Enhancing the User Experience of Toijala Works LogStacker Spare Parts E-Commerce Website

Neea Ahonen

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Abstract

Author(s)
Neea Ahonen

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This thesis focused on enhancing the user experience and usability of the Toijala Works LogStacker spare parts web shop. The objective was to address current challenges in the current interface and fix the ordering process for both users and stakeholders. By adopting a user-centered and user experience focused design approach, focusing on stakeholder feedback, the thesis concentrated on designing intuitive and user-friendly interface for navigating and ordering spare parts.

The theoretical framework combined principles from user interface and user experience design, user-centered design, website usability principles, and prototyping and usability testing methodologies. User personas and user journeys were created in the research phase. Lightning demos and sketches were made in the ideation phase. Low- and high-fidelity prototypes were designed in the design phase and final stakeholder testing and interviews were conducted in the usability testing phase.

The prototypes were designed to fulfill the basics of effective functionality, visual layout and user experience. Throughout the process, the prototypes were refined based on stakeholder input from meetings and usability testing sessions, especially since real user feedback was limited.

The final prototype successfully introduced key improvements such as interactive spare parts product map, categorized product listings and a mobile-friendly interface. Usability testing results showed that the stakeholders found the redesigned web shop intuitive and efficient and thought that the design meets the needs of users. Even though the design was tested only with stakeholders, the future user feedback can be gathered from engagement metrics when the design is developed and published. The thesis offers a solid foundation for further development and optimization of the web shop, and it aligns with the Toijala Works LogStacker team's goals of increasing user engagement and simplifying the spare parts ordering process.

Key words
User Experience Design, User Interface Design, Prototyping, E-commerce, Usability Testing, User Engagement, User-Centered Design

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1 Introduction

This thesis designs and enhances the Toijala Works LogStacker spare parts e-commerce website, focusing on improving user engagement, functionality and overall interface. This project wants to create seamless and user-friendly experience with applied UX/UI principles that meets both the stakeholders' needs and User Experience standards.

1.1 Background and Context

The topic of this thesis is the design and improvement of Toijala Works (TW) LogStacker spare parts web shop. The project began from discussions between TW LogStacker Director and the Spare Parts Responsible, concerning the urgent need to upgrade the web shop. The current platform lacks structure, categorization and user-friendliness, which affects negatively the user engagement and adds to the workload of the Spare Parts Responsible. For Toijala Works, this project is an opportunity to enhance the user experience of the web shop and gain more active users while improving the efficiency.

For me, as the author and designer, this thesis provides valuable professional experience. The project involves researching, designing, and prototyping a more user-friendly web shop, with the actual development in WordPress taking place after the thesis. In a broader context, this project highlights the application of User Experience (UX) and User Interface (UI) design principles, particularly those from Nielsen Norman Group, providing a practical example of how these principles can be applied to improve a real-life website.

1.2 Objectives of the Thesis

The primary objective of this thesis is to redesign and improve the user experience of the TW LogStacker spare parts web shop. The key goal is to increase the user engagement from 3 to 10 active users and total users from 11 to 30. Additionally, this thesis project aims to improve product availability, add product categorization, and refine the user interface, which ultimately would benefit both the users and the spare parts management at Toijala Works.

This thesis will document each step of the design phase, and in the end the thesis will work as a thorough design proposal for the upgraded web shop plan. Success indicators include positive usability test results, positive feedback from stakeholders, and the achievement of the user engagement targets.

1.3 Key Concepts

This thesis project will take advantage of a few different key concepts and methods, Agile Methodology, User-Centered Design (UCD), Prototyping and Usability Testing. These methods make sure that the project process was user-friendly and adaptable. All these concepts are explained thoroughly also in the theoretical framework.

Agile Methodology is an adaptable approach to project development, and it focuses on iterative work cycles (sprints), stakeholder collaboration and flexibility to accommodate changes. (McCormick 2012).

User-Centered Design (UCD) is a framework that prioritizes the user's needs and preferences in the design process, from initial research to testing and final refinement of prototypes. UCD is modified in this project more to the approval and feedback of stakeholders if there is a limitation to user feedback. (Lowdermilk 2013).

Prototyping and Usability Testing involves creating basic (low fidelity) and realistic (high-fidelity) prototypes to test the functionality of the design and gather feedback. In the end, the design is refined based on user and stakeholder input. (McElroy 2016).

1.4 Research Questions

The thesis aims to answer the following questions:

1. How can the user experience of the TW LogStacker spare parts web shop be improved to increase user engagement?
2. What design solutions can enhance the product categorization, availability information, and user interface elements to support better management and usability?
3. How can UX and UI design principles be applied to achieve these goals?

1.5 Scope and Limitations

This thesis will focus on the research, ideation, design and testing phases of the web shop upgrade. The development and implementation of the final solution, which will be done on the company's WordPress platform, are outside the scope of this thesis project. Additionally, the project will not include any specific technical limitations of the web shop platform but will focus on UX/UI design solutions that can be implemented later in the development. Another challenge is also the possibility of not receiving any or a lot of feedback from users. This warning came from the stakeholders themselves. From a sustainability perspective, this thesis aligns with principles of digital efficiency and resource management, aiming to reduce physical documentation and improve inventory management.

1.6 Structure of the Thesis and Timeline

This thesis is divided into several key sections. Chapter 2 includes the presentation of the client, provides overview of Toijala Works and the significance of the TW LogStacker spare parts web shop, with its current state. Chapter 3 is theoretical framework of the thesis, and it covers the UI/UX principles, usability in e-commerce, the prototyping techniques, and the explanation of usability testing.

Then the thesis moves into the project design phases starting with chapter 4, the Research and Discovery from July to August 2024. This phase includes gathering information through different sources like interviews with users and stakeholders, studying the current web shop and company, and doing a competitor analysis. The objective of this is to understand the current pain points of the web shop, understand the key users by making user personas and establish long term goals for the redesign.

Chapter 5 is the Ideation and Planning from August to September 2024. This phase consists of ideating based on the gathered research done in the previous part. The solutions are ideated through empathy maps, service blueprints, lightning demos and sketching. Lastly, based on the sketch, a storyboard is created to support the winning idea.

Chapter 6 is the Design and Prototyping phase from September to October 2024. Based on the ideas and sketches made in the ideation part, low- and high-fidelity prototypes are created. The prototyping takes place in a design platform called Figma, where prototypes can be created to be as realistic as possible. The prototype is the biggest part of this project since it shows the redesign solution in a realistic form before the implementation. In this phase wireframes and prototypes are created and the phase ends in first stakeholder feedback.

Chapter 7 ends the design phases in Usability Testing in October 2024. The winning solution in the prototype must go through usability testing to see if the solution would suit the users, stakeholders and perform accordingly. Usability testing will be done in qualitative method which is interviews. Lastly after the test results and feedback, last changes are made to the prototype that can be presented to the client.

The thesis ends with chapter 8 and 9. In chapter 8, the Discussion reviews the findings, evaluates the project and reflects on the process. And lastly in chapter 9, the Conclusion summarizes key takeaways and contributions from the project and authors experiences.

2 Presentation of the Client

To understand the context and requirements of the TW LogStacker spare parts web shop, introducing the commissioning company is essential. This chapter focuses on Toijala Works, LogStacker and the specific needs of the web shop.

2.1 Overview of Toijala Works and TW LogStacker

Toijala Works is an engineering company based in Akaa, Finland, established in 1960. It specializes in heavy machine construction and steel structures. It has nearly 200 employees and a turnover of 48 million euros. Toijala Works has built a strong reputation in domestic and international markets and has developed high expertise in machine building. They manufacture and provide both machines and steel structures for various industries. They have expertise in the entire manufacturing process, from design and product development to final assembly, ensuring that the products meet the needs and expectations of their customers.

Toijala Works has been recognized for its commitment to long term partnerships and well executed customer visions. Their commitment to quality and innovation has made them a trusted name in the industry, and their focus on product development ensures that they meet the constantly evolving needs of their customers. (Toijala Works 2024).

Toijala Works designs and manufactures also their own signature product, the TW LogStacker. It has been designed for efficient handling of logs, used in the wood and logging industries for transporting and stacking logs. These machines, such as the RTD3126 and RTD17 are known for their design, allowing operators to perform heavy duty tasks like uploading wood from trucks, stacking logs into piles and transporting them to storage or processing.

Toijala Works has been producing the TW LogStacker for many years and as a long-term investment for clients, maintaining them with spare parts is important. That is why the TW LogStacker spare parts web shop is an important part of the process; it provides clients an easy way to order parts and ensure that their machines remain operational for a long time. (TW LogStacker 2024).

2.2 Current State of the Spare Parts Web shop

The TW LogStacker spare parts web shop sells and provides many spare parts, but with the current state of the web shop, the sales and users are minor. The web shop currently has only 11 users of which only 3 are active. It’s in urgent need of improvements to its structure, user-friendliness and overall user engagement. (van Nunen 2024).

The existing website has several usability issues, such as unclear nonexistent categorization, difficulty in finding necessary parts and lack of intuitive design elements that could help the users in navigating in the web shop and purchasing parts. Also, there is a lack of visuals and imagery for the products. The website was made in WordPress without professional developers many years ago. The user experience (UX) has not been taken into consideration, which has led to poor management rates among the clients. Also, the availability information of the parts is not usually clearly shown, only a suggestion to contact TW LogStacker responsible if something is available. This discourages user interactions and purchase decisions. (TW Parts 2024).

From the company's perspective, the poor usage of the web shop adds to the workload of the LogStacker spare parts responsible, who must manually assist the clients with the parts they're looking for. Also, most clients place orders through emails and PDF's. Figure 1 below shows the home page of the web shop. It shows the current state of the web shop and highlights the outdated and difficult design with its challenges (see also Appendix 1).

Overall, the web shop is not showing its true potential. The opportunity to create a streamlined and efficient system for ordering spare parts lies with a new design that covers the rules and principles of good UX design.

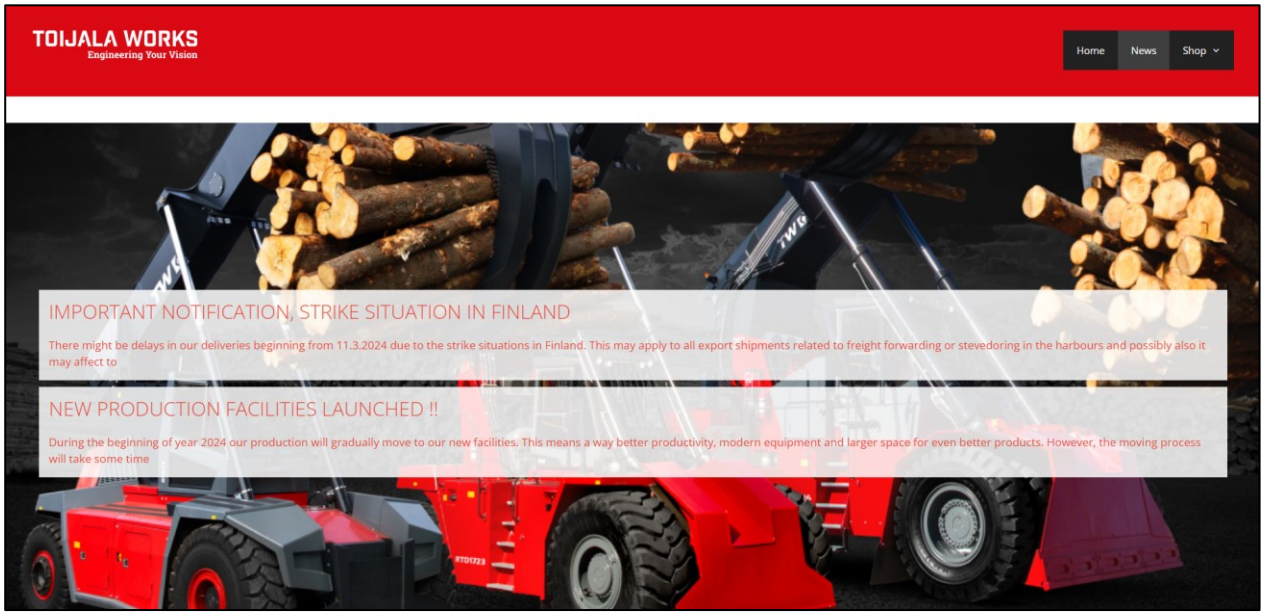


Figure 1 The current state of the TW LogStacker spare parts web shop. (TW Parts 2024).

2.3 Client's Needs and Expectations

Toijala Works, knows the urgent need for a redesign of the LogStacker spare parts web shop. Their key expectation is to improve the overall user experience so that it would increase the customer engagement and satisfaction. The more specific goals include better user engagement. The client hopes to raise the number of users from 11 to 30, and the number of active users from 3 to 10. The client wants their customers to use the web shop more often and depend on the web shop for availability information and orders.

The second goal is clear product categorization. To make the web shop's navigation easier for customers to use, the client has pressed a need for more efficient and user-friendly categories for the products. For example, they have shown how the product catalogue categories could work as an easy way for the customer to find what they need, since that's what they're used to.

The final key goal is showcasing the availability information. The client expressed the difficulty for customers to order what they need since the availability information is not shown clearly for most of the products. (van Nunen 2024).

In summary, Toijala Works expects a well-designed, user-friendly web shop that incorporates modern e-commerce practices and allows users to have easy and efficient interactions in the web shop.

3 Theoretical Framework

This thesis project uses insights from key principles of User Experience (UX) and User Interface (UI) design, website usability, User-Centered design, E-Commerce usability, prototyping and usability testing, and Agile methodologies. These frameworks guide the design process to ensure a user-friendly, efficient and intuitive web shop. In this chapter, all these important frameworks and practices are explained. This helps to understand better what's behind the design thinking of this web shop design.

3.1 User Experience (UX) Design

User Experience (UX) design focuses on creating good and relevant experiences for users by understanding their needs, wants, behaviors and pain points. UX is more than the looks of the design, it shows how users feel when they interact with a product or a service. (Norman, Nielsen 1998).

3.1.1 UX Principles

User Empathy, Task Analysis, Information Architecture are UX principles that resonate with this thesis project the most. User Empathy means understanding what the user's emotions are and needs regarding the product. This principle ensures that the design for the web shop resonates with the user's behaviors and fits their expectations. (Gibbons 2019).

Task Analysis involves breaking down the tasks that the users need to do to achieve their goals within the web shop. By understanding what the tasks are, designing intuitive, efficient and satisfying workflows is possible. (Rosala 2020).

Information Architecture (IA) focuses to make sure that content and information withing a product is organized, and the content has a structure. This helps the users find what they need. Clear navigation paths, logical content hierarchies and intuitive labels are key things to consider with the design of this project. (Tankala 2023).

3.2 User Interface (UI) Design

User Interface (UI) design focuses on the looks and interactivities of digital products, and in this case the web shop's interface. UI design ensures that users can interact with the web shop easily and without any problems. It also makes sure that the visual design of the product supports positive user experience.

3.2.1 UI Concepts (Visual Hierarchy, Accessibility, Simplicity. Responsiveness)

There are many different UI design concepts to consider when design an old or new interface, but Visual Hierarchy, Accessibility, Simplicity and Responsiveness are the most important ones regarding the redesign of TW LogStacker spare parts web shop.

