



Exploring Design Concepts to Facilitate Van Life

Expanding Lagun's Product Portfolio by Translating User Values into a Proposed Concept Family

Master's Thesis in Industrial Design Engineering

LOVISA FLODMAN

DEPARTMENT OF MECHANICAL ENGINEERING

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Lovisa Flodman



Department of Mechanical Engineering
Division of Design & Human Factors
CHALMERS UNIVERSITY OF TECHNOLOGY
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Department of Mechanical Engineering

Division Design & Human Factors

Chalmers University of Technology

SE-412 96 Gothenburg

Sweden

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Cover: Visualisation of the final concept in a camper van environment. Background generated using ChatGPT.

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Abstract

This thesis presents a family of design concepts developed through an exploration of user values within the camper van segment. The aim was to identify and address challenges associated with living in a camper van and to translate these insights into relevant design solutions. The thesis was carried out in collaboration with Lagun and Boat System Group and the project sought to provide valuable insights into a new market segment that the brand aims to enter and expand towards.

The project was divided into two main phases. The first phase consisted of user studies, with the purpose of providing Lagun with valuable knowledge about their new target group. The second phase focused on concept development, translating insights from the user studies into design concepts. A combination of methods commonly used in user research and design projects was applied throughout the project, including methods for data collection, data analysis, ideation, and evaluation.

The user studies resulted in two categories of takeaways. The first category consisted of insights that served as a foundation for the subsequent concept development phase. The second category consisted of broader insights intended to help the company better understand its new user group, including their perspectives, needs, and expectations in order to support Lagun in developing future products that align with users needs.

The takeaways indicated that user challenges were spread across multiple areas of the van, rather than linked to one specific space. This directed the concept development phase to focus on adaptable, modular, and multifunctional solutions requiring minimal interior modification.

The project resulted in a family of five related concepts, all compatible with Lagun's planned rail system, which forms part of the company's first step into this market expansion. Each concept was designed to fulfill a specific function or address challenging, inconvenient, or time-consuming situations that may arise in the context of camper van living.

Keywords: Camper Van, Camper, Van life, Market Expansion, User Studies, User Value, Modularity, Concept Development, Concept Design, Concept Family.

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Introduction

1. Introduction

According to Cambridge Dictionary (n.d.), a camper van is defined as ‘a large vehicle that is designed to be lived in while travelling. It contains cooking equipment, one or more beds, and sometimes a toilet’. However, the term camper van is commonly used to refer to a van that has been converted into a home on four wheels (Perry, n.d.). In contrast, a conventional recreational vehicle, or RV, is typically purpose-built for living and travelling. A camper van is generally smaller than a traditional RV and differs in shape, although the two share several common features.

Living in a camper van is a form of mobile living and travel that has gained increasing interest in recent years and the growing popularity of adventure and van life has contributed to growth of the camper van market (Fortune Business Insights, 2026).

Lagun, part of the Swedish company Boat System Group, has been producing an adjustable swivelling table system for over four decades, particularly well established in the boating market, that maximises space without compromising functionality (Lagun, n.d.). Recently, they have noticed that their product has gained attention in a new market segment, camper vans. This has formed the basis for an initiative to expand into this market through product development aimed towards usage in camper vans, an expansion that aligns well with the brand’s core message: Maximize your living space.

The rising interest in camper vans, combined with Lagun’s growing attention in this market, makes it relevant to investigate this opportunity as a thesis project and, in turn, support Lagun’s expansion into this segment.

1.1 Background

One of the many consequences of the COVID-19 pandemic was an increase in the number of people moving into vehicles and joining the nomadic van life (Duff, 2022). Furthermore, Duff (2022) mentions that there are several reasons why people choose van life, but one that stands out is freedom. People want the flexibility to move wherever they want, whenever they want. Other important aspects include a low cost of living, as well as the adventure it brings, closeness to nature, and minimalism. Van living allows people who appreciate an adventurous lifestyle with closeness to nature to achieve precisely that.

According to Duff (2022), the results of his study indicate that van life is for everyone and is not limited by gender or age. It provides a realistic, more affordable, and flexible alternative to conventional housing. The study also suggests that van life is likely not just a trend, since over 70% of the participants were living permanently in their vans. The average length of

time participants had lived in their vans, either part- or full-time, was 2.5 years, although many respondents were new to the lifestyle.

As the housing crisis in the US becomes more urgent, there is a possibility that the camper van community will expand, as more people are embracing van life as a way to cope with the high cost of living (Duff, 2022). Duff (2022) quotes a participant in his study stating, 'As a millennial, the cost of living has significantly increased since previous generations, yet wages have for the most part stayed the same.' to illustrate that van life offered a way for some individuals to minimise living costs.

Housing concerns are not limited to the US. There also appears to be a similar issue in the UK, where housing costs are mentioned to be at record highs, and when van life can offer a form of housing self-reliance, it becomes an option for some individuals (Dodd, 2025).

The European Caravan Federation (ECF, n.d.) reports that interest in caravanning in Europe increased during 2020, the year of COVID-19. In that year alone, 235 000 RVs were registered, the second-highest number in history after the record year of 1980.

Due to the rising popularity of van life, more people are choosing to live a nomadic and flexible lifestyle. This makes it interesting to explore products or solutions that can facilitate everyday life in a camper van, which naturally requires resourcefulness, as well as small, flexible furniture and products due to the limited space available.

1.2 Aim

The aim of this study is to explore the camper van market segment in order to generate user-centred insights into the needs, preferences, and behaviours of its users. Furthermore, the study aims to translate these insights into design concepts that align with Lagun's design profile and address identified gaps between user needs and current market offerings.

1.3 Objectives

The main objective of this study was to apply a design-driven and methodical concept development process to support Lagun's ongoing brand evolution. The project incorporated comprehensive user studies throughout each step of the process to ensure that proposed concepts reflected user needs and preferences. The design process was carried out in parallel with Lagun's ongoing product development to ensure that the resulting concepts are compatible with both current and future mounting systems, while also aligning with the company's design profile.

To achieve this, the project pursued the following objectives:

- *Conduct structured user studies to understand the needs and experiences of camper van users.*
- *Analyse the results of the user studies and the current camper van market in order to identify gaps and opportunities for innovation.*
- *Apply a design-driven concept development process supported by user insights.*
- *Develop design concepts that align with Lagun's existing and expanding product portfolio.*

1.4 Research Questions

To achieve the aim of this study, the following research questions were addressed:

- *What are the key needs, pain points, and decision-making factors influencing camper van users?*
- *What design opportunities can be identified to address these needs and expectations?*
- *How can these opportunities be translated into design concepts that enhance the everyday experiences of camper van users while aligning with Lagun's design profile?*

1.5 Aspects of Sustainable Development

This section addresses aspects of sustainable development relevant to the project, including societal, ecological, and ethical aspects, and discusses how they need to be considered.

1.5.1 Societal Aspects

A societal aspect that is important to consider in product development is designing for all users, regardless of potential physical or cognitive disabilities. Although this may not be a primary focus of this design process, since the target users are not expected to include individuals with major physical disabilities due to the already restrictive nature of a camper van, cognitive accessibility remains important. It should still be considered in order to promote usability, contribute to inclusive design, and ensure that a solution can be regarded as user-friendly. Furthermore, this aspect is especially relevant if the outcome of the project has the potential to be implemented and used in contexts beyond the one for which it was designed for.

Moreover, a perhaps more relevant aspect in terms of the project content was that the user studies were conducted in Sweden, as the thesis was carried out within a Swedish academic

context. This may complicate international communication due to factors such as time differences and cultural norms, naturally potentially making it easier to recruit participants from Sweden, which could result in Swedish users being overrepresented in the user sample, even though efforts will be made to reach users globally. This is important to bear in mind since the camper van segment consists of a geographically widespread user group. Therefore, the users participating in this project may not fully represent the entire global user base, which is important to acknowledge.

1.5.2 Ecological Aspects

Ecological considerations should always be taken into account throughout entire processes and in all decision-making. When a more sustainable option is available, it is important to either select that option or ensure that the decision not to select it is clearly justified.

In general, the project will follow Lagun's sustainability guidelines, including those related to production and material choices. Since Lagun's design profile is intended to be followed as closely as possible, material selection is closely linked to this profile, which primarily consists of aluminium, but also includes wood, as well as some plastic components. However, if alternative materials are considered significantly more sustainable, they should be carefully considered as potential replacements, even if this means deviating from Lagun's signature materials.

Another important aspect to acknowledge is that product development generally places a strain on the environment due to the production process and material consumption associated with new products. Therefore, it is particularly important to make sustainable choices throughout the project in order to achieve as low-impact solutions as possible and avoid contributing unnecessarily to this environmental strain.

1.5.3 Ethical Aspects

Since a significant part of the thesis will consist of user studies, it is of great importance to carefully consider every detail of the processes and steps where users will be involved, as ethical concerns or questions can easily arise. As individuals who do not directly benefit from the outcome of the project will participate, it is essential to thoroughly explain what their participation entails. Participants should be informed about what they are expected to do, why their contribution is valuable, and how the collected data will be used. It is also crucial to ensure that participants are not misled in any way and that they are clearly informed that participation is entirely voluntary.

Another important aspect to consider when handling personal data is ensuring that it is processed correctly and respectfully. Therefore, the General Data Protection Regulation (GDPR) will be followed strictly throughout the project. This includes ensuring that responses and results are presented anonymously and that the original data is deleted after use.

1.6 Project Approach & Report Structure

The general structure of the project consisted of two main phases: a user studies phase and a concept development phase. The user studies phase aimed to identify relevant concepts to explore, as well as providing the project commissioner, Lagun, with an overview and understanding of the user segment. The second phase, focused on exploring possible solutions and concepts relevant for Lagun to develop, keeping the users' needs in mind.

The results of the user studies were formulated as concrete takeaways that acted as a bridge between the two main phases. The expected project outcome was a final concept as well as user insight proving valuable information about the user segment for the company, independently of the final concept. See Figure 1 for a full overview of the project structure and process.

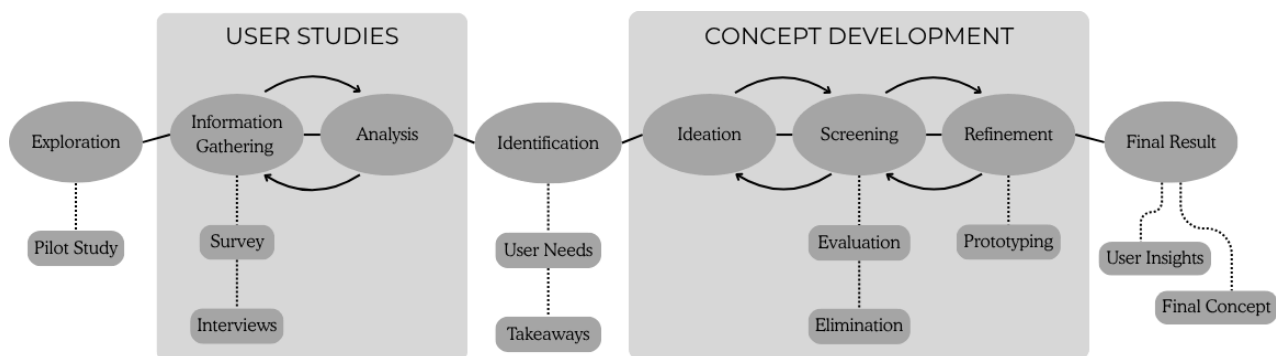


Figure 1. Illustration of the project process.

The project was conducted in an iterative manner, where all analysis, selection, and refinement steps were repeated in order to improve and refine the content, ensuring a project thorough and detailed process. Figure 1 indicates the stages during which iteration was specially evident.

The report outline begins with an introduction to the field, the main topic, and project aim and purpose, followed by a pilot study. After this, all methods from both phases are presented. The report then follows the structure of the project process, starting with a description of how the user studies were conducted and the rationale behind them, followed by their results. The concept development phase is presented in a similar manner, before a joint discussion of the project as a whole is included. Finally, the report ends with a concluding chapter that summarises the work.

Pilot Study

2. Pilot Study

This chapter presents relevant background information, including the current state of van life, covering some technical regulations, and the origins of most camper vans. It also provides a description of Lagun's history, current market position, and expansion into the camper van segment.

2.1 Van Life Today

When it comes to what van life looks like today there are several factors to take into account. As mentioned in 1.1, the people who use and live in camper vans can be doing it for different reasons. Some do it because of the freedom and flexibility it brings while others could be doing it to save costs from living. The reason behind the usage could in turn affect which type of van they are using, of which there are many types to choose from on the current market.

When it comes to the vans that are available on the market they usually fall under one of two specific classification when it comes to size and dimensions. The first one refers to the length of the van and more specifically the wheelbase (distance between the centre point of the front and back tire) and the other one refers to the height of the roof (Loads of Vans, n.d.). The classifications for length range from L1 to L4 and the typical dimensions of these classes are: L1 (2.5 metres), L2 (2.9 metres), L3 (3.5 metres) and L4 (3.9 metres). For the height, the classification ranges from H1 to H3 with the typical dimensions being: H1 (1.4 to 1.65 metres), H2 (1.7 metres) and H3 (1.8 metres). Even though these are the standard classes for vans, the actual measurements can still vary between different vans which can make it hard to define a universal standard.

Another important aspect for van users to think about are the different certifications required to drive different sized vans. In Sweden for example, the standard drivers licence has a cap for the highest allowed total weight of the vehicle which is set at 3,5 tonnes (Transportstyrelsen, 2025). For some of the vans in the larger sizes L3 and L4, this limit can easily be exceeded, especially with all of the interior finishes and gear often found in camper vans. It is therefore important for each product to have as low of a weight as possible as to not exceed this limit. An example of this can be found in the Hymer Grand Canyon S CrossOver and Hymer Grand Canyon Cross Trail van models who both exceed the weight limit (Hymer, n.d.).

The size of the van naturally also affects what amenities can be installed such as a bed, a kitchen or a shower. The smallest versions often only have room for the bed and some storage while the largest ones can act like a small apartment. Good examples of what can be expected to fit in a specific size of van can be found on the site Simple Vans (Simple Vans, 2025). This can also be observed in posts on different social media platforms where people share their vans and what kinds of setups they have. A common thing to find here is also different types

of convertible solutions that can give the same space two different functions and therefore maximise the usage of the limited space.

When it comes to actually converting a van into a camper there are different options to choose from. Many users convert cargo or passenger vans on their own which could save costs on labour but also bring more control over the outcome of the finished camper van. In recent years it has also become more common to find companies who professionally do custom conversions of vans after a customer's specific requests. An example of such services can be found on the website Quirky Campers where a list with rated companies who do conversion can be found (Quirky Campers, n.d.). Another example of vans that can be found in the market today are vans that are fully built as a camper from the factory. An example of this is again the German RV manufacturer Hymer who has started producing and selling fully converted vans (Hymer, n.d.). These types of solutions usually come with a higher price which can often clash with a lot of the user's wants of trying to keep costs down. There are however products that try to fill this market segment as well but these products are often larger modules that solve several problems at once. These can range from a kitchen module up to a solution that converts the van completely with just one, large, adjustable module (VanCubic, n.d.). These are usually less costly than a fully converted van but can still sell for a larger sum.

As mentioned before however, there is a large portion of users who still prefer to convert their van themselves for different reasons. These users are more likely to look for separate solutions rather than module products that solve multiple problems at once. This market however, is quite limited in what it has to offer. From an overview of many different online retailers that cater to camper vans, most products focus on and solve mechanical issues such as water pumps, electrical solutions and vents. A list of all visited websites can be found in Appendix A. What is not readily available however, is the actual furnishing. From the range of retailers explored that offer products targeted towards camper vans specifically, there is limited finished furnishing that can be directly installed into camper vans (Appendix A).

2.2 The Lagun Table

Lagun is a Swedish brand a part of Boatsystem Group Sweden AB (BSG), and its roots can be traced back to the 1980s where the inventor Magnus Olsson had a vision of creating solutions focused on optimising space and functionality (Lagun, n.d.). The modular table system associated with Lagun today was inspired by existing swivelling concepts from the 1920s, as well as by the frustrations and challenges posed by limited space in boats and motorhomes.

Today, Lagun offers a modular swivelling table system where customers can choose to purchase a complete set or individual components (Lagun, n.d.). The standard table consists of an aluminium leg mounted vertically to a surface with the help of a wall mounting plate. A second arm, an extension arm, is connected horizontally to the top of the vertical leg and

allows for 360° rotation, see Figure 2. A tabletop is then mounted onto a mounting plate that is attached to the extension arm, creating a table that can be moved and rotated freely into any position, see Figure 3. The system can be dismantled and adjusted without the use of additional tools, thanks to its handles and knobs.

