilair.	https://www.internetconsultatie.nl/subsidieregeling_circulair_implementeren_opschalen/b1#sectie-4791	• Research & Development • Infrastructure & Logistics	**Advies:** • Specifiek promoten van participatie grote bedrijven in deze regeling

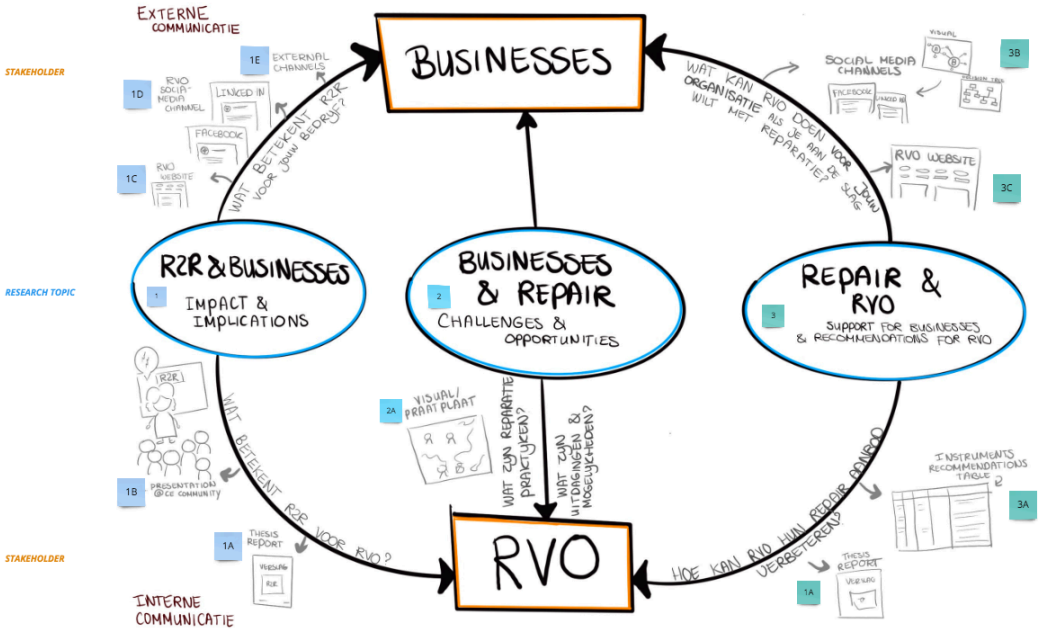
Appendix 15: Brainstorm Session Design Solution

Outcome: design goal, design requirements, topics to be communicated and communication means

CO BRAINSTORM



INDIVIDUAL BRAINSTORM



Appendix 16: Validation Social Media Post (individuals)

Questions asked (n=3):

1. What are your first thoughts after seeing this post?
2. On a scale of 1-10, how informative is this post?
3. On a scale of 1-10, how well did you understand the content?
4. What would you do after reading this post?
5. Are there elements from the post you did not understand?

Adjustments after output:

- make text easier to understand (more in common language: like remove directive)
- make key insights bold

Design Requirements met?

- Informative: yes
- Self explanatory: yes
- Relevant: yes
- Easy to use: yes
- Visually structured: yes

Appendix 17: Validation for the Visual (individuals)

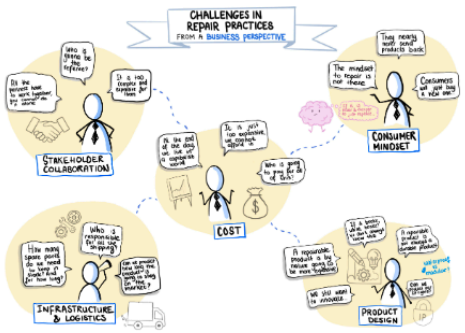
GOOGLE FORMS

Visual

Deze form gaat over de beoordeling van een visual. Bekijk eerst de visual voordat je de vragen beantwoord.

cemmievg@gmail.com Ander account

Niet gedeeld



Wat is in één woord je eerste indruk van de visual?

Jouw antwoord

Wat denk je dat het belangrijkste doel is van deze visual?

Jouw antwoord

Op een schaal van 1-10, hoe informatief vind je deze visual?

	1	2	3	4	5	6	7	8	9	10	
Totaal niet informatief	○	○	○	○	○	○	○	○	○	○	Zeer informatief

Hoe duidelijk vind je dat de visual de uitdagingen in reparatiepraktijken **vanuit een bedrijfsperspectief** overbrengt?

	1	2	3	4	5	
Helemaal niet duidelijk	○	○	○	○	○	Heel duidelijk

Optioneel: Hoe zou dit verduidelijkt kunnen worden?

Jouw antwoord

Vind je dat de visual voldoende informatie geeft om snel te begrijpen welke factoren de grootste uitdagingen vormen voor bedrijven?