Visual Hierarchy means the arrangement of different UI elements that guide the user's attention to the most important content first. For example, with this project, the users need to notice the shop element and different categories. When the visual hierarchy is effective, it can ensure a clear distinction between primary actions and secondary information.

Accessibility in UI design ensures that the design is available and accommodates all users, also those users with different disabilities. Proper colour contrast, keyboard navigation and screen reader are a focus on this project. Those few accessibility principles are important to include in every project.

Simplicity is key. When it comes to the visuals in this project, a simple look is enough. A clean and uncluttered design is easier to understand and navigate to a user. Eliminating unnecessary elements and reducing number of actions will help the key users to do their tasks effectively and easily. The key user group of TW LogStacker wants to focus on the products, so it's important to make it visible and easy.

Responsiveness allows users to navigate in interfaces with any device available. Whether the users would shop with a desktop, laptop or phone, responsive design would ensure that shopping for spare parts would be easy regardless the screen size. Responsiveness would maintain good usability and visual appeal on every screen. (Gordon 2020).

3.3 User-Centered Design

User-Centered Design is a framework that focuses on the needs, preferences and behaviors of the customers and users throughout the entire design process. It is based on the idea of a product's success connected to the expectations of the target customers and users. User-Centered Design includes stages like Understanding the users, Designing with users in mind and Testing with users.

Understanding the users stage involves research and analysis of the target audience through interviews and data analysis. The goal of this is to understand what the tasks are, challenges and needs of the product based on the user's needs. In this project, throughout research is done about the product and key users to find out the best solutions.

Designing with users in mind stage asks the designer to design for the users regardless of the information found in the research. The design process focuses on creating solutions that are effective, efficient and tailored to the user. This means in this project that a lot of brainstorming and sketches are done before designing the actual prototype that is close to a real-life product.

Testing with users stage includes usability testing. The prototypes are tested with the users and their feedback is considered so that the product works technically, but also is easy to use and looks good. (Lowdermilk 2013).

3.3.1 Modified User-Centered Design for Stakeholder-Centered Focus

In this project, due to limitation possibilities of user feedback, UCD is adapted to focus on stakeholder feedback. While the design focuses on being user-centered, the stakeholders provide insight that showcases the user needs while offering strategic input. The stakeholders feedback is crucial especially when user testing might be unavailable. Their feedback ensures that the product aligns with both user and stakeholder needs.

3.4 Website Usability Principles (Learnability, Efficiency, Satisfaction)

Website usability focuses on how users can navigate, learn, do their tasks and achieve their goals most effectively within a website. A usable website minimizes friction would ultimately allow users to perform their tasks quickly. During this project, Learnability, Efficiency and Satisfaction principles in website usability are important to follow. (Nielsen 2012).

Learnability as a principle means how easy it is for users to accomplish their tasks and goals on their first visit at the website. It’s recommended to use familiar design patters that are common with other websites, also clear instructions shorten the learning curve.

Efficiency means the speed users can complete tasks and actions after they have learned the design of the website. Efficient workflows, easy and clear navigation paths should be focused on to reduce user frustration.

User satisfaction is important in a successful website design. Users should feel positive when they’re interacting within the website. This is achieved through a combination of intuitive design, fast-loading pages, and clear feedback mechanisms.

3.5 E-Commerce Usability (Product Categorization, Search Functionality, Availability and Checkout Processes)

E-Commerce usability focuses on specific needs of online shoppers and in this project, the customers who are looking to buy spare parts easily. E-commerce usability ensures that users can quickly find, evaluate and purchase products or services without any troubles. Some key e-commerce usability elements include product categorization, search functionality, availability and checkout process. (Flaherty, Kaley 2018).

In e-commerce and especially in this project, clear and logical categorization helps users find products easily. In this case, product categories should be designed with both searchers and browsers in mind, using familiar language and intuitive groupings.

Search function is critical in e-commerce usability. In this project's web shop, implementing an effective search functionality with different filtering options would help users locate the spare parts they're looking for quickly, even when they're not familiar with the site's navigation.

A transparent inventory system is critical regarding TW LogStacker spare parts users. Also, a seamless and efficient checkout process is essential for conversion rates. Focus on displaying real-time product availability and offering intuitive, multi-step checkout experience with minimal friction is important to web shop users' satisfaction.

3.6 Prototyping and Usability Testing

Prototyping and usability testing are most essential steps when it comes to UI/UX design or designing new or old interfaces regardless. They're iterative processes that help to validate the design by gathering feedback from real users. These frameworks ensure potential issues are identified and corrected before the actual full-scale development of the service. (McElroy 2016).

3.6.1 Prototyping Methods

There are two different main types of prototypes. Low-Fidelity Prototype and High-Fidelity Prototype. Low-Fidelity Prototypes are done in the early stage after sketching. They are usually mockups and wireframes that are quickly created iterate different ideas and gather feedback. They usually focus more on layout and structure rather than visuals. These are essential in shaping the initial design direction and identifying big usability issues before putting on a lot of work and resources.

High-Fidelity prototypes on the other hand are created to be realistic and resemble the final product in visuals and functionality. These types of prototypes should include interactive elements like

clickable buttons and navigable screens that allows users to test and engage with like it was a real product. High-fidelity prototypes are important factors for determining the design readiness for the actual development and they ensure that the design aligns with both users' and stakeholders' expectations. (McElroy 2016).

3.6.2 Usability Testing Techniques

After the prototype is ready, users are made to test out the product to provide valuable feedback. In this project, Task-Based testing is a key technique. That means the users are given specific tasks to complete. The meaning of the tasks is to see how easily and efficiently the users can navigate the interface without errors. For example, users can be asked to complete a checkout process. This provides insights into the design's intuitiveness, usefulness and functionality. The users can also receive surveys to answer or interviews to go through. This feedback ensures other wants, needs and pain points they have and what needs to change in the design. (McElroy 2016).

3.7 Agile Methodology

The Agile methodology is an approach to project management and product development. Agile methods focus on flexibility and adaptability through the project development cycle. Key characteristics of Agile Methodology include iterative work cycles aka sprints. This means the project is divided into small and manageable parts. Usually, those last 1 to 2 weeks, but in this project these sprint sections would last around 1 to 2 months. In the end of each sprint section, there would be some sort of finished result, for example after prototyping part, a prototype would be the finished result.

Agile methods include communication and collaboration between the team, stakeholders and customers with regular meetings, emails, and result reviews. In this project in a team of one, communication with the stakeholders has been important regarding the needs and wants of the finished product. Also interviews with the customers regarding the current product and needs for the new one were important to have.

Agile adaptability and flexibility allow the project to adjust. If the project requirements change, something is late or new data is gained throughout the project, Agile way of working allows the team to adjust based on those needs. This adaptability is important, especially in single-designer projects with heavy reliance on stakeholder insights. (McCormick 2012).

4 Research and Discovery

The research phase of this project is focused on understanding the existing TW LogStacker spare parts web shop's user experience by gathering insights from current users, analyzing competitors and from those findings, creating user personas, user journeys and empathy maps. This research identifies areas of improvement and guides more user-centric redesign of the web shop.

4.1 Initial Research and Field Study

The initial research started with a comprehensive examination of the current web shop's structure, usability and design challenges. UX/UI principles like task analysis and information architecture guided the examination. By navigating within the site, insights into its structure, usability and design pain points were found. The key issues were outdated visuals, lack of product categorization, poor search functionality and outdated checkout process. These findings called for immediate needs for user-centric approach that would prioritize product categorization, modernization, clear product listings and navigation, and better user engagement. (TW Parts 2024).

4.2 Interviews with Current Users

To gather qualitative data, interviews were conducted with current users of the web shop focusing on their experiences, pain points and their visions of improvement. This method aligns with User Empathy and Testing with Users stage of the UX and UCD principles. These users are customers of TW LogStacker and visit the spare parts site. These interviews confirmed the same issues, needs and preferences I saw, and the stakeholders saw when using the platform, highlighting the users' need for better usability and availability information.

4.2.1 Interview Questions and Methodology

Since the users were from different international backgrounds, reaching out to the users happened via email. The stakeholders had warned about the possible challenge of minor response rate. With the email, there was a set of structured questions focusing on their experience with the web shop, how they use it and what improvements they would like to see. This method allowed for a clear understanding of user behavior and specific pain points. The questions in the email were: How often do you use the TW LogStacker parts web shop? What changes would make you use it more frequently? And what is the most frustrating aspect of the web shop?

4.2.2 Key Findings

The email was sent to 20 registered users and even with the stakeholders' warning, 2 responses were received. There were two main insights found from the interviews, usage and availability

issues. The users would typically only visit the web shop to check the pricing and both users preferred to send orders via PDF due to poor usability of the platform. This finding supports the need for simplicity and efficiency, like mentioned in UI and E-Commerce usability principles.

The users were also frustrated by the lack of product availability information. Both indicated that knowing the stock levels upfront would make them order more and visit the site more often. Improved transparency and up-to-date information could increase the user engagement like suggested in the E-Commerce usability principles.

These insights confirmed the direction the design needs to go to. The new design needed to improve the functionality, show clear availability information and provide intuitive ordering process.

4.3 Competitor Analysis

Competitor analysis was conducted to show the differences between TW LogStackers spare parts web shop to other companies that provide similar services, those companies included EdiLog, Vertimac and CAT (see Figure 2). The analysis showed a broader perspective on the best practices help helped with the identifying of opportunities for improvement.

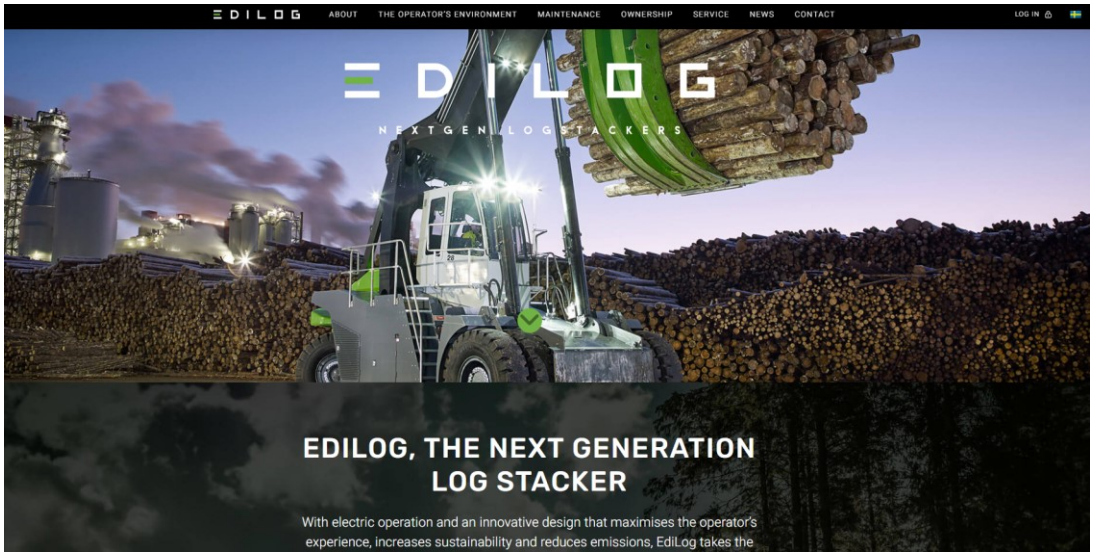


Figure 2 Competitor EdiLog's home page. (EdiLog 2024).

4.3.1 Competitors Overview and Best Practices

EdiLog and CAT were found to have very limited product listings for spare parts and relying mostly on contact forms for inquiries and purchases. Vertimac stood out by offering a more comprehensive online experience, with well-structured categories, product images and real-time product availability information (see Figure 2 and 3). Vertimac's design also showcased Information Structure

and Visual Hierarchy principles that would help the users within the website with organized categories and clear navigation. On the other hand, all the competitors' websites were easy to use, user-friendly and modern. Designing a similar layout to the TW web shop could align more with UI and UX principles.

From the competitor analysis, several best practices were identified: Clear product categorization, detailed product information and enhanced search functionality. Vertimac's use of well-defined categories would allow users to easily find the parts they need. Implementing a similar structure in the TW spare parts web shop would improve the usability significantly. All the competitors often included images, descriptions and availability status, which was badly lacking in TW web shop. A well designed, filterable search feature was a common strength with many competitor sites. It allowed users to have easier navigation and discovery of the products.

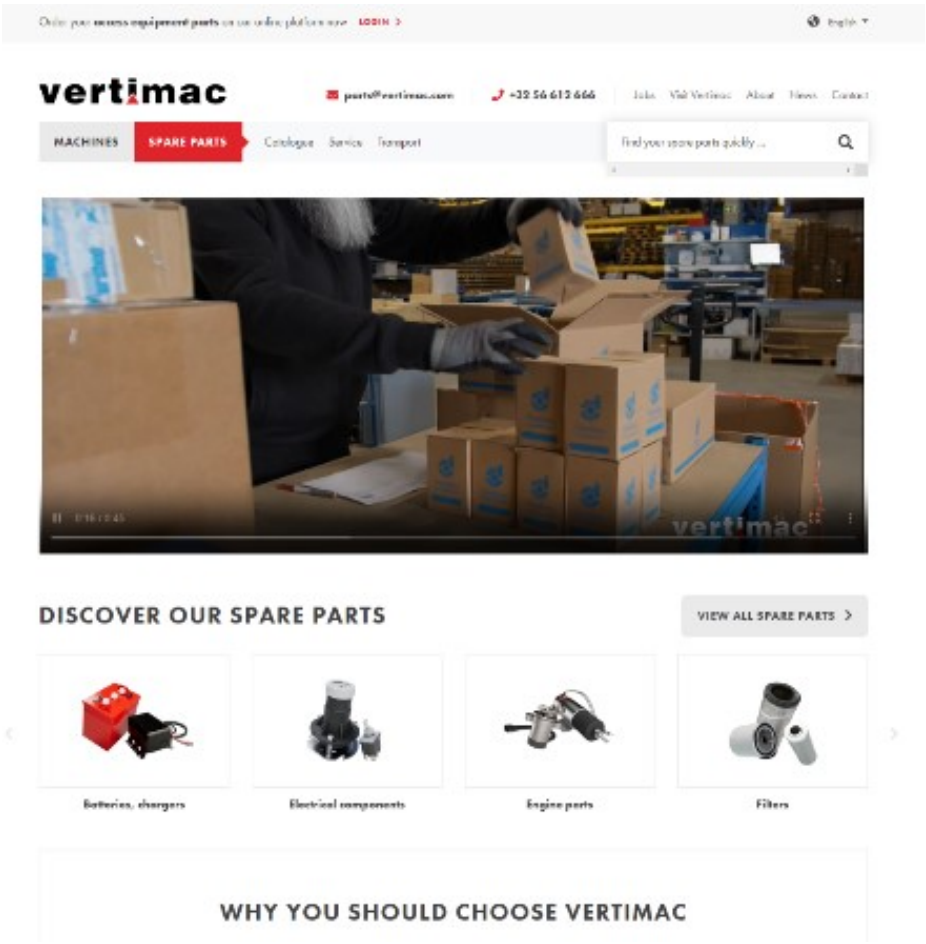


Figure 3 Competitor Vertimac's website spare parts page. (Vertimac 2024).

