

Appendices

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Appendix A: A flowchart of warranty scenarios

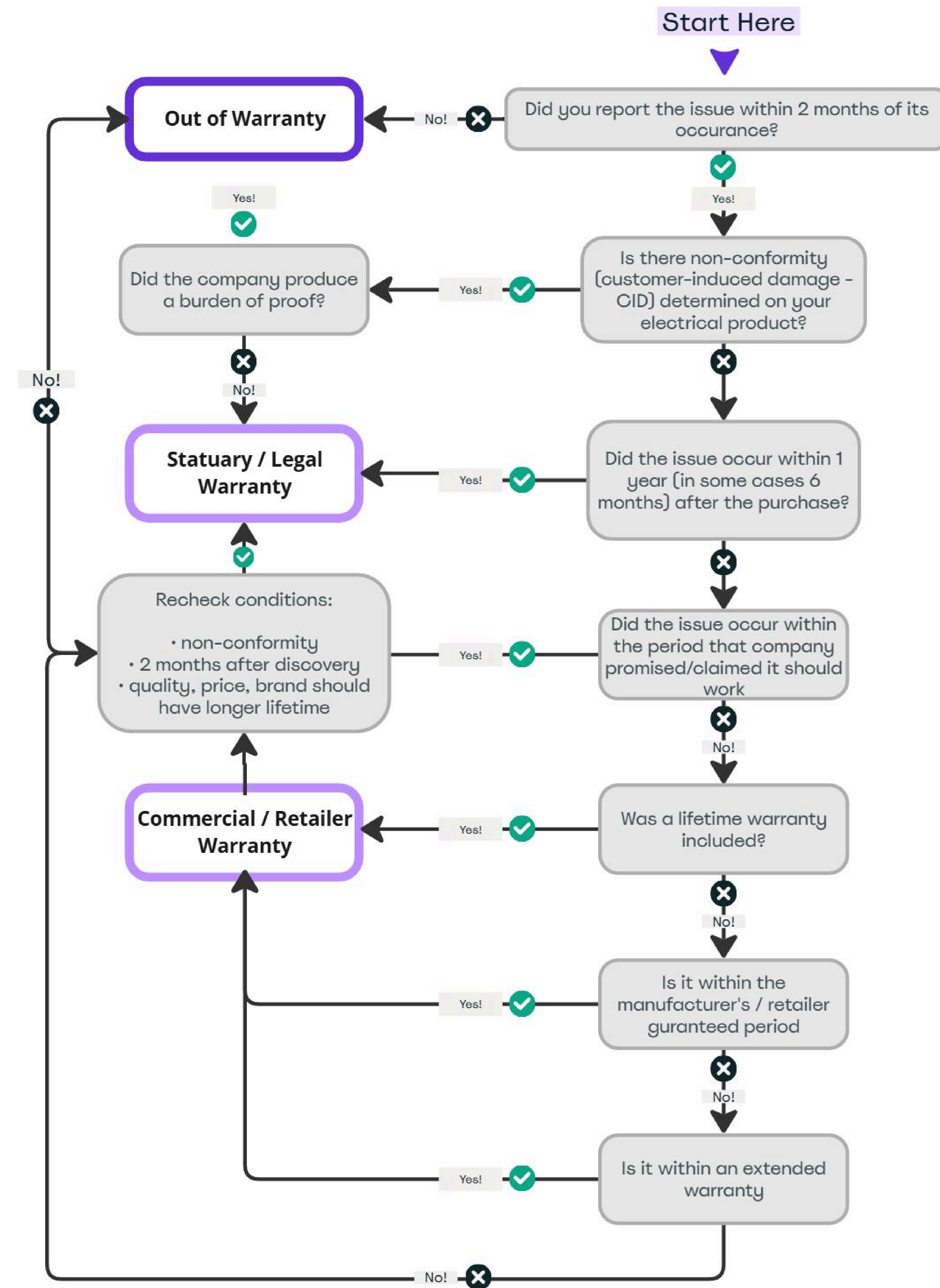


Fig. A.1 Flowchart of warranty scenarios

Appendix B: Obsolescence and Categories of Replacement

Table B.1 Obsolescence and Categories of Replacement

Obsolescence	Product	Consumer	Business
Quality	Material fatigue, wear & tear, poor durability.	Perceived quality drop; desire for something that feels newer/better	Cost-saving via lower manufacturing standards; poor after-sales service
Economic	Expensive repairs; low value retention.	Cost-consciousness; belief that repair isn't "worth it"	Pricing strategies that incentivize replacement
Technological	Lack of software updates; incompatible hardware	Desire for new tech functions.	Introducing proprietary changes; innovation cycles
Aesthetic	Outdated form or look; scratched/broken exterior	Style fatigue; social pressure to stay modern	Seasonal styling changes; visual marketing trends
Psychological	Implicit product design to bore or frustrate (e.g., slower performance).	Emotional detachment; desire for novelty; social identity shift	Intentional product cycles that manipulate desire;

Appendix C: Consumer Needs with Source Justification

Table C.1 Source-Justified Consumer Needs

Key Need	Need Description	Source Justification
Cost & Viability	Need clear and accurate cost estimates for repairs, including potential savings and cost changes in the process, to make informed decisions between repairing and replacing their products.	<p>“Costs of ...” barrier (Roskladka et al., 2023)</p> <p>20% of cases, the repair is not made because a spare part is considered too expensive (Van der Velden, 2021).</p> <p>Difference in Aftermarket versus Original Spare Parts Prices</p> <p>Need is recognized also by UK study of Lefebvre M., (2019).</p> <p>Repair price is the single most important attribute in the research of Güsser-Fachbach et al. (2023a).</p> <p>The behavioural and financial costs of repair are typically perceived as high (Jaeger-Erben et al., 2021; Lechner et al., 2021), even if repair is economically viable.</p>
Information Accessibility & Clarity	Need easy access to information on repair services, processes, and available options to reduce uncertainty and make informed choices.	<p>“Unavailability of repairing services “ barrier</p> <p>“Lack of clarity on how repair works” barriers (Roskladka et al., 2023).</p>
Quality & Trust	Need trustworthy and transparent repair services to feel confident in the quality of the work and avoid concerns about being misled.	<p>“Lack of trust to professional repair” barrier (Roskladka et al., 2023)</p> <p>Professional repair service perceived as frustrating and untrustworthy (Lefebvre, 2019).</p> <p>Aftermarket versus Original Spare Parts Quality</p>
Mental Valuation & Feasibility	Need clarity on whether a repair is feasible and how easy it is to fix the issue, as many believe their product is beyond repair when it might be easily fixed.	<p>“Brokenness” misinterpretations (Jaeger-Erben, 2021); “Difficulty of repairing” barrier (Roskladka et al., 2023)</p> <p>“These types of cases happen a lot where consumers think that the product's broken, but that it's actually just very easy to get it fixed.” -P6</p> <p>“Fear for further failure” barrier (Roskladka et al., 2023)</p> <p>“Access to diagnosis” barrier</p> <p>“Lack of spare parts” barrier (Roskladka et al., 2023)</p>
Environmental Awareness	Need better grasp about the environmental impact of their decisions.	<p>“Unawareness of repair impact...” (Roskladka et al., 2023)</p>

		<p>People are unknowledgeable about the environmental and societal damage of new product purchase (Hobson et al., 2019; Vezzoli et al., 2018).</p> <p>"There is still lack of awareness and knowledge among customers about the huge impact that their consumption of electronics" -SP11</p>
Time & Duration	Need clear expectations regarding the time that the repair can start and the duration it takes.	<p>“Consumer’s time to repair” barriers (Roskladka et al., 2023).</p> <p>Considered one of the main influencing factors after price by Fachbach et al. (2022) and Lefebvre, M. (2019).</p> <p>“Lack of spare parts” barrier (Roskladka et al., 2023)</p>
Social Perception & Trends	Need to align repair choices with social expectations and trends	<p>Norm Beliefs, Social Norms (Ch. 3.1)</p>

Appendix D: Consumer Needs Evaluation – Interview Guide

Table D.1 Evaluation Interview Guide

Section	Questions & Prompts
Context Setting	"Tell me about the last time you tried to repair an appliance." "Walk me through how your repair journey went."
Need Evaluation	<p>Cost & Viability "How did you decide if repairing [the item] was worth the cost?" "Did you encounter any unexpected costs during the process?" "What kind of information would help you compare repair costs to replacing the item?"</p> <p>Mental Valuation & Feasibility "How did you determine if [the item] could be repaired?" "Were there moments when you doubted whether repairing [the item] was possible? Why?" "What would have helped you feel more certain about the repair being successful?" "Did you face any difficulties finding spare parts for [the item]? Were they affordable?"</p> <p>Quality & Trust "What made you trust or doubt the repair service you chose for [the item]?" "Were you concerned about the quality of the repair? Why or why not?" "What guarantees or assurances would have made you more comfortable?"</p> <p>Time & Duration "How much time were you willing to spend on repairing [the item]?" "Were there delays or time constraints that made the process challenging?" "What would have made the repair process quicker or more convenient for you?"</p> <p>Environmental Impact "Would knowing more about the environmental impact of repair versus replacement influence your choice?" "What kind of information about impact would have been helpful?"</p> <p>Accessibility and Availability of Information "Was it easy to find information about repairing [the item]? What challenges did you face?" "What kind of information would have made the process smoother?"</p>

	"Were repair services or tools readily available for [the item]? If not, what was missing?"
Platform Ideation	"Imagine a platform connecting you to repairers, what solutions would make you trust it?"

Appendix E: Consumer Needs Evaluation – Analysis

Table E.1 Consumer Needs Evaluation Analysis

Key Need	Interview Takeaways	Interview Justification
Cost & Viability	Consumers often rely on a mental model to pre-judge the economic viability of repairs, forming assumptions about whether a repair is "worth it" before even obtaining a price estimate. Consumers don't just care about price; they want fair pricing	<i>"I thought I can buy a new phone but that will cost me I think way more money than just repairing the screen... and I had the phone for one year, so I didn't want to throw it away" -CP1</i> <i>"I always look that up... if they overcharge me but with a phone, I find it quite hard ... for them also a bit of a risk to open up a phone - CP2</i>
Information Accessibility & Clarity	Need unbiased, transparent information without feeling manipulated.	<i>"I always have the feeling that production companies don't want to give you all the information they leave some out so you have to call someone, and they can earn money" - CP1</i>
Quality & Trust	Need guarantee to cover if there are further failures after repair before committing to it.	<i>"This repair shop gave a warranty of like a month... that's what I really liked" - CP1</i>
Mental Valuation & Feasibility	Miss an objective self-assessment tool whether they can self-repair or not. Want expert-like guidance to support their decision.	<i>"I called them beforehand... this is the problem are you able to repair" - CP1</i> <i>"If I know that I can do it... I have a bit of technical knowledge but not too much and I have a bit of tools but not too many" - CP1</i> <i>"If they also mention you have such a big hazard now you have to go to an expert then I would also like to know" - CP1</i>
Time Duration &	Have a clear mental valuation which simple repairs should be fast and that complex ones are accepted to take longer.	<i>"of course, depends on how bad the repair is if this is a high damage... it takes three days ... but for a vacuum cleaner wheel I expect a few hours" - CP1</i> <i>"I always like to get updates on where I am with the repair... so kind of like an update you know with your packages" - CP1</i>
Social Perception & Trends	Rely on other people's opinion when making a decision on best repair option.	<i>"I have friends who are way more technical than I am... so I also ask them is it better to repair it myself or shall I go to someone else or is it just a lost cause ...so it's a bit of word of mouth... and also just looking on online review" - CP1</i>