	1	2	3	4	5	
Te weinig informatie	○	○	○	○	○	Voldoende informatie

Denk je dat deze visual nuttig zou zijn voor partijen die snel en toegankelijk meer willen weten over reparatiepraktijken?

- ○ Ja
- ○ Nee
- ○ Anders:

Zet de visual aan tot denken?

- ○ Ja
- ○ Nee
- ○ Niet in het bijzonder

Vind je de indeling en de visuele weergave van de informatie (bijv. quotes en layout) logisch en gemakkelijk te volgen?

- ○ Ja
- ○ Nee
- ○ Anders:

Welke onderdelen van de visual zou je veranderen of verder verduidelijken? Heb je nog overige opmerkingen?

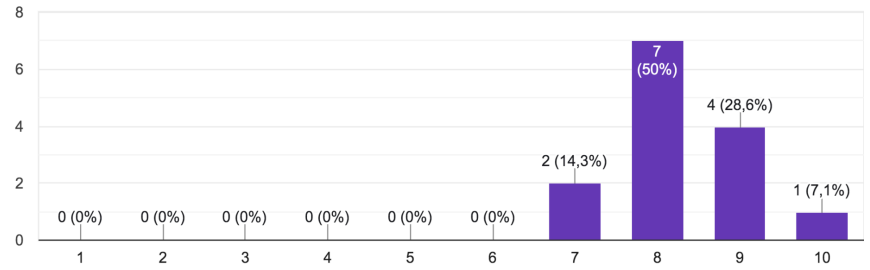
Jouw antwoord

Verzenden Formulier wissen

RESULTS & RESPONSES (n=14)

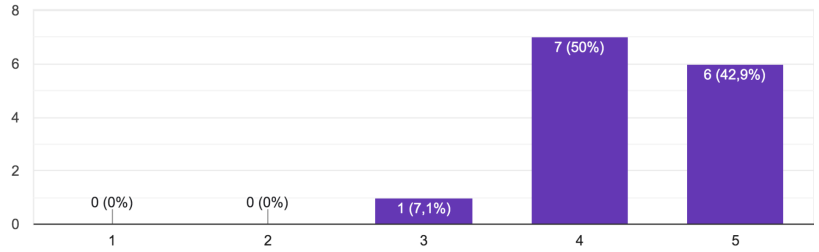
Op een schaal van 1-10, hoe informatief vind je deze visual?

14 antwoorden



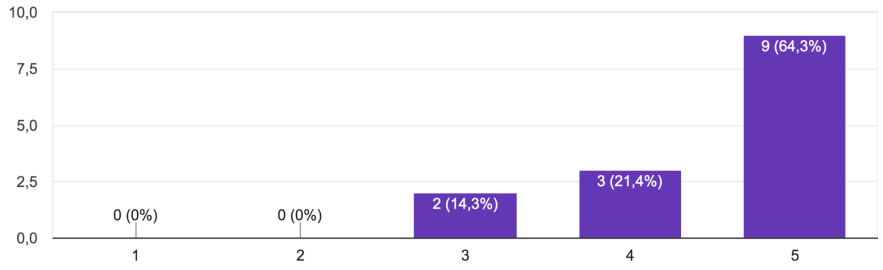
Hoe duidelijk vind je dat de visual de uitdagingen in reparatiepraktijken vanuit een bedrijfsperspectief overbrengt?

14 antwoorden



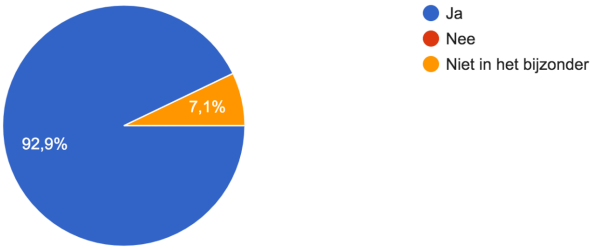
Vind je dat de visual voldoende informatie geeft om snel te begrijpen welke factoren de grootste uitdagingen vormen voor bedrijven?

14 antwoorden



Zet de visual aan tot denken?

14 antwoorden



Qualitatieve feedback visual

Welke onderdelen van de visual zou je veranderen of verder verduidelijken? Heb je nog overige opmerkingen?
12 antwoorden
Stropdas bij het ene poppetje. Dat is het enige.
Misschien een plaatje van een gebroken product centraal? Dan begrijp je zonder te lezen waar het over gaat?
Bigger font?
Ik zou de titels van verschillende groepen groter maken
Tekstwolkjes in getypte tekst ipv handgeschreven, en misschien bepaalde kleuren geven aan de verschillende onderdelen. Icoontjes kunnen duidelijker gemaakt worden per onderdeel en meer zichtbaar daardoor. Let ook op "gonna" > going to
Zie andere opmerkingen bij andere vragen
Ik zou misschien nummers toe voegen zodat je wat waar je moet beginnen en eindigen met lezen
Misschien elk bolletje op de achtergrond een andere kleur maken zodat je duidelijk aangeeft dat het verschillende categorieën zijn
Misschien dus vervolgstappen?
Vooral de titel mag wat meer de reden voor de visual uitleggen. De losse stukjes zijn super duidelijk!
Meer volgordelijkheid in de tekstbubbels, meer samenhang tussen de onderwerpen
heel leuk! redelijk simpel maar nodigt wel uit om over na te denken