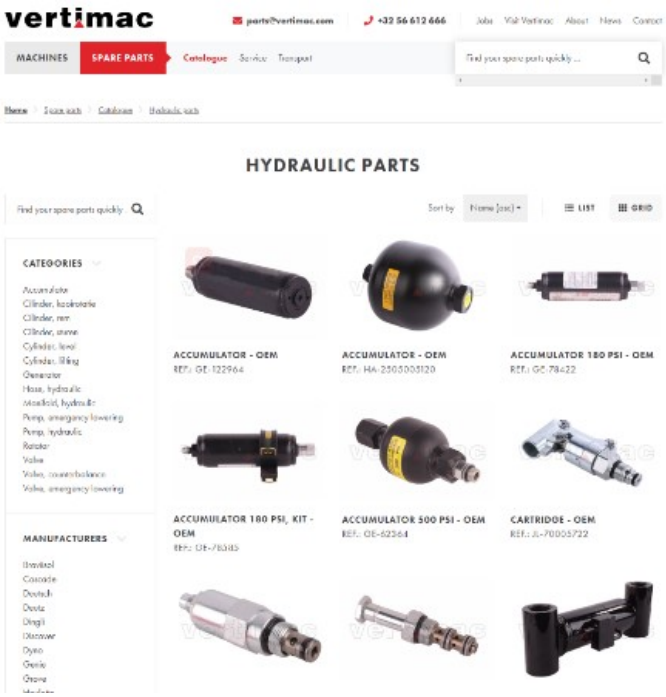


Figure 4 Vertmac's spare part product listings. (Vertimac 2024).

4.4 Data Analysis and Long-Term Goal

After gathering data from initial research, user interviews and competitor analysis, the next step was to combine this information and create the long-term focus and goal of this thesis project. The gathered data showed a few recurring key issues such as poor navigation and product categorization, frustrating checkout process and al ack of detailed availability information.

By addressing these core pain points, a more user- centric web shop experience would be possible. When combining all these insights, the core areas of improvement are including better navigation, product categorization, efficient checkout and availability information. These goals align with the usability principles in UX and E-Commerce frameworks and they support a more user-centric and satisfying experience for users. To get a clear focus on the future, the long-term goal for this project is to position the TW LogStacker web shop as a leading and reliable resource for LogStacker parts, that fosters long-term customer loyalty.

4.5 Development of User Personas

Based on user interviews and behavioural patterns, two primary user personas were developed to guide the design process. This aligns with UX and UCD principles and allows the design to fit distinct needs, challenges and goals of the typical users of the TW web shop.

User Persona 1: Peter describes a user who wants to find the best price and find available parts fast. He thinks the poor functionality of the web shop forces him to send PDF orders, since the checkout process is poor and he doesn't know what is the real availability of the products. He would like to visit a web shop that has accurate stock data, clear categories and simple ordering process (see Figure 5).

Name: Peter
Age: 45
Gender: Male
Occupation: Maintenance Manager
Location: Finland

Works for a company that owns several TW LogStackers. He is responsible for maintaining and servicing the equipment. He often needs to order spare parts to ensure the machinery is operational.

Goals

- Find the best prices for the spare parts
- Ensure availability of parts to minimize downtime
- Simplify the order process.

Challenges

- Uses webshop only to check prices due to its poor functionality
- Prefers sending orders via pdf because the current webshop is difficult to use
- Finds the lack of availability information on the webshop frustrating
- Wants more intuitive and user friendly interface

Technology Use

- Comfortable using computers and basic web applications
- Prefers straightforward and efficient tools for ordering parts

Needs

- Accurate and visible availability information
- An easy-to-navigate webshop with clear categorization and images.
- A reliable, user-friendly interface that simplifies the ordering process

Key Quotes

"I just check the prices on the webshop and then send a pdf order, it's much easier since the current webshop is poor and I need to know if the parts are available."

Figure 2 User persona 1, Peter.

User Persona 2: Sally describes that TW web shop user who wishes for simple purchasing of parts to save time and avoid errors. She is disappointed by the lack of availability information and inefficiency of the ordering process. She would like to see a TW web shop that is well-organized with clear availability and efficient checkout process (see Figure 6). Both of these user personas highlight the importance of including web shop navigation and visual hierarchy for ease and efficiency.

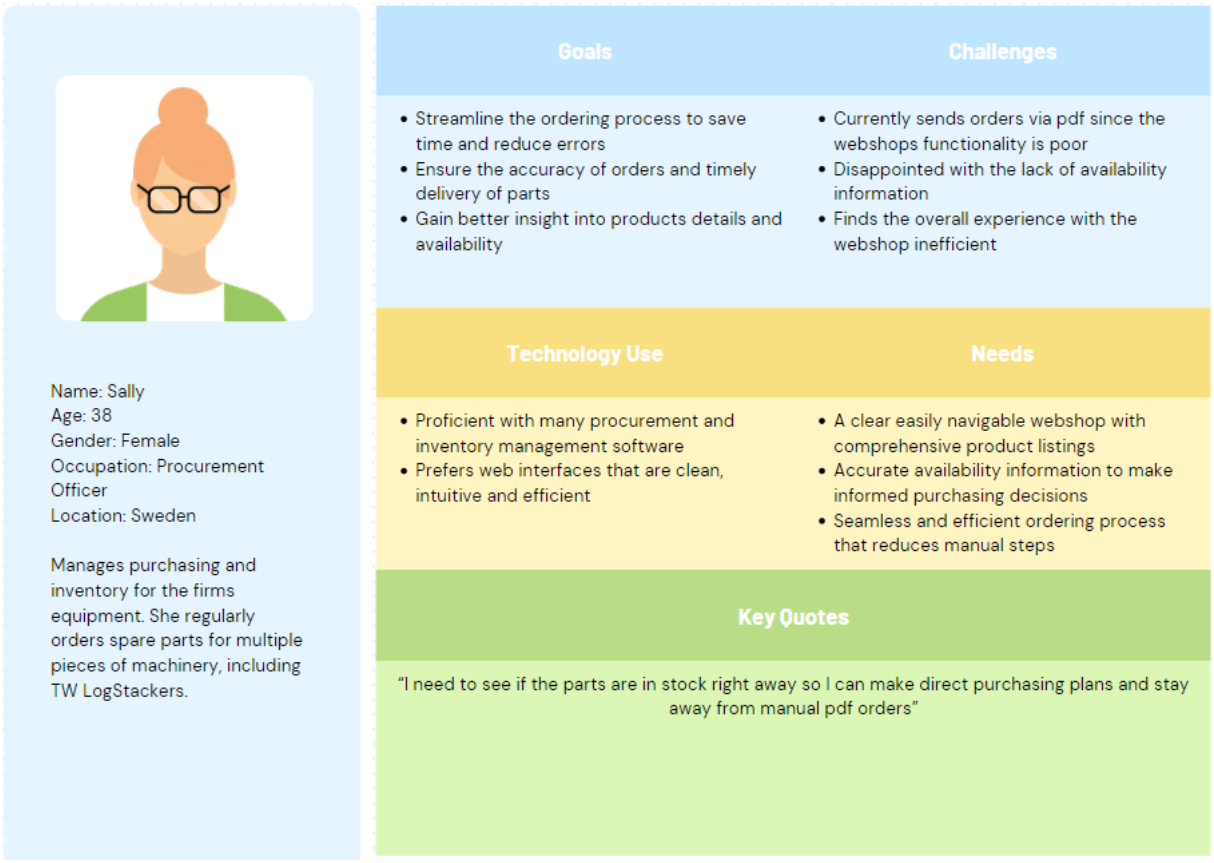
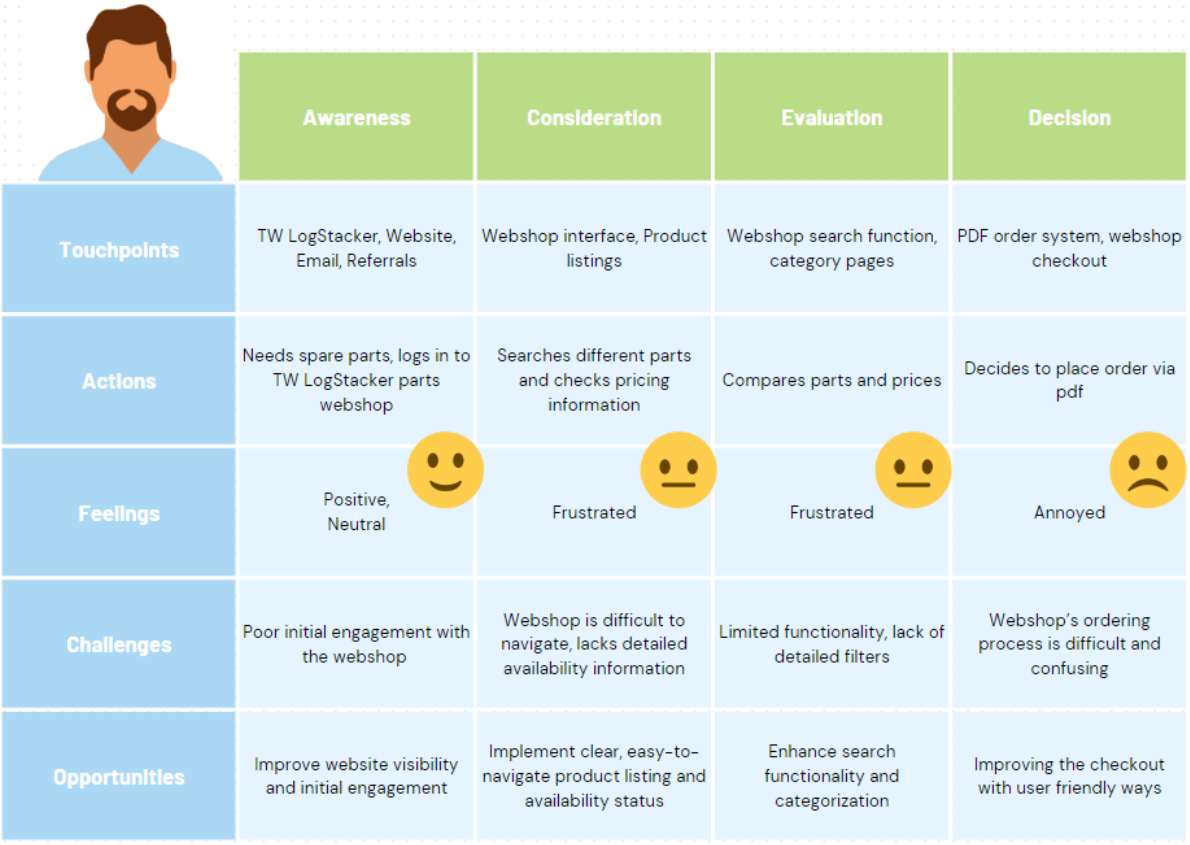


Figure 3 User persona 2, Sally.

4.6 Customer Journey Map

The customer journey map shows the typical path that the users take when they're interacting with the web shop. This journey was mapped from the initial awareness stage aka when the user realizes that they need something, or they need to do something and the journey ends at the final decision stage where the user usually would place an order. (Gibbons 2018b). Each stage of the journey shows the user's reactions to current usability issues, which calls for improvements in accessibility, availability and navigation. In this case the customer journey was done about Peter, because he describes the regular TW spare parts user (see Figure 7).



	Awareness	Consideration	Evaluation	Decision
Touchpoints	TW LogStacker, Website, Email, Referrals	Webshop interface, Product listings	Webshop search function, category pages	PDF order system, webshop checkout
Actions	Needs spare parts, logs in to TW LogStacker parts webshop	Searches different parts and checks pricing information	Compares parts and prices	Decides to place order via pdf
Feelings	Positive, Neutral	Frustrated	Frustrated	Annoyed
Challenges	Poor initial engagement with the webshop	Webshop is difficult to navigate, lacks detailed availability information	Limited functionality, lack of detailed filters	Webshop's ordering process is difficult and confusing
Opportunities	Improve website visibility and initial engagement	Implement clear, easy-to-navigate product listing and availability status	Enhance search functionality and categorization	Improving the checkout with user friendly ways

Figure 4 Customer Journey map, Peter.

Key touchpoints from the customer journey map were:

Awareness - The user becomes aware of the need of spare parts and starts the journey with TW web shop. At the start the user feels neutral, but still sees the challenges with user engagement.

Consideration - The user now navigates the web shop in hopes of finding the parts they need and checking prices. The user starts to feel frustrated since the web shop is difficult to navigate, and they don't know if the parts are available.

Evaluation - The user is very frustrated, since there are big challenges with the categorization, navigation and availability information. The user can't shop for the parts they want to since the information and functionality isn't there.

Decision - The user feels annoyed, since they can't find the parts, they needed. The user now must place an order via PDF manually to contact TW spare parts responsible and they need to finish the transaction manually.

4.7 Empathy Map

Lastly, an empathy map humanizes the user's experience and captures what the user says, thinks, does and feels about the product or service they are interacting with. This is an important part of understanding the user and User Empathy mentioned in the UX principles. (Gibbons 2018a). In this case the empathy map shows Peter's emotional responses throughout his customer journey (see Figure 8).

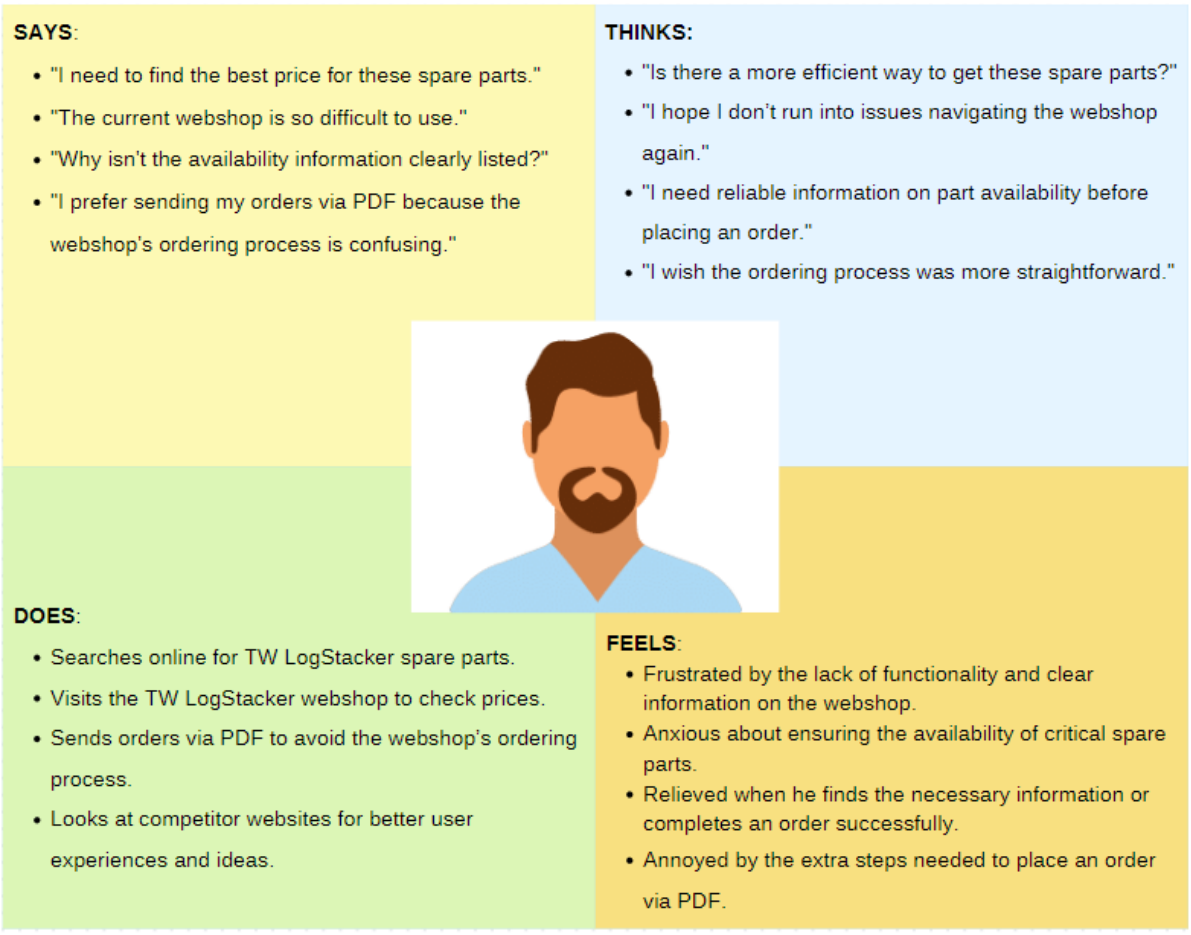


Figure 5 Empathy map, Peter.