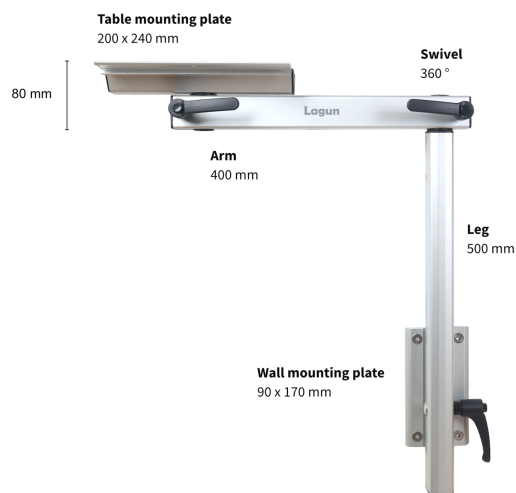


Figure 2. Product image of Lagun's table system with dimensional specifications (Lagun, n.d.)



Figure 3. Product image of Lagun's table system with a tabletop attached (Lagun, n.d.)

The system is also available in two additional versions, one of which includes an extra foldable arm that allows for an even greater reach, which can be seen in Figure 4 (Lagun, n.d.). Lagun also offers a tiltable mounting plate for the tabletop, enabling it to be folded down 90° for a particularly compact configuration, see Figure 5.

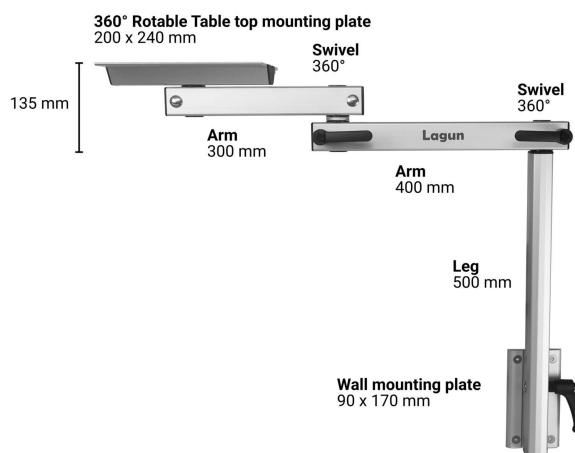


Figure 4. Product image of Lagun's table system with a double arm and dimensional specifications (Lagun, n.d.)



Figure 5. Product image of Lagun's table system featuring the tiltable mounting plate (Lagun, n.d.)

If the customer prefers to mount the table leg directly onto the floor instead of a vertical wall, that can be achieved using Lagun's floor mounts, either a protruding version fixed onto the floor or a recessed version integrated into the floor, leaving only 6 mm visible above the floor surface (Lagun, n.d.). See Figure 6 and 7 for how the table leg is attached to the different floor mounts.



Figure 6. Product image of a Lagun leg mounted into the protruding floor mount (Lagun, n.d.)



Figure 7. Product image of a Lagun leg mounted into the recessed floor mount (Lagun, n.d.)

All systems are made from anodised aluminium to withstand seawater and weigh under four kg, which makes them a durable and lightweight solution (Lagun, n.d.). Lagun's system has been used in millions of installations over the past 40 years, helping to save space in boats, caravans, RVs, motorhomes, and camper vans.

According to the company's product development team, as communicated orally, an improved and more robust arm is currently under development. This arm is designed to support greater weight, alongside modifications to the handles to enhance usability.

2.3 Lagun's Ongoing Expansion into the Camper Van Segment

As previously mentioned, Lagun is currently making an effort to expand its business into a market segment beyond its well-established reputation within the boat market. This means that the brand is currently undergoing a product development process aimed towards launching a number of products specifically designed for use in camper vans. This expansion mainly includes the introduction of a rail attachment system, where a wall-mounted rail features a recessed profile made of aluminium, well aligning with the brand's history and recognition for functional aluminium profiles. The rail is intended to be available in two different lengths. See Figure 8 for a prototype of one of the rails.



Figure 8. Prototypes of one of the rails and two multistoppers (Author's own image)

The idea of the rail system is to allow compatible accessories, such as hooks and shelves, to be moved around and positioned wherever they are needed. This minimises the need for multiple fixed products, as users can reposition the accessories instead of requiring several separate solutions. The products that will be mounted in the rail feature a matching protruding profile, allowing them to be inserted into the rail and positioned wherever best suits the individual user's camper van.

Along with the rail, an important component, called *the multistopper*, has been developed to further increase the usability of the rail, Figure 8 shows prototypes of the component. One of its sides features a profile that matches the rail's, similar to the accessories, allowing it to slide into the rail. The opposite side has a square-shaped element that enables it to be inserted into a matching slot mounted on certain preliminary products. This allows products that cannot naturally incorporate the protruding profile to also be attached to the rail system, thereby further supporting its use.

Furthermore, the dimensions of *the multistopper* are carefully considered, and its precise geometric design also makes it compatible with existing Lagun products. This enables additional use scenarios for users who already own these products.

An additional advantage of *the multistopper* is that it can be secured in its current position once it has been slid into the rail, see Figure 9. A threaded hole through the component allows a screw to be tightened until it reaches the inner surface of the rail profile, preventing it from moving either vertically or horizontally, depending on the orientation in which the rail is mounted. Being able to securely fix the component in position is a significant advantage considering the product is intended for use in a moving vehicle.



Figure 9. Multistopper prototype inserted into a rail prototype (Author's own image)

Methods

3. Methods

This chapter lists the methods used in the two phases of the project, user studies and concept development. Further details regarding how these methods were implemented are provided later in the corresponding process chapters, Chapter 4 and Chapter 6. Additionally, the chapter describes how the use of AI has been accounted for throughout the thesis.

3.1 Methods for the User Studies Phase

The methods used in the discovery phase, which includes user studies and project framing, are listed and explained below.

3.1.1 Web Survey

Web surveys are a method of collecting data from a target audience that researchers aim to explore and understand more deeply (Drive Research Team, 2025). They consist of online questionnaires that enable respondents to complete them anytime and anywhere. Web surveys are a fast, efficient, convenient, and cost-effective way to reach a broad audience and are used across various industries. They are often conducted anonymously, which increases the likelihood of respondents providing honest answers.

3.1.2 Semi-structured Interviews

To gather qualitative data and gain a deeper understanding of people's experiences, opinions, emotions, reasons, and ambiguities surrounding a subject, interviews are one of the most effective methods (Dovetail, 2023). Semi-structured in-depth interviews are the most commonly used format in qualitative research and can be carried out either with an individual or with several people at a time (DiCicco-Bloom & Crabtree, 2006). They are conducted using a general framework or protocol with open-ended questions that serve as a guide during the interview (Knox & Burkard, 2009). The interviewer maintains an open and flexible approach in order to probe the interviewee for more detailed explanations and is also free to decide or adjust the order, phrasing, or even the content of the questions asked.

Transcription is the written representation of an audio recording, and there are multiple types of transcription to best suit the research purpose (Semantix, n.d.). A common type is an edited verbatim transcription, in which unnecessary information, such as repetitions, filler words, or other sounds, is removed to create a concise text that is easy to read and still captures the original spoken content.

3.1.3 KJ-Analysis

In order to analyse the results from a user study, a KJ-Analysis can be applied in order to understand the needs and problems the users face in a given situation (Kawakita, n.d.). The method is performed by collecting the replies from different interactions with users and

placing them onto notes, either physical or digital. The notes are then arranged into groups based on the information they contain in order to find patterns and similarities within a given area. Once the groups are formed, they are given a name and they can then be used to identify common themes.

3.1.4 Thematic Analysis

According to Lochmiller (2021), a widely used method for analysing qualitative data is thematic analysis, which involves identifying recurring patterns and themes within the data. The method typically includes three components: individual codes, categories, and themes, which are developed by the researchers. Salomão (2023) suggests that thematic analysis helps capture the complexity and richness of qualitative data through iterative comparison between its components, enabling the development of valuable insights and a detailed, nuanced understanding of social phenomena that can help answer a research question.

Codes can be applied to data such as individual words, full sentences, or paragraphs, and can be derived from various sources of qualitative information, including interview transcripts, open-ended survey responses, and observational notes (Lochmiller, 2021). It is through these codes that patterns can begin to emerge, as they help make sense of the data and enable the interpretation of the collected perspectives and experiences.

The fragments created through the codes are then re-assembled and grouped into categories that capture the core meaning of the underlying codes and define similarities and differences among them (Lochmiller, 2021). Finally, themes are developed as overarching statements that describe what the data is about and what it conveys.

3.1.5 List of Requirements

According to Johannesson et al. (2013), a list of requirements is a tool for specifying what aspects a concept needs to fulfill in order to solve a given problem. The method formulates needs or demands from users or other stakeholders into a list of clearly formulated criteria.

The list of requirements can often be used as a starting point for ideation to find paths and questions on which to focus the ideation on as well as function as a checklist for evaluating concepts and final designs.

3.2 Methods for the Concept Development Phase

The methods implemented in the develop phase, which includes the ideation and evaluation stages, are described in this section.

3.2.1 Crazy Eights

As described by Learning Loop (n.d.), Crazy Eights is a tool used to create eight different ideas in eight minutes and overcome creative blocks at the beginning of an ideation session. The method is performed by marking out eight rectangles on a sheet of paper and assigning one specific paper or round. Once the paper is prepared, a timer is set for eight minutes during which each participant in the method is supposed to draw or write down one distinct idea in each rectangle, thereby creating several ideas in a short amount of time.

The method can be used to either start off an ideation session or be iterated several times to expand the available pool of ideas for a project (Learning Loop, n.d.).

3.2.2 Brainwriting

Brainwriting or the 6-3-5 method as it is commonly called, is a method where several participants write or sketch a number of ideas during a set period of time and then continue to enhance the ideas of the other participants (Johannesson et al., 2013). The name 6-3-5 stems from a typical execution of the method where six users create three ideas in five minutes and then give their papers to the next participant for them to continue where they left off.

The exact number of participants, ideas and time set can vary depending on the context while the important aspect of letting the participants build on each other's ideas remains in place. This allows for different participants' experiences and viewpoints to mix in order to create ideas that are of a higher degree of completion from the start.

3.2.3 Brainstorming

Johannesson et al. (2013), Brainstorming is a method that is used to generate a large amount of concepts where the focus is on quantity and not quality. The method can often be performed by a group of participants where a combination of ideas and outside of the box thinking is highly encouraged.

3.2.4 Elimination Matrix

An Elimination matrix is a tool for screening and sorting solutions early in a project based on a set list of criteria (Johannesson et al. 2013). The method goes through each idea or solution separately and checks if they fulfill each set criterion that is entered into the matrix. If an idea fails on a single criterion, that idea is eliminated. This enables a project to swiftly handle a large quantity of ideas and only keep the ones that are still relevant for the project's continuation.

3.2.5 Kesselring Matrix

A Kesselring Matrix is another tool used for evaluating the performance of a given concept as described by Johannesson et al. (2013). In a Kesselring Matrix, a set of criteria are given a weight from 1 to 5 depending on their importance for the success of a future product. Each concept is then graded, again from 1 to 5 for each criterion, depending on how well that concept fulfills said criterion. Once the concept has been graded on every criterion a total score for each row in the matrix is calculated by multiplying the weight of the criterion with the score of the concept.

When the concept is graded on each level their total score is divided with an ideal value which is the maximum score possible. This comparison provides a percentage over how well that concept fulfills the whole set of criteria. Once this process has been completed for all concepts that are put into the matrix, they are usually ranked from best to worst to provide a good overview.

3.2.6 CAD Modelling & Prototyping

The concepts developed for the final outcome were modelled using CAD software, primarily CATIA V5, with some additional modelling carried out in Autodesk's Alias AutoStudio. The digital models were then 3D printed and assembled into prototypes to create realistic representations of the concepts, evaluate their functionality, and test them in a real-life setting.

3.3 Artificial Intelligence

Regarding AI tools, these were used during the project, but only to a limited extent. AI tools were not used to generate ideas or information, but rather as supporting tools for concept visualisation and language-related tasks. They were primarily used for language-related purposes, such as adjusting grammar and word choices, in order to support the production of a formal, structured, and coherent report.

AI was also used during the concept development phase to generate visual representations based on sketches of ideas and concepts produced by the author and the assisting contributor. This was done to quickly create clearer visuals than rough hand sketches, thereby enabling users or other stakeholders to better understand a concept's potential and possible limitations. Whenever AI assistance was used for visuals, this was clearly stated in the figure caption.

The main tool used for improving grammar, language, and visuals was ChatGPT. For visuals specifically, Nano Banana 2 and Microsoft Copilot were also used. For all three tools, the standard free versions were used, rather than the premium subscription-based versions.

User Studies

4. Process of User Studies

When conducting user studies, outcomes are often hard to predict since participation depends on individuals' willingness to take part. Nevertheless, a comprehensive user study was conducted incorporating both quantitative and qualitative elements. A concise, general survey was used to collect quantitative data, while an interview study was carried out to gather qualitative insights, complementing and deepening the survey findings.

However, before carrying out these procedures, a general background data collection and a site visit to a motorhome dealership took place to gain a general understanding of the market.

4.1 Data Collection Procedures

To establish a foundation for the project with general information about the segment, an informal background study was conducted. This included online information retrieval as well as a site visit to a motorhome dealership.

4.1.1 Background data collection

The online research focused on identifying current products available for purchase within the category of camper vans, as well as examining general laws and regulations related to motorhomes and vehicles, for details of the search history and the websites visited, see Appendix A. In addition, social media platforms were explored to gain deeper insight into the segment by observing how users design and construct their solutions, what problems they encounter and how these are addressed, as well as priorities in their van builds. The analysis also tried to consider which components users tend to build themselves and in which areas pre-manufactured products are utilised.

The site visit was conducted at HYMER Center in Gothenburg, where both RVs and camper vans were explored and examined, with a particular focus on the interior and how small spaces have been designed and utilised. During the visit, an unstructured and casual interview was conducted with an employee, where questions regarding trends and customer concerns and wishes were discussed. Notes from the conversation were documented immediately afterwards to ensure that no information was lost and can be found in Appendix B.

4.1.2 Survey

Although collecting responses in a survey without any form of incentive can be challenging, an attempt was made to gather quantitative data through a survey posted in several forums and groups on Facebook and Reddit with relevance to the target group. Participants were encouraged to take part in the study with the rationale that their contribution could help shape the future of camper van products and improve van life. The questionnaire was first shared on February 4th, 2026 in more than 20 forums or threads across Europe, The US, and Australia.

However, engagement was low, which prompted the adoption of an alternative approach that entailed contacting individuals who had shown activity and engagement in these forums, and it proved to be more successful. Answers were collected until March 18th, 2026, meaning the survey was open for a period of six weeks.

The structure and length of the questionnaire were designed to be as easy as possible for people to complete voluntarily, without any incentive or reward, but solely based on personal interest and motivation. Therefore, the number of questions was kept to a minimum while still ensuring that each participant provided a sufficient amount of information to be useful and valuable for the study. It was selected to explore respondents' experiences with camper vans and van life, including areas where it is difficult to find suitable solutions or products, participants' priorities and reasons behind their decisions, and the challenges they face, from everyday life in a van to selecting the right products for their needs. The survey questions were therefore formulated to investigate these areas. Appendix C presents the full questionnaire.

The questionnaire included a mixture of close-ended and open-ended questions in order to benefit from both their advantages and balance their disadvantages. A close-ended question can be compared to a multiple-choice question, where the respondent is restricted to the options that are presented (Reja et al., 2003; Hyman & Sierra, 2016). Because of their short and concise nature, they are easier and faster for respondents to answer than other types of questions (Hyman & Sierra, 2016). Consequently, this increases the probability that the questionnaire will be completed in full by easing the task and contributing to a feeling of making progress. Their brevity also makes it possible to ask more questions across a broader range of topics.

Open-ended questions, on the other hand, allow for longer, more explanatory and detailed answers without being influenced by predefined response options (Reja et al., 2003). The advantage of using open-ended questions is that they create the opportunity for respondents to provide a wide range of answers. They also make it possible to capture spontaneous and genuine responses, which decreases the probability of bias that can occur when pre-defined answer alternatives are provided (Reja et al., 2003; Hyman & Sierra, 2016). These spontaneous and genuine answers can also generate meaningful and natural topics to explore later in a potential in-depth interview.

In order to benefit from the strengths of both types, the questionnaire was formulated with seven close-ended and eight open-ended questions. The order in which the questions were presented to respondents was carefully considered to ensure that completing the questionnaire would feel natural, easy, and encouraging. The respondents were also asked to voluntarily leave their e-mail address if they were interested in participating in a more in-depth interview.

Before the survey was posted to the public, it was tested on an external individual with an analytical mindset to identify potential issues or errors that may have been overlooked in the initial design, as well as to examine the clarity of the question formulations, response options, order, and to detect any potentially superfluous or missing questions. Minor changes were made following this testing round in an attempt to improve participant comprehension and maximise the quality of the study's outcome.

The questionnaire was completed anonymously, and no personal details were collected unless participants voluntarily chose to provide it. In the introduction of the questionnaire, it was clearly stated why the study was conducted and what information was being sought.

Besides the value the questionnaire could bring to understanding user needs, it also contributes to increasing brand awareness due to the dissemination that follows its publication. This increased visibility may benefit Lagun, as it helps communicate what they do to individuals who are highly relevant to their target audience and can, in practice, function as a form of cost-efficient marketing. Therefore, distributing the survey in relevant forums and among individuals engaged in the topic or segment also generates exposure, which provides an additional advantage.