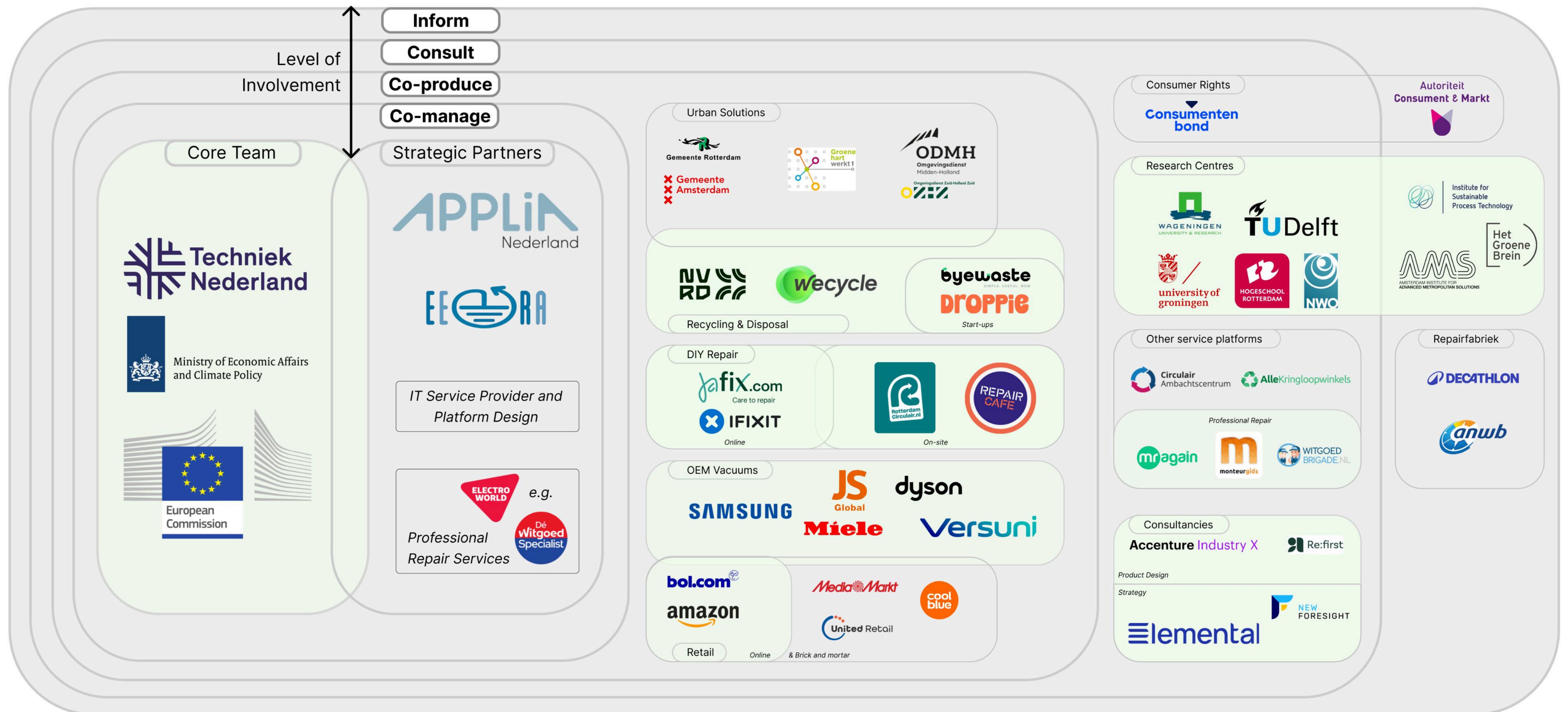


Fig. H.1 Stakeholder Map

Appendix G, Literature-based Journey Map

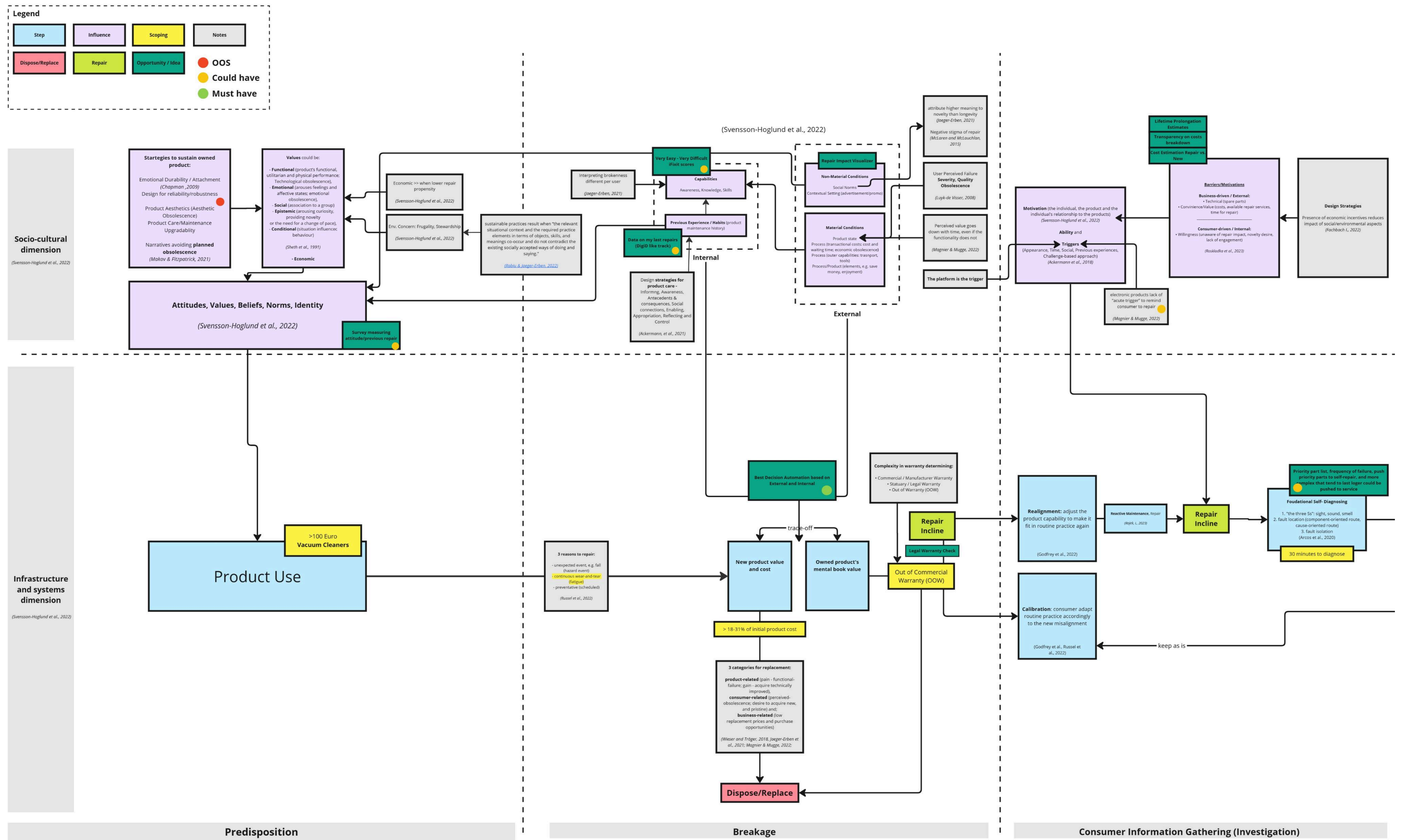


Fig. G.1 Literature-based Journey Map (1)

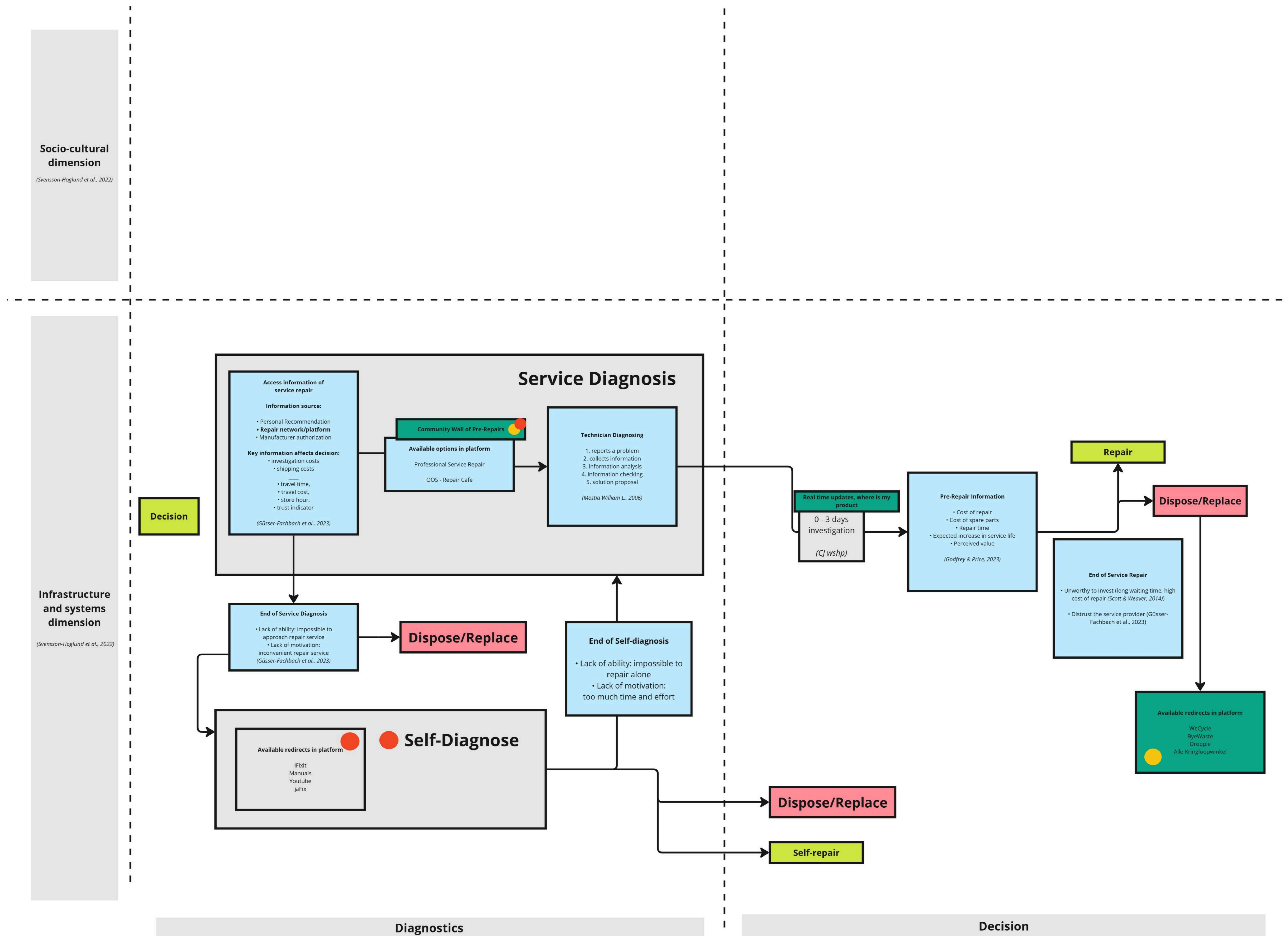


Fig. G.2 Literature-based Journey Map (2)

Appendix H, Stakeholder Mapping

Table H.1 Four Levels of Involvement Definitions and Examples

Category	Definition	Stakeholders Examples
Co- Manage (high)	Actors with shared governance, strategic influence, or direct oversight over platform implementation.	Techniek Nederland (platform initiator), Ministry of Economic Affairs and Climate Policy, European Commission. APPLiA, EERA, IT Service Providers, Professional Repair Services.
Co- Produce	Stakeholders who operationally support or deliver parts of the platform's offering.	Urban Solutions, Recycling & Disposal, DIY Repair, OEMs of Vacuum Cleaners, Retailers.
Consult	Stakeholders whose input is valuable to shape specific design, technical, or behavioural elements, but who hold no direct authority or operational role.	Lobbying groups (Right to Repair EU, RREUSE), consumer rights organizations, circular economy researchers, Open Repair Alliance
Inform (low)	Stakeholders who must be kept up to date but are not actively involved in decision-making or execution.	General public, civic observers, non-active municipalities, circular economy research networks