In conclusion these responses are a key takeaway to base this web shop project on: Peter says" Why isn't the availability clearly listed?". Peter thinks" I hope I don't run into issues navigating the web shop again." Peter does checks prices online but sends orders via PDF due to poor functionality. And Peter feels frustrated by the lack of clear information and smooth ordering process.

5 Ideation and Planning

After finishing the initial research, and deciding on the main target of the project, the next step is ideation. The ideation and planning phase focuses on generating creative solutions to improve the TW LogStacker spare parts web shop. This phase uses UX and UCD principles with a combination of brainstorming, lightning demos, and visual tools like storyboards and sketches to find the best design solution. The ideation phase aligns closely with User-Centered design since it focuses on combining user insights and usability principles to address key user challenges. These methods help to identify key improvements to enhance the user experience, fix the navigation and improve the ordering process. (Harley 2017).

5.1 Ideation Process

The ideation process involved gathering input from the stakeholders and figuring out potential improvements. This phase allowed integration of different perspectives before moving into the design and development stage which supports the user-centered approach.

5.1.1 Brainstorming

Brainstorming session helped with generating different ideas that would help with improving the web shop's usability. By focusing on UX/UI, UCD and E-Commerce principles, the brainstorming included solutions that would cater to users' needs and improve the functionality of the web shop. Ideas from the brainstorming included:

Hover-over images of parts - Stakeholders suggested incorporating images and layouts from the spare parts catalogue, where users would hover over images of parts and click on them to see the correct product. This would allow users to visually identify parts which ultimately make the navigation easier since the catalogue is familiar to the users.

Catalogue Categorization - Also based on the familiar catalogue, I suggested to make the categorization similar to that where every part is already in good categories. The users would the first choose what machine they need parts for, then which part of the machine, which mimics the structure of the catalogue.

Adding images - The addition of product images, machinery images and so forth, it would strengthen the visual style of the other TW websites, and ultimately also make the visual appeal of the spare parts web shop more satisfactory.

Stock visibility - Enhancing the spare part availability in real time is a priority to reduce user frustration and improve decision-making and ordering process.

Improved checkout - A seamless and efficient checkout process would help conversion rates. Instead of navigation to the checkout straight after adding something to the cart, changing it to a small pop up would allow users to continue shopping for parts easier. Also simplifying and shortening the checkout process would make users shop more efficiently.

News Alerts - A dedicated space for new and urgent updates that are separate from product listing would ensure more clarity inside the web shop.

5.1.2 Lightning Demos

A lightning demo describes ideas and inspirations in a visual form. Making a lightning demo helps to explore different designs and helps translate stakeholders' desires. The meaning of the lightning demo is also to show existing designs that have a familiar and high learnability. By adding pictures of regular e-commerce websites that have a simple categorization, navigation helps to set a base direction for the re-design. (Hermanto 2021).

In this lightning demo the inspiration came mostly from the current other TW websites and the spare parts catalogue. Big inspiration from the current TW websites is the color scheme of red, black and white, but also the layout and composition of the website. The catalogue pictures show the categorization and the hover-over image idea that the stakeholders suggested (see Figure 9).

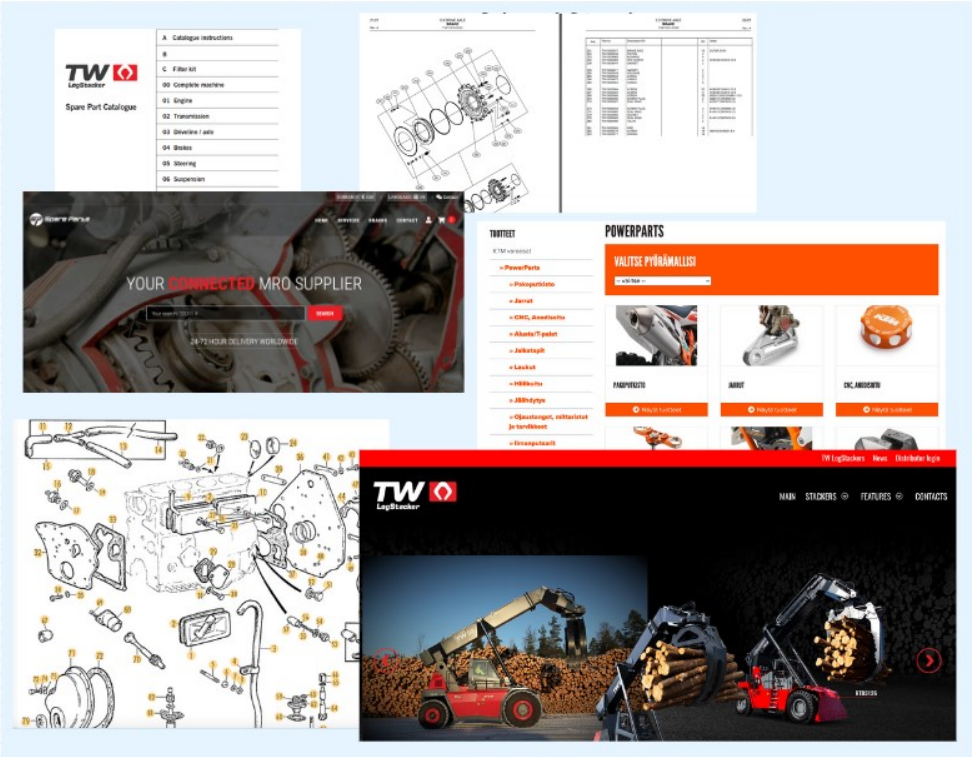


Figure 6 Lightning Demo.

5.2 Service Blueprint

The purpose of a service blueprint is to showcase what happens while interacting with the product or service and what components help the service go from start to finish. It helps to understand how a service is delivered, how systems interact and what improvements can be made. It helps to map out the overall user experience and it provides look at how each stage of the customer journey interacts with different frontend and backend components. By identifying every component in the customer journey, the service blueprint aligns with UX and UCD by focusing on each stage to meet the user needs like the theoretical framework suggests. (Gibbons 2020). This service blueprint is a direct continuation of the user journey (see Figure 10).

	Customer Actions	Frontstage	Backstage	Support Process
Awareness	Searches for spareparts online	Website homepage, marketing emails, referrals	Distributor Log In	it support, sales responsible
Consideration	Navigates the webshop to find and compare parts	Product listings, search function, category pages	website maintenace, content management	web development team
Evaluation	Reviews product details and availability	detailed product pages, availability info	database updates with product and availabiloty info	inventory management system, customer database
Decision	Attempts to place an order through the webshop	checkout page, payment options	order processing, inventory management	order fullfillment team, payment processing systems
Post Purchace	Checks for order confirmation	confirmation emails	shipping coordinations, order status updates	logistics and shipping team

Figure 7 Service Blueprint.

Here is a breakdown of the TW LogStacker spare parts service blueprint:

Customer Actions - The user starts by searching for spare parts and navigates through the web shop to find the correct items, checks availability lastly places an order through the web shop.

Frontstage - The visible parts of the web shop process include the home page, product listings, search functions, categories, checkout and order confirmation.

Backstage - Behind the scenes the website relies on TW Distributor log ins, product updates, and database for products and their availability. The inventory management systems are critical to ensure that the user sees accurate and up-to-date information.

Support process - IT-Support, content management and the logistics play an important role in ensuring that the user experience is smooth from start to finish in every process.

5.3 Storyboarding

Storyboard is a visual tool that helps plan and visualize the actions in a process, and it shows the key steps to consider when designing a new service or product. In this case the storyboard helps to visualize the user's journey and interactions in the web shop. This helps to focus on the user's pain points and map out a solution to the journey flow like UX and UCD principles suggest. (Krause 2018). Here the storyboard describes user persona Peter in need of spare parts (see Figure 11).

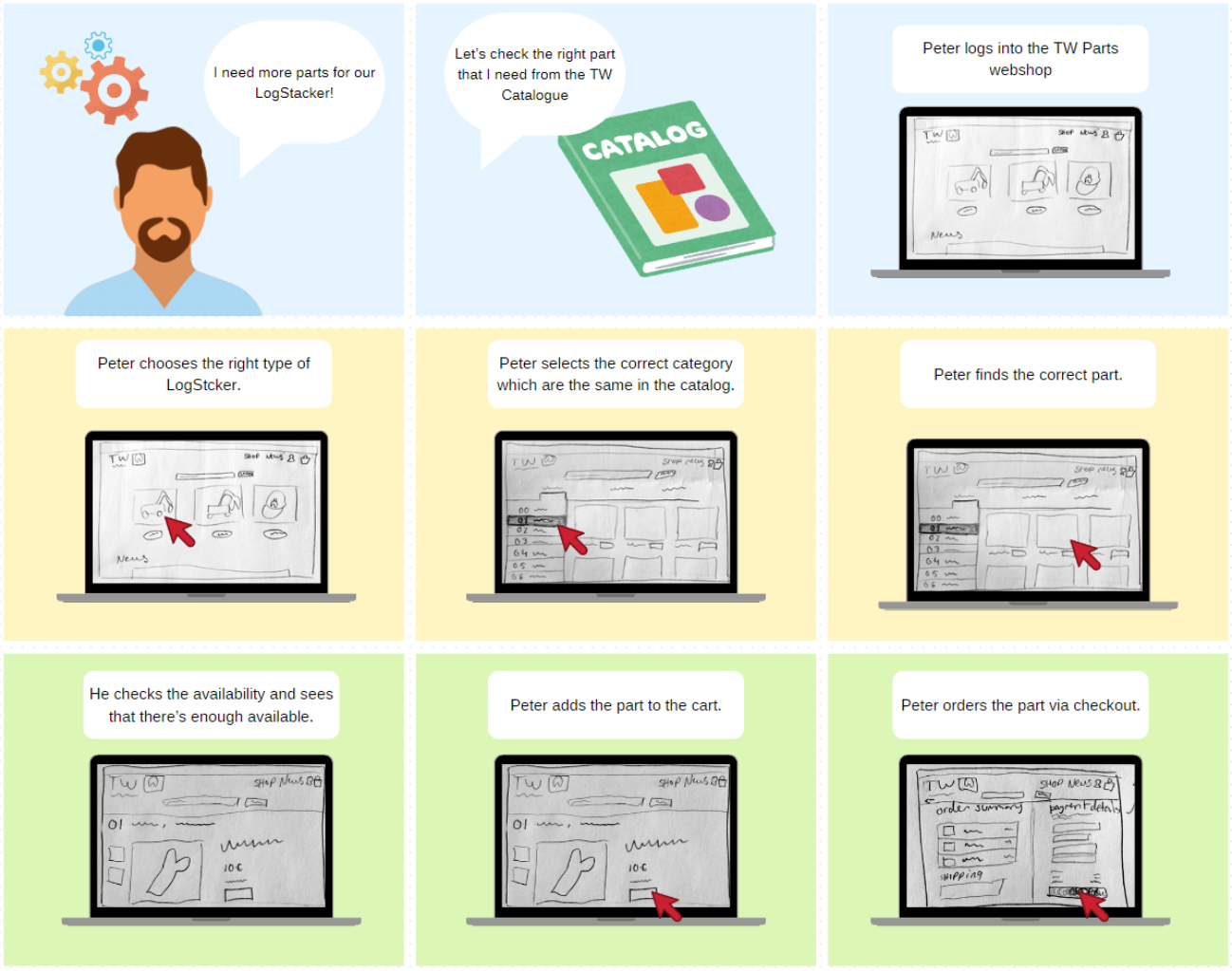


Figure 8 Storyboard, Peter.

A breakdown of the storyboard:

Problem: Peter needs TW spare parts.

Journey:

1. Peter checks the TW spare parts catalogue to find the parts he needs.
2. Peter logs into the TW spare parts web shop and selects the correct machinery.
3. Peter navigates through the categories that match the catalog structure to find the right parts.
4. Peter sees the part's availability information and adds it to the cart.
5. Peter completes the checkout process knowing that the parts are in stock.

Outcome: The process is straightforward and shows off the catalogue's organization, and gives Peter, the user persona a seamless experience from finding to ordering parts.

5.4 Developing Solutions and Sketches

Once the key problems have been identified and ideas are clear, solutions are sketched out to provide visual framework for the improved web shop. The sketch is based on the ideas generated during brainstorming, and lightning demos, and focused on usability, visual clarity, and functionality. Sketches can be done either manually with pen and paper or digitally sketching. In this project pen and paper was a fast and easy way to visualize ideas (see Appendix 2).

The sketches reflect the core UX/UI and UCD principles and showcase key design elements. Category-based navigation was one of the most important objectives to solve. Categories were broken into logical sections by machine type a part type, mimicking the already existing spare parts catalogue. This structure will make it easier for users to locate specific parts. Clear product listings were also included in the sketch. With clear categories, the product listings become simpler. Availability information should be shows right after product name. Also, in case of development difficulties, sketch of a more simpler product listing first will work as a starting point layout and a backup plan if the hover-over imagery of parts turns out to be too complicated. Optimized checkout was also part of the wanted improvements. The checkout process was made simpler with fewer steps and emphasis on clarity, ensuring that users can place orders without frustration. Visual style consistency was important in the sketching. The design will reflect similar aesthetics of TW LogStacker brand, including logos, fonts, colours and layouts.

The sketches itself will only guide the next step, the design and prototyping. It's common that ideas change or get clearer when working on creating prototypes.

6 Design and Prototyping

The design phase involves developing user-centered prototypes. This stage is meant to showcase the insights and ideas from the research and ideation phases into tangible and testable designs while ensuring alignment with the users' needs and long-term goals. This stage includes principles of iterative design, usability, accessibility and visual hierarchy, suggested in the theoretical framework. This phase also includes stakeholder feedback so that the design aligns with user and company objectives. (McElroy 2016).