4.1.3 Interviews

After the initial quantitative survey had been gathering replies for a while, the user research continued in the form of interviews in order to complement the survey with more qualitative data. The interviews were performed in a semi-structured manner with a set question template that was derived from the replies of the survey while still having the possibility of exploring neighbouring problems.

The participants for the interviews were chosen partly from the replies of the survey and partly through private channels. All of the interviewees possess experience from using and/ or building their own camper van. This opened up the possibility of exploring the user's needs on a more personal level and exploring aspects of different problems on a more detailed level. The participants were also chosen from different countries within Europe since a lot of recruiting was done through online channels and the requirements were only placed on their experience.

As some of the interviewees were recruited from outside Sweden, the interviews were conducted both digitally via Microsoft Teams and in person. Each interview involved one interviewer and one note-taker. Moreover, all interviews were recorded in order to aid future transcribing and ensure that everything said during the interviews was captured in the transcription. The transcription itself followed an edited verbatim transcription, this means that some repeated and filler words have been removed in favour of readability (Semantix, n.d.). This method was employed for most of the transcriptions with an exception for the parts that would be used for quotes in future parts of the project.

The interviews were planned to take about 30 minutes to allow more participants to join even if they had a tight schedule. Each of the interviews followed the same pre-made template to ensure that all of the participants were asked the same questions and that they could answer on the same terms. If the interviewees were reluctant to answer a follow up question would sometimes be used and in those cases the follow up question would be recorded in the transcription. In total the template contained twelve questions that targeted different potentially critical areas from which type of products were hard to locate to which areas inside the van were the most problematic and what their thoughts were on Lagun's current plans for future products. The full templates for the interviews can be found in Appendix D and E.

4.2 Analyses of Collected Data

Once the data collection had generated enough results, different kinds of analysis methods were implemented in order to identify the root causes of the users' different problems.

4.2.1 KJ-Analysis

The type of analysis method that was implemented was a KJ-Analysis which was performed in two different versions. The first one was created digitally using the program Canva and it was focused on handling the open-ended responses from the survey. All of the responses from the survey were copied onto digital sticky notes marked with a number corresponding to the number the answer had in the questionnaire. The notes were first sorted into columns under each corresponding question and the questions with pre-determined response options were compiled into pie chart diagrams for better clarity.

The sticky notes under each question were then split into smaller groups based on similarities in the replies in order to identify which issues were more common for the users. This process was iterated several times and the notes were moved between the groups or to newly formed groups until each one only referred to a single clear issue. Once the groups were fully formed they were all colour coordinated to indicate what type of problem they were related to. During the sorting, notes that only contained replies that stated that the user had no opinion or that mentioned an area of interest outside the scope of the project were disregarded.

4.2.2 Thematic Analysis

To systematically analyse the data collected from the interview study, a thematic analysis was applied and adapted to fit the context. The first step involved creating summaries of each interview by reviewing the transcriptions, which served as an initial stage of the thematic analysis and facilitated coding of the data. Following this, categories began to emerge, and the result of this stage served as a foundation for further analysis.

The completion of this analysis was never fully reached, as it was deemed irrelevant to analyse the interview data in isolation. Therefore, the approach was reconfigured, and the

focus shifted to analysing the user study as a whole using a different method, as described in the following subsection.

4.2.3 Synthesised Analysis

To compile the results of the entire user study, including both the survey and the interview study, a synthesised analysis was conducted. Qualitative data was prioritised over quantitative data, which helped eliminate repetitive responses as well as irrelevant information. The analysis can be considered a thematic analysis, but it also incorporates elements of a KJ-analysis, hence the term synthesised analysis.

The first stage of the analysis was conducted using only physical mediums by printing all of the previously written responses and placing them on physical sticky notes. In this stage, the results from the KJ-analysis as well as excerpts from the interviews were also included by summarising key elements from the interview transcriptions. The physical approach was chosen over a digital one to facilitate a clearer overview of the bigger picture and to allow for continuous shifts between detailed and holistic perspectives. In similar fashion to the first analysis, any replies that were summarised as having no issues or only having issues outside the scope of the project were disregarded at this point.

In contrast to the KJ-analysis, the responses were not sorted depending on the question they originated from. Instead, everything was placed into one large analysis. Since this round was made solely through physical means, all of the sticky notes were placed on three different whiteboards in an attempt to create one seamless map. The sticky notes were placed on the whiteboards and grouped together based on the issues described on them. This grouping was iterated several times in order to make sure that each grouping was thoroughly worked through.

To proceed to the next stage of the analysis, digital tools were reintroduced to generate a structured and visually clear summary of the results. The whiteboard function in Canva was used for this purpose. Patterns were identified within the categorised fragments and, where possible, translated into user needs, which were then grouped into relevant categories to form overarching themes. Connections were established between certain needs and categories where relevant. Many of the identified needs were supported by quotes from participants' responses. In cases where the original responses were in a language other than English, they were translated while preserving the character and essence of the original statements.

The entire analysis was conducted in an iterative manner, where discussions and continuous rearrangement were encouraged in order to achieve the most accurate and representative understanding of the users' perspectives.

The analysis of the expert interview was conducted separately to avoid influencing and interfering with the users' own perspectives and thoughts. Instead, it served as a means of

confirming certain insights, while primarily providing a broader understanding of common challenges faced by customers from a reseller's perspective.

The outcome of this comprehensive analysis served as a basis for formulating the list of needs, as well as a visual representation of the user study as a whole to be presented to Lagun.

4.3 List of Needs

Once the analyses of the collected data had been performed the define phase then concluded in the formulation of a list of requirements. The list itself was created in Google Sheets to provide a clear structure. The list was built using seven different types of columns: *criteria*, *category*, *type*, *details*, *justification*, *owner* and *importance*. These columns were used to give each requirement or need the same level of description so that they later could be used to evaluate the potential concepts produced further on in the project.

The requirements and needs themselves were sampled from two different sources. Lagun, the company which this project was carried out in collaboration with, was the first source. They were asked to provide any requirement that they had so that they could be incorporated directly into the list. The second source was the users themselves whose requirements and needs were derived from the final synthesised analysis.

5. Results from the User Studies

This chapter presents the results of the first phase of the project, including the user studies and its associated procedures. It presents the results of the survey and interviews, along with the analysis of the collected data. A list of needs based on the user study findings is also provided. Finally, key takeaways from this phase are presented.

5.1 Survey

The survey generated 64 responses during the period it was open, of which three were from participants who were boat owners rather than camper van owners. The survey primarily generated qualitative data but also included some quantitative data. Nine questions resulted in quantitative data, six in qualitative data, and one included characteristics of both.

The vast majority of respondents currently own a camper van, while a few have previously owned one or own a caravan or RV see Figure 10. The responses regarding which countries users travel in with their van were widely distributed. This was expected, given the common perception or stereotype that people who are participating in van life tend to be adventurous, spontaneous, and curious. Responses were collected from countries all over the world, with some using their vans in Australia, some in the United States (US), and a few in Africa, primarily Morocco. The majority of participants, however, answered across Europe, from both southern and western regions, including the Nordic countries and the United Kingdom (UK). Figure 11 provides a more detailed representation of the responses. The Nordic countries include Sweden, Norway, and Finland, while *Western Europe* includes responses from Germany, the Netherlands, Belgium, and northern France. *Southern Europe* primarily includes responses from Spain, Portugal, and southern France. The category *Europe* refers to responses from participants who indicated travel across the whole of Europe.

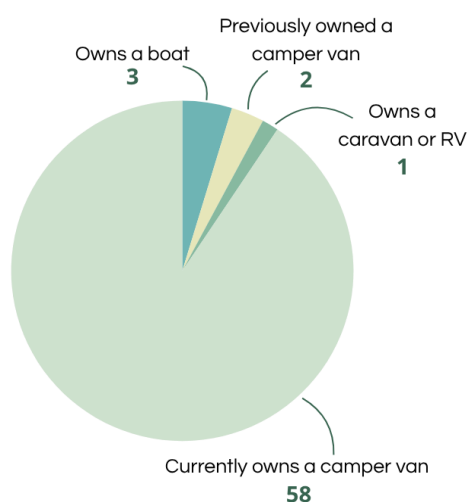


Figure 10. Distribution of responses to the survey question regarding type of vehicle owned.

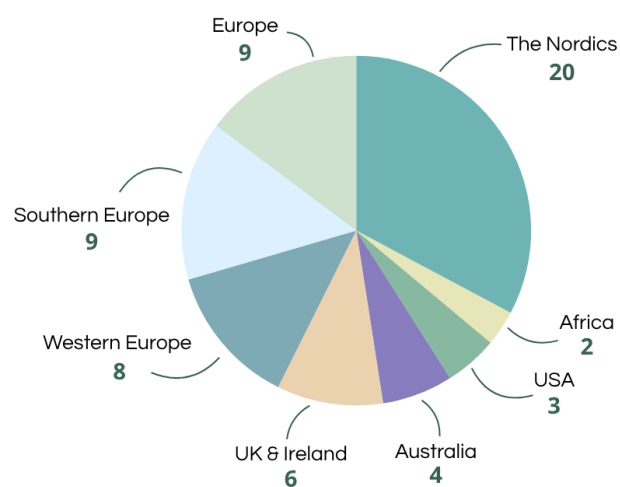


Figure 11. Responses to the survey question regarding where participants travel with their van.

As seen in Figure 12, over half of the respondents who currently own or have previously owned a camper van refurbished it themselves into a livable motorhome, while some acquired a fully refurbished vehicle. A few participants reported that they purchased a refurbished camper van but made modifications to it themselves.

The distribution of responses regarding how solutions in their vans were acquired was relatively similar. Over half of the answers indicated that participants built or modified components themselves, while some used products intended for other purposes, and others used products specifically designed for camper vans, see Figure 13.

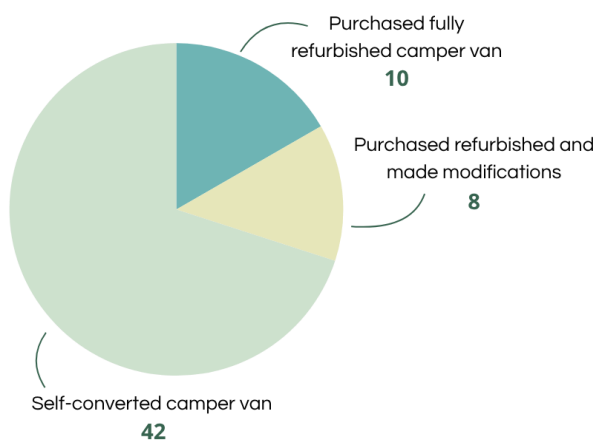


Figure 12. Responses regarding how participants acquired their camper vans.

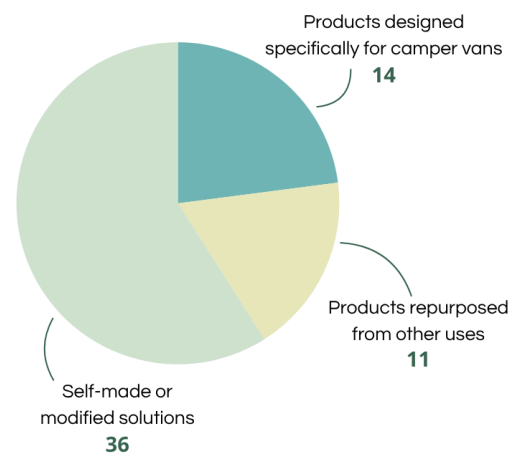


Figure 13. Responses regarding the origins of solutions used in participants' camper vans.

When asked why van owners choose to build their own solutions, the answers were relatively evenly distributed across the predefined options: cost-saving reasons, the lack of suitable products, and a desire to create something of their own, see Figure 14. For respondents who provided their own answers that reflected multiple factors, the relevant categories were each assigned an additional count to represent these overlapping responses. The category *other reasons* included responses such as the need for lightweight solutions, as well as statements like 'Because I can', and 'Because it was easier, fun and I already had materials and tools lying around.'. Two participants answered 'All of the above', and their responses were excluded from the compilation of the data, as they did not contribute to the distribution of specific reasons. However, they do indicate that multiple factors may influence the decision to construct one's own solutions.

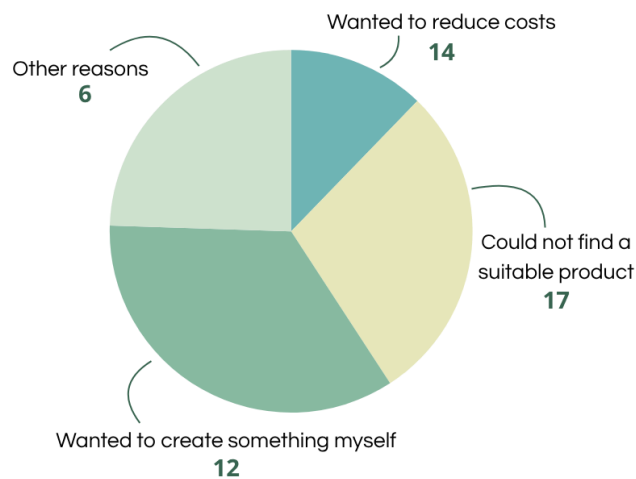


Figure 14. Responses regarding why participants create their own solutions.

To the question in which participants were asked to rank the three factors most important to them when purchasing or considering purchasing a product, the results are difficult to interpret in terms of which factors are most important among the sample in this study. This is because many participants selected more options than requested, with some even choosing all of them. This makes it difficult to distinguish which factors are the most important in this study, and a definitive conclusion regarding the top three factors cannot be drawn, as the responses were not provided on equal terms. This issue could not have been avoided, as the survey tool used did not allow for restricting the number of selections. The only instruction given was to choose their top three alternatives, but there was no enforced limitation preventing participants from selecting more than three. However, the responses still offer value by providing an indication of which aspects are considered more important than others

When examining the result, one factor clearly stood out, with 60 out of 64 responses, which represents approximately 95% of the respondents, namely *Functionality*. This was expected, given the obvious need for functional products in small-space living. This was followed by the aspects *Price* and *Quality/Durability*, with 39 and 35 responses, respectively. The factors that received the least attention, and were therefore considered the least important within this study's sample, were *Brand Loyalty*, *Lightweight*, *Layout*, and *Low operating cost*. All of them, except *Brand Loyalty*, were mentioned by only one respondent as an additional factor beyond the pre-defined options. The full results are presented in a bar chart in Figure 15.

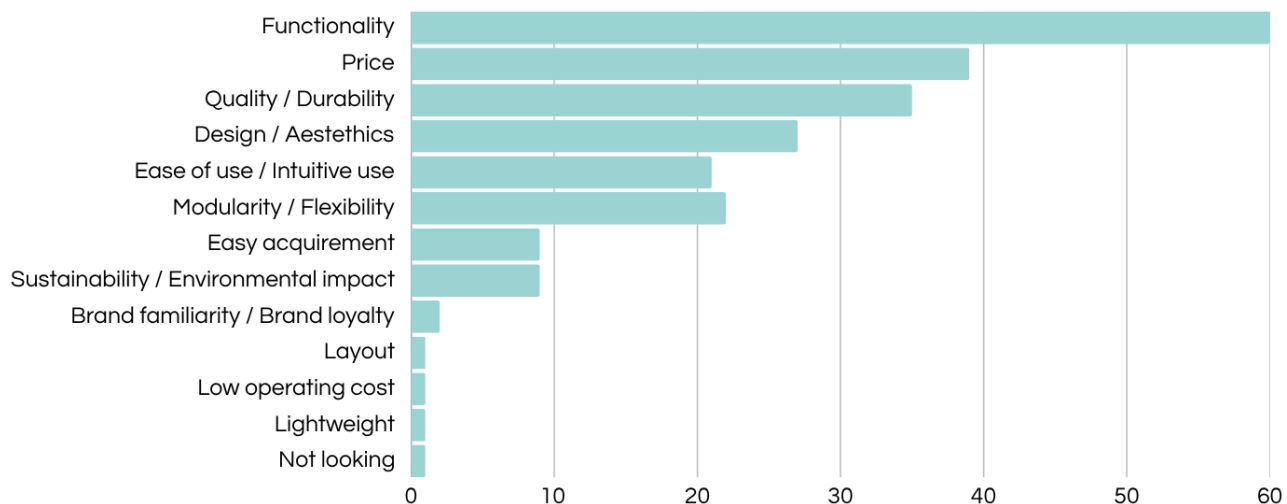


Figure 15. Distribution of responses regarding the factors considered most important when purchasing products.

To summarise and visualise the results of the open-ended survey questions, a compilation was conducted using a KJ-analysis. An overview of the categorisation is presented in Appendix F. While the individual survey responses are not fully legible due to the scale of the visualisation, the appendix illustrates how the responses were grouped into categories.