Appendix I, Stakeholder’s Interest and Influence

Table I.7 Stakeholder’s Interest and Influence

Stakeholder	Influence	Interests / Priorities
P1: Co-Founder of Design Consultancy	Shaping product design standards among businesses, promoting right-to-repair legislation, academic work	Academic research into repair, Local community involvement, B2B workshops on repairability
P2: Founder of White Goods Repair Platform	Connecting repair shops with customers, setting pricing standards, aggregating repair data.	Platform profitability, increased customer base, efficient repair network.
P3: Chair at Repair Café	Community mobilization, skill-sharing, advocacy for repair access.	Community empowerment, reduced e-waste, affordable repair options for consumers.
P4: Manager Reverse Organisation at Online Retailer	Controlling product returns, influencing consumer purchasing decisions, managing warranty claims.	Reduced return costs, improved customer satisfaction, compliance with EU regulations.
P5: Owner of a Self-Repair Platform	Knowledge sharing to end customer, knowledge base creation, troubleshooting advice, fair pricing.	Increased customer base, efficient support structure, efficient business model.
P6: Sustainability Senior Manager at Electronics Manufacturer	Setting design standards, controlling spare parts distribution, managing brand reputation.	Profitability, reduced liability, compliance with regulations, sustainable brand image.
P7: Project Manager at Recycling Start-up	Influencing recycling behavior, promoting circular economy models, connecting refurbished products with consumers.	Increased material recovery, reduced e-waste, profitable recycling operations.
P8: Consumer Electronics Industry Manager at Techniek Nederland	Setting industry standards, certifying repair shops, advocating for repair professionals.	Improved quality of repair services, increased consumer trust in repair shops, sustainable industry practices.
P9: Product Manager at Spareka	Influencing consumer repair choices, providing affordable repair options, partnering with government initiatives.	Increased customer base, profitable repair services, sustainable brand image.
P10: CX Manager at Electronics Manufacturer	CX supporting contact centres and get feedback, internal and external service documentation	efficient documentation and parts flows
P11: Project Developer at Research Institute	Their influence is limited to providing knowledge and validation; they do not make operational or strategic decisions that would directly shape platform functionalities.	Platform could leverage their research data to improve repairability insights and guide evidence-based recommendations.
P12: Member of iFixit’s EU policy team	Steer policy alignment, affect adoption by repair networks, and shape the legal and advocacy context in which the platform operates.	Seeing the platform align with regulatory principles and advance consumer rights in repair access.

Appendix J: Stakeholders' Interviews Analysis



Figure J.1 Categories and Codes from Stakeholder Interviews

Table J.1 Value Tension Analysis

Value Tension	Description	Value Chain Actors	Quotes Justification
OEM Liability vs. DIY Repair	A tension between promoting more repairs and restricting access to maintain safety, expertise, and quality control from OEM.	Manufacturer (Authorized Repairs) vs. DIY / Unauthorized Repairs	<p>"Product liability is what the manufacturers are very afraid of... unqualified or unauthorized people doing things in their product with their brand logo on it" - P4</p> <p>"One of the main issues is... the access to information,... availability of manuals, the availability of instructions" - P1</p>
Repair store profit vs. Affordable Repairs	Repair stores striving to maintain profitability through higher service and parts pricing and consumers' demand for affordable repair options.	Manufacturer, Consumers vs. Repair Stores	<p>"Once a product is out of warranty, some repair shops use the situation to overcharge customers." - P8</p> <p>"As soon as you are going out of warranty repairs, there's no structure so it's more expensive, the spare parts will be more expensive too." - P10</p> <p>"If you want to have more people to repair, you need to make it as cheap as possible." - P9</p>
Compliance to repair vs. Staying profitable	Meeting repair compliance and environmental goals while managing the financial strain of unprofitable repair services.	Stakeholders vs. Consumers	<p>"Usually, the investigation costs and the transportation costs are higher than those €20... costs involved for the handling and the investigation. Customers don't like that so many times we as a seller absorb those costs." - P4</p> <p>"It's always free for the client, but for us we only get money if it is repaired... Sometimes it costs us, sometimes we earn money... we're not really strongly profitable." - P9</p> <p>"it's good for the environment, though it is not really profitable [to repair,... so as long it's not costing us [OEM] too much, we will continue to repair" - P10</p>
Authorized vs. Unauthorised repair workshops	Manufacturers set warranty terms that limit repair shop flexibility, while repair shops may charge higher prices for out-of-warranty repairs, creating tension between affordability and profitability.	Manufacturer vs. Consumers vs. Repair Stores	<p>"Every workshop has in principle the right to do their own approach, so if they want to ask €50 for only investigation of the products... we [OEM] will not like it, but we don't control this flow" - P10</p> <p>"They [OEM] have only authorized repair centres, and they sell only parts to authorized repair centres and that they do that to control the quality, but also to minimize the product liability risks." - P4</p> <p>"If you go to a shop around corner, they cannot probably repair with official spare parts, ... the quality is not very high, ... and they cannot repair when you still have warranty." - P5</p> <p>"They [unauthorized workshops] are restricted by the brands and then and the suppliers on what they can do... there are so many brands and they all use different parts and components, and they all have different supply lines." - P11</p> <p>Some manufacturers put pressure on independent repair companies not to carry out repairs outside the warranty period on products for which these companies do not have authorisation, even though there is a free repair market outside the warranty period (Stichting Genoeg om te leven et al., 2024).</p>
Transparency vs. Accountability Scope	Lack of full transparency in product repair data, but limited scope of regulation accountability per stakeholder.	Regulatory Bodies vs. Stakeholders	<p>"Stichting OPEN does not have a total insight of all the products being repaired out of warranty since it was just not within their mandate and their scope" - SP4</p> <p>"How long do our products last, when do products break down,... we know that from the first two years that we offered a warranty, but not after that... However, that needs to change as part of the right to repair." -SP6</p>

Replacement Advertisement vs. Repair Willingness	Cities and manufacturers promote replacement through widespread advertising. At the same time, they (especially cities) advocate for repair initiatives to extend product lifecycles.	Urban Solutions, Manufacturers vs. Repair	<p>"City on the one hand opens up the public space for advertisement of suppliers and producers of electronics which encourage people all the time at every corner to buy more stuff... one the other wants people to repair." - SP11</p> <p>"The message coming from the new products will always be so much stronger...the repair of my products, I have to go actively looking for and the platform will maybe make that a little easier, but still...I still have to go very actively looking for that repair, whereas the new product is being constantly shoved down my throat." - SP12</p>
Entry of new repairers vs. Regulatory Oversight	Measures as manufacturer-imposed vetting (e.g., insurance requirements) try to ensure quality and safety, but presents potential entry barriers.		<p>"Until under Ecodesign, the manufacturers are allowed to vet the repairs to check, for instance, whether they have insurance. So yes, that might be an entry barrier...It's a different thing if you've decided...I am just fresh out of school and tomorrow I want to open a repair shop. Then obviously you have all...these risks...insurance and all of that goes with it." - SP12</p>
Manufacturer Narratives vs. Independent Repair's Actual Quality	Manufacturers often shifts focus away from systemic changes to their business models, suggesting that authorized services inherently provide better quality than independent ones.		<p>"I don't really see any reason to assume that...the manufacturers' authorised repair service would be doing such a better job...I think it's a bit hyped up. I think this is also the narrative that the manufacturers are spinning...that sort of shifts the focus away and that sort of suggests that there's a problem that could be dealt with that doesn't require the manufacturers to change their business model in any way." - SP12</p>
Repair Platform vs. Small repair workshops	Maintaining a quality-driven platform model and ensuring accessibility for smaller repair businesses. Small businesses are usually not members of trade associations, and do not receive information through these channels.	Platforms vs. Repair Stores	<p>"If you want to be part of that [repair register] as a company, you have to pay quite substantially... and simple workshop that can be very professional and have a high quality can simply not afford to be part of it... it's too expensive." - P5</p>

Appendix L: Repairer Needs Evaluation - Interview Guides

Table L.1 Repairer Needs Evaluation - Interview Guide

Section	Questions & Prompts
Workflow & Challenges	<p>"Describe a typical repair process from breakage, diagnosis and decision to repair"</p> <p>"Tell me about a recent repair job that presented unique challenges."</p>
Need Evaluation	<p>Customer Barriers Triangulation "In your opinion, what are the biggest barriers of consumers to choose repair?"</p> <p>Spare Parts "How often does spare part availability delay repairs?" "What data would improve your workflow?"</p> <p>Trust Building "How do you establish trust with new customers?" "What kind of guarantees or warranties do you offer on your repairs?"</p> <p>Cost & Economic Viability "How do you determine your pricing for repairs, and what factors influence it?" "What are your biggest overhead costs (spare parts, labor, rent, etc.)?" "Have you ever turned down a repair job because it wasn't economically viable?"</p> <p>Accessibility & Availability of Information "What challenges do you face in accessing technical documentation or repair manuals for different products?" "What digital tools or platforms do you currently use to manage your business (e.g., scheduling, inventory, customer communications)?"</p> <p>Risk Awareness and Assessment "What are the most common risks you encounter when performing repairs (e.g., safety issues, product damage)?"</p>
Platform Ideation	<p>"What features would make you trust a platform and want to use it to connect with customers?"</p> <p>"What kind of support or resources would you need from the platform provider to succeed?"</p>

Appendix M: Repairer Needs Evaluation - Analysis

Table M.1 Repairer Needs Evaluation - Analysis

Key Need	Interview Justification
<p>Revenue & Profitability</p>	<p><i>RP1: Notes a decline in smartphone repair demand and is exploring diversification into other consumer goods, highlighting the need to sustain revenue beyond manufacturer warranty work. Out-of-warranty repairs are seen as a key growth area.</i></p> <p><i>RP2: Emphasised the need for the platform to drive conversions directly to their business, ensuring steady demand to cover labour and operational costs. Transparent pricing, including labour, supports predictable revenue.</i></p>
<p>Quality & Trust</p>	<p><i>RP1: Trust is tied to manufacturer affiliation; being an authorised service centre inherently signals reliability. Explicit communication about products deemed Beyond Economical Repair (BER) supports transparency.</i></p> <p><i>RP2: Shop appearance, staff professionalism, and online reputation (7,000+ reviews, avg 9.5) are crucial trust factors. Transparent pricing tiers for repairs also reinforce professionalism and reliability.</i></p>
<p>Technical Knowledge</p>	<p><i>RP2: Operates an internal online academy to onboard and standardise employee training. Knowledge is retained internally, which supports quality, reduces errors, and protects the business from risk.</i></p> <p><i>RP1: Relies on manufacturer affiliation and internal expertise tied to being an authorised service centre. Staff are trained according to OEM standards, and manufacturer systems provide guidance on fault patterns and repair protocols.</i></p>
<p>Risk Management</p>	<p><i>RP1: Highlights the value of manufacturer systems for recording warranty repairs, enabling better risk estimation and understanding of common fault patterns.</i></p> <p><i>P2: Uses internal knowledge-sharing and training tools to standardise repairs, which supports consistent diagnostics and reduces mistakes by staff.</i></p> <p><i>RP1 & RP2: Both mitigate risks from inexperienced handling using ESD mats, wristbands, and preventative tools. RP2 reports risk of defective parts from suppliers bypassing quality checks, illustrating the need to manage and communicate risk proactively. Clear communication of BER status also addresses this need.</i></p>
<p>Spare Parts Accessibility</p>	<p><i>RP1: As an ASC, can purchase parts directly from manufacturers for out-of-warranty repairs. Risk management relies on quality assurance from these suppliers.</i></p> <p><i>RP2: Functions as both authorised and independent repair centre, depending on OEM agreements, and experiences occasional defective parts from suppliers, underscoring the need for reliable supplier networks. Tiered pricing of parts (high-quality vs budget) demonstrates the link between parts sourcing and profitability/transparency.</i></p>