6.1 Wireframing and Low-Fidelity Prototypes

Prototyping is an essential part of the design phase, where creating an interactive model of the TW LogStacker spare parts web shop is possible. Prototypes help with visualizing how the final product would function and later be tested out to gather feedback on its functionality.

Wireframe is a simple version of a low-fidelity prototype that focuses on layout and functionality. It doesn't have any big elements like colors or interactivity. The wireframe provides low-detail and clean representation of key web pages and allows the focus to go on the layout, navigation categorization. (McElroy 2016).

The initial wireframe is kept simple to ensure that the navigation and structure of the web shop is clear and intuitive. In figure 13, the first webpage on the upper left corner is the landing page, aka the home page where user first finds themselves in. In the home page it was important that the message is clear, the search bar should always be visible, and the user should get a selection of machinery to choose from when they start shopping for parts. The News alerts now would be below the shopping part that users still see important notifications, but it wouldn't be too much in the way.

The page next to it is one of the most important pages, the product listings. There is shown a bit simpler approach to categorization, on the left are the categories based on the spare parts catalogue and next to it the list of products. The layout is simple and is currently missing the hover-over image element. During the wireframing, a simpler approach was the goal so the basics are correct and later with the high-fidelity prototype, the two different product listing pages would be on show. The pages after that are the single product page, news pages, contact page and the checkout page (see Figure 12).

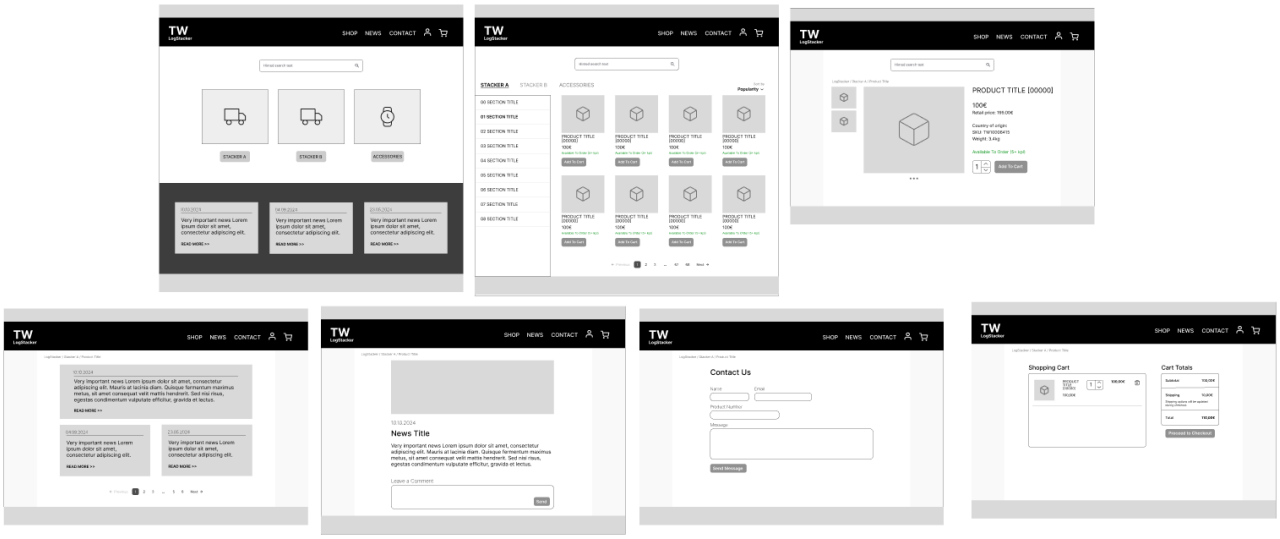


Figure 12 Low-Fidelity Wireframe of TW spare parts web shop design.

After creating the initial wireframes and the basic structure was confirmed, it was time to make design iterations. Each iteration would add more detail to the prototype, such as placeholder images, more text content and interactive elements. Also, the importance of two different product listing pages was under thought. It was important that there were two different options since the stakeholders weren't sure what design elements would be possible to develop.

6.2 High-Fidelity Prototypes

Once everything was settled after the low-fidelity wireframe, high-fidelity prototypes were developed. A Hi-Fi prototype is more detailed and interactive representation of a service that very closely resembles a final finished product. It would include visual design elements like typography, color schemes, images and detailed interactions. (McElroy 2016).

In the TW spare parts web shop prototype, it was important to stick to the brand color schemes, layouts and visuals. Logos were added to the pages and a lot of red and black since those are the company's signature colors. To the landing page, pictures of the machinery were added and more design elements from the TW LogStacker website.

The Interactivity of the prototype was connected to every page. Users can navigate from page to page easily. Users can click almost every link, add items to cart and view subcategories in the product listings. The interactivity was kept very simple (see Figure 13).

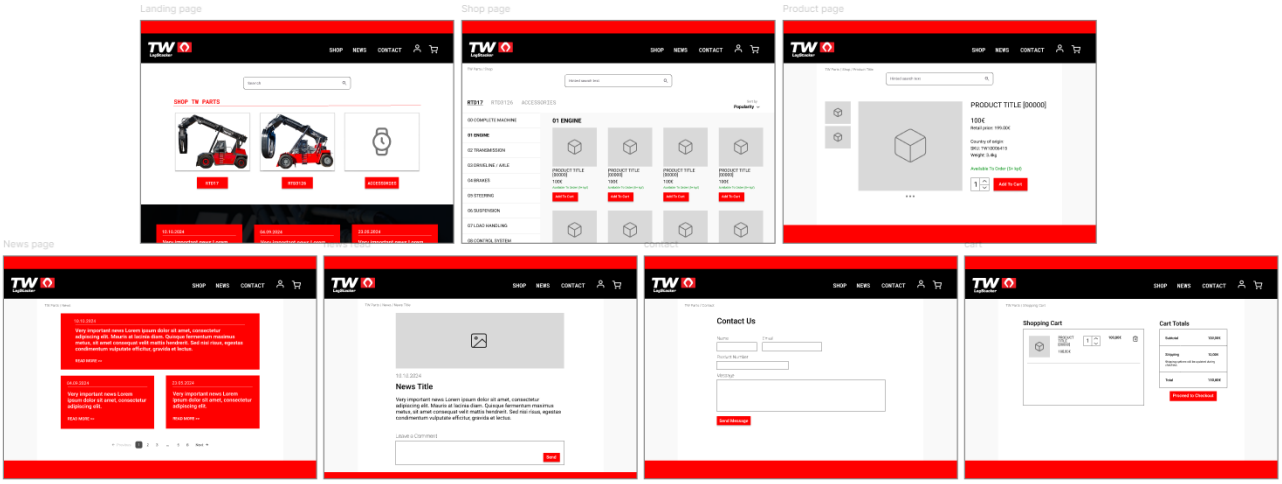


Figure 13 High-Fidelity Prototype of TW LogStacker spare parts web shop.

The second version of the product listing page was created separately. It included all the same elements except it had the hover-over image listings. It demonstrated how user would choose a category, for example engine, and picture of engine shows up on the page with product listings next to it (see Figure 14).

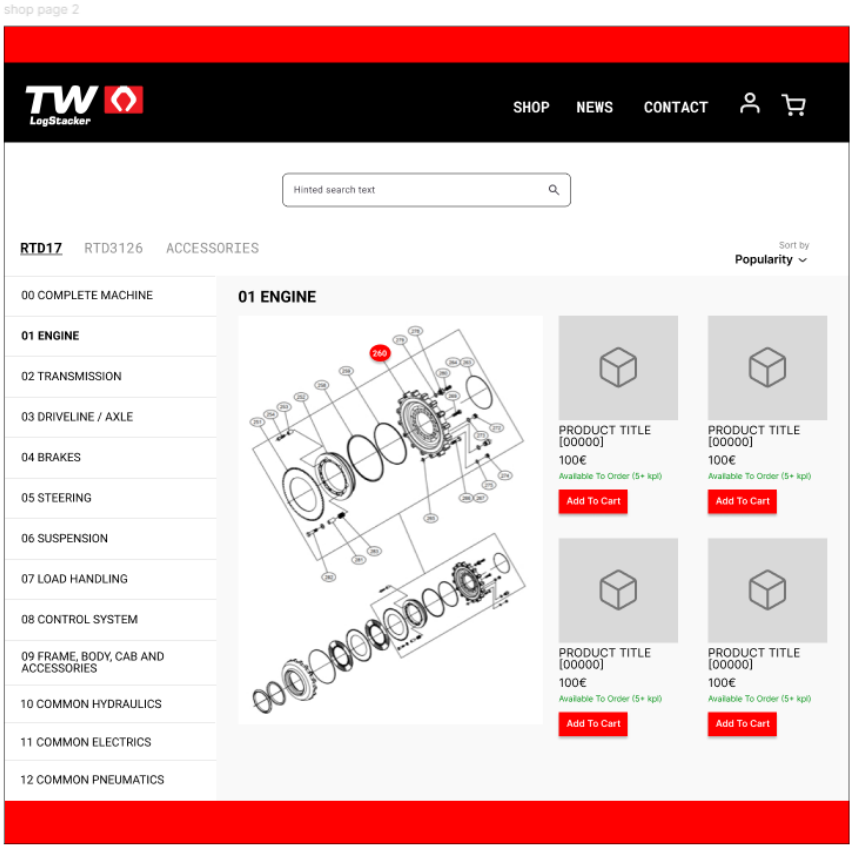


Figure 14 Second version of the product listing page.

6.3 Review with Stakeholders

Stakeholder feedback was a critical part of this design process. After the prototype was finished, a meeting was held at Toijala Works with the TW LogStacker team. The purpose of that meeting was to discuss the prototype plan and talk about the future of development. Reviewing the prototype with stakeholders and getting feedback is an important part of the Agile methodology and UX and UCD principles.

6.3.1 Feedback and Iteration

During the meeting, the TW LogStacker team provided feedback on a few different aspects of the design. The overall feeling from the team was positive and they liked what the prototype had turned out to be. On the other hand, some of the team had worries with the development part of the design, which mostly had to do with their own product management services. They were worried how difficult the categorization of the products would be in terms of the management service and is t even possible to make those changes.

Other feedback the team gave was on the positive and hopeful approach to the hover-over image product listing and that the design should go more towards that. They wanted the hover-over image to be on the left side next to the category list, then next to it on the right, a list of the names of the products with the numbers in the image. That way the user could look at the image, see the part they want, look at the number, find the product name listed with that number and then click it to see the correct product.

Also, in addition they wanted to see that idea fully done with interactive parts, but also a prototype with a mobile version of the design. The team was happy at the outcome and ended the meeting. Now was the time to make the final design iterations based on the stakeholder feedback and then send the prototype into testing.

6.3.2 Finalizing Designs

After the prototype presentation and the given feedback, some changes were made to the prototype's design, particularly hover-over image functionality, interactive categorization and mobile accessibility. Based on the feedback, the shop page was modified to incorporate detailed spare parts number map. The interactive product listing was put on the right side, allowing users to visually identify the part they need, and then match the number to the name and product code. Each item was clickable, leading to a detailed product display below, this ultimately enhances both usability and product findability. (See Appendix 3).

Also, based on the meetings, mobile versions were also requested. The mobile layout was created and had a similar essential structure to the desktop prototype version, with minor adaptations. For example, a hamburger menu was added to simplify the access to profile, news and contact pages, while the shop page's categories were organized with collapsible menus for easy navigation (see figure 15).

These small changes finished off the design and helped with the intuitiveness and user experience. Thinking from the user personas' perspective, the design fixes the challenges with finding spare parts and streamlines the overall shopping experience.

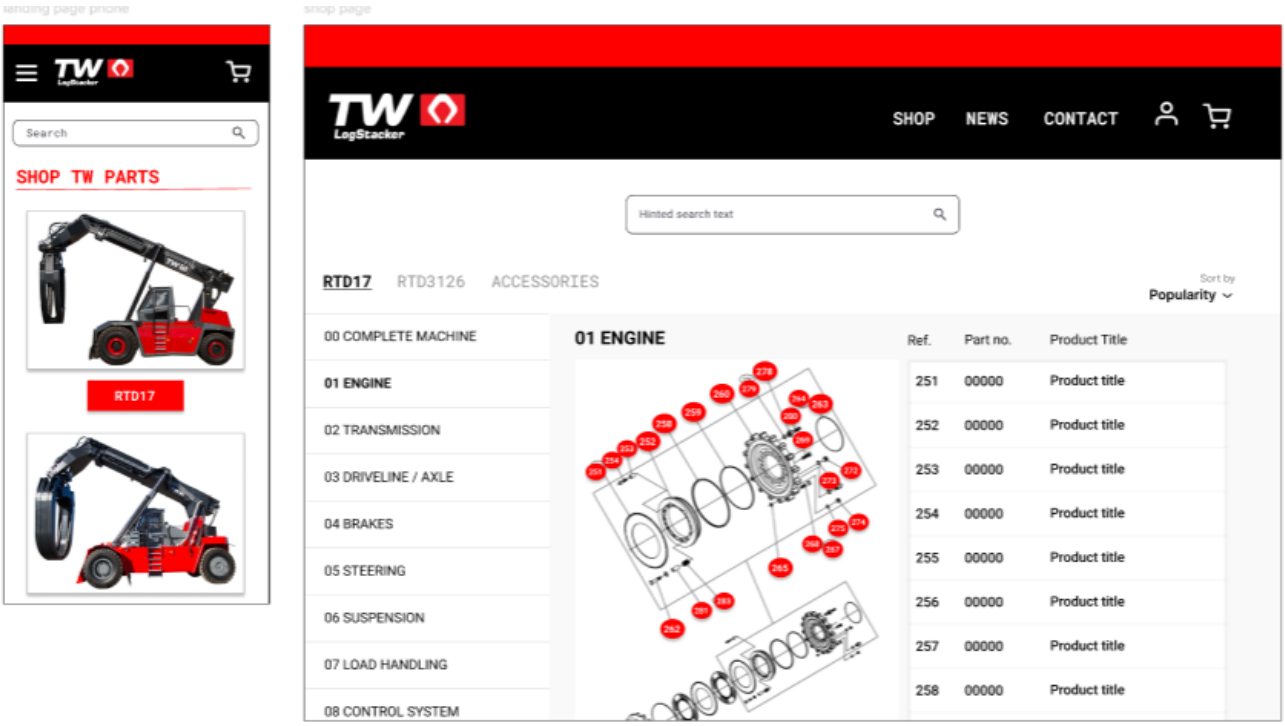


Figure 15 Mobile version and enhanced shop page with interactive product listings.

7 Usability Testing

Usability testing is a vital way to evaluate the functionality, effectiveness, intuitiveness and satisfaction of the prototype's design. By conducting usability testing, any issues, challenges refinements can be found and fixed before the implementation of the web shop. Through usability testing, designers can gather critical feedback into how effectively the prototype aligns with the principles of usability and user experience design. (McElroy 2016).

7.1 Planning Usability Tests

The usability test was created around key tasks that would simulate typical user actions, and that also would showcase the design. Key testing tasks were created to cover essential areas such as navigating the homepage, selecting machine type, using the shop's spare parts product map and finding specific products. Additionally, the usability testers would explore and assess the design, layout and usability of the shopping cart, news section and contact pages. The testing was the same for both desktop and mobile versions which allows a comprehensive assessment of design consistency on both devices. These testing methods align with the UX and User-Centric approach suggested in the theoretical framework.