Firstly, when asked about which areas of the vehicle users found most difficult to find solutions for and utilise effectively, the majority reported challenges related to space utilisation. Several subcategories emerged from these responses, including the *garage*, (typically the rear storage area, often located beneath a bed), *interior storage & organisation*, *bed & living space*, and *kitchen*. Others reported challenges in relation to the bathroom area, as well as to electricity, heating, water systems, and insulation. Some respondents reported that there are no difficulties, whereas a few indicated that they experience challenges throughout the entire vehicle. One respondent also noted issues outside the van, such as tent-based solutions.

As expected, the responses varied considerably in relation to the question in which the participants were asked to provide an example of a situation where they could not find a product suitable for their needs and therefore had to build their own solution. The largest proportion of responses related to electricity, heating, water systems, and insulation, despite the survey question explicitly instructing respondents to exclude these areas from their answers. Furthermore, participants reported examples of self-built storage solutions, in some cases combined with bathroom or kitchen units. The bed was also identified as an area for which several respondents reported having built their own solutions for.

More specific examples ranged from custom solutions for dogs and sliding doors between the driver's cabin and the living area, to smaller accessories such as toothbrush holders, kitchen appliance holders, and cup-holders for children used while driving. A relatively large

proportion of users also indicated that they had built most, if not all components of the interior of the van themselves.

Regarding the question of which aspects are most challenging when purchasing or finding suitable products for a camper van, the largest category of responses related to compatibility and fitting within the respondents' individual vehicles. Many participants described difficulties with fitting or adapting products to the specific dimensions, proportions, and structural characteristics of their vans, and some noted that surfaces are rarely straight in a camper van. A few respondents also expressed uncertainty about whether products would fit and function as intended, despite information provided on product pages indicating compatibility.

Weight-limitations were another concern, with some participants emphasising the need for lightweight solutions. A relatively large proportion of responses related to difficulties in acquisition and limited availability, with several participants reporting experiences of challenges in locating suitable products for their camper vans due to restricted supply.

Additionally, a substantial proportion of responses addressed issues of price and quality. High costs were frequently mentioned, alongside the challenge of balancing price against quality. Some users also highlighted difficulties in prioritisation and planning, particularly in distinguishing between necessities and luxuries, and in accommodating all desired functions and features within the limited space, even when not all are essential.

When asked about challenging, annoying, or uncomfortable situations related to living in the van, the largest proportion of responses indicated no significant issues, partly because many participants reported having already resolved such challenges. A substantial number of responses, however, related to the categories of space limitations and spatial configurations. These reflected general constraints related to limited living space and restricted headroom, rather than specific problem areas. One respondent also highlighted that space becomes even more constrained during bad weather, as surrounding outdoor areas cannot be utilised to the same extent.

In terms of interior configurations, some respondents described the process of reconfiguring spaces, such as converting living areas into sleeping areas, as inconvenient or tedious. However, these challenges were often accepted as necessary compromises to maintain overall functionality without further reducing available living space.

A related category that also concerned transitions between different usage modes, was *Driving mode*. Participants reported frustrations with items not remaining secured during driving, for example, drawers and cabinets opening, objects falling out, and general rattling.

Bathroom-related activities, such as showering and toilet use, were also mentioned several times as an uncomfortable situation. Challenges ranged from space limitations to issues with water supply and the handling of grey water and toilet waste.

Additional concerns included limited storage capacity, poor accessibility of storage spaces, and difficulties with organisation. Some users also specifically highlighted challenges related to laundry and the storage of wet clothes and shoes.

When participants were asked whether there are any unresolved situations or challenges that hinder them from using their van to the extent they would like, the vast majority reported that they were none. Several users expressed wishes related to technical aspects of their vans, as well as challenges outside the scope of the project. A recurring theme across this and other survey questions concerned space limitations. The only concrete requests mentioned were for improved storage and organisation solutions.

A clear common pattern emerged among the respondents when asked about how or where they obtain the products they purchase, with online channels being the dominant source, as expected given the role of e-commerce today. Some more specific subcategories were identified, including combinations of online purchasing and other sources such as physical stores, hardware stores (primarily for building materials), exhibitions, and second-hand purchases from other camper van users. A smaller group of respondents reported a preference for physical stores, although some of them browse products online, they prefer to view and purchase items in person.

5.2 User Interviews

Once the interview phase had concluded a total of eight interviews had taken place with a total of ten interviewees since two of the sessions were with couples who used their van together. All of the interviewees had different levels of experience which was reflected in their answers. Below is a list of the users interviewees that specifies where they come from, what type of van they have and how they use it.

- *A – Couple from Sweden, in building phase, planning to use it for travels*
- *B – Woman from Sweden, previous van owner, used it for longer travels*
- *C – Man from Sweden, owns a pre-built van, uses it for vacations*
- *D – Man from Sweden, owns a self-built van, uses it for shorter travels*
- *E – Couple from the Netherlands, owns a self-built van, lives in it full-time*
- *F – Man from Sweden, owns a self-built van, uses it for shorter travels*
- *G – Woman from the Netherlands, Owns a self-built van, lives in it full-time*
- *H – Woman from Sweden, in building phase, planning to use it for travels*

The Swedish group had the most participants but was also the most diverse in terms of experience. The participants who were still in the building stage, A and H were both part of this group. Since both of the couples had not begun using their vans properly yet they could not provide that much insight into actually living in the van. However, some of the questions they were asked focused on what kinds of camper van products were available on the market and how hard it was to locate those products which was a very relevant issue for them. Since both of the couples were currently trying to locate specific products to suit their vans they had a lot to say about this subject.

The Swedish group also had three of the participants who were already using their vans, B, D and F. All three of them converted their vans a few years back and had more experience of specific problems they had encountered over prolonged usage of the van. They all used their van for shorter trips and they were all into an outdoor lifestyle so they often had to carry a lot of gear with them on top of their everyday items such as food and clothing. One of these participants also had a child recently which allowed him to share unique experiences and struggles of bringing a toddler along for a trip in a camper van.

The last of the participants from the Swedish group was the one who had bought a fully refurbished van from a dealership, C. This interviewee was a man in his 60s-70s who mostly used the van to travel for vacations to established camping spots with his wife. This user expressed the least amount of issues out of all of the participants since they had ordered their van to already suit all of their needs. Even though he did not have any aftermarket products in his van he still mentioned a few areas where he could see the benefit of new products specifically adapted for camper vans.

Next was the group from the Netherlands where all of the interviewees who lived full time in the van were from, E and G. These interviewees also consisted of two couples out of whom three people were interviewed. Both of the couples worked remotely and lived full time in their van and had been doing so for over a year respectively. They all used vans that they had converted themselves where one couple were already on their second van while the other was currently in the early stages of planning for a second van. These were the participants who naturally were able to share the most detailed information about their struggles and point out which areas in the vans were the most critical.

Even though all of the interviewees were asked the same questions, there were several areas where their answers differed greatly and some areas where they were alike as well. To start off with, one area where all of the participants agreed was the lack of space inside the van. Since the van has quite limited space on the inside all of them either faced difficulties fitting everything they wanted to bring into the van or having enough space left to actually live on.

When asked about if they wanted any products for a home office setup in their van, many participants said that it was not something they were looking for since they mostly used the

van for vacations. The only interviewees who mentioned this as a specific need was E and G since they were consistently working remotely there as well. Both of these couples also mentioned that they would like to see a solution for a setup in the front cabin of the vehicle ‘A lot we built ourselves, I do remember that for, like we wanted to actually make a small desk-setup in the front of the van, like on the cabin side.’ (Interview respondent G). Even though many of the others brushed the issue off at first there were a few instances where they did come up with issues in the same area without realising it ‘I’ve been thinking that screen mounts specifically designed for vans could be a good idea. I basically have a regular monitor mount, but it has no locking mechanism, so if I accelerate or turn too quickly, the screen moves around and could end up breaking either a window or the screen itself.’ (Interview respondent F).

Another critical area in the van was, as mentioned before, space effective solutions for storage of different items. The interviewees primarily brought attention to two different parts of issue, the first was naturally where and how they could store everything and the other was how to do it in a way that keeps every item organised and easily accessible. Many of the participants mentioned that they use the area underneath the bed for a lot of storage but that it made most things hard to access and organise. It also brought along a lot of hassle of either having to move the bed or open the van from the rear which limited usage especially in bad weather. Since everything needs to stay in place while driving, every drawer and shelf needs to be able to close and lock in some way to prevent items from moving around. Here, a few participants mentioned having trouble with the locks themselves and having them open on accident during transit. One interviewee even talked about having to use tape to keep some drawers closed ‘One thing to consider with cabinets is that the solution of keeping them closed feels weak. We have one cabinet that we need to secure additionally with double-sided tape.’ (Interview respondent C). Another participant spoke about his self-built locks which worked well but had to be applied manually which led to them being forgotten and items coming loose anyway ‘Right now, in the two drawers I have in my drawer unit, I use a latch that you fold down to keep them from sliding out. It’s completely manual, so there have been several times where I start driving, then come to a stop sign or something, hit the brakes, and the drawers just fly open with this huge rattling noise. Then I realised, oh right, I forgot to lock those too.’ (Interview respondent F).

There were also a few comments regarding whether or not the van included an onboard toilet or bathroom. Most interviewees who had built their own vans had some form of smaller portable toilet, such as a porta-potty. However, they stated that it was only used in emergencies, since it was often stowed away and not easily accessible. Most of these participants also said that they were satisfied with this type of setup since it saved a lot of space for other things instead and since they mostly use the van for shorter trips it was not as big of an issue. The only participants who had a full bathroom setup were the ones who live full time and the one who bought his van fully converted. The ones who live full time in the van naturally encountered more situations where they needed a bathroom and therefore had no

choice but to install one. The issue with the bathroom taking up too much space was still present though but one of the full timers had found a work around for this. Since the shower was just an open unoccupied space when not in use they were able to build a shelf that could be slid in or out of that space to make sure that it was always in use for something.

Apart from these larger topics that most of the interviewees spoke about there were also several other issues that were more specific to each user. Some of these answers were still applicable to more cases and were therefore highly relevant to take into the analysis and find the deeper reasons behind their issues.

5.3 Expert Interview

Apart from the user interviews there was also one interview conducted with an expert in the campervan market who was the only one who lived in Germany. This was a man in his 40s who works at a larger retailer for camper van specific products including the Lagun table. This interviewee was also able to provide a unique perspective of the market since he came across a lot of different customers with different needs on a daily basis. He was also able to provide insight into the difference in requests from private customers and other businesses which could be used to confirm the information gathered from the other participants. Apart from having experience from working in the market for several years he also owns a camper van of his own which he converted himself. This van was also used mostly for shorter trips but also for showcasing different products the company sells on different fairs and exhibitions.

In addition to verifying the information from other interviewees as well as the survey, the responses from the expert also helped map out the market and ongoing trends as mentioned above. The replies were used to formulate the lists seen in Figure 16 which describe important factors users look for when searching for new products. Even though these might not generate direct design implications they were seen as valuable for Lagun when preparing for the release of new products. Appendix G provides the full compilation of the expert interview results and insights.



Figure 16. Compilation of results from the expert interview regarding market trends, customer requests and issues.

5.4 Synthesised Analysis

The final step of the user study included a synthesised analysis containing qualitative data from both the survey and the interviews. It was done in two iterations, one physical and one digital.

5.4.1 Iteration One

This first iteration was conducted physically, where all remaining relevant information was printed out or written down on sticky notes and placed on whiteboards, after duplicates or irrelevant responses had been removed through an initial screening. The analysis resulted in an overarching map of users' perspectives, divided into categories based on similar topics or areas, rather than on predefined problems. Some categories were further divided into more niche subcategories, and others were connected to each other when a clear resemblance or relationship could be identified. Figure 17 presents an excerpt from this iteration's results.

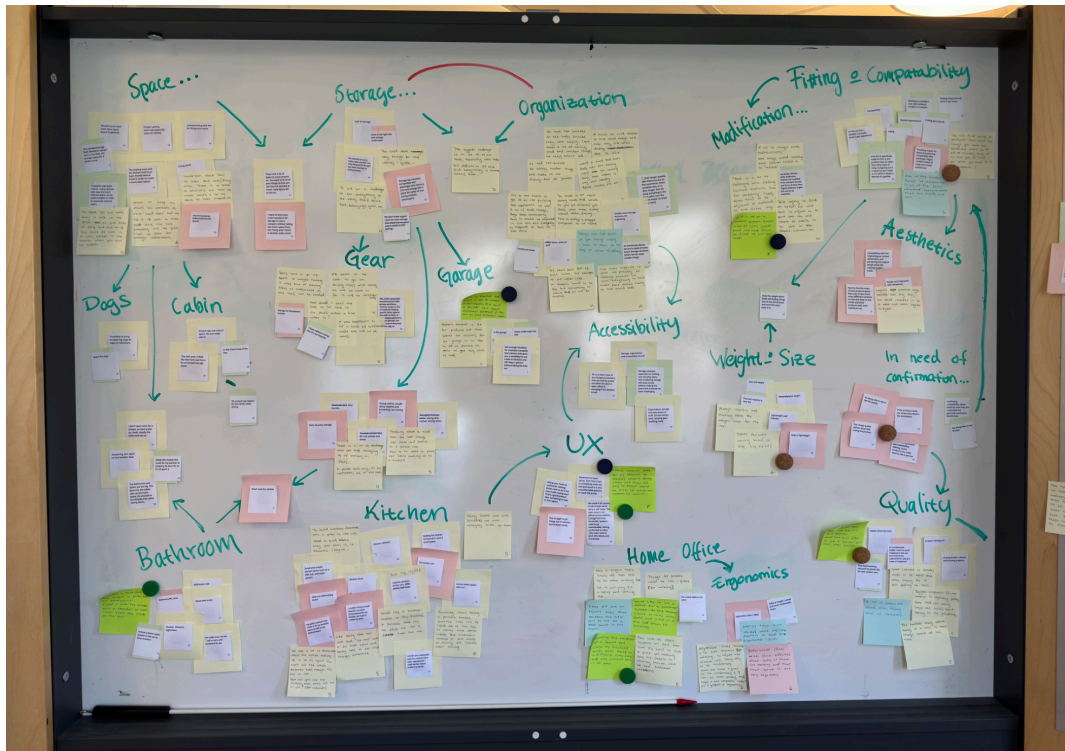


Figure 17. Excerpt from iteration one of the synthesised analysis, physically performed on whiteboards (Author's own image).

Although this step provided a beneficial holistic and zoomed-out perspective, the results were not deemed sufficient to provide concrete guidance for either the design phase or for Lagun, and therefore required further processing and refinement in order to present the findings in a more effective and valuable manner. This physical compilation consequently served as a thorough process for identifying codes within the data, as well as the emergence of patterns and categories through elements of a KJ-analysis. This constituted a further step and a second iteration in the analysis process.

5.4.2 Iteration Two

The results of the second iteration of the synthesised analysis provide a range of information and insights, some of which can be translated into design implications for future development, and others into recommendations for Lagun to better understand their potential users. The findings also highlight specific areas and issues where targeted solutions could significantly improve the van life experience for users. A representation of the full analysis can be found in Appendix H.

According to this study, the areas with the greatest need for solutions revolve around general storage and organisation, particularly in relation to space limitations, accessibility, and user experience. Most users identified storage as the main issue, specifically the challenge of fitting everything they want and need to bring with them.

Some specific examples of underutilised spaces for potential storage solutions were mentioned, such as the ceiling, however, such solutions must not restrict or compromise headroom. There was also a clear demand for storage solutions that do not constrain the living space in general inside the van. Other recurring needs included solutions for storing dirty laundry as well as shoe storage. A common issue was the difficulty of storing wet and dirty clothes and shoes without affecting large areas of the van, for example during bad or rainy weather.

Some users experience difficulties with storing gear of different kinds, such as skis, snowboards, and surfboards, both due to their size and their often unclean condition. Based on the stereotypical image of an adventurous personality living in camper vans, this is likely a relevant topic for many users.

Furthermore, users experience issues related to organisation and accessibility of storage, which affects everyday living in a van, partly because it becomes messy very quickly in such a small space. Users need storage solutions that provide designated places for small loose items. They also need solutions that keep items in place while driving and are not only temporary organisational solutions used when the vehicle is stationary. Figure 18 presents an excerpt from the analysis regarding the topics storage, organisation, UX and accessibility.