Appendix N: Opportunity Prompt Cards

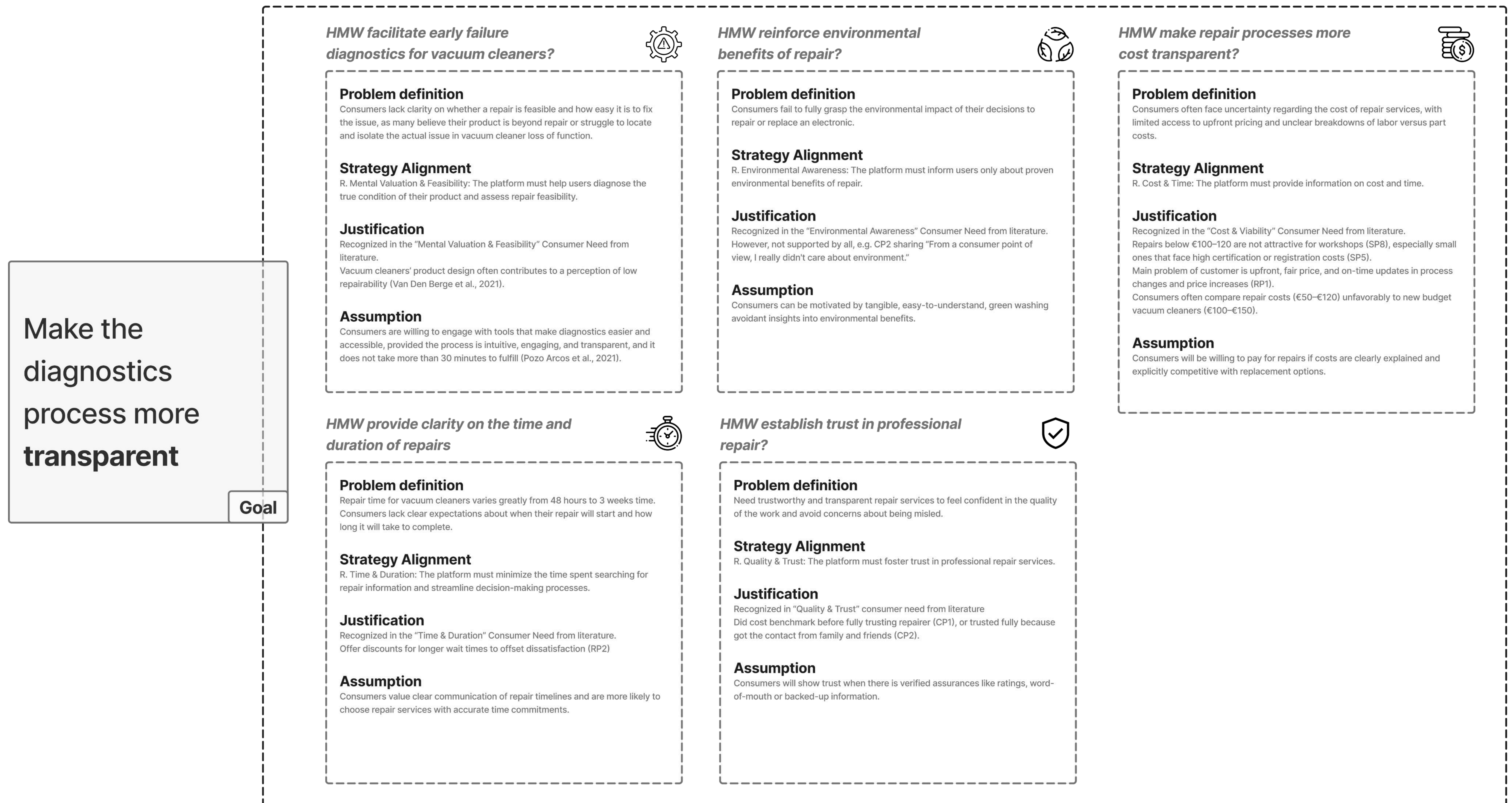


Figure N.1 Opportunity Prompt Cards



Figure N.2 Opportunity Prompt Cards

Appendix O: Opportunity Solution Tree

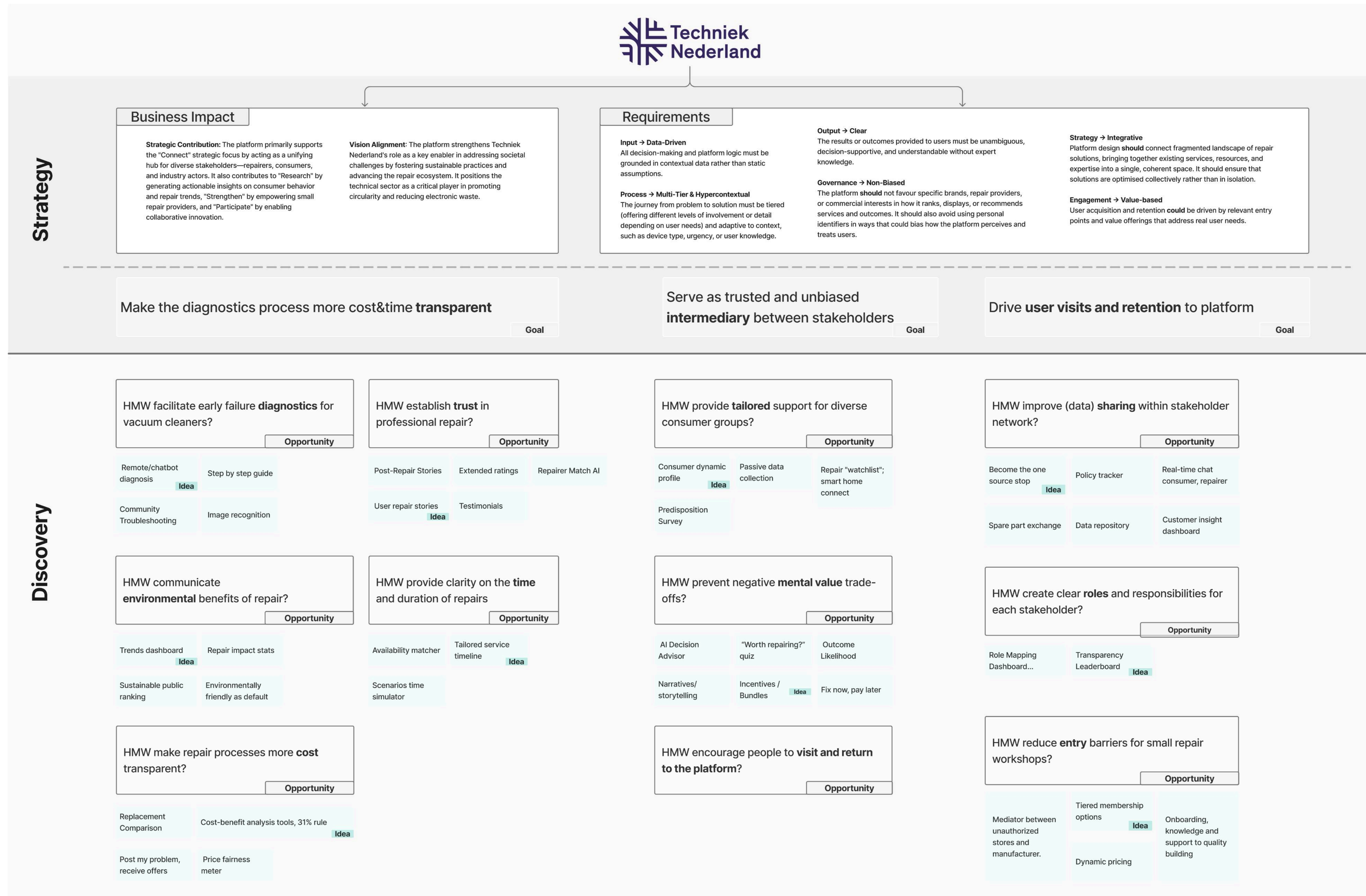


Figure O.1 Opportunity Solution Tree

Appendix P: Ideas derived from research activities

Table P.1 Ideas derived from interviews

Ideas	Ideas Description	Justification	Needs Fit
Consumer-facing			
Priority Repairs Decision Model	A data-driven model mapping repair complexity, and required expertise to most viable repair options, DIY or professional.	<p>"... nice to have layers of difficulty and layers of expertise mapped to products that you enter into the system." - SP1</p> <p>"Repairs below 100-120 Euros are not attractive for professional repair stores" - SP8</p> <p>"One person booked an hour repair at Repair Café, just to find that his vacuum hose was blocked with dust." - SP3</p> <p>"Somewhere on your website you should see a green or red light or an arrow going up or down, if they should repair" - SP5</p>	Mental Valuation & Feasibility
Repair AI Advisor	An assistant giving non-biased advice on whether repair is viable and feasible for specific reported diagnosis.	<p>"A sort of quick diagnosis...which can, and which ones cannot be fixed yourself? Maybe that incentivizes some people to fix it themselves first." - SP11</p> <p>"Advising the customer. I have this problem. My device is broken. Is it still worth it? What's the benefit of that? If you could be more advising to that, I think that would gain traffic." - RP1</p>	Mental Valuation & Feasibility, Trust.
Customer Matchmaking Tool	Connects users with repairers, allowing smart matchmaking based on issue, location and price preferences.	"You could register a repair and then find a repairer for that specific repair. You could choose them, for example, based on ratings or price." -RP1	Trust & Quality, Time & Duration
Environmental Impact Stats.	Shows users environmental savings from repair decisions, incentivizing eco-friendly choices with data-driven insights.	<p>"Give some feedback to citizens if they use this or that alternative ... what it would mean in terms of the environmental impact, I think for some target groups that might incentivize them." - SP11</p> <p>"A marketplace where people can see your environmental impact... I think then the data proposition is super interesting." - SP7</p>	Environmental Awareness
Repairer-facing			
Repair Process Updates	Provides live updates on repair progress, enhancing transparency and engagement, like package tracking.	"I always like to get updates on where I am with the repair... so kind of like an update you know with your packages" - CP1 "If they also offer that you can watch with them.... I would also like to learn myself" - CP1	Time & Duration, Quality & Trust
Lifetime Extension Estimator	Estimates post-repair device lifespan and repair value, empowering informed decisions on device sustainability.	<p>"Something that allows people to check upfront the repairability score, but also how long more will the device last... if you do a very easy repair like replacing the battery" - SP1</p> <p>"Advising the customer whether it's... Is it still worth it? How long can you still use the device? What's the extended life if you now put under 50 euros in it?" - RP1</p>	Mental Valuation & Feasibility, Environmental Awareness
Market Insights Dashboard	Provide market size statistics for, supporting repairers' data-driven decisions on business expansion.	"I don't know how big the laptop market is. I don't know how big the television market is, et cetera. And also, the in-warranty or out-of-warranty split statistics of the market." -RP1	Revenue & Profitability
Spare Part Availability Tracker	Share and track spare part availability and licensing requirements, supporting market entry.	"To enter in a market, you need to manage a licence or manage good spare part feasibility..." - RP1	Spare Parts Accessibility
Warranty & Licensing Manager	Streamlines warranty checks and pricing, automating invoice processing, and support out-of-warranty tracking.	"When we receive a product, we do a warranty check, then we check if it is in warranty, the invoice goes to the manufacturer, if it's out of warranty, then we make a price quotation" - RP1	Technical Knowledge, Risk Management