Wat is in één woord je eerste indruk van de visual?
7 antwoorden
Overzichtelijk
Duidelijk
Opinies
Geordend
Mooi! Wel beetje druk en veel info
Informatief
Cool

Optioneel: Hoe zou dit verduidelijkt kunnen worden?
7 antwoorden
De titel kleiner maar dat stukje titel van vanuit een bedrijfsperspectief groter
-
De lijnen gaan allemaal naar costs toe, maar is dat echt te belangrijkste en zijn alle problemen daaraan gekoppeld? Lijken er ook wat tussen te staan die niet aan cost verbonden zijn, dus niet alles is daarnaar terug te lijden.
'From a business perspective' trekt relatief weinig aandacht, zou wellicht helpen een grotere font size te gebruiken en het kader om dit deel van de titel te zetten
Ik vind het verwarrend dat bij de 'consumer mindset' het lijkt alsof er vanuit de consument wordt gepraat door de titel en het poppetje maar vervolgens vanuit perspectief van het bedrijf wordt geschreven.
Dit zijn misconceptions naar mijn idee vanuit een organisatie. De titel is wat generiek en mag wel het hoofddoel van de visual zijn maar mijn mening
grotere titel

Wat denk je dat het belangrijkste doel is van deze visual?
14 antwoorden
Het belangrijkste doel is de probleemstelling van reperabelheid weergeven
Uitleggen dat het voor alle partijen best lastig is om producten te maken die herstelbaar zijn. Heeft er iemand wel belang bij, waar doen we het dan voor?
To visually create awareness / better understanding of the challenges in a simple manner
Dat er meerdere challenges zijn vanuit meerdere perspecieven als het gaat om repareerbare producten
Het uitleggen van uitdagingen in productherstel processen vanuit verschillende perspectieven
Overzicht weergeven van de verschillende aspecten van repair practice
Het laten zien van problemen die opkomen bij verschillende stakeholders en waarom het hierom lastig is om repair practices toe te passen op businesses
Alle problemen op een rij krijgen gecategoriseerd per stakeholder
Overzicht geven van verschillende uitdagingen
Aanduiden wat de moeilijkheden kunnen zijn bij het makkelijker repareerbaar maken van producten
De verschillende kanten belichten van vraagstukken tijdens het ontwikkelen van een product
Informeren over de perspectieven van verschillende stakheolders als het gaat om het repareren van producten
Uitdagingen in repair services uitleggen
challenges in een repair business model uitleggen

Adjustments after feedback:

- Grotere titel
- Blauwe lijnen weghalen
- "Business Perspectives" vergroten en buiten de titel
- Consumer mindset meer vanuit bedrijf laten praten
- Nummers toevoegen aan de verschillende koppen
- Titels van de groepen groter maken
- Ontbrekende stropdas bij infrastructuur & logistiek toepassen

Design Requirements met?

- Informative: yes
- Self explanatory: yes
- Relevant: yes
- Easy to understand: yes
- Visually structured: yes

Appendix 18: Validation Feedback RVO

overview of Miro validation feedback

Appendix 18A: validation calls

Key comments validation call 1 (P1 45 min)