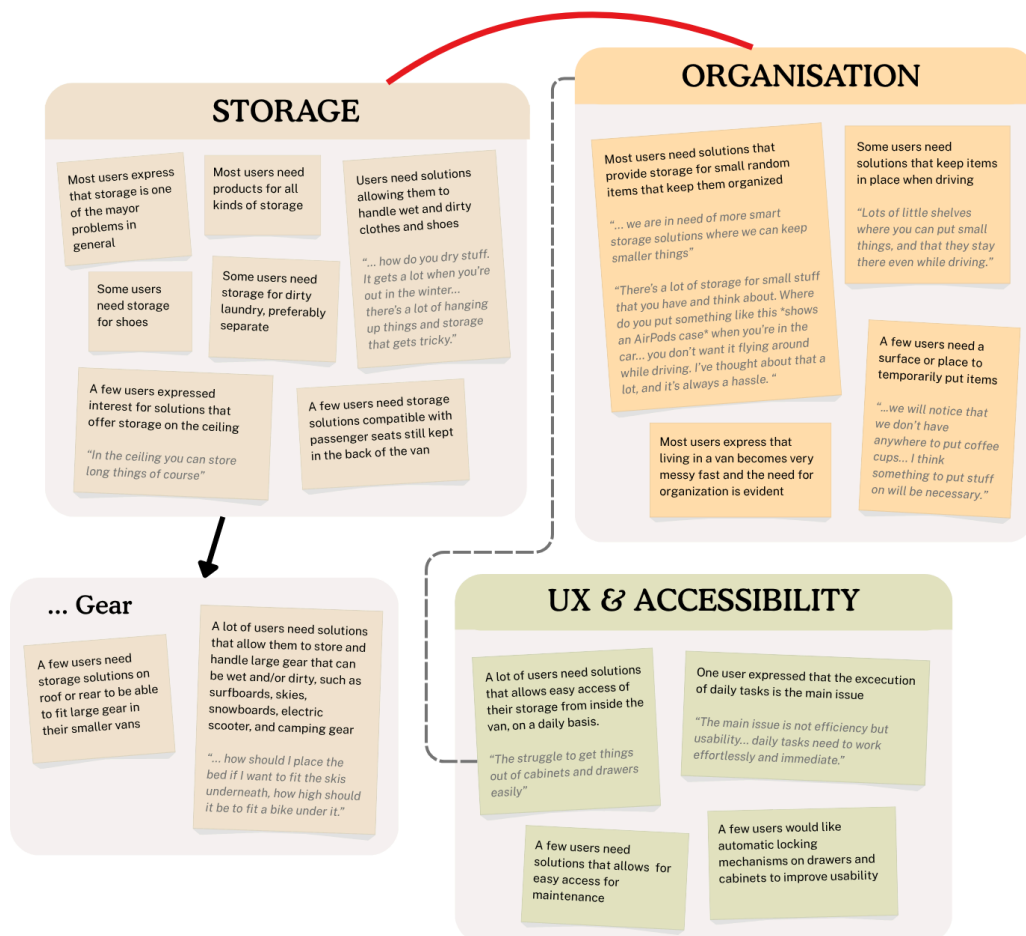


Figure 18. Excerpt from iteration two of the synthesised analysis.

The limited space in a camper van clearly leads to users needing to get multiple functions out of a single product, as they cannot accommodate everything they might want. Users therefore need products that can be folded or stowed away, while still serving a function even when not in active use if they occupy space in the vehicle, see Figure 19. One user emphasised that multi-purpose products, particularly furniture, should have all necessary components integrated for their different configurations, to avoid the need to store additional parts required for certain uses. This need is primarily driven by space-related constraints, which underlie many other user needs.

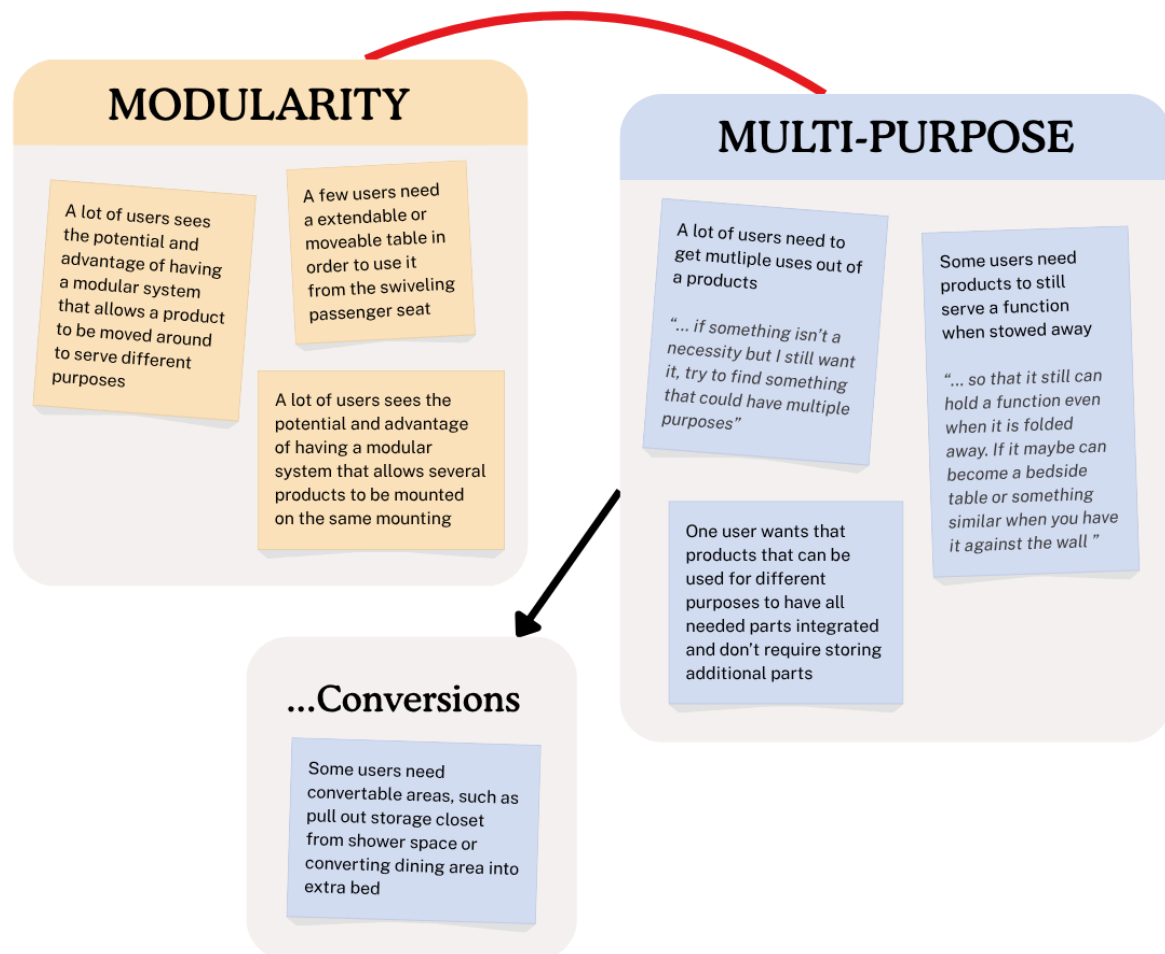


Figure 19. Excerpt from iteration two of the synthesised analysis.

Two categories that clearly emerged as distinct areas within the van were the kitchen and the bathroom. Focusing on the kitchen area, users expressed considerable frustration regarding the lack of countertop space, both during cooking and for temporarily placing items. They expressed a need for solutions that address this issue, for example through pull-out surfaces or solutions, as mentioned by some participants. Specific challenges related to cooking were also identified, such as handling hot items like pots and pans. Another commonly mentioned issue was managing wet items when doing dishes, which is problematic due to both limited countertop space and the added difficulty of handling wet objects in an already constrained

environment. Users also experience a lack of certain kitchen accessories that are not always prioritised in camper vans, such as paper towel holders and effective storage for spices and oils.

Regarding the bathroom area, users expressed a desire for improved solutions for both shower and toilet situations, see Figure 20. However, they mostly experience constraints due to limited water supply and restricted space in the bathroom area. As a result, the bathroom segment is considered less relevant for this project, as it does not align with what is currently feasible or relevant for Lagun to develop. Additionally, the bathroom area is primarily present in larger vans, meaning that focusing on this segment would exclude a quite large portion of potential users, particularly those with smaller vans.



Figure 20. Excerpt from iteration two of the synthesised analysis.

Another quite specific area that emerged was the use of the van as a home-office, see Figure 21. Most challenges were related to ergonomics and space, but more specific needs were also mentioned, such as having sufficient workspace beyond just a laptop. A setup in the front cabin of the van was suggested as desirable, as it could create a more isolated working environment while utilising an otherwise underused area of the vehicle. These challenges and

wishes were primarily relevant for users living permanently in their camper vans, as it represents an important issue for them. For users not living in their vans full-time, the interest in such solutions was less evident. Nevertheless, if these solutions serve multiple purposes beyond those related to remote work, their relevance could increase significantly.

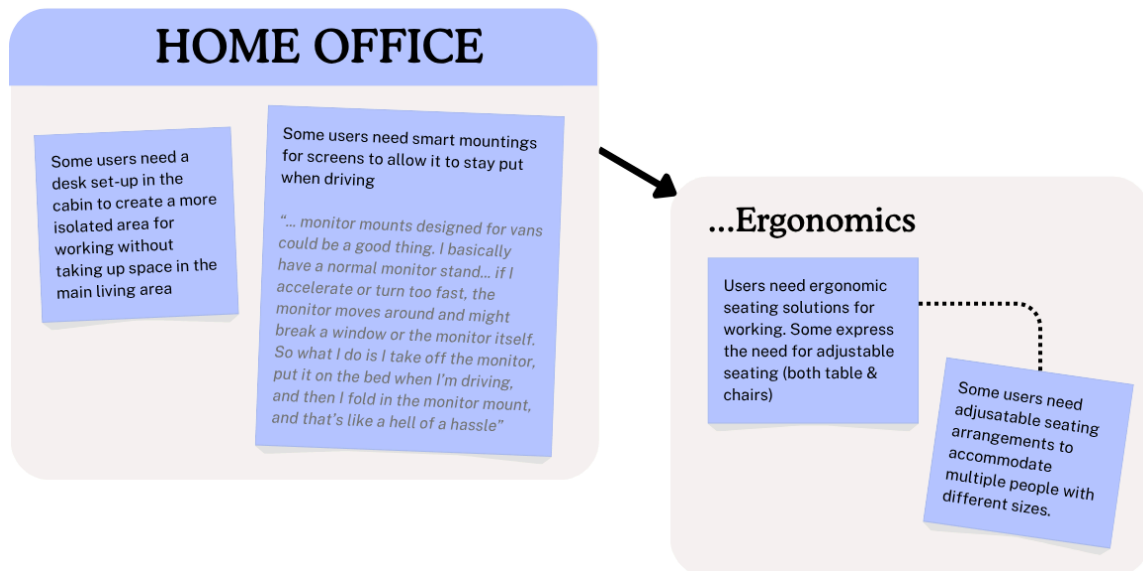


Figure 21. Excerpt from iteration two of the synthesised analysis.

The categories that are not relevant for translation into concrete needs and design implications, but that still provide valuable information for Lagun, are, *Price*, *Limited supply*, *Hard to find*, *Acquisition*, *In need of confirmation*. These categories contain information about how users experience acquiring products, their need for confirmation, and their thoughts and experiences regarding the available supply of camper van products.

Users perceive that there is a limited supply of products designed for camper vans, which makes it difficult to find solutions that suit their needs, see Figure 22. This partly contradicts some users' experiences of difficulty navigating all available options. However, this issue relates to the wide range of possible configurations and ways of solving certain problems rather than product supply.



Figure 22. Excerpt from iteration two of the synthesised analysis.

Users often need to explore beyond the camper van segment in order to find suitable solutions, such as in the boat segment. This further supports the finding that the current supply of camper van-specific products is insufficient for many users. The insufficient supply often leads users to build or customise their own solutions because they cannot find suitable products.

Besides the clear lack of supply, several other factors contribute to users experiencing difficulty in finding what they need. They require confirmation that products will work for them and be compatible with their vans. They also need clear information about product properties such as dimensions and weight, as well as functionality and potential use cases. Furthermore, products must perform as described. This is especially relevant online, since users have no opportunity to see or feel the products physically or test them in their vans. Therefore they rely on detailed product information before making a purchase.

When it comes to users' acquisition of products, the vast majority obtain what they need online, as expected, given the dominant role of e-commerce in retail today (Figure 23). Although some users still prefer purchasing from physical stores in order to see and evaluate products in person, online channels appear to be the primary option. The users in this study purchase building materials for camper van conversion in local hardware stores, while smaller interior products are again typically purchased online.

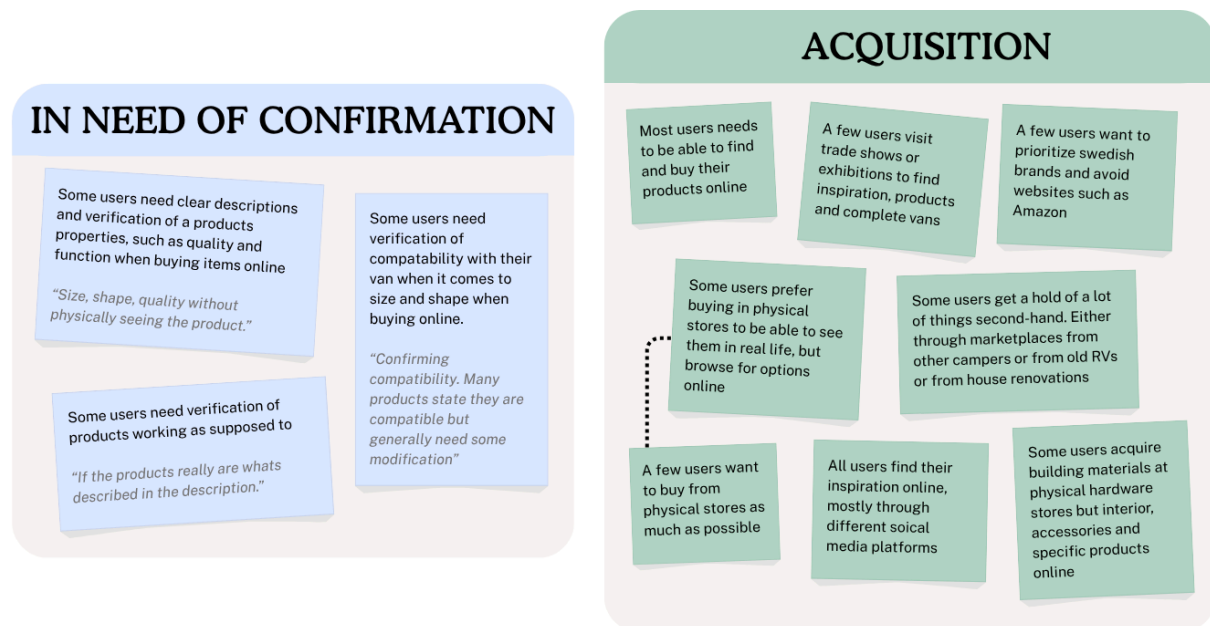


Figure 23. Excerpt from iteration two of the synthesised analysis.

Participants in this user study find inspiration for their van builds and van life primarily online, especially through social media. This highlights the importance of social media as a key channel for reaching relevant users.

Some participants from Sweden stated that they prefer to prioritise Swedish companies over international giants such as Amazon. This may give Lagun an advantage among certain Swedish customers, which suggests a potential focus on the Swedish market. However, although the study includes a large portion of Swedish participants, Sweden is not the primary market for the camper van segment, which limits the strength of this recommendation.

This information can be translated into recommendations for Lagun to follow in order to contribute to a smoother user experience. These suggestions could not only increase sales but also serve as an advantage by supporting reliability and brand loyalty.

Another valuable takeaway from user insights is that the feeling of home, or homeliness, is important for enjoying van life and affects how much users want to use their vans. It is a highly subjective aspect that might be difficult to grasp and translate into concrete design implications, but it remains an important factor to consider.

5.5 List of Needs

Once the synthesised analysis and all of the data had been sorted into categories the list of needs was filled out based on the design implications identified during the analysis. Apart from the needs of the users the list also contained a number of needs that were taken directly from Lagun, see Table 1. In total, the list ended up with 20 different needs, five that were taken from Lagun, twelve that were derived from the users and three that were a mix of both.

Each need in the list was also ranked on importance from one to five (five being the most important) or if the need was highly important in all scenarios it was simply ranked as a requirement. The table below shows all of the needs sorted after the stakeholder and the level of importance it was assigned.

Table 1. List of Needs

Number	Need	Stakeholder	Weight
1	<i>Keep current materials</i>	Lagun	2
2	<i>Keep current colours and finishes</i>	Lagun	2
3	<i>Align with current design profile</i>	Lagun	3
4	<i>Compatible with other Lagun products</i>	Lagun	4
5	<i>Align with current production</i>	Lagun	2
6	<i>Space efficient, Users</i>	Users	Requirement
7	<i>Stowable</i>	Users	4
8	<i>Do not restrict headroom</i>	Users	1
9	<i>Easy to clean</i>	Users	3
10	<i>Water resistant</i>	Users	5
11	<i>Enable organisation</i>	Users	5
12	<i>Easy accessibility</i>	Users	4
13	<i>Intuitive use</i>	Users	3
14	<i>Lightweight</i>	Users	Requirement
15	<i>Maximise surface area</i>	Users	2
16	<i>Adjustable</i>	Users	4
17	<i>Multi functional</i>	Users	5
18	<i>Secured while driving</i>	Both	4
19	<i>Cost effective</i>	Both	4
20	<i>Durable</i>	Both	4

Apart from the importance ranking, each need was also assigned a brief detail that explained the need, a justification for why it deserved to be placed in the list, a type (either requirement or a desirable) and a category for what area the need addressed. While the importance could be directly used to evaluate concepts further on in the project, the other factors were simply used to keep a clear motivation of each need.