Appendix Q: Brainstorming Workshops Outcomes

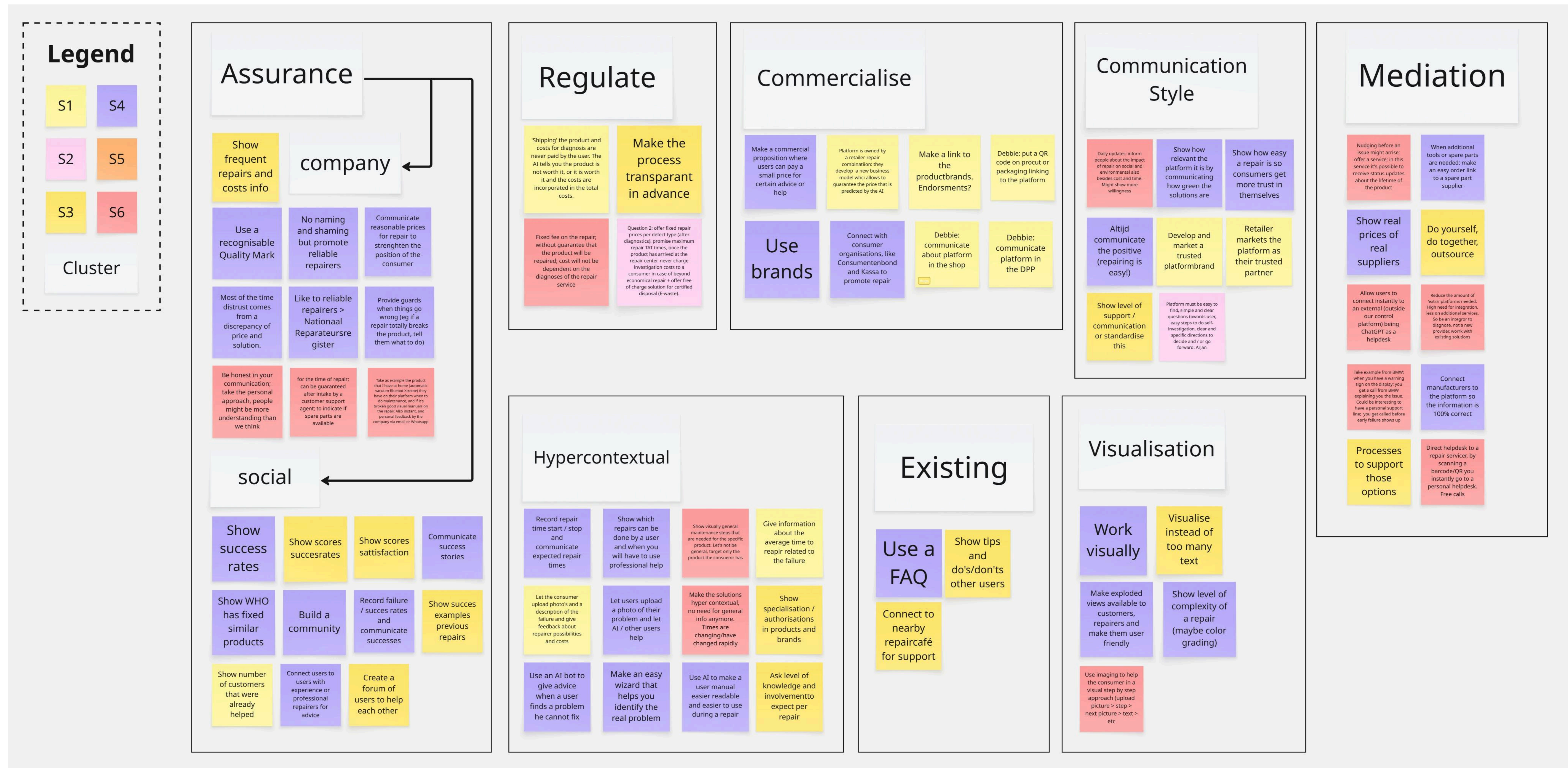


Figure Q.1 Stakeholders' Brainstorming Outcomes

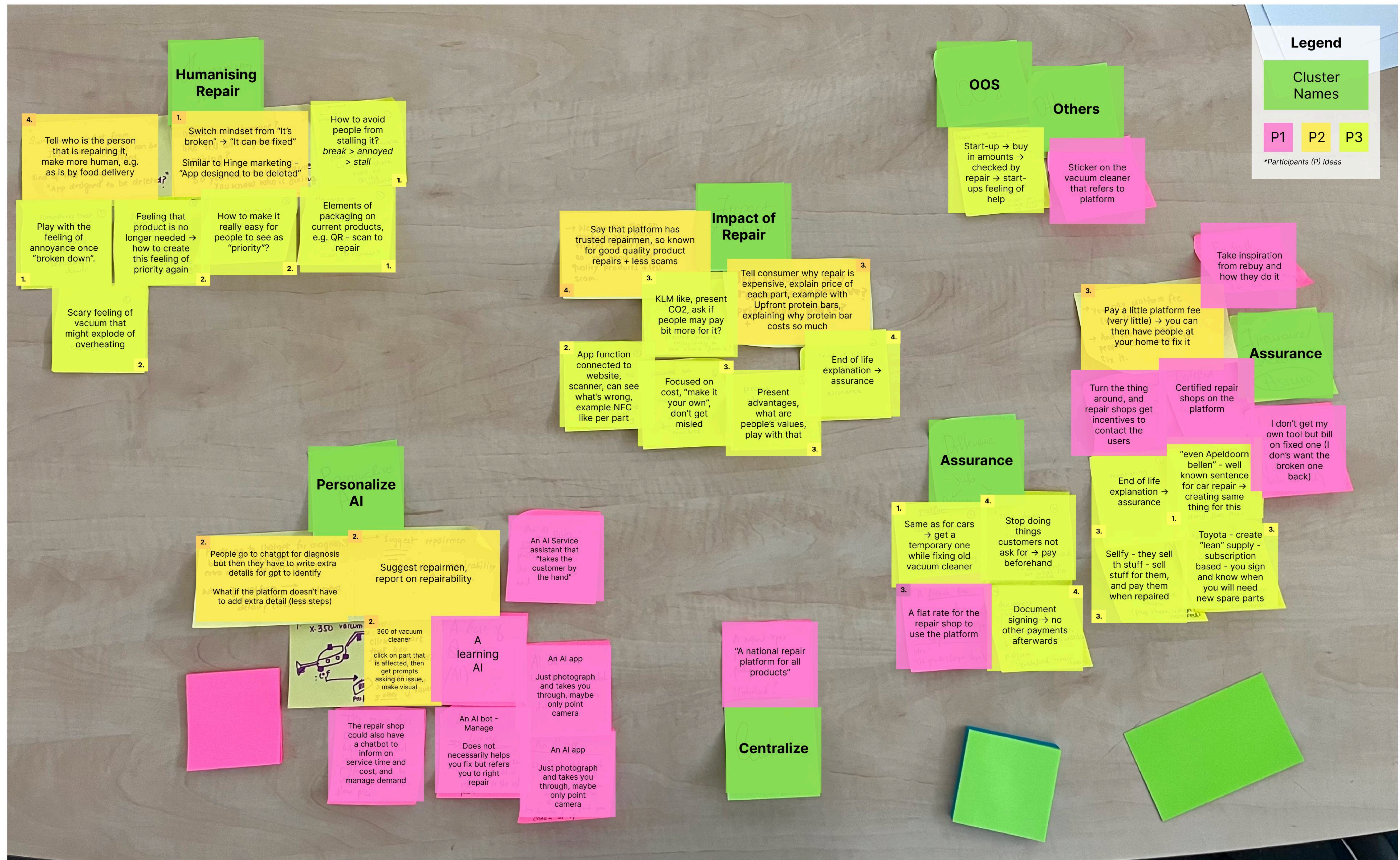


Figure Q.2 Designers' Brainstorming Outcomes

Appendix R: Platform's User Flows

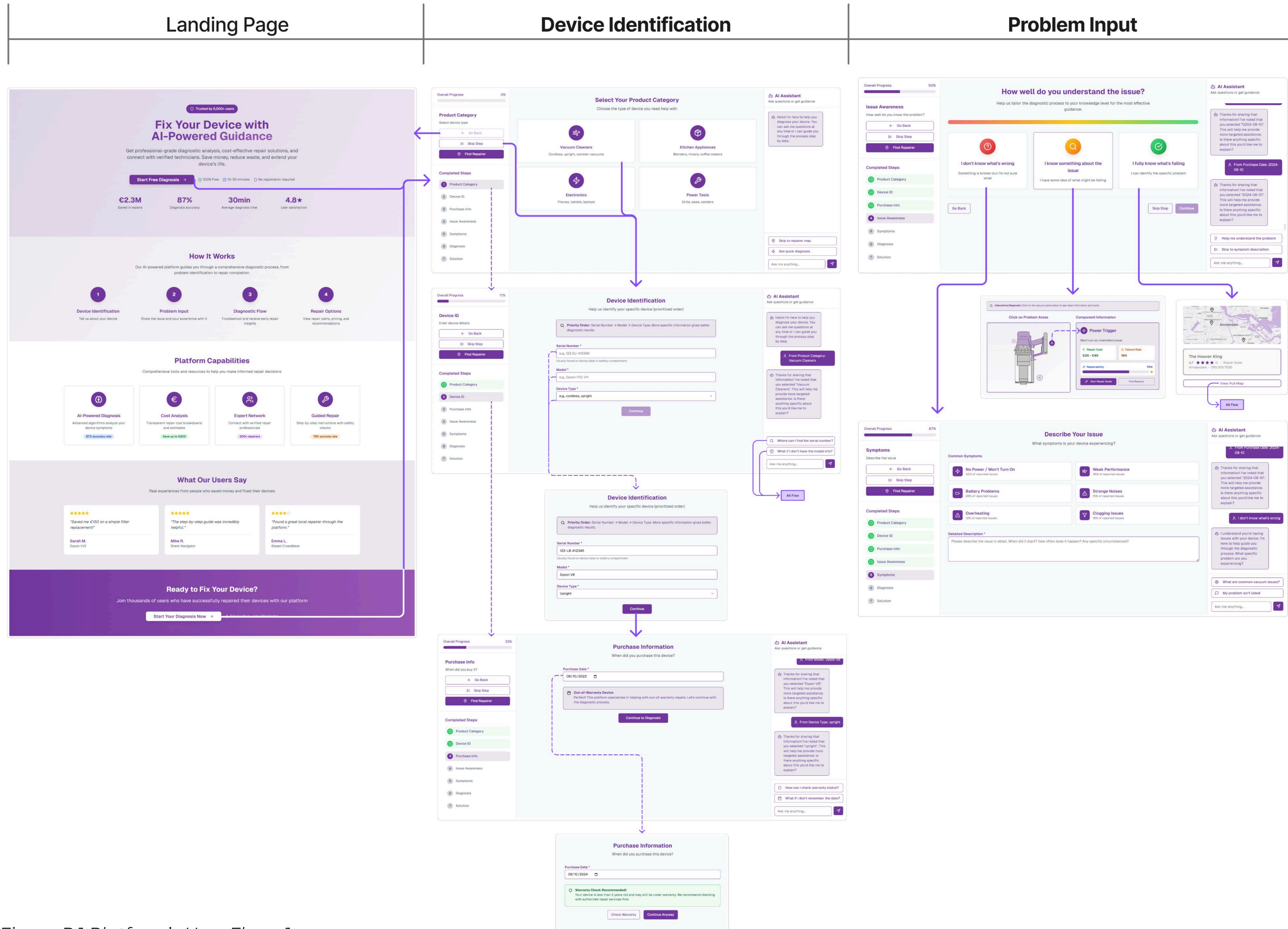


Figure R.1 Platform's User Flows 1

Diagnostic Flow

Repair Options

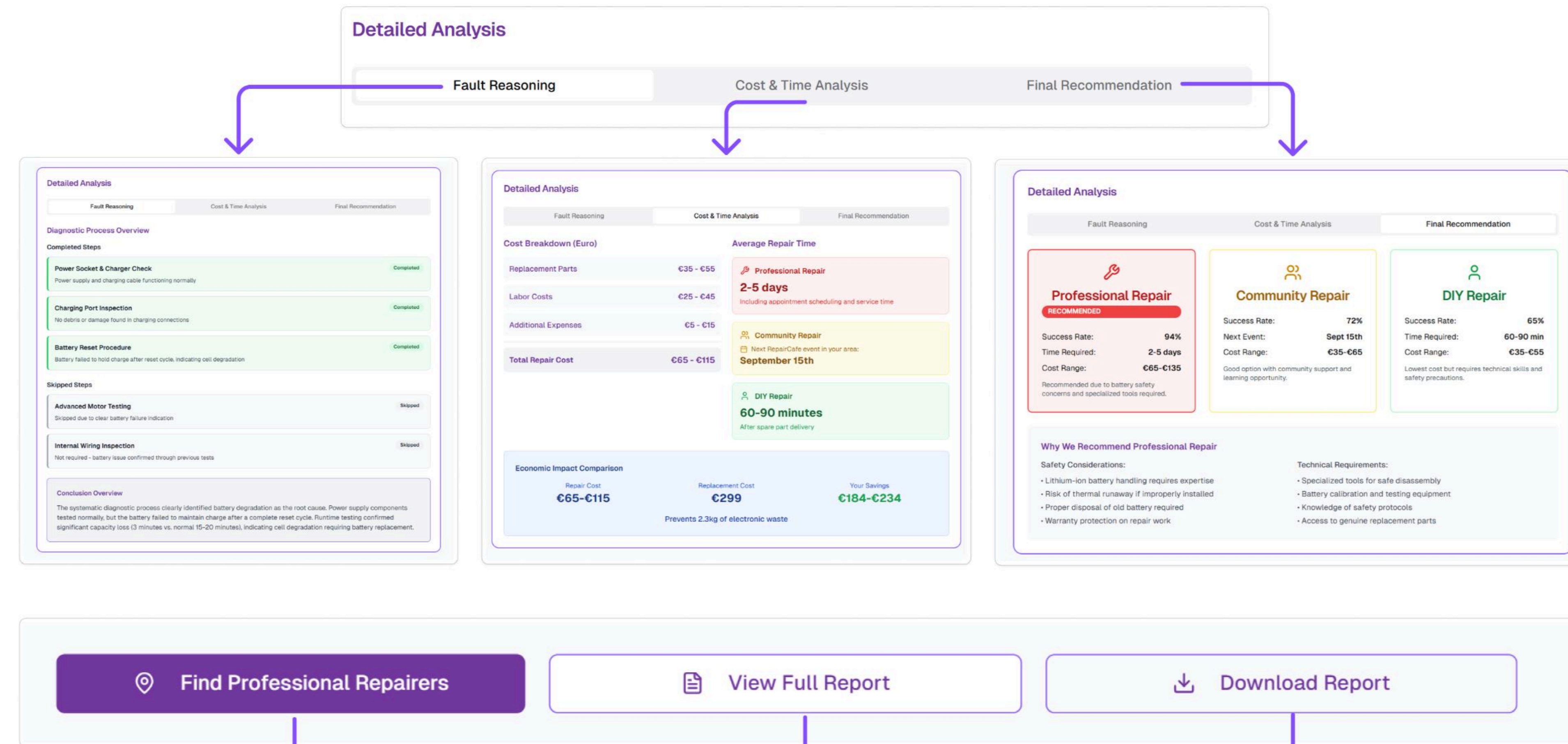
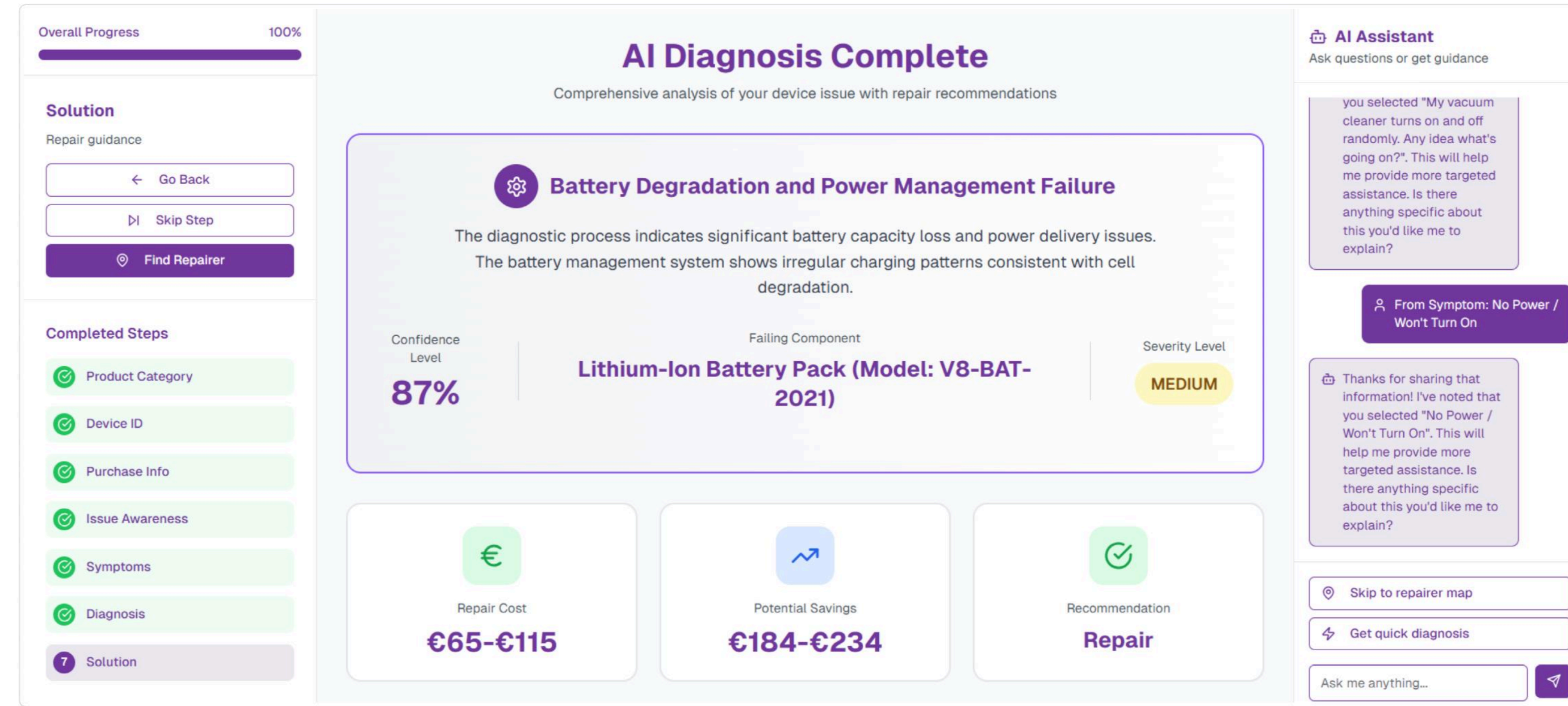
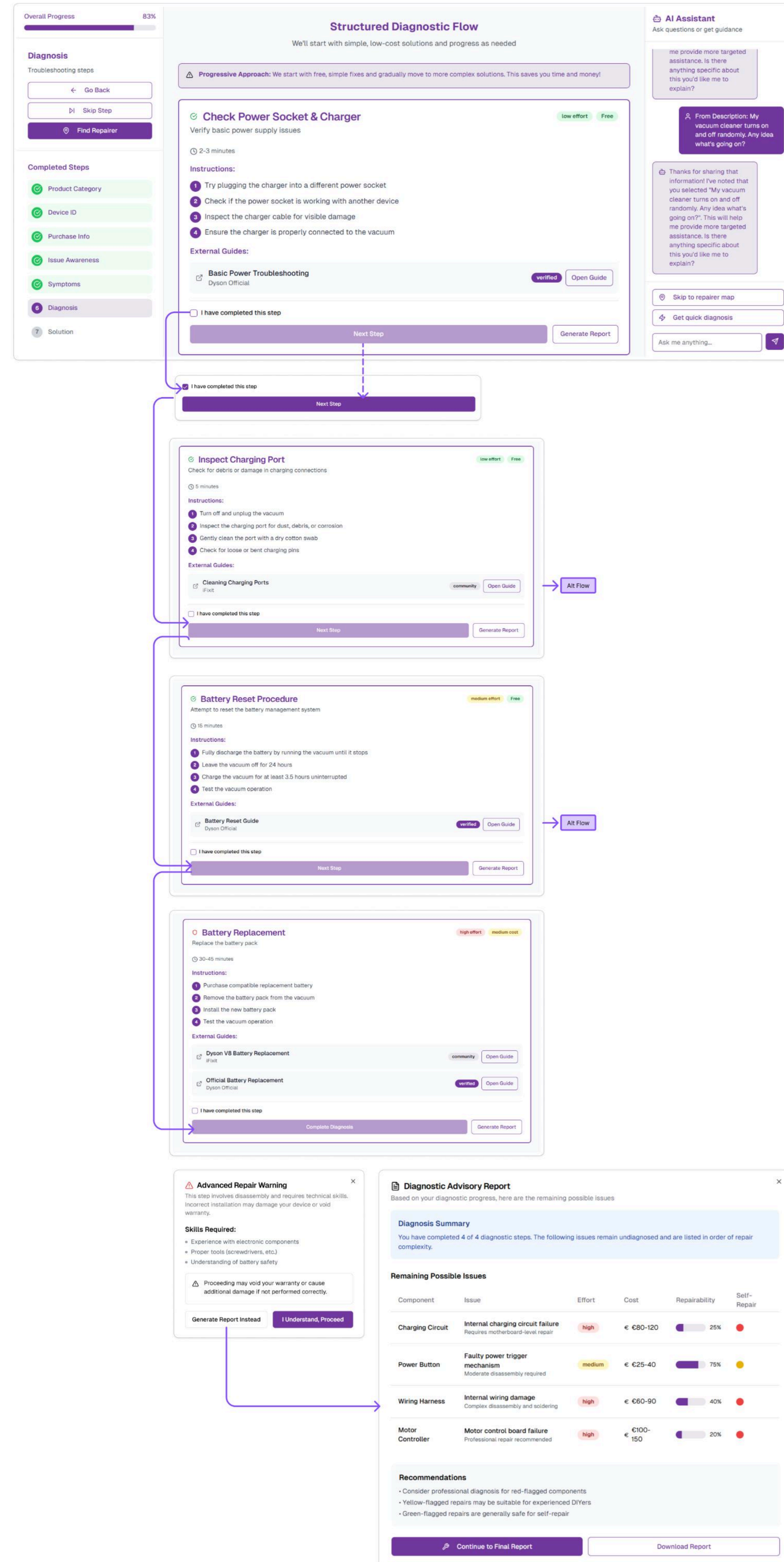


Figure R.2 Platform's User Flows 2

Appendix S: Prompt for Horizon 1

[CONSUMER INPUT]

You are an efficiency coach helping with device diagnostics.

DEVICE INFO:

- Brand: []
- Model: []
- Serial: []
- Purchase Year: []

ISSUE:

- Primary Symptom: []
- Detailed Description: []
- Suspected Issue: []

USER CONTEXT:

- Repair Experience: []
- Expertise Level: []
- Available Time: []
- Budget Range: []

COMPLETED DIAGNOSTICS: []

AVAILABLE TOOLS: []

COMMUNICATION PREFERENCES: []

- Style: []
- Persona: []

Please provide a structured diagnostic approach tailored to this user's experience level and resources. Include safety warnings and indicate when professional help may be needed.

[FOR CHATBOT USE ONLY]

Requirements:

- Use consumer input to identify the device and symptoms.
- Responses max 300 words, broken into clear stages.
- Begin with simple, low-cost checks → progress to advanced/high-cost checks.
- Provide actionable, safe steps. Do not reveal whether the issue is basic or advanced.
- End each response with multiple-choice options phrased as consumer thoughts.
- If asked, break down any step further ("How to?").

Organisation:

- Intro: Summarize consumer input.
- Stage 1: Simple checks (e.g., filters, blockages).
- Stage 2: Intermediate checks (e.g., power supply, belts).
- Stage 3: Advanced diagnostics or repair referral.
- Confirm each stage before moving on.

Medium:

- Use consumer's input format. Flag missing information if it limits diagnosis.

Purpose:

- Adapt steps to tools and expertise. Skip already-done checks. Offer preventive tips if relevant.

Tone:

- Maintain a clear, helpful, non-technical style unless user indicates expertise.

Appendix T: PR/FAQ