The usability tests were made around eight core questions that would be asked after exploring the prototype. These questions target the ease of use, functionality, design aesthetics and general feedback.

7.2 Conducting Usability Tests

During the testing users would complete a list of tasks that help the user explore the prototype appropriately. Following the steps already mentioned in 7.1, users would first explore and navigate the homepage and then when ready, select a specific LogStacker machine. After that the user ends up in the shop page and now their task is to locate part no. 252 from the spare parts product map and match it to the product code list, while reviewing the overall design and layout of the shop page. From there the prototype shows the correct part in the product list and the user would click the product to see further details, add the part to the shopping cart and after that navigate to the news section, view a post, navigate to contact page and lastly navigate to the shopping cart.

After the testing users would answer eight questions that would help with terminating if the design is functional, enjoyable and would meet the need of the users. This supports iterative design, where the feedback allows continual refinement and user-centered adjustments. These questions were:

Ease of use: 1. How easy is the design to navigate around? 2. Is it easy and intuitive to find the spare parts from the web shop?

Functionality: 3. Did all the features work as expected or was there something that confused you?

Design Aesthetics: 4. What do you think about the overall design and layout?

Usability: 5. Do you think the users can quickly find what they're looking for? 6. Do you think the desktop and the mobile versions are connected and equally easy to use?

General feedback: 7. What do you like most about the design? 8. What improvements would you suggest that would make the design easier or more efficient?

7.3 Analyzing Test Results

Due to limited end-user responses, the usability testing phase relied fully on the stakeholder feedback. This approach aligns with the modified UCD framework which is used due to the stakeholders' knowledge of their users and their needs. While direct user testing and feedback validates usability, insights from the stakeholders point out areas of improvement and confirm the design alignment with the company's goals.

The prototype tasks were successful, which indicated that the navigation within the prototype was clear. When asked to evaluate the usability. The stakeholders commented positively on the home page's clearness, mentioning the effective search function for experienced users and the guided machine/part selection approach for users who might not know what they're looking for or less familiar with the web shop. They noticed that the layout provides logical and direct paths to products, which ultimately enhances the overall usability (see Appendix 4).

The stakeholders also highlighted that the design reflects familiar elements from the existing TW LogStacker spare parts catalogues, which helps with the overall learning curve of the web shop. They described the design as "functional and well-suited to current needs". In terms of ease of use, the stakeholders agreed that prototype was easy to use, logical with intuitive search and category-based navigation options. In terms of functionality, they stated that all interactive elements worked like they should, with clear guidance and layout. Feedback about the visual design was aligning with the spare parts catalogues and looked suitable and familiar. The responsiveness of both desktop and mobile versions remained consistent according to the stakeholders. Suggestions to the mobile version included moving the contact page link from the side menu to the top header for better access as well as thinking about the possibility of making the shop page's spare part image more interactive.

Additional suggestions also included providing options to save multiple delivery addresses for future orders and simplify the checkout process by reducing the amount of information required at purchase, which was a key user frustration.

7.4 Future User Feedback

Even though the usability testing feedback was limited to stakeholders in this testing phase, future analysis could rely on metrics such as usage frequency and user activity patterns after the design would be implemented and published. By monitoring these types of metrics, TW LogStacker team can consider if the redesigned web shop is effective and meets the user needs, improves the user engagement and purchases. This approach aligns with the User-Centric design principles in a practical form with actual usage data.

8 Discussion

This chapter reflects on the outcomes of the design and usability testing phases, while assessing how effectively the results align with project's goals and the theoretical framework.

8.1 Reliability and Applicability of Results

The results of this thesis can be considered reliable given the theory about modified user-centered design (UCD) approach. Even though direct user feedback was not gathered due to lack of responses, the stakeholder feedback provided valuable insights. This aligns with the project's practical needs that fit the company's objectives and needs and is feasible for future development. However, another round of testing with actual users would make the reliability of findings stronger and help with fixing usability challenges that are specific to user interactions.

The applicability of the results still remains high as the prototype addresses the usability challenges identified with the current web shop. Clear navigation, interactive and organized product listings and mobile compatible design were created to improve the user experience and user friendliness. Future development and publishing of the prototype can provide actual data on usage and purchase behavior which ultimately shows how well the design meets the user expectations in a real-world environment.

8.2 Comparison with Theoretical Framework

The research, ideation, prototyping and testing phases of the theses all support the UX/UI and UCD principles and the theoretical framework. This project's focus on user experience and user-centered design approach, although modified due to limited user responses, turned out to be essential in ensuring the functional and user-friendly design. The theoretical framework also highlights the importance of stakeholder feedback in UCD, when real user feedback is challenging to get.

In terms of timeliness, the new design showcases modern website standards with mobile compatibility and intuitive structure. The necessity of the project was validated by the stakeholders who thought that the new design is a significant improvement to the current web shop. Usability was shown in the feedback, especially regarding the navigation and findability of spare parts. Even though there was a lack of user data, the design succeeded in meeting the stakeholder needs and gives an opportunity for future testing to evaluate the actual user feedback.

8.3 Implications for Future Work

The design's future development would benefit a lot from another round of usability testing with actual users to refine the user experience. By tracking engagement metrics, Toijala Works can successfully assess the design's success and make updates based on real user data. Additional suggestions from the stakeholder feedback such as improving image interactivity and simpler checkout options could be incorporated to improve the usability and increase purchase efficiency of the web shop.

In terms of professional development, this thesis allows to practice skills in combining theoretical frameworks with actual practices. This experience has deepened my knowledge in usability-focused and user-friendly design highlighting the importance of throughout feedback, even when real user feedback is challenging to gather.

9 Conclusion

9.1 Summary of Findings

The purpose of this project was to improve the usability and user experience of the TW LogStacker spare parts web shop. After doing this throughout research that included important stakeholder input, UI/UX principles, iterative prototyping and usability testing, many good design improvements were introduced. The feedback and wishes from the stakeholders guided this project massively and introduced critical changes like the interactive spare parts product map and listing. Regular meetings with the stakeholders and feedback from the actual users were an important part to the solutions to this redesign.

In the end a functional and user-friendly prototype was introduced that showcased refined, simple and easier spare parts ordering process. The TW LogStacker spare parts web shop is now organized with interactive parts map and categorized product list which is already familiar to the users since it was designed based on the spare parts catalogues. This allows users to quickly locate and identify the parts they need. Additionally, the mobile version adapts the desktop experience with minor modifications like side menu and collapsible menu for categories and ensures that the design remains consistent with all devices.

Overall, the new design prioritizes clear and simple visuals and enhanced usability that supports quick and effective spare parts ordering process. The final design aligns with the project's long-term goals of improving user and stakeholder satisfaction, reducing manual order handling and ultimately increasing the web shop's usage.

In terms of results, the usability testing confirmed that the design meets the project objectives like ease of use and efficiency, with the stakeholder feedback showcasing the design's success. Although real user feedback was limited, the project provides a good foundation for future adjustments based on real user engagement metrics. Overall, the new design focuses on clear visuals and enhanced usability that supports easy spare parts ordering process. The final design matches with the long-term goals of improving user and stakeholder satisfaction.

9.2 Key Contributions

This thesis made many contributions in enhancing both the design and usability of the TW LogStacker spare parts web shop. Through in-depth user research, stakeholder interviews, prototyping and usability testing, the project showed critical pain points and challenges with the existing web shop. The research findings provided a good foundation for user-friendly design

improvements such as simple navigation, clear product categorization, and the integration of visual aids like interactive spare parts product maps.

The application of UI and UX principles tailored to meet the needs of target audience. The research's focus on learnability, simplicity and visual hierarchy helped with creating more intuitive and user-friendly web shop that would address reported challenges like difficulty with locating parts and lack of availability information. The project also included prototyping and usability testing. By developing low- and high-fidelity prototypes, making changes based on stakeholder feedback and conducting usability testing, the design became easily adaptable to real life user needs.

Lastly, the thesis contributes to a framework that TW LogStacker can use for future design and development improvements. The different methodologies applied, including user personas, journey mapping, and empathy mapping, provide TW LogStacker with reliable process for user experience optimization and future product developments.

9.3 Personal Learning Outcomes

This thesis project provided valuable hands-on experience about UI and UX design. It showed how much work goes into designing different interfaces like e-commerce websites and how much research needs to be done to achieve the end goal. This project taught me about working with real companies and stakeholders and designing solutions to real problems. I've learned that receiving feedback, especially from real users is mandatory even though that might have been difficult at times by, for example, having the courage to ask and reach out.

This thesis project also taught me about the difficulty of academic writing and how hard it can be to showcase your design research, ideation and prototyping on paper. By doing this project with Toijala Works, I've gained more skills in research, prototyping, usability testing, writing and collaboration. These skills and experiences will be an important part of how my career is moving forward.

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Appendices

Appendix 1. The Current State of TW LogStacker Spare Parts Web Shop

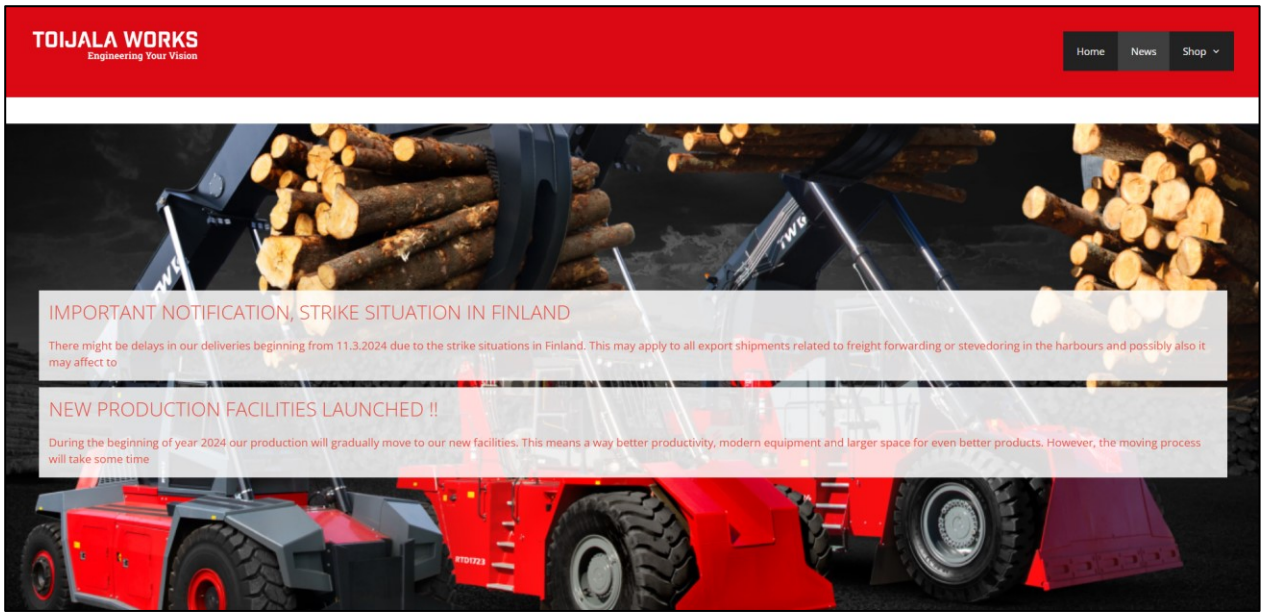

Figure 16 TW Parts Home Page.

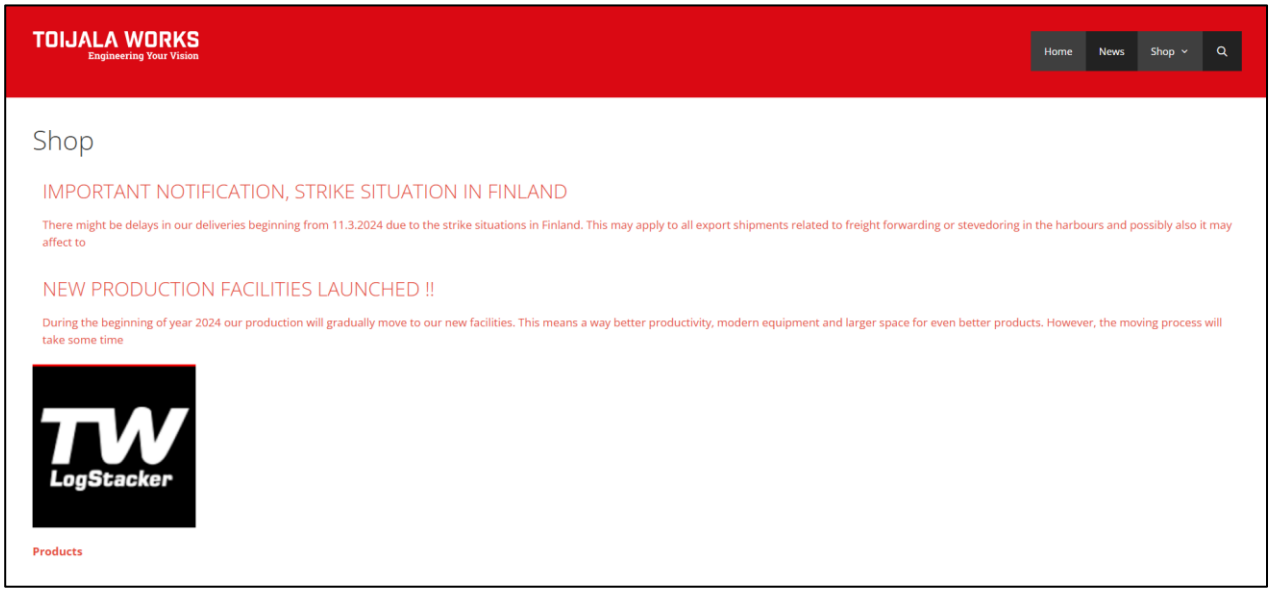

Figure 17 TW Parts Shop Page.