senior advisor

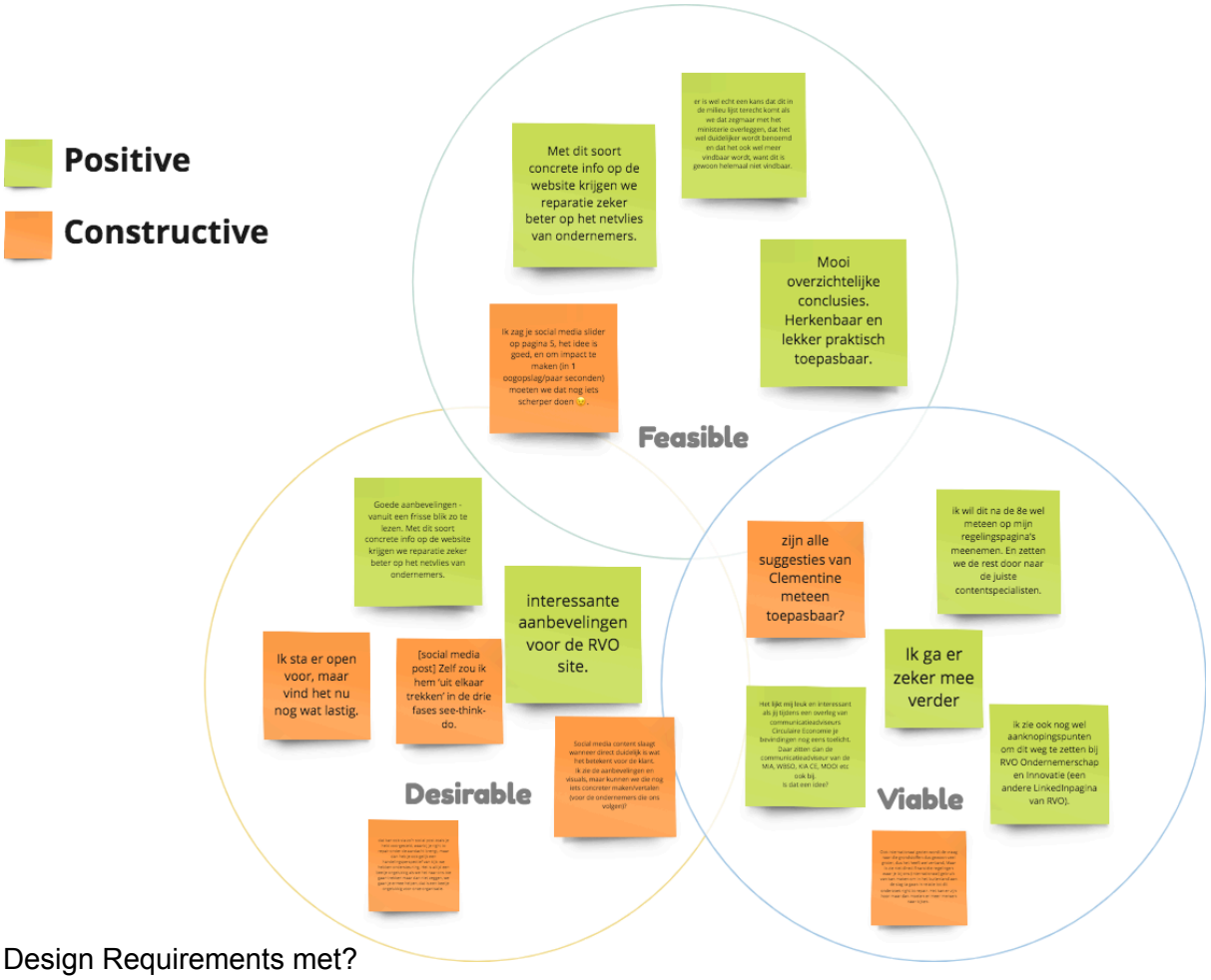
Key comments validation call 2 (P2 20 min)

communication advisor

Appendix 18A: Email input

n=6

Appendix 18B: Feedback on evaluation criteria



Design Requirements met?

- Informative: yes
- Self explanatory: partly - implementation steps required
- Relevant: yes
- Easy to understand: partly - additional explanation required

Appendix 19A: Key feedback after Implementation Session n=9

IMPLEMENTATION SESSIONS - CALL RVO EMPLOYEES

Als we het zouden valideren zou we dat kunnen doen, op de website daar meer over plaatsen, dat kan ook via zo'n social post zoals je hebt voorgesteld, waarbij je right to repair onder de aandacht brengt, maar dan heb je ook gelijk een handelingsperspectief van kijk: we hebben ondersteuning. Het is altijd een beetje ongelukkig als we het naar ons toe gaan trekken maar dan niet zeggen, we gaan je ermee helpen, dat is een beetje ongelukkig voor onze organisatie.

Dat stukje over die MIA VAMIL, echt bijzonder dat er daar ook helemaal geen reparatie in wordt genoemd in de milieu lijst, heb jij overleg gehad? Die milieu-lijst wordt elk jaar aangepast, er is wel echt een kans dat dit in de milieu lijst terecht komt als we dat zegmaar met het ministerie overleggen, dat het wel duidelijker wordt benoemd en dat het ook wel meer vindbaar wordt, want dit is gewoon helemaal niet vindbaar.

we lichten toch ook wel bepaalde thema's uit in de webtekst, maar het zou natuurlijk mooi zijn als het veel duidelijker in de milieulijst komt, daar staan weet ik veel 150 codes in, als daar nu reparatie daar helemaal niet in voorkomt, dat je daar via een adviseur achter die vier codes moet komen, ja als het gewoon duidelijk daarin terecht komt, kan je gewoon control f lekker in zoeken, dan vind je het ook. Ik ga er zeker mee verder, jij stuurt die presentatie toe he.