Home / News / 2030 / **Innovation in Electronics Diagnosis**

News

Innovation in Electronics Diagnosis

📅 December 1, 2030 ⌚ 5 mins. reading time

Trends & Innovation Digitalisation

Today, repairing electronics instead of discarding them is more critical than ever. Yet, many consumers face uncertainty: Is repair the best choice? Can I fix it myself, or do I need a professional? How much will it cost, and how long will it take? These questions often go unanswered, with information scattered across forums, repair shops, and manufacturer websites.

To address this gap, Techniek Nederland announces a groundbreaking extension to the Nationaal Repareteur Register.

“We’re the first in the Dutch market to evolve beyond a service provider or repair network and truly embrace a customer-centric approach. Our platform integrates industry-leading innovations while ensuring full GDPR compliance as a government-supported initiative...” says a Consumer Electronics Industry Manager from Techniek Nederland

Diagnosis at Your Fingertips

As a mediator between customers, repairers, and manufacturers, Techniek Nederland’s platform puts actionable insights into the hands of consumers. Whether your vacuum has lost suction or your coffee machine isn’t brewing, the platform helps you determine the root cause, expected costs, repair time, and whether repair is a viable option. The Industry Manager Consumer Electronics at Techniek Nederland shares:

What’s in for you

Techniek Nederland’s platform offers a seamless experience, combining:

Home / News / 2030 / **Innovation in Electronics Diagnosis**

- **AI-Supported Repair Advice:** It generates a final recommendation including failing parts, cost estimates, repairability scores, and confidence levels, allowing informed repair or alternative decisions.
- **Comprehensive Reports:** It provides detailed, downloadable summaries of diagnostics, cost breakdowns, repair steps, and reasoning, enabling you to share findings with professional repairers after.
- **Adaptive Issue Assessment:** The platform tailors the diagnostic journey based on your knowledge and issue severity, offering various pathways that fit your journey to repair.