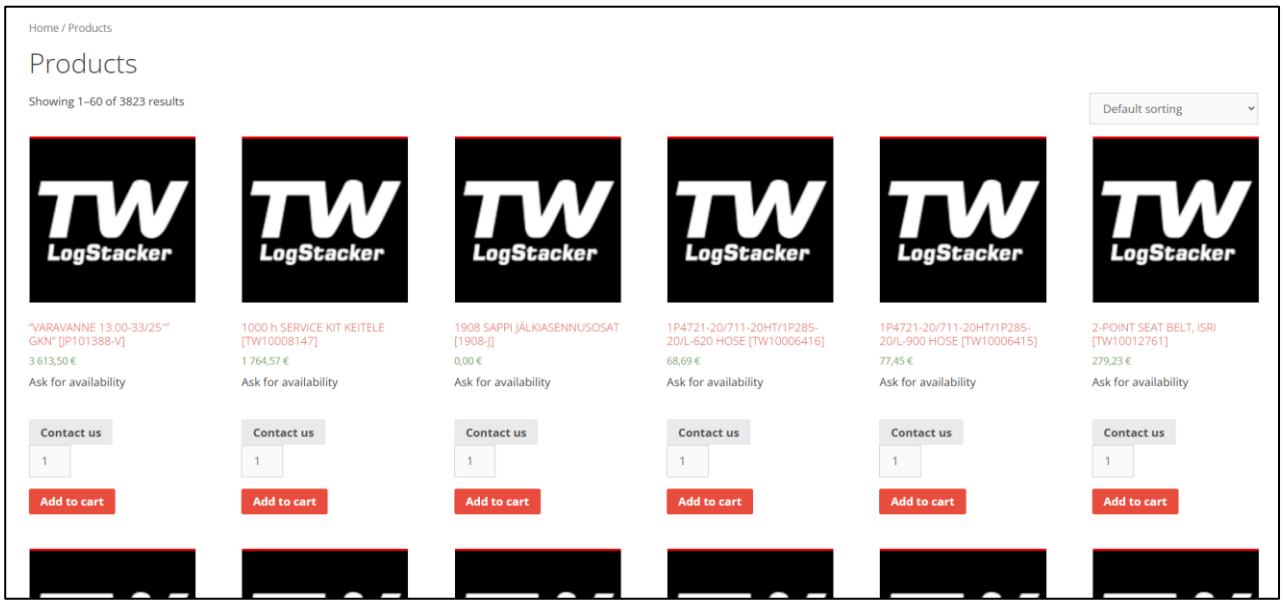

Figure 18 TW Parts Product Listing Page.

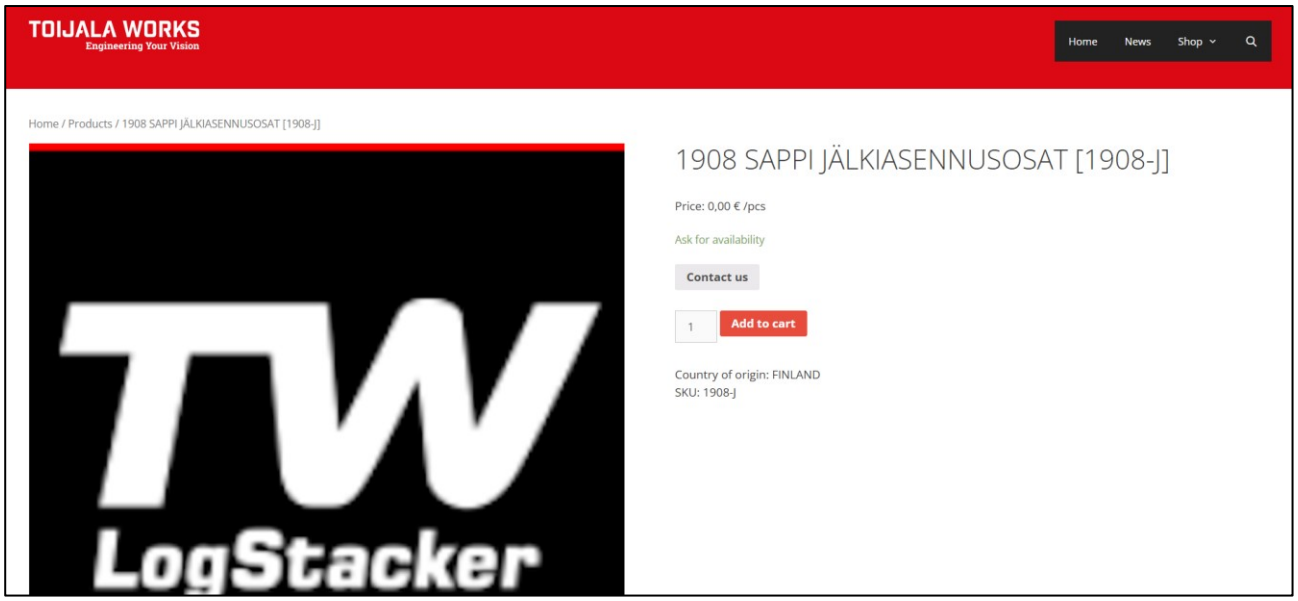

Figure 19 TW Parts Product Details Page.

Appendix 2. The Sketch of the Web Shop Design

Figure 20 The Sketch of TW Parts Web Shop Design.

Appendix 3. Final High-Fidelity Version of the Prototype

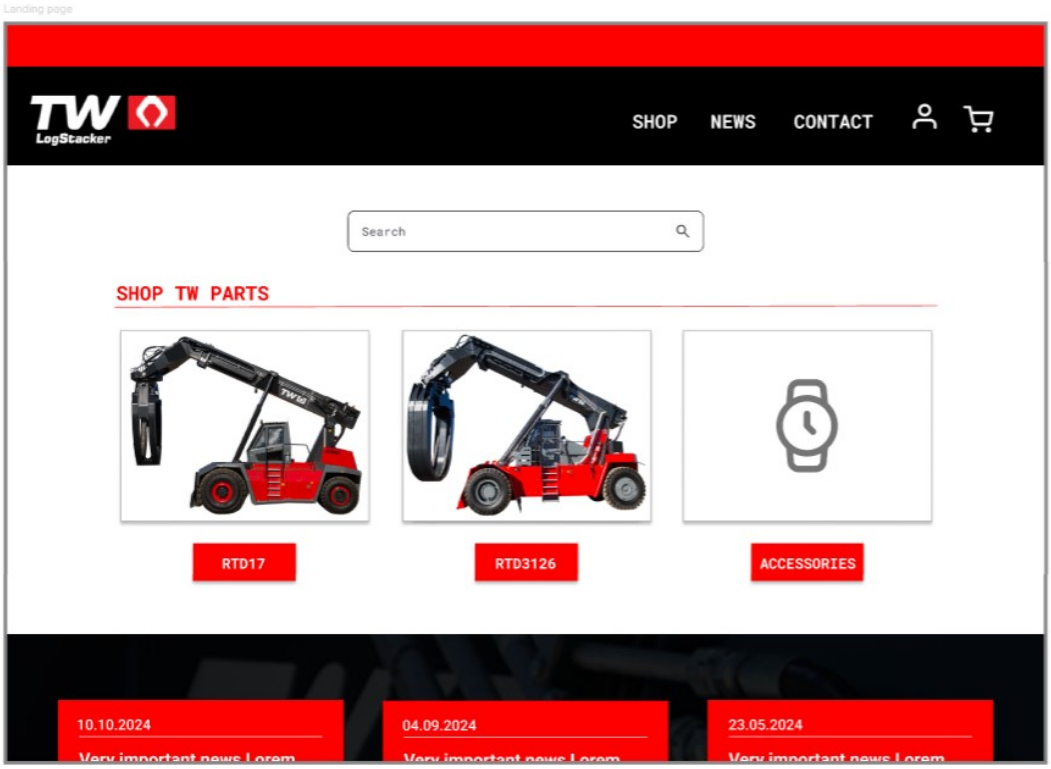

Figure 21 TW Parts Hi-Fi Homepage.

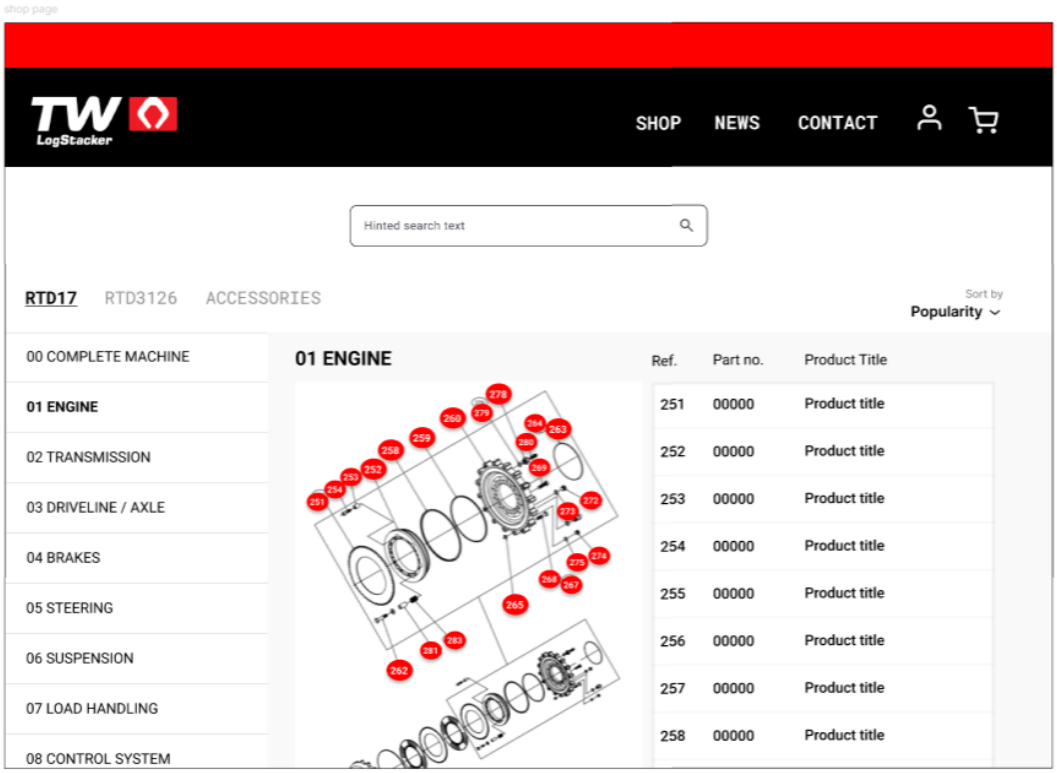

Figure 22 TW Parts Hi-Fi Shop Page with Spare Parts Interactive Product Map.

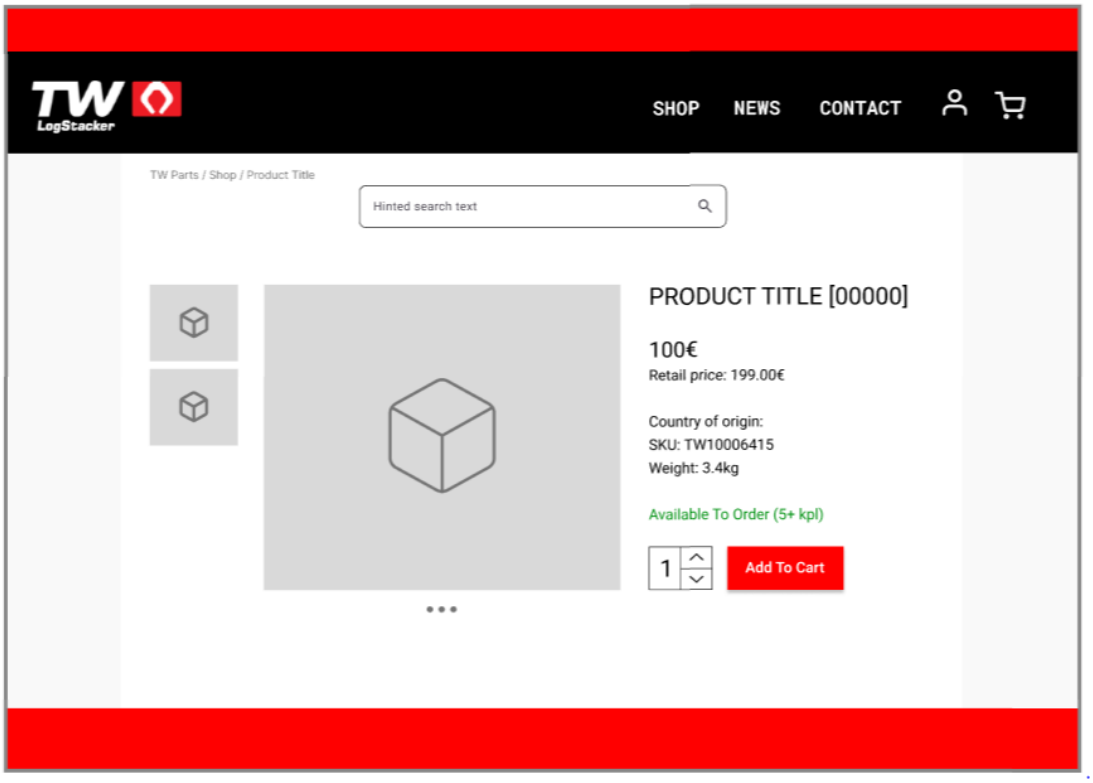

Figure 23 TW Parts Hi-Fi Product Details Page.

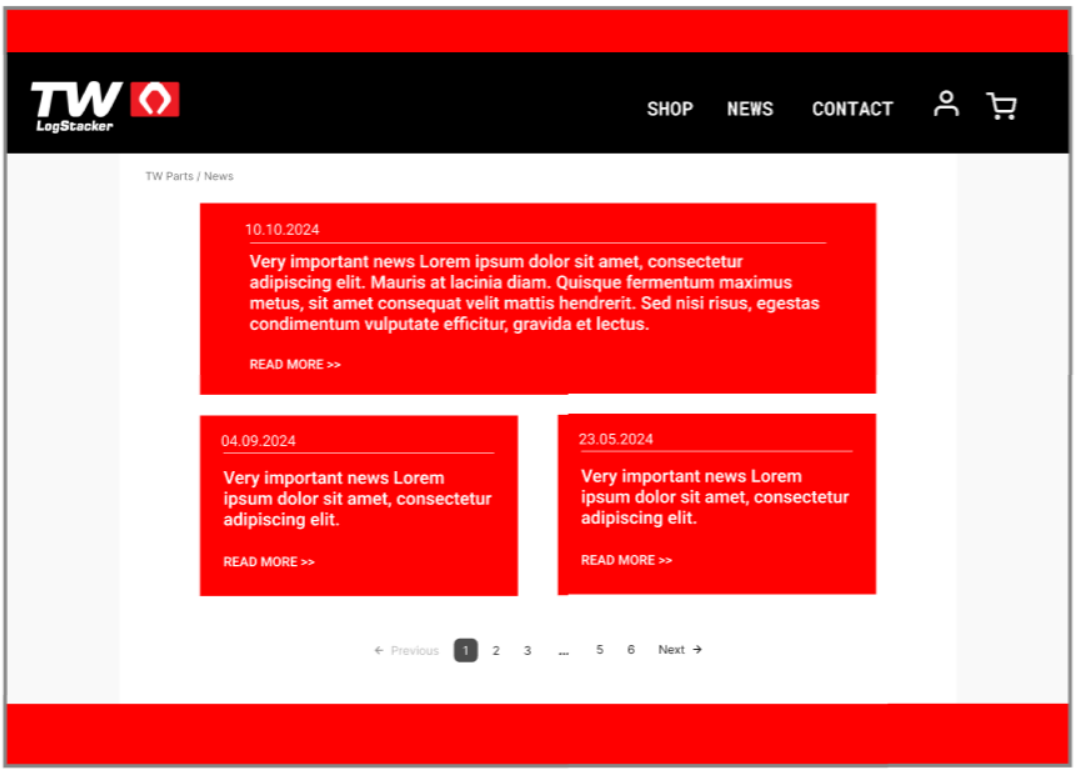

Figure 24 TW Parts Hi-Fi News Page.