Het is leuk hoor dat onderzoek maar het is ook leuk als er dan wat mee gebeurt.
Ik ben heel benieuwd of je ook naar internationale regelingen hebt gekeken. Ik zie niet direct affiniteit hiermee voor mij met het reparatie onderwerp. Dat specifieke stukje wil ik wel wat meer over weten.

In de CE kennis community heeft ze expliciet een oproep gedaan. Je merkte dat er echt heel actief door mensen op gereageerd wordt. Vanuit MIA VAMIL, WBSO, alles wat nu ontbreekt dat zou dan een aanvulling kunnen zijn. Gebruik dan vooral dit, het geweldige werk wat Clementine gedaan heeft, als basis voor anderen: je staat er niet tussen, er is altijd mogelijkheid. Het houdt niet op bij de grens natuurlijk.

Maar dat daar. Ik vind deze best wel heel erg lastig, want Als ik naar mijn mijn specifieke opdracht kijk, dan helpen wij vooral Nederlandse bedrijven om in het buitenland de kritieke grondstoffen op een duurzame manier daar uit de grond halen zodat we als Nederland minder afhankelijk worden. Van landen als China, die dat gewoon dan aan ons Leveren. Op een gegeven moment, dan zeggen we van, nou, wij willen daar. Wij willen gewoon zelf. Als Nederland dit gaan doen in het buitenland op een duurzame manier.

Heb je ook naar internationaliseringregelingen gekeken?
Maar ja, wij helpen vooral bedrijven om het daar zo goed mogelijk uit de grond te halen. Ik zie niet direct de link met reparatie, in mijn hoofd zou daar eerst commercieel gezien voor die bedrijven een grote vraag moeten zijn, naar de reparatie van producten. En Dat is wat inderdaad dus nu nog meestal wat je aangeeft in jouw verhaal he, de right to repair, die is er wel, maar die wordt nog helemaal niet gezien door die doelgroep. Op het moment dat die die vraag vanuit die doelgroep ook echt KOMT en ze er gebruik van gaan maken, dan denk ik ook inderdaad dat die de commerciële partijen denken Hé, wacht eens even, hier kan ik wat mee. Ook internationaal gezien wordt de vraag naar die grondstoffen dus gewoon veel groter, dus het heeft wel verband, Maar ik zie niet direct financiële regelingen waar je bij ons (internationaal) gebruik van kan maken om in het buitenland aan de slag ta gaan in relatie tot dit onderzoek right to repair. Het kan er zijn hoor maar dan moeten er meer mensen naar kijken.

P4
Ik raak hier helemaal geïnspireerd door en ik zit er ook echt over na te denken of we hier op de website niet ook een soort landingspagina voor kunnen opzetten. Ik zie het al helemaal voor me. Ik vind het echt heel leuk wat je hebt onderzocht en het moedigt en aan om hier verder over na te denken

Tim
Heb je hier ook met Techniek Nederland naar gekeken? Ik denk dat zij ook wel echt heel geinteresseerd zijn naar je onderzoek. Ik kan je ook met hun doorverwijzen.

Appendix 19B: Key feedback after call social media expert

VALIDATION SESSIONS - SOCIAL MEDIA EXPERT

Content should be tailored to each platform. For Instagram, short videos or carousel posts work best due to the audience's shorter attention span. LinkedIn and Facebook allow for more detailed, scan-friendly content.

Instagram is more suited to younger entrepreneurs, so it's important to keep the messaging quick and clear. LinkedIn should focus on business-oriented content that's easy to scan.

He suggests using interactive elements like quizzes or questions to engage the Instagram audience first, followed by a carousel with more detailed information for LinkedIn and Facebook.

Posts on Instagram should be in Dutch, but keeping "Right to Repair" in English works since it's a recognizable term.

Rather than using random internet images, Tim recommends sourcing visuals from RVO's media specialists to maintain brand consistency.

The text should be concise, focusing on key points to ensure the content is easily readable and engaging on social media.

Start with simpler posts (on instagram) to introduce the topic and follow up with more in-depth content to keep the audience engaged across all platforms.

He suggested using a **multi-post strategy**: starting with more accessible, engaging content to introduce the topic on Instagram and then transitioning to deeper, more detailed posts for LinkedIn and Facebook.

He mentioned the importance of **limiting the amount of text** on social media, especially in carousel posts, as users tend not to read long blocks of text.

He recommended creating **"snackable content"** that appeals to the audience's preference for easily digestible information, especially on platforms like Instagram.

He also emphasized the need for **visual consistency**, suggesting that RVO's media specialists should be involved in sourcing proper images instead of using random online visuals.

He highlighted the potential of **tying the post to relevant regulations** that RVO offers and ensuring that the post includes links to RVO's own website for further information, rather than external sources.

He was open to the idea of **adjusting the timing** of the post to coincide with key events or dates related to sustainability, which might increase the post's relevance and visibility.