In the details some of the needs have also gotten special exceptions added since they might be highly relevant in some scenarios while not being applicable at all in others. An example of this is need N8 which is only relevant for ceiling mounted concepts or concepts meant to be placed high on the walls of the camper van. Another example is N10 which was also deemed to only be relevant if the concept would have expected and frequent exposure to water.

5.6 Takeaways of User Studies

The following points were identified as the most relevant takeaways from the user studies to be brought into the design process.

- No area of the van stands out as significantly more problematic than others, instead, the challenges are distributed across various areas. Therefore, no specific area was selected as the sole focus of the upcoming design phase.
- The needs, examples and suggestions provided by users will be explored further but were not considered sufficiently broad to serve as the primary design focus or to be translated into general criteria and included into the list of needs.
- The final solution should not require extensive integration into or modification of the existing van interior or layout, and should be applicable to both already converted vans and vans currently undergoing renovation.
- A focus was placed on creating adjustable, modular, or multifunctional concepts in order to maximise applicability across different van types and accommodate the wide variation found among camper vans.
- The overarching categories identified through the synthesised analysis considered most relevant for the upcoming design process were ‘Modularity’, ‘Multi-purpose’, ‘Space’, ‘Storage’, ‘Organisation’, and ‘Fitting & Compatibility’.

The results of the user study confirm the initial observation made at the beginning of the study, indicating that the market for products specifically designed for use in camper vans remains limited. This in turn, confirms that targeting this market and designing for its users

represents an area with considerable potential and continued relevance, particularly given that it is a growing market attracting increasing interest.

A conclusion that can be drawn from the user study is that no area of the van stands out as significantly more problematic than others in terms of the number of reported challenges. Instead, the issues were distributed across various areas, situations, and stages of van use. These findings further support the recommendation to design for this segment, as many challenges currently appear to be solved through homemade, temporary, or otherwise insufficient solutions.

Many specific situations and product suggestions were raised by the users. While these will be considered and explored during the concept development phase, none were considered sufficiently broad to define the project's primary design focus in the upcoming phase. Similarly, most suggestions were also considered too context-specific to be incorporated into the list of needs. However, they remain relevant and potentially valuable to explore during the ideation phase and may potentially be integrated into solutions that serve multiple purposes.

Moreover, the aim of the user study was to identify what types of solutions users need to improve their van life experience, and potentially in what areas these solutions are needed. However, as no clear direction or dominant problem area emerged from the results, no specific area was selected as the sole focus of the project. Instead, following the completion of the user study, a decision was made for the upcoming concept development phase to design a solution that does not require extensive integration or modification of the existing van interior or layout. Instead, the focus was directed toward solutions applicable to already converted and completed vans, rather than solutions that must be considered during the renovation phase, without disregarding them.

Since no two vans are alike and dimensions, layouts, and spatial conditions vary significantly between vehicles, large integrated solutions become increasingly difficult to generalise. This further emphasised the need for adjustable, modular, or multifunctional solutions. Consequently, an additional design focus was placed on creating a solution applicable in as many van types as possible, as solutions limited to specific vehicle sizes or layouts would significantly reduce the potential customer base and applicability.

The participants involved in the study generally reflected common characteristics associated with the van life community, such as an interest in travel, adventure, and nature, as well as being spontaneous and inclined toward problem-solving. Many also expressed an interest in building or creating solutions on their own, although to varying degrees. This may naturally limit the potential customer base, which further reinforces the importance of designing concepts applicable to as many vans and users as possible.

5.6.1 Takeaways for Lagun

Besides the findings presented in the previous subsection, this subsection compiles recommendations and insights intended solely for the benefit of Lagun, rather than for the concept development phase.

The user study as a whole provides Lagun with valuable insight and information regarding the camper van market, while also contributing to a broader awareness and understanding of the company's potential customer base. The findings may help identify market gaps worth exploring, as well as supporting strategic decisions by indicating which types of products and ideas are more likely to be appreciated and valued by users.

Based on the findings, there is significant potential to improve users' experience of finding and acquiring suitable solutions for their camper vans. Being able to improve this experience may constitute a considerable advantage for Lagun and strengthen the company's position on the market. By providing solutions that align with users' actual needs and expectations, trust and recognition among the relevant target audience may also be increased.

The findings further indicate the importance of understanding and addressing not only users' functional needs, but also their experiences and preferences related to acquisition, accessibility, and marketing. Thus, this study includes additional user insights and reflections across several areas, despite not being directly relevant to the concept development process, in order to provide Lagun with a broader understanding of its potential users and market.

Besides the clear lack of supply, several other factors contribute to users experiencing difficulty in finding what they need. They require confirmation that products will work for them and be compatible with their vans. They also need clear information about product properties such as dimensions and weight, as well as functionality and potential use cases. Furthermore, products must perform as described. This is especially relevant online, since users have no opportunity to see or feel the products physically or test them in their vans. Therefore, they rely on detailed product information before making a purchase.

When it comes to users' acquisition of products, the vast majority obtain what they need online, as expected, given the dominant role of e-commerce in retail today. Although some users still prefer purchasing from physical stores in order to see and evaluate products in person, online channels appear to be the primary option. The users in this study purchase building materials for camper van conversion in local hardware stores, while smaller interior products are again typically purchased online.

Participants in this user study find inspiration for their van builds and van life primarily online, especially through social media. This highlights the importance of social media as a key channel for reaching relevant users.

Concept Development

6. Process of Concept Development

In this chapter, a description of how the process of the concept development phase was structured and why, as well as the application of the previously described methods is presented.

6.1 Ideation and Screening

This section covers the methods that deal with increasing the collection of ideas and explain how they were implemented in the project. Moreover, this section also describes the first rounds of concept eliminations and iterations.

6.1.1 Crazy Eights

This method was performed without any modifications to the actual structure of the method. In total there were five rounds of ideation completed, each with its own specific topics as a starting point in order to hold each round to different focus areas. The topics in question that were used for the method were as follows:

- How can it be adjustable, space-efficient or stowable?
- How can it be designed for the front cabin or for a wet entrance?
- How can items be secured while driving?
- How can it enable organisation?

The method was carried out by the author together with an assisting contributor. This allowed each topic to go through two iterations simultaneously, enabling concepts to be generated more efficiently. It also reduced the risk of similar concept ideas being created, as each person worked independently and could not see the other person's sketches until the round was over.

Between each round the results of the previous topic were presented and discussed briefly in order to identify issues that could be avoided in the following iterations. This discussion also allowed inspiration to be shared between the participants and spark new ideas for the following round.

6.1.2 Brainwriting

This part of the ideation process was adapted from the 6-3-5 method, where six participants typically generate three ideas within five minutes. In this project, the method was carried out by the same two people, which limited the number of ideas that could be generated. In similar fashion to the Crazy Eight method, it was conducted using pre-formulated questions. The following questions were used:

- How might we design for a home office?
- How might we design for large gear?
- How might we design for storage and organisation?
- How might we design for a kitchen?

These questions were written out on four different papers that all had six different sections drawn on them. The participants picked one paper each and started to fill out three different ideas over the course of six minutes. Once the time was up the participants picked up two different papers and repeated the same process. For the third round the participants picked up the first paper from the other participant and created three new ideas that were based on the first three. The fourth round was similar to the third where the participants kept building on the ideas of the other ensuring that in total, each of the questions used were given six ideas each with three of them being more advanced.

6.1.3 Brainstorming

Over the course of a week while the previous methods were being performed, a continuous brainstorming was being carried out by the same participants. In contrast to the Crazy Eight and brainwriting methods, the brainstorming was carried out without any founding questions or topics to start from. This method was also performed without any time limit or any other limiting factor for the ideas however, a goal of ten different ideas created was set for both of the participants. Since this method was performed without a time limit, the ideas produced also had a goal of being more detailed and being thought through that the previous quick sketches.

6.1.4 Initial Screening & Elimination of Ideas

Once all ideation methods had been performed and the solution space had been explored, the project proceeded to an initial screening of the ideas. This screening was based on methodical discussions regarding the challenges and benefits of each function or concept in order to assess its feasibility. During the process, the ideas were compared against the takeaways from the user study as well as the list of needs. Once all ideas had been discussed by the participants in the ideation sessions, identical or highly similar ideas were merged, and ideas considered unsuitable or unfeasible were removed. The remaining ideas were then entered into an elimination matrix in order to identify and sort out inferior ideas in a quick but thorough manner, based on concrete criteria rather than personal opinion.

An elimination matrix was applied where all ideas were evaluated against a set of criteria. If an idea met a criterion, the evaluation continued to the next one. Ideas that fulfilled all four criteria were saved for further development in the project process. If an idea was deemed not meeting as little as one criterion, it was eliminated. The following four criteria were established based on the key takeaways identified from the user study:

- *Non-Invasive Installation*
- *Size & Geometry Compatibility*
- *Broad Applicability*
- *Brand Alignment*

6.1.5 Concept Formulation

The number of ideas had to be significantly reduced to make the development process more manageable. Thus, the number of ideas was further reduced by merging similar ideas into more clearly defined concepts. Among the ideas that passed through the elimination matrix, several shared similar features or served the same purpose, these were grouped into concept categories. This created a more structured way of managing the different concepts and developing them separately.

For each concept category, advantages and disadvantages were identified that needed to be addressed in order for more defined concepts to emerge that were suitable for further development in the design process. Once the concept categories had been established, they were processed individually through iterative sketching, where their strengths were explored and their weaknesses addressed. This process continued until defined concepts emerged from the categories, with a higher level of detail, allowing for more equal representation in future evaluations.

In order to clearly define these concepts, concept briefs were developed, containing written descriptions of their intended function and the problems they were designated to address. These were complemented by hand sketches as well as AI-generated visualisations based on the sketches, allowing the concepts to be rapidly brought to life and placed in a more realistic and relevant context. Multiple AI tools were used to generate comparable visualisations, including OpenAI ChatGPT, Microsoft Copilot, and Nano Banana 2, an image generation model variant within Google Gemini, and the most accurate outputs were selected.

6.2 Concept Evaluation & Selection

This section presents the stage of the project in which the formulated concepts were put through an evaluation process, leading to the selection of a final concept.

6.2.1 Kesselring Matrix

To ensure a structured evaluation process and avoid eliminating concepts based on personal opinions rather than well-founded decisions, a weighted matrix was considered an appropriate evaluation method, thus a Kesselring matrix was implemented. The concepts developed in the previous step were evaluated using the matrix. The selected evaluation criteria were based on the list of needs previously identified through the user studies and are presented in Table 2.

Table 2. Excerpt from the Kesselring matrix.

KESSELRING											
Concepts →		Ideal		Concept A		Concept B		Concept C		Concept D	
Criteria ↓	w	v	t	v	t	v	t	v	t	v	t
Compatability with Lagun	4	5	20	2	8	4	16	5	20	4	16
Space Efficient	5	5	25	4	20	4	20	5	25	5	25
Stowable/ Easy to store	4	5	20	3	12	4	16	4	16	4	16
Easy to clean	3	5	15	4	12	3	9	4	12	1	3
Enable Oraganisation	5	5	25	1	5	5	25	5	25	5	25
Secured while driving	4	5	20	2	8	5	20	4	16	4	16
Good accessibility	4	5	20	4	16	4	16	5	20	3	12
Intuitive use/ Usability	3	5	15	4	12	3	9	5	15	2	6
Lightweight	5	5	25	5	25	4	20	3	15	3	15
Do not restrict headroom	1	5	5	-	-	3	3	-	-	3	3
Maximise surface area	2	5	10	4	8	-	-	3	6	3	6
Adjustable	4	5	20	5	20	4	16	3	12	4	16
Multi-functional	5	5	25	5	25	3	15	5	25	3	15
$T = \sum t_i$		245		171		185		207		174	
T_{max} = Individual Ideal		245		240		235		240		245	
T / T_{max}		1		0,71		0,79		0,86		0,71	
Ranking		-		9		4		1		9	

Each criterion was assigned a weighting factor (w) to reflect its relative importance in comparison to the other criteria. Subsequently, the ideal score for each criterion was defined as the maximum achievable score, resulting in an ideal score, see Table 2.

All concepts were then evaluated against each criterion and assigned a score between 1 and 5, where 1 represented the lowest score and indicated that the criterion was not adequately fulfilled, while 5 represented the highest score and indicated a high level of fulfillment. The resulting score (t) was then calculated by multiplying the assigned score (v) by the corresponding weighting factor (w).

During the evaluation process, it became evident that some of the assessed concepts lacked relevance in relation to certain criteria, as those criteria were not applicable to the specific concepts. However, these criteria were considered highly important for the evaluation of other concepts and could therefore not be removed. Instead, an individual ideal value was calculated for each concept, based on the maximum achievable score for the criteria relevant to that concept while excluding the irrelevant ones.

To determine how closely each concept performed relative to its ideal value, a relative score was calculated by dividing the total score by the individual ideal score. This resulted in a

comparative value that could be used to assess how well each concept was expected to perform relative to its theoretical maximum.

The evaluation was conducted over three iterations, each using a different set of weighting factors to ensure a more accurate outcome and reduce potential bias. The evaluation criteria and the scores assigned to each concept remained constant. However, the weighting factors reflecting the importance of each criterion varied between iterations. This resulted in three different total scores for each concept. To assess the overall performance of each concept, an average score was calculated by summing the three results and dividing the total by three. Consequently, it became possible to identify which concepts consistently performed well and which performed less favourably, regardless of the weighting factors applied.

6.2.2 Feedback from Users & Lagun

Once the Kesselring matrix had been completed and the number of concepts had been reduced, feedback was collected from users, the project's supervisor, and the product development team at Lagun before making a final decision regarding which concept should be selected for further development and more detailed refinement. This was done to ensure that the final decision aligned with both the users' wishes and Lagun's vision.

The respondents from the interviews were invited to participate once again in order to provide their opinions on the remaining concepts. To efficiently gather their responses, a questionnaire was created in which the five remaining concepts were presented. Each concept was presented through the previously developed concept briefs, containing written descriptions, hand sketches, and AI-generated visualisations to ensure that the respondents fully understood the intended functions and areas of application. Following the concept briefs, four questions were asked to examine the users' perceptions and thoughts regarding the concepts. The questions used are presented below.

- *Which advantages and potential do you see in this concept based on your initial impression?*
- *What concerns or potential issues do you see or can imagine with this concept? Do you feel that any aspects are missing that could improve its overall potential?*
- *Would you consider using a product of this type in your own van? Why or why not?*
- *Do you have any additional thoughts, questions, or comments regarding the concept? Is there anything that you find unclear?*

The concepts were presented in separate sections of the questionnaire to ensure that respondents focused on one concept at a time. This approach aimed to make the evaluation

process as fair as possible by encouraging participants to assess each concept individually rather than compare them with one another.

Furthermore, a small informal workshop was held with the product development team at Lagun, where the remaining concepts were presented and discussed. Discussions focused on the concepts' feasibility, relevance to future expansion, and overall impressions. The team's feedback was considered an important factor in the subsequent concept selection.

6.3 Refinement & Prototyping

The final stage of the project focused on the development of both digital and physical prototypes of the final concept. The stage began with the creation of digital prototypes using the CAD software CATIA V5. Once full assemblies had been developed, they were 3D printed at full scale (1:1) in order to evaluate their appearance and functionality as a physical product, as well as to test their performance in a more realistic setting and their compatibility with other Lagun products.

During this process, several minor issues that had previously been overlooked were identified and subsequently addressed in the digital models before being reprinted. At this stage, the focus was placed on aesthetic design and overall functionality, while finer mechanical details and manufacturability were left for Lagun to further develop and refine.

7. Results from the Concept Development

This chapter presents the results of the different stages of the concept development phase, from initial ideation to final concept selection.

7.1 Ideation

In this section, the results of the ideation phase are presented, beginning with the initial exploration of ideas and functions, followed by the screening processes and their outcomes, and concluding with the formulation of defined concepts prepared for evaluation.

7.1.1 Initial Ideas

The first ideation methods, Crazy Eights, Brainwriting and Brainstorming can be split into two different types. Crazy Eights and Brainwriting can be classified as speed rounds where the focus is placed on generating as many ideas as possible in a short amount of time while the Brainstorming was more methodical and thought through.

The first two methods generated a total of 101 ideas of varying degree. Some of these were partial solutions and ideas without any specific application while others were closer to complete concepts. Since these methods were performed by two participants that started their ideation from a pre formulated question, naturally, some of the ideas produced here shared a lot of similar traits. This became even more evident because of the low fidelity nature of many ideas.

The ideas generated from the Brainstorming were generally of a higher fidelity than those produced from the speed round. From this method a total of 22 ideas were generated where, again some were partial solutions and some were full concepts. The ideas can be seen in Figure 24 which highlight that most of these ideas are focused on different areas without as much overlap as the first two methods.