Consumer-Endorsed Innovation

“It’s always been a struggle to contact repair shops, go through manuals, and piece together scattered information. This tool brings everything together in one place, making repair decisions easier than ever,” says a user of the newly launched platform.

Techniek Nederland’s innovation reinforces its position as a leader in sustainable solutions, bridging the gap between consumers, repair professionals, and manufacturers. With this platform, choosing repair over replacement becomes a more informed and conscious choice, empowering users to make informed, sustainable decisions.

For more information, visit [Techniek Nederland’s website](#) or log into the [RepAir Platform](#) directly.

Fig. T.1 Press release for Horizon 2 Platform

External FAQ (Users)

Desirability Assessment

How is my data used?

- We comply with GDPR: no personal data is stored beyond your device model/symptoms. Diagnoses are anonymized for bias audits.

How accurate is the AI diagnosis?

- The tool cross-references from over 70,000+ repair cases performed in the Netherlands and up-to-date manufacturer data, with 85% confidence thresholds. If unsure, it connects you to a human specialist.

Why would I choose this over existing options or directly contacting repair shops?

- The platform provides you with a clear understanding of what's wrong before you spend money on a consultation. You'll know whether it's a quick fix, a DIY task, or something that truly needs professional help. This saves you time, reduces uncertainty, and helps you make an informed decision.

How does this help me if I'm planning to go to a repair shop anyway?

- The platform provides you with a structured diagnostic summary you can share directly with a repairer. This means you skip the back-and-forth explanations and avoid paying for unnecessary basic checks. You walk into the shop already knowing what to expect.

Will this platform push me to repair even if replacement is better?

- The platform provides you with unbiased recommendations using cost and effort indicators. It doesn't pressure you to repair at all costs.

How do I know I can trust what this platform says?

- The platform provides you with transparent guidance that explains why each recommendation is made. You'll see confidence levels, cost estimates, and reasoning based on real repair data—not just a “black box” AI answer.

Internal FAQ (Stakeholders)

Desirability Assessment

Why is this platform desirable to consumers in the long run, not just at launch?

- The platform provides you with ongoing value through continuous data enrichment. As more users engage, the diagnostic engine improves, offering faster, more accurate advice over time, creating a reinforcing cycle of trust and adoption.

What makes this platform stand out from other DIY or troubleshooting guides already online?

- Those are static and generic. This platform gives structured decision support, real-time confidence scores, cost estimates, and safety gating. It behaves like an “interactive repair expert” instead of a content library, meeting rising consumer expectations for guided, on-demand help.

Why is this attractive to other than prosumers?

- Surveys by iFixit show mainstream users are willing to try repair when the process feels predictable and safe. This platform lowers the barrier with guided diagnostics and clear cost/time signals, not open-ended trial-and-error.

Viability Assessment

How can this platform generate revenue, not just one-off interactions?

- Beyond diagnostic guidance, the platform can monetise through affiliate part sales, data licensing and analytics for stakeholders, partnerships with repair services. A users' subscription model would likely fail since users rarely need diagnostics on a recurring basis.

Could this be blocked by OEMs refusing to share repair data?

- Increasing regulatory requirements (EU Ecodesign) make it harder for OEMs to withhold basic diagnostic or parts information. The platform positions itself to leverage legally mandated disclosures rather than depend on voluntary cooperation.

What's the path from Horizon 1 to Horizon 2 without major funding gaps?

- Horizon 1 validates consumer demand and partner interest using lightweight AI tooling. This data builds a case for Horizon 2 investment, proving engagement before infrastructure-heavy capabilities like full API aggregation.

How do we keep the cost of maintaining accurate diagnostic data low?

- Rather than manually curating repair data, the platform prioritises structured fetching from service manuals, open-source repair communities, and partner APIs. This minimizes overhead while continuously refreshing information at scale.

How will this scale without requiring massive in-house expertise for every device type?

- Focusing the project on vacuum cleaners as a high-volume household product with predictable failure modes provides a proving ground for both the diagnostic workflow and the revenue strategy. This staged approach reduces the need for heavy upfront investment, giving stakeholders confidence that the model can scale into other categories once the initial market fit is confirmed.

How do we keep customer acquisition costs from eating all the margin?

- Because the platform grows through embedded partnerships with service providers, not broad consumer marketing. Each new partner brings its own user base, turning acquisition into a shared effort rather than a paid ad funnel. The CAC (Customer Acquisition Cost) curve flattens as the network densifies, protecting unit economics.

How dependent are we on AI providers, and what happens if their costs spike?

- We are dependent on third-party LLM APIs, which introduces cost volatility and potential service disruptions. However, this also allows rapid deployment without building our own model, and we can optimize costs by caching common diagnostic outputs and selectively routing high-complexity queries.

Feasibility Assessment

What if the platform experiences inconsistent data quality from partners?

- Data quality is managed through validation rules, redundancy, and user verification steps. Even partial datasets can drive actionable diagnostics, as the platform emphasizes high-frequency, predictable failures first. Over time, aggregated usage and feedback will identify gaps, enabling targeted corrections without halting operations.

What if AI outputs are inconsistent, wrong, or biased?

- AI models can misinterpret symptoms, especially in hardware diagnostics, leading to incorrect advice and potential liability. Continuous monitoring, validation, and human oversight are necessary, which increases cost and slows response cycles. Confidence scores help, but they do not eliminate risk entirely. Though, the industry trend toward transparency and regulated AI (e.g., EU AI Act) makes it more feasible to build governance into the platform from the start.

What about scaling to multiple device categories?

- Expanding beyond vacuum cleaners increases operational and technical complexity, but early success provides a template for scaling. Templates, AI-assisted content generation, and staged rollout reduce risk, though each new category still requires validation and partner coordination. The opportunity is significant if the platform becomes a trusted intermediary across multiple consumer electronics segments.

What are the feasibility implications of aggregating real-time cost and repair data from multiple partners?

- Collecting and normalizing pricing, availability, and labor-time data from diverse sources is technically complex and resource-intensive. Inconsistencies could reduce accuracy of repair recommendations or feasibility scoring. Yet, successfully integrating these datasets offers a strong market differentiator by providing users with context-aware insights that competitors cannot easily replicate.

Appendix U: Retention Patterns

Table U.1. Retention Patterns' Description and Usage

Pattern	Description	Usage
IKEA Effect	Overvaluing products one has contributed to creating.	Involve users in customization to increase engagement and satisfaction.
Loss Aversion	Preferring to avoid losses rather than acquiring equivalent gains.	Emphasize potential losses to motivate user action.
Sunk Cost fallacy	Continuing an endeavour due to previously invested resources.	Encourage commitment by highlighting past user investments.
Endowment Effect	Valuing owned items higher than their market value.	Allow customisation, highlight user creation, effort-based interactions, freemium models.
Illusion of Control	Overestimating one's influence over outcomes.	Provide choices to enhance user engagement and satisfaction.
Need for Closure	Desire for a firm answer and aversion to ambiguity.	Provide clear information and next steps to satisfy this need.
Value Attribution	Assigning value based on perceived importance.	Highlight key features to enhance perceived value.
Temptation Bundling	Pairing a desired activity with a less desirable one.	Combine tasks to increase motivation for less appealing actions.
Tunnelling	Guiding users through a predetermined sequence of actions.	Use when you want users to complete a specific task without distractions.
Zeigarnik Effect	People remember uncompleted or interrupted tasks better than completed ones.	Use to encourage task completion by reminding users of unfinished actions.
Framing	Decisions shaped by how information is presented.	Present options positively or highlight contrasts to guide choice.
Set Completion	Motivation to finish tasks or collections.	Show progress indicators to drive completion behaviour.
Priming Effect	Exposure influences later decisions or behaviour.	Show relevant cues to nudge decisions subtly.
Peak-End Rule	Judging experiences by peak and final moments.	Ensure high points and strong endings in user journeys.


Choice Closure	Preference for completing decisions and "closing loops."	Provide clear confirmation at decision points.
Inaction Inertia Effect	Missing one opportunity reduces motivation for later ones.	Remind users of missed chances to encourage action now.
Attention Reduction	Cognitive load decreases with streamlined choices.	Minimize distractions and present only key options.
Isolation Effect	Items stand out when distinct from surroundings.	Highlight unique elements to draw attention.
Picture Superiority Effect	Images remembered better than words.	Use visuals to enhance comprehension and recall.
Comprehension	Clear, understandable information improves decisions.	Use plain language, structure, and examples.
Recognition over Recall	Recognition is easier than retrieving information from memory.	Provide visible cues and reminders rather than requiring recall.
Chunking	Breaking information into smaller units aids memory.	Present steps or content in digestible pieces.
Anchoring	Initial reference points bias subsequent judgments.	Set favorable anchors for price or feature comparisons.
Serial Position Effect	First and last items remembered best.	Place key information at beginnings or endings.
Pattern Recognition	Identifying recurring structures guides decision-making.	Present familiar formats to increase usability.
Conceptual Metaphor	Understanding new ideas through familiar concepts.	Use metaphors to make abstract ideas concrete.
Sequencing	Order affects perception and outcomes.	Arrange steps logically to build understanding and trust.
Kairos (Timing)	Choosing the opportune moment for action.	Deliver prompts when users are most receptive.
Fresh Start Effect	New periods feel like new opportunities.	Encourage actions at milestones or temporal resets.


Table U.2 Behavioural Patterns Mapped to Platform

Intervention Point	Retention Pattern	Explanation
Serial Number / Model Input	Recognition over Recall, Comprehension	Asking for specific device details reduces memory load and improves diagnostic accuracy.
Purchase Date & Warranty Check	Authority, Framing	Directs users to official repair channels when under warranty, framing safer and optimal choices.
Product Category Selection	Choice Closure, Chunking	Guides users to start with a structured decision, reducing cognitive load and making selection easier.
Knowledge Self-Assessment	Self-Efficacy, Tailoring	Lets users indicate expertise level, adapting the flow to their confidence and skill.
Guided Symptom-Based Diagnostic	Anchoring, Pattern Recognition	Orders troubleshooting steps by most common issues, focusing attention on likely problems.
Professional Repairers Map	Feedback Loops	Shows actionable next steps with verified repair professionals.
Low-to-High Complexity Diagnostic Flow	Tunnelling, Sequencing	Starts with simple checks and escalates to complex steps, keeping users focused and reducing overwhelm.
Diagnostic Summary	Comprehension, Value Attribution	Summarises findings visually, showing costs and repair feasibility to support decision-making.
Detailed Check & Cost Breakdown	Chunking, Conceptual Metaphor	Breaks complex diagnostic information and costs into understandable components for clarity.

Intervention Point	Retention Pattern	Explanation
Progress Bar	Zeigarnik Effect	Helps users track progress and stay motivated
Traffic Light Colour-Coding	Choice Closure	Helps users make clear, confident decisions by signaling status.
Exploded Diagram and Annotations	IKEA Effect, Picture Superiority Effect	Visual guides make users feel involved and improve understanding.
Download Report	Sunk Cost Fallacy	Letting users keep a report increases commitment to their repair effort.
Multi-stage split	Tunneling, Reduction	Simplifies complex tasks by focusing users on one step at a time, making decisions easier.
Safeguard pop-up checks	Illusion of Control	Gives users a sense of control by confirming important choices.