Appendix 21: Business Persona

PERSONA 1

Product Manager at a large coffee machine company

Gender: male
Age: 45
Education: Business Administrations
Job: Product Manager
Location: Amsterdam

COMPANY INFO

Name: CoffeeCare
Industry: Consumer Electronics
Location: Netherlands (NL-based)
Business Size: Large organization with 500+ employees
Product Category: Coffee Machines

TARGET AUDIENCE CRITERIA

Compliance with Regulation:
CoffeeCare produces product categories that are not yet fully regulated under existing repairability laws.

Current Stance on Repair:
CoffeeCare is open to adopt repairability practices and want to improve the design of their products for repair. They are motivated by sustainability goals and customer demand for durable products.

Product Category:
CoffeeCare's products have high repair potential. Their coffee machines are higher-priced items in the small household appliances category and their customers are highly attached to them.

Business Size and Segmentation:
As a large player in the EED market, CoffeeCare has the resources to implement repairability practices on a large scale. They are seen as industry leaders and could drive significant environmental impact through repairability.

Appendix 20: Final deliverables in the Advice Envelope

1: Strategic Recommendations

Recommendations for RVO

Instrument specific Recommendations:

- **Communicate and implement instrument improvements**: Ensure that the proposed recommendations from the table are communicated to the policy owners of the instruments. This will help ensure that the improvements are considered, validated, and implemented, aligning existing instruments more effectively with repairability goals.

- **Update instrument descriptions on the website:** Revise descriptions on the RVO website, such as for MIA Vamil, to explicitly mention 'repair' and clearly indicate the support for repairability. This will help businesses easily identify relevant instruments for repair initiatives.

Generic Recommendations:

- **Enhance the overall visibility of repair support**: highlight relevant instruments and target audiences on the RVO website, possibly including case studies to inspire broader utilization.

- **Enhance support for SMEs and start-ups:** Continue to focus on SMEs and start-ups, prioritize those with high growth potential and a clear commitment to repairability practices.

- **Engage larger businesses**: Promote existing programs that are relevant for larger companies, particularly those designed for collaboration, such as the Ketendoorbraakproject and the CIO.

- **Consider developing new strategies for large enterprises:** To maximize impact in the EED industry, consider designing new instruments specifically for large enterprises, focusing on repairability projects in the EED sector.

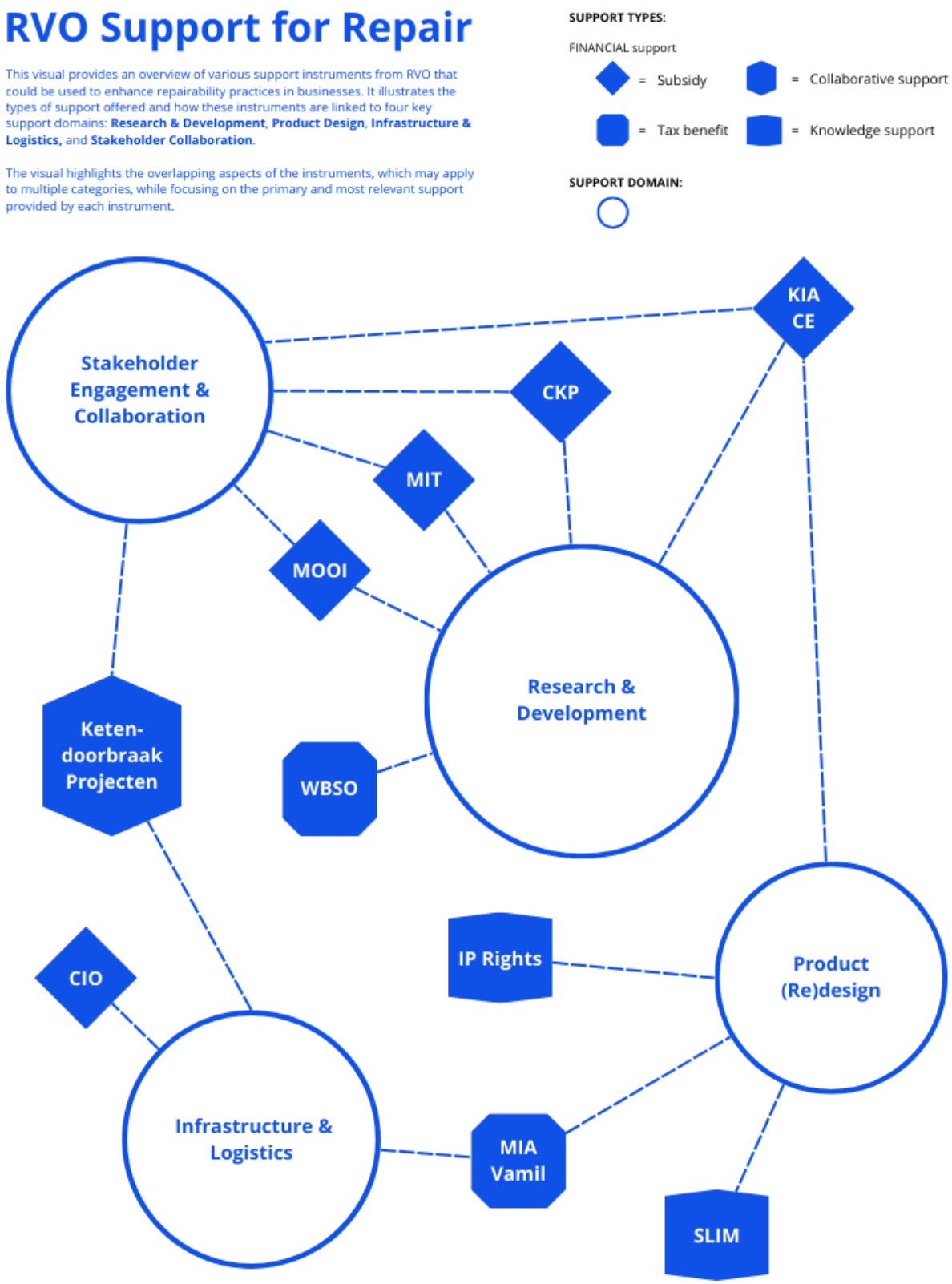
- **Strengthen partnerships**: Strengthen collaborations with other organizations to extend RVO's reach, particularly in engaging larger corporations, such as (sustainable) consultancy bureaus.