- *Burner cover*
- *Compressible storage*
- *Removable bag/ box*
- *Ceiling/ wall - mounted desk panel*
- *School desk/ new tabletop*
- *Driving mode*
- *Lagun rail*
- *Gear storage*
- *Shoe storage*
- *Miscellaneous functions*

Each of these groups contained several different ideas from the earlier ideation and they all fit into the category they were sorted into. For example the category *Burner cover* dealt with ideas that could somehow enlarge the kitchen countertop by covering the burner in some way while *Compressible storage* dealt with ideas that offered a storage solution that could be compressed with items inside to take up less space in the van.

Out of these groups, eight of them had concepts with a clear tie to the category and a high potential to be merged into a more refined concept. However, two of the groups, *Lagun rail* and *Miscellaneous functions* were built up of more loosely tied ideas. The *Lagun rail* group was built on ideas on widely different tracks that still shared the function of being easily mounted to the rail system Lagun is currently working on. This meant that those ideas would be harder to merge but still shared a strong connection. The *Miscellaneous functions* group were, as the name suggests, built of ideas that had loose functions that still carried some merit while not sharing a strong enough connection to any of the other groups. This group was kept for future iterations to see if any of these functions could be implemented into the other concepts once they were realised further.

Once all of the ideas had been assigned to their corresponding group, a new round of iteration began where all of the ideas within the group were merged as far as possible and their identified disadvantages were addressed. This process was done primarily through hand sketching but in order to bring each of the concepts up to the same level, generative AI was also introduced at this point in order to create swift estimated renders of the concepts. Each AI render was created based on the hand sketches and was only used for the purpose of evaluating the concepts. Once this ideation iteration was completed a total of 14 concepts had been produced which will be described below.

Burner cover

The *Burner cover* category led to the creation of a concept that can both be used to extend the kitchen counter by covering the area occupied by a burner in one configuration while doubling as a dishtray in another. The concept is able to extend its width similar to an extendable bed which allows it to be used with a range of different sized burners, see Figure 25.

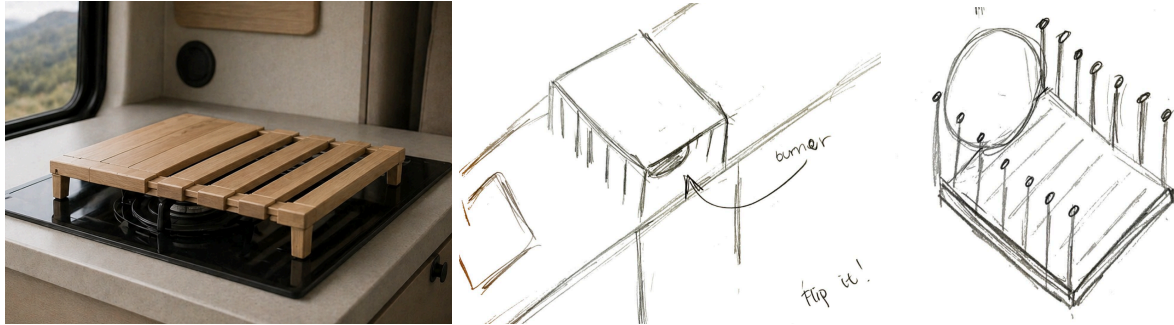


Figure 25. AI-generated interpretation and hand-drawn sketches of burner cover.

Compressible storage

This concept emerged mostly from the category *compressible storage* but also drew inspiration from the category *removable bag/ box*. The concept functions like a ceiling mounted drawer with the inside being able to either extend or compress to allow for easier organisation of items without compromising on interior space. The entire concept is also intended to be mounted on rails in the ceiling to allow the user to bring the box into their primary residence and pack it, and then unload it in the van, removing the need for other bags to be brought into the van, see Figure 26.



Figure 26. AI-generated interpretation and hand-drawn sketches of compressible storage.

Ceiling mounted desk panel

This concept was derived from a *Ceiling/ wall - mounted desk* and it features a panel that, as the name suggests, will be mounted to the ceiling of a camper van. The concept will be able to swing downwards and extend a smaller, fully furnished desk area where the user can store different items. The concept, once in the opened position, should also be able to adjust in height to fit a multitude of different vans and mounting positions, see Figure 27).

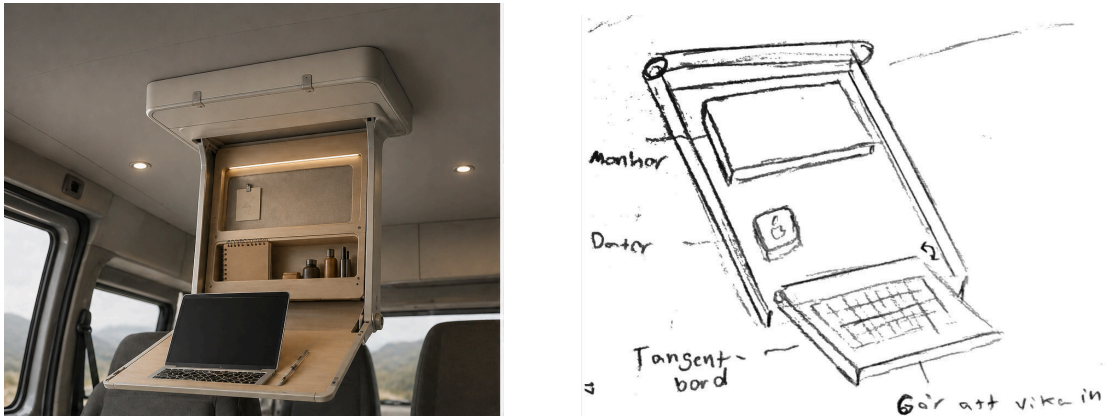


Figure 27. AI-generated interpretation and hand-drawn sketch of ceiling mounted desk panel.

School desk

This concept emerged from the category *School desk / new tabletop* and it combines the functions of a school desk with integrated storage and the current Lagun table system. The concept offers a new storage area which previously was not used and could be used to house a fully equipped desk or just storage for different kinds of smaller items. Once the concept is closed back up it functions just like a regular tabletop which ensures that the concept does not remove any functions from the current solution, see Figure 28).

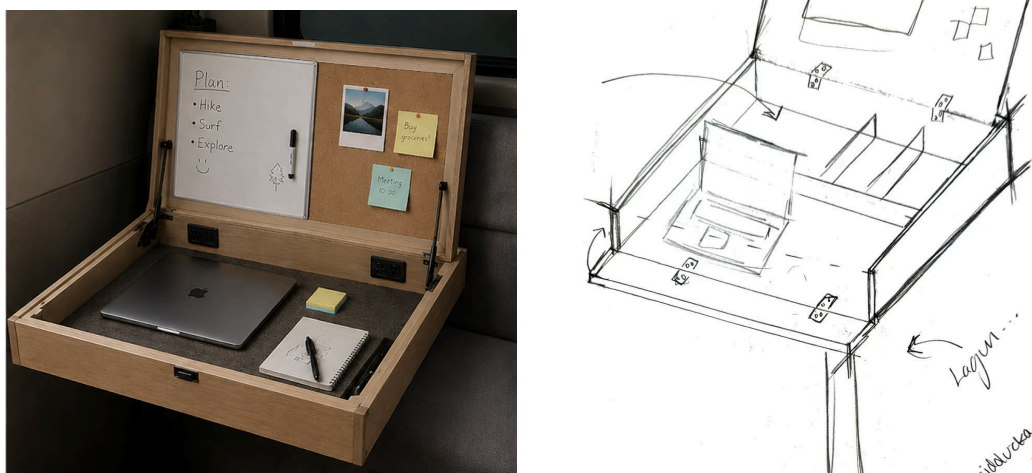


Figure 28. AI-generated interpretation and hand-drawn sketch of the School desk.

Drawer handle

The drawer handle was one of two concepts that emerged from the *Driving mode* category and like the name suggests it is a new type of handle for different drawers in a camper van which also functions as a lock. This concept drew inspiration from food containers where a latch on the lid snaps in place over a rib on the container which holds the construction shut. The same thinking was applied to this concept where the latch doubles as a handle in the open position but can snap shut over a rib above to keep the drawer closed during transit, see Figure 29.



Figure 29. AI-generated interpretation and hand-drawn sketches of drawer handle.

Queue band

This was the second concept that emerged from the *Driving mode* category and it features an extendable strap that can hold items that would otherwise be loosely placed on a countertop in place during transit. For this concept, both the housing and the end of the strap would fasten against the wall and then be tightened around the items the user would want to keep in place. This allows the user to keep items they want to have out while stationary secured while driving without having to stow them away each time they move the van, see Figure 30.



Figure 30. AI-generated interpretation and hand-drawn sketch of the queue band.

45° Swivel

This concept was the first to emerge from the *Lagun rail* category and it features two crossed rods, one that is mounted perpendicularly to the wall and one that is mounted perpendicularly to the first one. The outermost rod can rotate 365° around the axis of the inner rod and can be locked in place at any angle by tightening a screw on the outside. This concept can be used to hang towels, paper rolls or even to hang lids for pots and pans, see Figure 31.

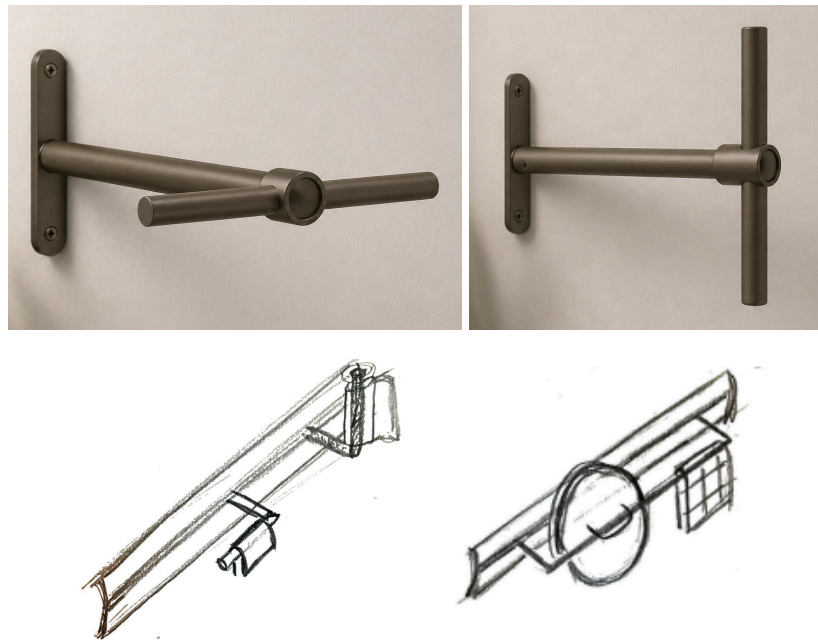


Figure 31. AI-generated interpretation and hand-drawn sketches of 45° swivel.

Bag shelf

The second concept from the *Lagun Rail* category is the Bag shelf which combines the functions of shelf with foldability of a paper bag. The shelf in its open position can hold a number of smaller items from kitchen accessories to keys or even smaller plants, see Figure 32.



Figure 32. AI-generated interpretation and hand-drawn sketch of bag shelf.

Silicone shelf

The third concept from the *Lagun Rail* category is the Silicone shelf. This concept is a normal wall shelf that mounts to the rail system by a larger mounting plate at the back to allow the shelf to hold more weight than other concepts. The entire concept will also be covered in a layer of silicone in order to provide two specific features. Firstly the silicone layer will make the shelf more resistant to heat and water which allows it to be used as space to place pots and other warm objects in the kitchen without needing another insulator. The second reason is that it provides extra anti-slip properties which gives it extra safety to not let items fall off, see Figure 33.



Figure 33. AI-generated interpretation and hand-drawn sketch of silicone shelf.

Tool holder

The fourth concept from the *Lagun Rail* category is the Tool holder which is a smaller mechanical clamp that can hold different kitchen utensils regardless of their material and that, again, mounts to the rail system. The concept uses a flexible rubber clamp that holds on to different items by simply pushing them against the concept, see Figure 34.

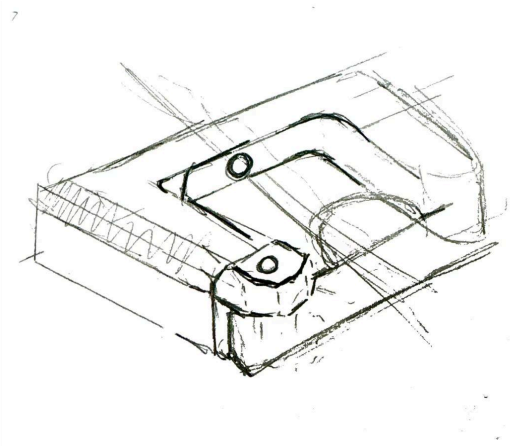


Figure 34. AI-generated interpretation and hand-drawn sketch of the tool holder.

Clothes rack

The fifth and final concept from the *Lagun Rail* category is the Clothes rack, which as the name suggests, can be used to hold an assortment of clothes and towels. The concept has several different beams where items can be hung from and can collapse inward to save space when not in use. Since the concept stems from the *Lagun Rail* category it is also intended to be used with the rail system which allows the user to use it in different spots in their van, see Figure 35.

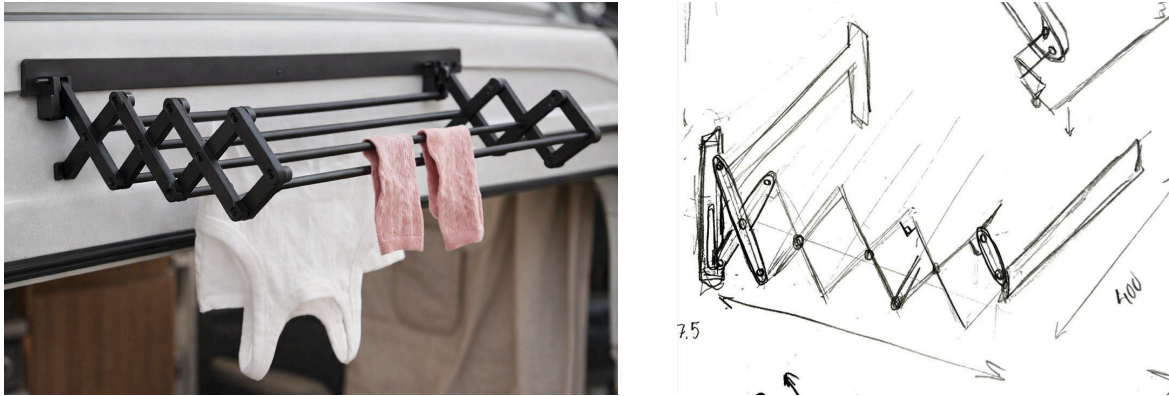


Figure 35. AI-generated interpretation and hand-drawn sketch of the clothes rack.

Gear hooks

The *Gear storage* category led to the formulation of the concept Gear hooks. This concept shares many features with the Tool holder with the exception that this concept is intended to hold larger gear such as skis, snowboards or surfboards. The concept consists of several clamps which are mounted on rails in the ceiling of a van that lock onto gear by simply pushing them against the clamps. The rails also allow the clamps to move from left to right as well as extend to fit larger gear using the same clamps, see Figure 36.



Figure 36. AI-generated interpretation and hand-drawn sketch of gear hooks.

Shoe storage

The concept that emerged from the category *Shoe storage* combines the functions of a storage box for shoes with the water and dirt collecting properties of a doormat. The concept is built like a big box where the entire front can be folded down and used as a step-board to avoid tracking dirt and water directly into the camper van. The box can then be closed up again with the shoes inside which tucks them away neatly. The inside of the box can also be removed and cleaned separately once it has collected too much dirt, see Figure 37.



Figure 37. AI-generated interpretation and hand-drawn sketch of shoe storage.

Table shelf

Finally, the last concept created here stems from the *Miscellaneous Functions* category and it is another type of shelf that can be hung from the edge of a table or overhead cabin. Once in place the concept can hold a range of different items from salt and pepper shakers to bottles of water or other beverages. This concept can also be folded up into a flat sheet when no longer in use in order to make it easier to stow away, see Figure 38.



Figure 38. AI-generated interpretation and hand-drawn sketches of the table shelf.

7.2 Concept Evaluation & Selection

This section presents the results of the concept evaluation process, leading up to the final concept selection, which is also covered in this section.

7.2.1 Kesselring Matrix

All of the concepts described above were included in the first step of the evaluation process, which consisted of iterations of the Kesselring matrix. 14 concepts were assessed in the matrix on the previously described criteria. The criteria that were consistently assigned the highest weighting throughout all iterations were *Space Efficient* and *Lightweight*. These criteria originated from the list of needs as requirements and they highly reflect the practical constraints of a camper van environment.

After three iterations of the matrix had been carried out, the average score of each concept was calculated, and the results of these numbers are presented in Table 3 while the complete matrices from each iteration can be found in Appendix J, K, and L.

Table 3. Average values from the Kesselring-matrix, indicating the concepts selected for progression in the project.