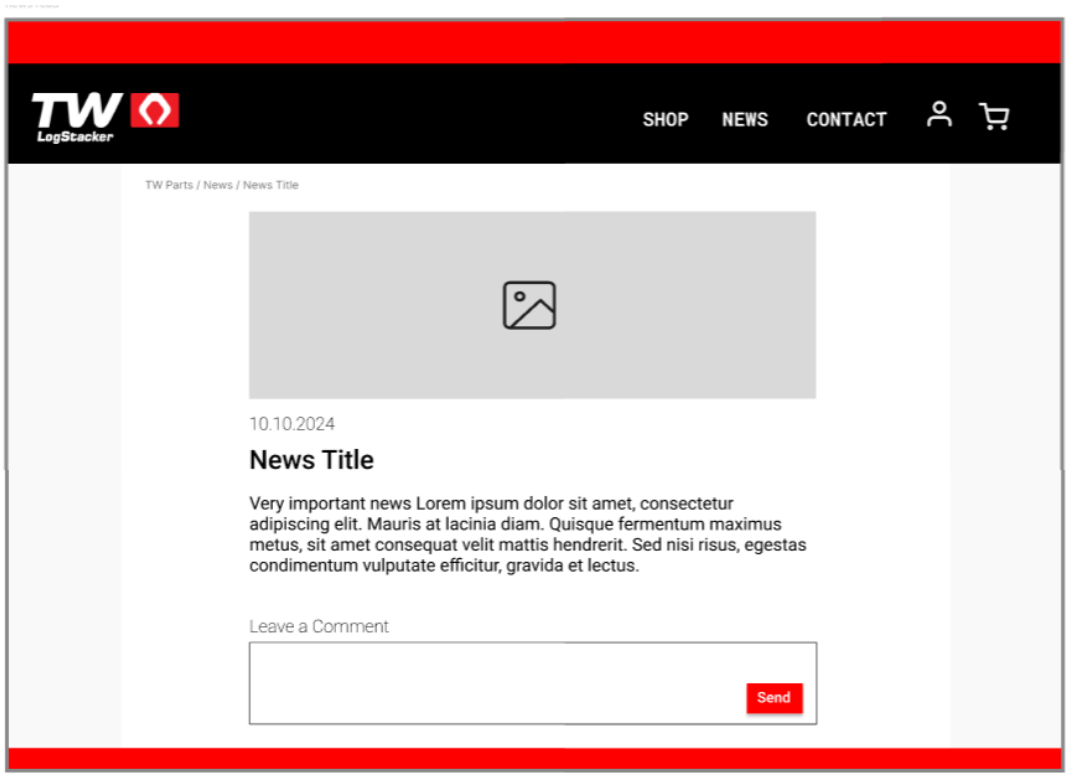

Figure 25 TW Parts Hi-Fi News Post Page.

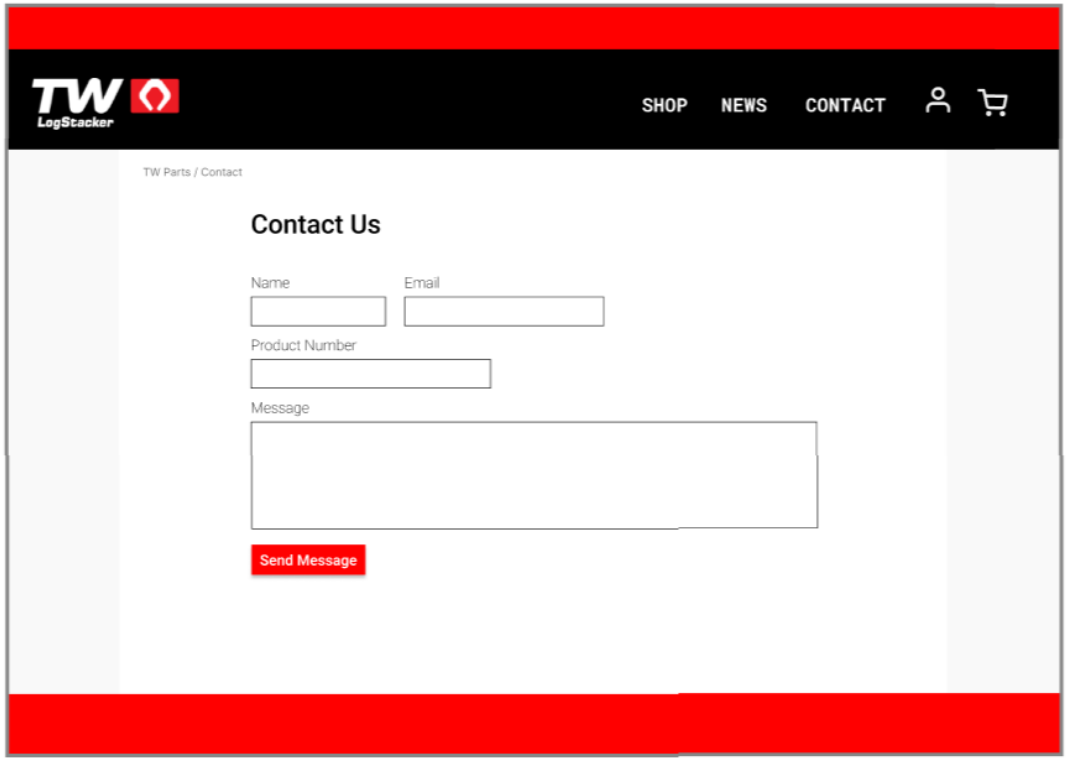

Figure 26 TW Parts Hi-Fi Contact Page.

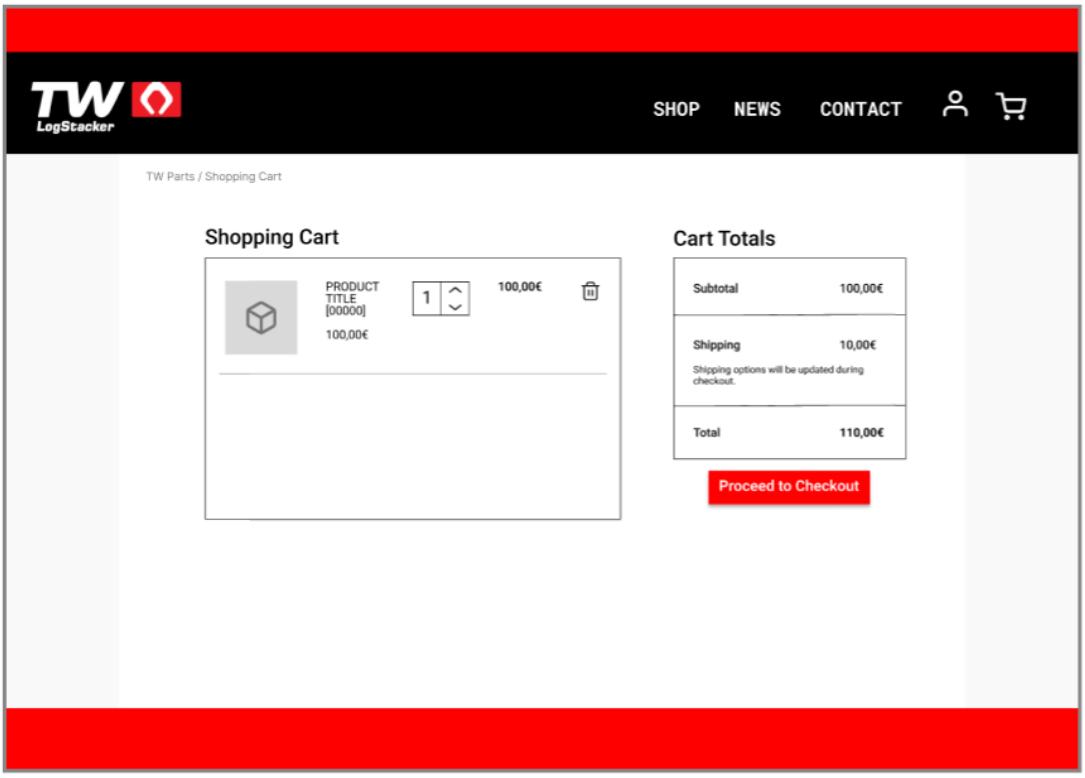

Figure 27 TW Parts Hi-Fi Shopping Cart Page.

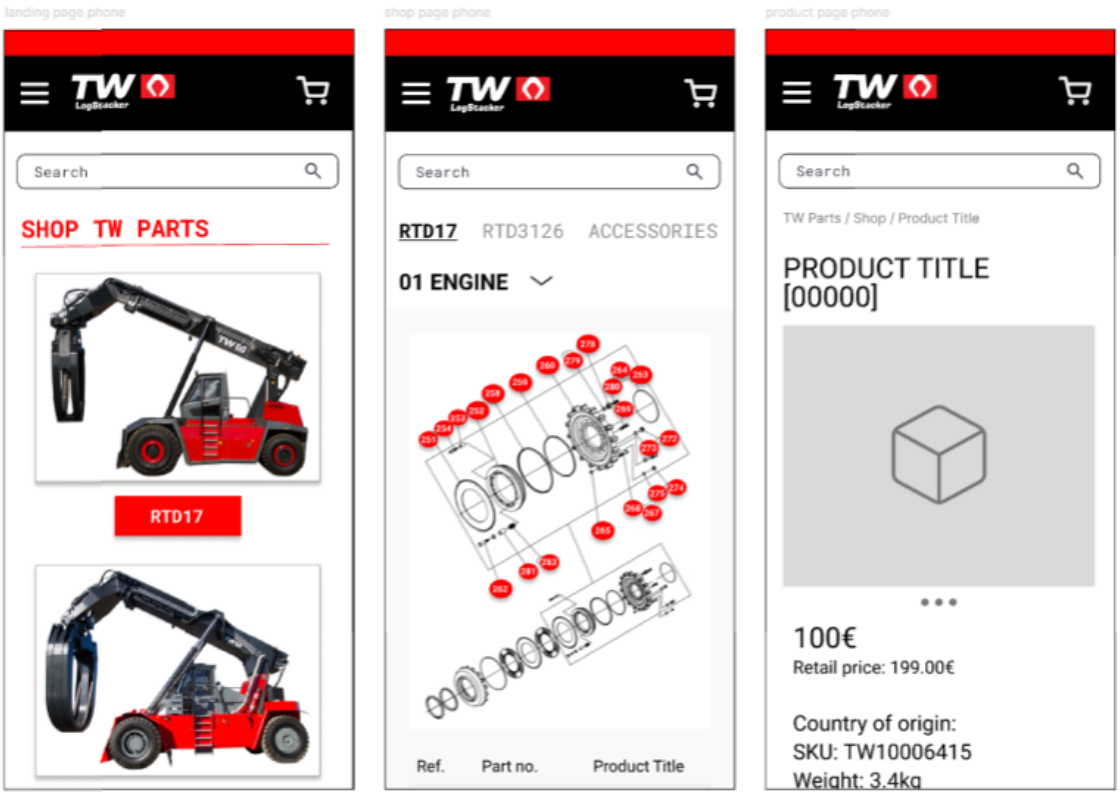

Figure 28 TW Parts Mobile Version, Home Page, Shop Page and Product Page.

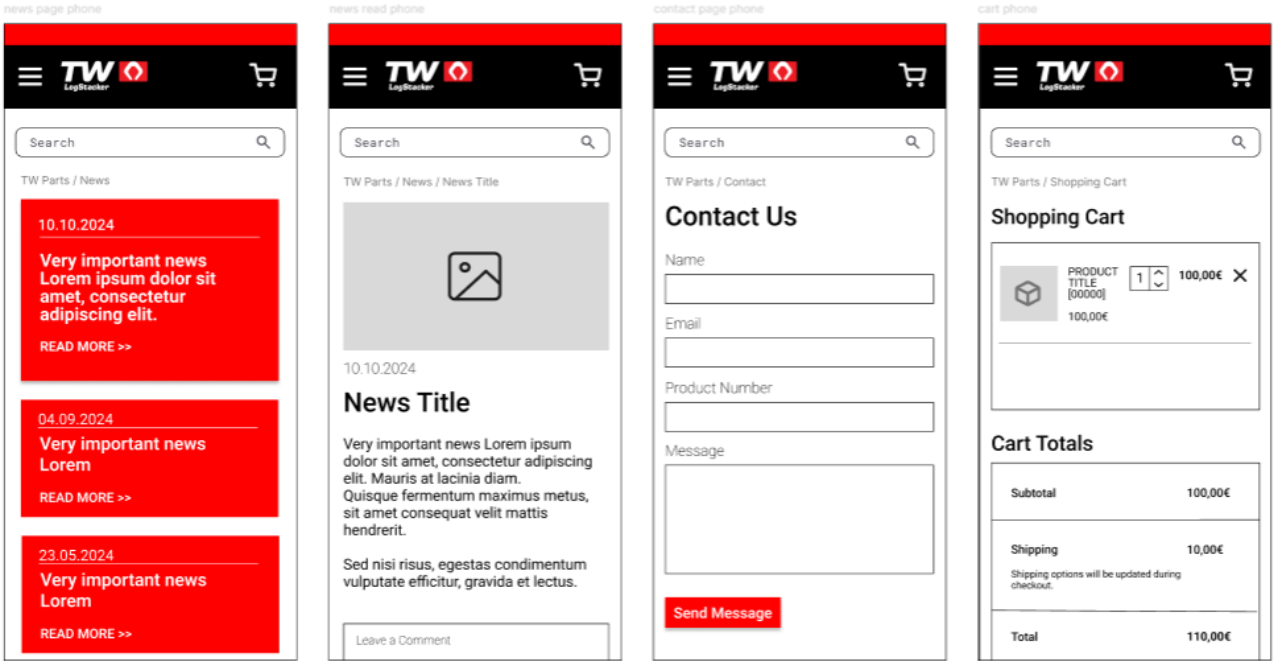

Figure 29 TW Parts Mobile Version, News Page, News Post Page, Contact Page and Shopping Cart Page.

Appendix 4. Stakeholder Feedback Interview Transcript

How easy is the design to navigate?

- “The homepage is really easy to use. If you know what you’re looking for, you can use the search bar, and if not, you can select a machine and part and find it through the image. Everything is very clear, and you don’t have to search far. It’s straightforward and leads you to the right place.”

Is it easy and intuitive to find the spare parts in the web shop?

- “Yes, everything is very clear, and it guides you to the correct section.”

Did all the features work as expected, or was there something that confused you?

- “No, nothing was confusing. It works logically and is clear.”

What do you think about the overall design and layout?

- “The layout is clear and similar to the catalogues we have now, so there is no risk of mis-communication. It’s very suitable.”

Do you think the users can quickly find what they’re looking for?

- “Yes, the structure is logical and familiar to what they already know.”

Do the desktop and mobile versions work in a similar way, and are they equally easy to use?

- “Yes, they work similarly, and this version is better. It’s still easy to check what part and what number you’re looking for.”

What do you like most about the design?

- “With just few clicks, you’re where you need to be. There is no excess information.”

What improvement would you suggest to make the design easier or more efficient?

- “For the image, I’d suggest finding ways to make it even clearer, more informative and interactive. For the mobile version, moving the contact link from the side many to the top bar on the homepage would improve access to it. Also, the News sections could include user manuals and spare part catalogues. Regarding the purchase process, it would be helpful to add options to save multiple addresses, so users don’t have to re-enter them each time, and reduce the amount of information required at the checkout.”