- **Collaborate with international organizations**: Partner with internationals to create joint initiatives that encourage large multinational corporations to adopt repairability practices, even if their headquarters are not in the Netherlands (RVO International).

- **Educate and raise awareness**: consider launching campaigns to increase (consumer) awareness of repairability. By driving consumer demand for repairable products, RVO can indirectly influence larger companies to adopt these practices.

2: Instrument Specific Recommendations (summary visual)

Front



Back:

Recommendations per Support Instrument

Dit zijn samenvattingen van aanbevelingen om de geïdentificeerde regelingen beter in te zetten of zichtbaarder te maken voor het stimuleren van reparatie. Deze aanbevelingen dienen als illustratie en vereisen verdere expertise van de regeling-eigenaren.

MIA Vamil: Verduidelijk in de regeling dat investeringen in apparatuur voor productreparatie expliciet in aanmerking komen voor belastingvoordelen. Promoot specifiek de codes 1300, 1200, 1201 en 1301.

CKP (Circulaire Ketenprojecten): Pas de eis aan dat projecten prioriteit krijgen als ze zich richten op R-4 (Reparatie) op de R-ladder van circulaire strategieën.

MIT (Mkb-innovatiestimulering Regio en Topsectoren): Integreer reparatie tijdelijk als specifiek rangschikkingscriterium binnen de beoordeling van MIT-aanvragen.

WBSO (Wet bevordering speur- en ontwikkelingswerk): Stel (tijdelijk) prioriteit voor WBSO-projecten die gericht zijn op de ontwikkeling van technologieën en methoden voor repareerbare producten.

KIA CE (Kennis- en Innovatieagenda Circulaire Economie): Richt de eerstvolgende KIA CE-regeling specifiek op projecten gericht op reparatie, met extra focus op elektrische en elektronische apparaten

Ketendoorbraakprojecten: Geef prioriteit aan projecten die ketenproblemen rondom logistiek en reparatieoplossingen doorbreken.