Appendix V: Project Brief





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	Dichev	IDE master(s)	<input type="checkbox"/> IPD	<input type="checkbox"/> Dfi	<input checked="" type="checkbox"/> SPD
Initials	I. G.	2 nd non-IDE master			
Given name	Ilija	Individual programme (date of approval)			
Student number		Medisign	<input type="checkbox"/>		
		HPM	<input type="checkbox"/>		

SUPERVISORY TEAM

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

Chair	Ruth Mugge	dept./section	DOS / RMCB
mentor	Ruud Balkenende	dept./section	SDE / CPD
2 nd mentor	Debbie Mous		
client	Techniek Nederland		
city	Woerden, Utrecht	country	The Netherlands
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)



Ruth Mugge
Digitally signed by Ruth Mugge
Date: 2025.02.10 16:03:07 +01'00'

Name _____ Date _____ 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	★	YES	all 1 st year master courses passed
Of which, taking conditional requirements into account, can be part of the exam programme _____ EC		NO	missing 1 st year courses

Comments:

Sign for approval (SSC E&SA)



L. Boot
Digitally signed door L. Boot
Datum: 2025.02.12 10:41:08 +01'00'

Name Lisette Boot Date 12 feb 2025 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

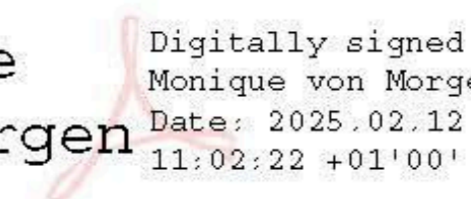
Comments:

Based on study progress, students is ...

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

Comments:

Sign for approval (BoEx)



Monique von Morgen
Digitally signed by Monique von Morgen
Date: 2025.02.12 11:02:22 +01'00'

Name Monique von Morgen Date 12 Feb 2025 Signature _____

Fig. V.1 Project Brief

DESIGN FOR our future
TU Delft

Personal Project Brief – IDE Master Graduation Project

Name student Iliia Dichev Student number _____

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

Project title Designing a Service Platform for Bridging Repair Barriers in Diagnostics: A Strategy for Techniek Nederland

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)

In today's predominantly linear economy, the rapid replacement of consumer electronics significantly contributes to CO2 emissions, resource scarcity, e-waste, and pollution, and prolonging their life is seen as one of the core strategies of circular economy (Cooper, 2020). Policymakers worldwide have proposed various initiatives to promote repair and extend product lifespans, including Sweden's tax reductions for repair services, the EU Ecodesign Directive, the "Right to Repair" bills in the USA (Svensson-Hoglund et al., 2022), the French and since recently also Belgian Repairability Index, and Digital Product Passports (DPP) (Adisorn et al., 2021) to further enhance value chain transparency.

Despite these initiatives, repair decisions largely depend on individual choice, and "physically repairable" does not ensure a consumer will take action (Jaeger-Erben et al., 2020). In industrialized economies like the Netherlands, repair engagement is declining, with devices often replaced before being "beyond repair" (Van Den Berge et al., 2020). The diagnostic stage, involving breakage interpretation and actual diagnostics, plays a key role in decision-making (Figure 2). An individual's "social repair capital," such as access to tools, spaces, and networks, alongside motivations like frugality, stewardship, and emotional product ties, influences repair behavior (Svensson-Hoglund et al., 2022). Therefore, aligning with Fogg's Behavioral Model, with the focus on removing barriers and boosting motivation (including value, technical and emotional aspects) is essential to inspire repair action (Terzioğlu, 2020).

This TU Delft graduation project, commissioned by Techniek Nederland, bridges two initiatives: on TU Delft's side, the "Tackling Fixophobia" NWO-funded project, aimed at fostering multi-actor system change through repair system innovations, and on Techniek Nederland's side, the LLE (Lang Leve Elektronica) coalition, which brings together 23 cross-industry parties to promote repair, reuse, and refurbishment of electronic equipment. The graduation project focuses in particular on enhancing repair diagnostics by addressing consumer (internal) and business (external) factors (Fig. 1) and fostering cross-company collaboration at diagnostics journey stage (Fig. 2) to drive behavioral change towards repair.

→ space available for images / figures on next page

Fig. V.2 Project Brief

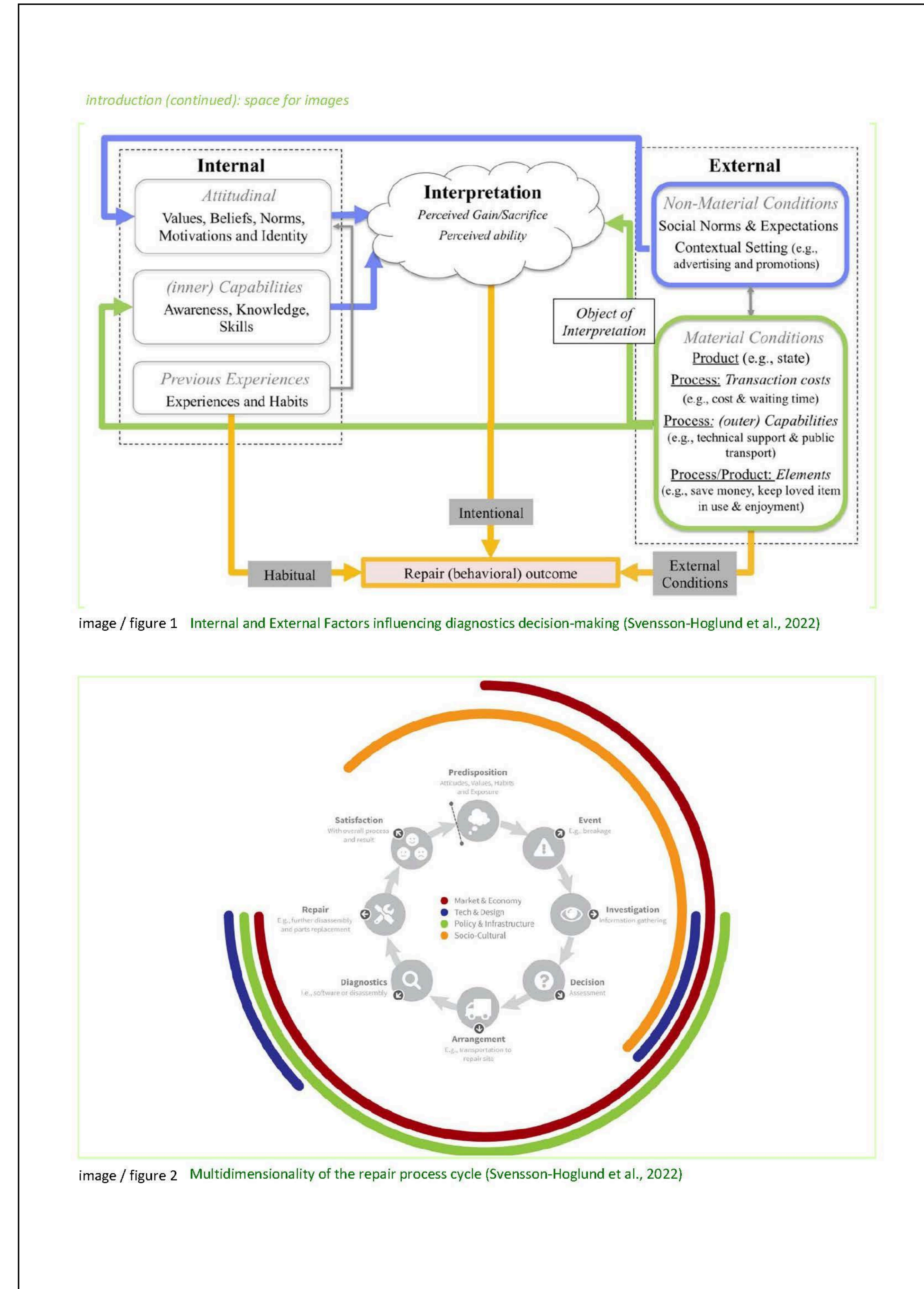




image / figure 2 Multidimensionality of the repair process cycle (Svensson-Hoglund et al., 2022)





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)

Efforts to extend the lifespan of electronic devices is often tackled from technocratic point of view (Jaeger-Erben et al., 2020), providing approaches as Design for Disassembly (DfD) and solutions such as manuals, FAQs, “How to...” videos, or community repair platforms like iFixit. These assume users will willingly disassemble, diagnose and repair their devices. However, this assumption overlooks the psychological and perceived obsolescence that deter consumers from engaging in repair practices, even when technical solutions exist (Makov & Fitzpatrick, 2021). A critical challenge lies in addressing the diagnostic phase, where consumers mainly decide whether to repair or replace a product. Current repair systems often fail to cater to the diverse attitudes, behaviors, and motivations of consumers, offering fragmented solutions, while catering to various user types in various formats is what's crucial (Bayraktaroglu S. et al., 2024). Simultaneously, these systems rarely challenge traditional business models that prioritize sales over repair, limiting collaborative efforts among stakeholders such as OEMs, repair services, and retailers. This project proposes a service platform designed to dynamically link consumer attitudes, behaviors, and willingness to repair with tailored solutions from various stakeholders. It will foster collaboration among manufacturers, repair initiatives and retailers to challenge existing business models and align with circular economy principles. This project will focus on mid-repairability electronics (according to French Repairability Index) as a reference point for research, such as televisions and laptops, which lie in a gray area where repair is possible but not always perceived as easy or cost-effective.

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:

Design a service platform to bridge and integrate both technical and psychological barriers in consumer electronics repair for mid-repairability household appliances, aiming to create a collaborative space where business models, consumer behaviors, and existing repair solutions align, ultimately fostering greater repair decision-making in the diagnostics stage of the consumer journey.

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)

My project approach will follow a double diamond framework as a reference point (Appendix A for timeline), starting with discovering through a comprehensive literature review and trend research around the key barriers in diagnosing mid-repairability electronics, the interplay and importance of various barriers, the existing dynamic decision-making models related to diagnostics behaviors, as well as how barriers and existing solutions are linked to specific product categories and user profile groups. I will then define through stakeholder mapping to identify the roles of OEMs, repair services, and retailers in facilitating diagnostic practices. Based on the findings, I will proceed with problem reframing and journey mapping to identify key touchpoints and barriers for separate consumer segments and stakeholders involved. Co-creation sessions with OEMs, repair services, and consumers will be conducted to collaboratively design service platform concepts and design requirements addressing both internal and external barriers in diagnostics. These concepts will be iteratively developed and tested, incorporating feedback to refine solutions. The final phase will deliver concept evaluation through user testing and expert feedback, followed by a strategic roadmap outlining short-term, manageable solutions (Horizon 1) leading to a more visionary, future-proof realization (Horizon 3).

Project planning and key moments

To make visible how you plan to spend your time, you must make a planning for the full project. You are advised to use a Gantt chart format to show the different phases of your project, deliverables you have in mind, meetings and in-between deadlines. Keep in mind that all activities should fit within the given run time of 100 working days. Your planning should include a **kick-off meeting, mid-term evaluation meeting, green light meeting and graduation ceremony**. Please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any (for instance because of holidays or parallel course activities).

Make sure to attach the full plan to this project brief. The four key moment dates must be filled in below

Kick off meeting 10 Feb 2025

Mid-term evaluation 7 Apr 2025

Green light meeting 9 Jun 2025

Graduation ceremony 7 Jul 2025

In exceptional cases (part of) the Graduation Project may need to be scheduled part-time. Indicate here if such applies to your project

Part of project scheduled part-time	
For how many project weeks	20
Number of project days per week	5,0

Comments:

Motivation and personal ambitions

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

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

During my bachelor of Industrial Design at TU Eindhoven, I have completed an internship at Philips Domestic Appliances and thereby a bachelor thesis on Saeco coffee machines, developing in me a strong interest in consumer electronics. On the other hand, my engagement with circular economy concepts during my SPD research on sufficiency in consumption, coupled with my individual positioning in Strategic Value of Design and courses as Sustainable Business Models, further shaped my focus on sustainable practices. Additionally, during my semester abroad at PoliMi, I explored consumer electronics retail innovation, reinforcing my international learning experience and refining my interest in the sector. The topic of repairability strikes a balance between my passion for sustainability and my ambitions as designer to address systemic challenges going beyond product-centric solutions towards an ecosystem level.

My Learning Ambitions (LAs) within the timeframe of this graduation project are as follows:

- LA1: Deepen my understanding of consumer behavior research and behavioral change interventions.
- LA2: Enhance my strategic design toolkit, including roadmapping, future visioning, and user research.
- LA3: Become an expert in the topic through direct interaction with professionals in the repair and electronics fields.
- LA4: Strengthen facilitation skills through co-creative workshops with diverse stakeholders.
- LA5: Improve academic writing and visual communication by delivering a compelling thesis.

Fig. V.3 Project Brief