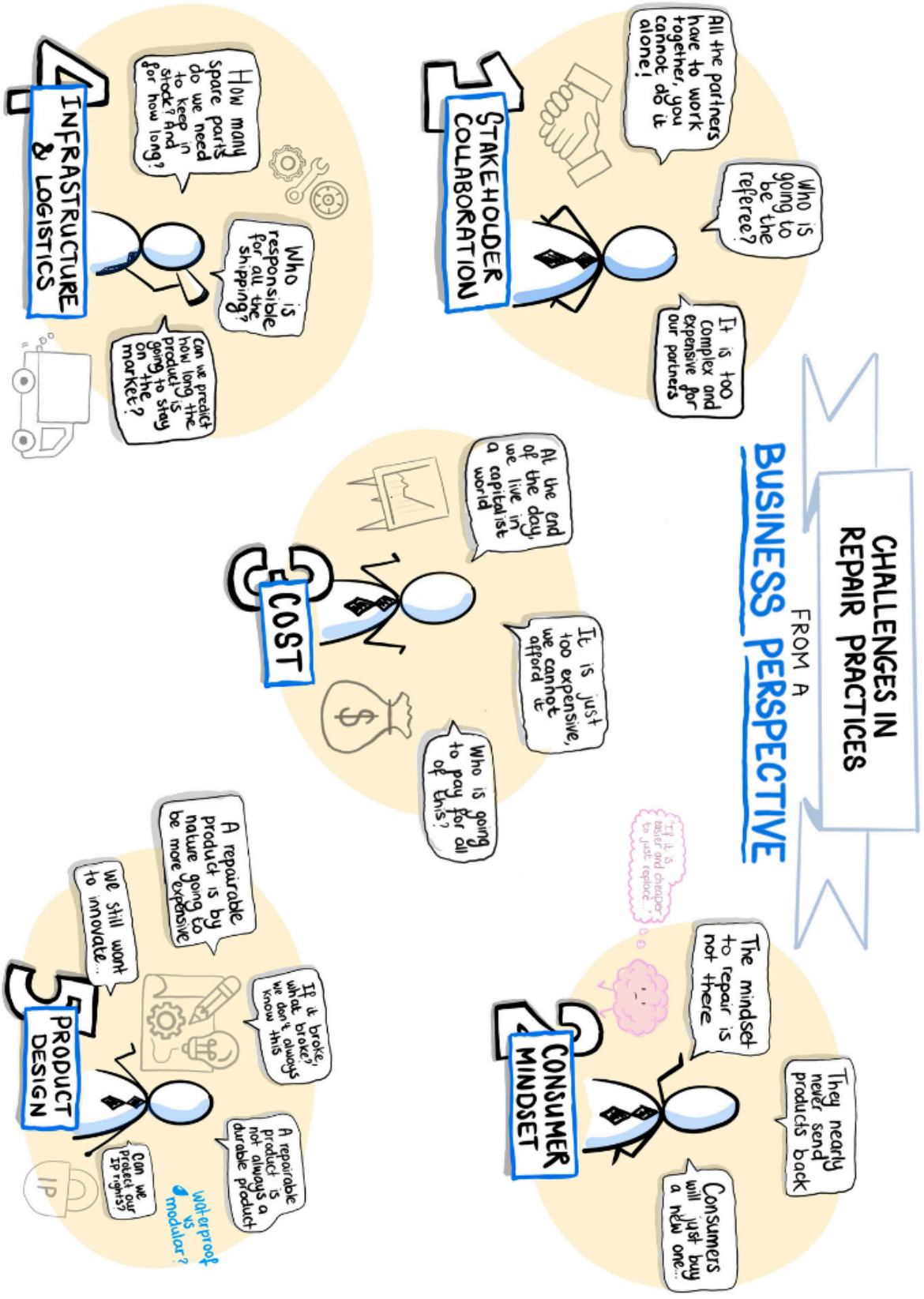
MOOI (Missiegedreven Onderzoek, Ontwikkeling en Innovatie): Pas de beoordelingscriteria aan om projecten te ondersteunen die nieuwe modulaire productontwerpen ontwikkelen die eenvoudig te repareren zijn.

SLIM-regeling: Maak het mogelijk om de SLIM-regeling te gebruiken voor het opleiden van personeel in reparatievaardigheden en productherontwerpen voor repareerbaarheid.

Intellectueel Eigendom (IE): Stimuleer bedrijven om kennis aan te vragen voor reparatie-gerichte innovaties m.b.t. IP rechten.

CIO (Circulair Implementeren en Opschalen): Promoot speciek de deelname van grote producenten aan de CIO-regeling voor het opschalen van reparatieprocessen binnen hun productie.

3: Visual


CHALLENGES IN REPAIR PRACTICES
FROM A
BUSINESS PERSPECTIVE
STAKEHOLDER COLLABORATION
All the partners have to work together, you cannot do it alone!
Who is going to be the referee?
It is too complex and expensive for our partners
INFRASTRUCTURE & LOGISTICS
How many spare parts do we need to keep in stock? And for how long?
Who is responsible for all the shipping?
Can we predict how long the product is going to stay on the market?
COST
At the end of the day, we live in a capitalist world
It is just too expensive, we cannot afford it
Who is going to pay for all of this?
CONSUMER MINDSET
"If it is faster and cheaper to just replace."
The mindset to repair is not there
They nearly never send products back
Consumers will just buy a new one...
PRODUCT DESIGN
A repairable product is by nature going to be more expensive
We still want to innovate...
If it broke, what broke? We don't always know this
A repairable product is not always a durable product
Can we protect our IP rights?
IP
Waterproof vs modular?

4: Visual


Social Media Slider
Rijksdienst voor Ondernemend Nederland - RVO
Right to Repair directive
Obligation to Repair
Manufacturers are obliged to offer repair services after the legal guarantee period.
Transparency on repair information
Manufacturers must provide clear online information about available repair options, spare parts, and tools.
Prohibition of repair restrictions
Producers are prohibited from using software or hardware measures that block or hinder repairs.
Warranty extension after repair
If repaired within the original guarantee period, the product's legal warranty extends by one additional year.
Are you prepared? Check: https://www.europarl.europa.eu/