KESSELRING - AVERAGE VALUES														
Concepts →	Burner Cover	Compressible	School-Desk	Ceiling Desk	Gear Hooks	Shoe Storage	Drawer Handle	45° Swivel	Bag Shelf	Que-Band	Silicone Shelf	Mop-Holder	Clothes Rack	Table Shelf
Average value	0,69	0,79	0,85	0,68	0,8	0,68	0,82	0,82	0,76	0,77	0,76	0,76	0,8	0,69
Ranking	7	4	1	8	3	8	2	2	6	5	6	6	3	7
Decision	X	✓	✓	X	✓	X	✓	✓	✓	✓	✓	✓	✓	X

The top contenders according to the matrix were *the school desk*, with an average score of 0.85, closely followed by *the drawer handle* and the *45° swivel*, which both received an average score of 0.82. Their strong performance was primarily due to receiving the maximum score in several criteria that consistently carried high weighting factors throughout all matrix iterations. Consequently, these concepts achieved high total scores regardless of the specific weighing factors applied in each iteration. In other words, their strengths aligned closely with the criteria considered most important in the evaluation process.

Even though no concepts were considered significantly inferior, a clearer distinction emerged between concepts performing below 0.70 and those scoring above 0.75. Therefore, a decision was made to establish a cut-off point in order for the project to proceed. This resulted in the elimination of concepts that scored below 0.70 of their individual ideal value and were considered relatively inferior. As a result, ten concepts remained in the design process and the decision of which, as well as which were eliminated, is presented in Table 3.

At this stage, it became evident that a couple of concepts were considered relatively simple in nature and not substantial enough to serve as standalone concepts for further development. However, some of them still performed well and demonstrated desirable qualities and functionalities. Therefore, a decision was made to group those of the simpler concepts that scored above 0.75 of their individual ideal value into a joint family of concepts for further evaluation and refinement.

This meant that, should this concept family be selected for further progression in later stages of the project, all underlying concepts within the family would be refined and developed further. This family of concepts consisted of *the 45° swivel*, *the bag shelf*, *the que-band*, *the mop-holder*, and *the clothing rack*. Together with the elimination of other lower-performing concepts, this reduced the number of concepts remaining for further evaluation to five.

7.2.2 Feedback from Users

The concepts that remained after the previous step of the evaluation stage were presented to potential users for further assessment. All users who had previously participated in the interviews were invited to take part in this stage of the project as well, this time to provide their opinions on the concepts and contribute to the evaluation process. As potential end users, their perspectives were considered particularly valuable.

A questionnaire was distributed to all interview participants, presenting a brief overview of each concept. Each brief included a written description of their functions and intended use scenarios, accompanied by hand sketches and AI-generated visualisations. To facilitate initial understanding, the concepts were also assigned more descriptive names than those used during the internal design process. Measures were taken to ensure that all concept briefs were of a similar level of fidelity in order to minimise the risk of bias arising from differences in perceived maturity or realism.

The user evaluation resulted in four responses, one of which represented the opinions of a couple living full-time in their camper van. Thus, feedback was obtained from a total of five individuals out of the ten participants contacted. Although only a minority of the previously interviewed users responded, the feedback provided valuable insights that contributed to the final selection of the concept to be developed further.

From the survey it became evident that the Lagun rail family was the most well received closely followed by the school desk. Since the users were only shown sketches and AI generated render they had some questions regarding all of the concepts but these two were given the most praise. The compressible storage unit, gear storage clamps and locking drawer handles sparked interest and some initial praise but the questions surrounding them overwhelmed the positive feedback which further elevated the first two concepts.

7.2.3 Feedback from Lagun

The workshop with the product development team at Lagun provided insight into the feasibility of the concepts, their relevance to the company and its brand image, as well as what would and would not be suitable in that context. The discussions primarily focused on the proximity to realisation and the potential for inclusion in future product development at the company. From the perspective of the thesis project, it was expressed that some of the concepts appeared to be too far from becoming an actual product. Although this was not considered impossible, significant investigation and development work would still be required, which could negatively affect the project outcome by resulting in a solution that would require substantial further development before reaching a producible and market-ready state. It was noted that this level of maturity was not within the scope of the project's aims or objectives, but was nevertheless raised as a relevant consideration during the discussion.

The mentioned challenges mostly concerned *the ceiling-mounted gear clamps*. However, they were considered highly beneficial for certain users in need of dedicated gear storage. Despite this, several factors would still need to be addressed for the concept to actually deliver the intended value. For example, a solution for handling water and dirt associated with equipment such as skis and snowboards would likely be necessary for practical use. In addition, safety aspects would require extensive investigation and testing, particularly given the risk of objects becoming dislodged and being propelled forward inside the vehicle in the event of a collision or sudden hard braking, potentially creating a hazardous situation.

The drawer handle was generally well received and considered potentially useful for a wide range of users. However, it was not seen as fully aligned with Lagun's focus, and was instead perceived as more relevant for other types of companies and brands. In this context, *the compressible unit* also appeared to some extent in the feedback, although not to the same degree as *the drawer handle*.

The compressible unit also received generally positive feedback, and potential use cases beyond the original intention were identified. Despite this, challenges remained regarding its dimensions and how it could be adapted and integrated into different vans with varying layouts. In its current form, it would also be affected by the issue raised by some users in the user studies regarding irregular and non-standardised measurements, as one participant noted 'Nothing is straight in a camper' (Survey respondent 11).

Everyone involved in the workshop expressed a strong preference for both *the school desk table top* and *the Lagun concept family*. Both were considered to possess qualities that aligned well with the company's brand identity and future direction. In addition, they evoked an intuitive sense of belonging within Lagun's product portfolio and were repeatedly described as simply 'feeling like Lagun'. Although the reasons for this perception were difficult to articulate explicitly, it was shared by all members of the product development team.

The school desk concept was regarded as an almost ideal addition to the existing table system. It transforms a conventional tabletop, which normally offers no storage functionality, into one that does, thereby addressing one of the most common challenges according to the user studies. Furthermore, due to Lagun's already established table system, existing users would be able to replace their current tabletop with *the school desk* version if additional storage is desired, rather than purchasing an entirely new table. It was also noted that the concept could potentially increase sales of their existing table system, as customers who do not already own a compatible setup would need to purchase one in order to use *the school desk tabletop*.

The Lagun concept family was also highly appreciated, as it aligned closely with the brand's ongoing expansion and the planned release of its wall rail system. Since all concepts within the family are based on and compatible with this rail system, they could be viewed as a potential second generation of products, providing users with a broader range of modular accessories and functionalities.

7.2.4 Concept Selection

Based on the evaluation stage, it was time to decide which concept to finalise. Both the school desk and the Lagun concept family were considered equally strong, offering a range of advantages and benefits each across different areas, and it was not possible to identify a clearly inferior option. However, a decision had to be made in order to allow the project to progress towards a final result. Due to time constraints, this decision was taken after the carried out evaluations. Therefore, *the Lagun Concept Family* was selected for finalisation.

Consequently, *the school desk* concept was not taken forward in this stage of the project, despite being considered equally beneficial as the selected concept, and is instead left as a strong recommendation for further development within the company. A detailed description of the concept, as well as its remaining challenges, is attached in the appendix of this thesis, see Appendix M.

7.3 Refinement & Prototyping

During the refinement stage of the project, aspects such as form, dimensions, and material selection were explored and evaluated in order to finalise the concepts. In addition, adjustments to ensure compatibility with the Lagun rail and *the multistopper* were also taken into account in the refinement process.

Consequently, prototyping became a natural and obvious step. Initially, digital modelling was carried out in CATIA V5, where the concepts consisted of multiple part designs assembled into complete products in order to enable clear digital visualisation and verify tolerances between components. Certain configurations were modelled in Autodesk's Alias AutoStudio

due to their complex geometries in those configurations. All renders were then created using Autodesk's VRED Pro.

The majority of the physical prototyping was carried out using 3D-printed parts, which were then assembled by simply using glue. Some exceptions included wooden poles and textile elements, which were purchased and adapted to their intended use.

When determining the dimension of the concepts, some required more careful consideration than others in order to fully achieve their intended function. *The 45° swivel*, hereafter referred to as *The Cross*, required dimensions that accounted for both the length and diameter of a paper towel roll, as well as a sufficient distance from the wall to allow it to be used for holding a pot, pan, or saucepan lid against the wall. See Figure 39 for images of the prototype in different orientations.



Figure 39. Prototypes of *The Cross Hanger* in several orientations (Author's own images).

The Tool Holder, hereafter referred to as *The Utensils Holder*, needed to accommodate a variety of kitchen utensils, which influenced both the frame's width and the length of the gripping rubber band. A diameter of 15-25 mm was deemed appropriate to account for, however, the prototype was assembled using an existing rubber band taken from a similar product and was therefore slightly larger than intended, see Figure 40.



Figure 40. Prototype of *The Utensil Holder* with a wooden spoon and an exploded view of the prototype (Author's own images).

The clothing rack could not exceed the length of the longer Lagun rail, which imposed a maximum outer width of 40 cm. It was also necessary to ensure sufficient spacing between hanging towels and clothing to prevent them from becoming too closely packed together. Furthermore, the number of intersecting brackets also affected both the maximum extension of the rack and the number of hanging rods. The angle between the brackets in the fully extended position also had to be determined. To provide sufficient functionality while still maintaining a relatively compact size, it was determined that the design should consist of X sets of intersecting brackets on each side, resulting in X hanging rods and a fully extended configuration as shown in Figure 41.



Figure 41. Prototype of *The Clothing Rack* in retracted and extended configurations (Author's own images).

For some prototypes, issues arose with inaccurate tolerances between components during the initial printing stages. As a result, measurements needed to be adjusted and parts were reprinted. This iterative process was repeated until all prototypes were considered sufficiently functional.

In this stage, several design decisions regarding form were made across the concepts. One example was the introduction of an octagonal geometry for certain components, as well as the use of chamfers, in order to align with the brand's design language and their chamfered-edge aesthetics associated with Laguns' image, particularly in relation to the upcoming release. This approach was most clearly implemented in *The Roller Strap*, (previously referred to as *The Queue-Band*), which was given a softened octagonal form as well as a matching stopper component. The same design language was also applied to *The Clothing Rack*, including the profile of its hanging rods and intersecting brackets, see Figure 42.

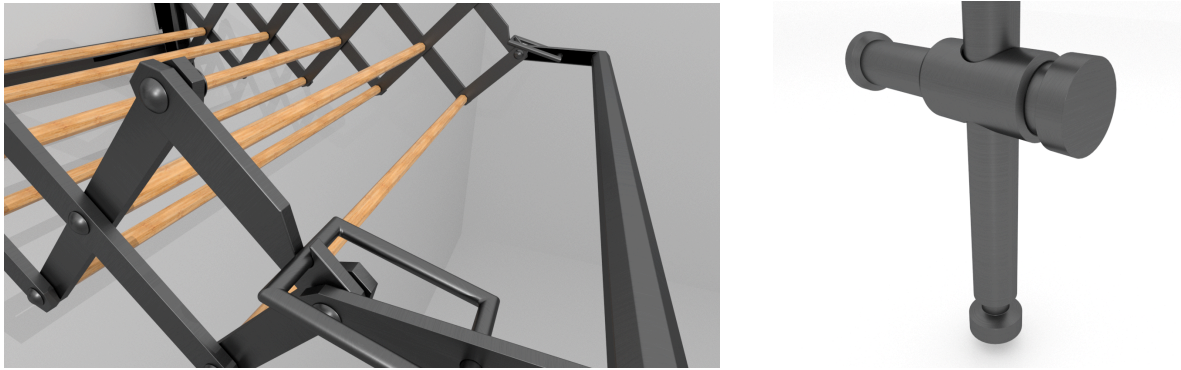


Figure 42. Renders of details of *The Clothing Rack* and *The Cross Hanger*.

Another example was the introduction of a flange-like spacing element, a feature present in some of their upcoming products. This design decision was implemented in *The Cross*, ensuring visual and aesthetic alignment with the forthcoming hook designs. A similar spacing element was also applied to *The Roller Strap* between the rotating component and the housing, see Figure 43.



Figure 43. Prototypes of *The Cross Hanger* and *The Rollable Strap*, showing a flange-like element (Author's own images).

Some form decisions were also made to enable manufacturing through extrusion, since this method is already used by Lagun and therefore supports their existing production setup.

Regarding material selection, the decisions were relatively straightforward, as the concepts are intended to be consistent with Lagun, which maintains a coherent and well-established material strategy, particularly in relation to their use of aluminium profiles. Therefore, it was decided that most components should be manufactured in brushed black aluminium, both to align with this strategy and to provide necessary durability qualities while contributing to a premium perception of the product. Additionally, production through aluminium extrusion offers sustainability benefits and facilitation of production, as it allows the company to continue utilising its existing local manufacturing process in Sweden.

For the textile elements, the fabric covering *the fold box* is intended to be a thick, rigid canvas material, providing structural stability of the box and durability. The strap within *the roller strap* is designated in a textile material similar to a seatbelt webbing. It was also decided that the hanging rods of *the clothing rack* should be made of wood, in order to introduce material contrast within the concept.

Final Concept

8. Final Concept

The final outcome of the project resulted in a family of different concepts that utilise the Lagun's upcoming rail mounting system. The family consists of five concepts that are designed to solve various challenges in a camper van with the main focus being different areas of the kitchen. Some inspiration for the different concepts have been drawn from products with completely different areas of use and adapted to suit Lagun's design profile and current solutions.

Since Lagun's upcoming product line contains products intended to be used on the same type of rail as the new concept family they aid each other in creating a larger unified lineup that offer the user a wider range of usages. Since all of the concepts are also compatible with the mounting points on the table leg, they also ensure a high degree of backwards compatibility to allow users who already own Lagun products to use the new ones without having to replace any old parts.

The five end concepts can be seen in Figure 44 below which shows an example of how all of them can be mounted on rails in different positions in a camper van. Each of the concepts will be described in greater detail below.



Figure 44. Render of the concept family mounted in Lagun rails.

8.1 The Cross Hanger

The Cross Hanger is an adjustable hanger that can be used in several positions in order to serve multiple purposes and accommodate individual user needs, see Figure 45. It can be used to hang items over the longer rod when positioned horizontally, while the outer sections can function as hooks. Due to its dimensions, it should also be possible to place a lid of a pot or pan between the wall and the hanger, allowing the knob or handle of the lid to rest on the rod while cooking. When tightened in an upright vertical position, the rod can instead be used to hold a roll of paper towels or other cylindrical objects. The construction makes the product highly versatile in terms of placement and use, and it can even be mounted upside down with the rod facing downward in a constant horizontal orientation while allowing for 360 degree rotation.



Figure 45. Renders of *The Cross Hanger* shown in vertical respectively horizontal orientations.

The Cross Hanger consists of four main components, all of which have a cylindrical form. These include a shorter mounting rod threaded horizontally through a hollow cylinder, a longer hanger rod threaded perpendicularly through the same cylinder, and a screw that is inserted horizontally to secure and tighten the assembly created by the cylinder.

The mounting rod has a threaded end that screws into Lagun's *multistopper*, allowing it to be attached to the Lagun rail system. At the opposite end, which is located inside the cylinder, the rod features a ramp with a slightly larger diameter than the rod itself. This ramp connects with a corresponding ramp inside the cylinder, preventing the rod from passing all the way through and enabling the construction to create tension. The mounting rod is also the component responsible for creating the distance between the wall and the hanger.

The cylinder is hollow throughout its horizontal axis and includes a vertically drilled hole that allows the longer hanger rod to pass through. Internally, it contains a corresponding ramp for the mounting rod, and the opposite end of the hole is threaded to fit the closing screw. See Figure 46 for the concept's components.



Figure 46. Prototype components of The Cross Hanger (Author's own image).

The hanger rod is cylindrical like the other components and is approximately 25 cm long. It features a flange with a slightly larger diameter than the hole in the cylinder at each end to prevent the rod from slipping through the cylinder. One of these flanges is detachable to enable more efficient packaging and easier storage when the product is not in use.

The outer closing screw has a large screw head to allow for easy grip and is screwed horizontally into the cylinder, creating tension by applying pressure to the hanger rod, which in turn applies pressure to the end of the mounting rod, securing the hanger rod in place and preventing movement. Additionally, the force applied by the screw pushes the mounting rod inward against the internal ramp of the cylinder. This transfers force back through the system and creates a chain of tension and compression forces, functioning similarly to a screw joint. Due to this design, *The Cross Hanger* can be tightened in any desired position.

All components are intended to be manufactured from brushed black aluminium. This material was selected to ensure robustness, stability, and sufficient load-bearing capacity, while also maintaining visual consistency with Lagun and their upcoming product range. Figure 47 provides images of the concept placed in real settings.



Figure 47. Prototype of The Cross Hanger placed in real settings (Author's own images).

8.2 The Utensil Holder

The Utensil Holder is a mechanical clamp which has the function of easily holding kitchen utensils and other tools against the wall in a camper van kitchen. It can be used to hang anything from a wooden spoon to a knife while also keeping them in place while the van itself is in transit. Figure 48 presents the concept in both passive and active configurations.

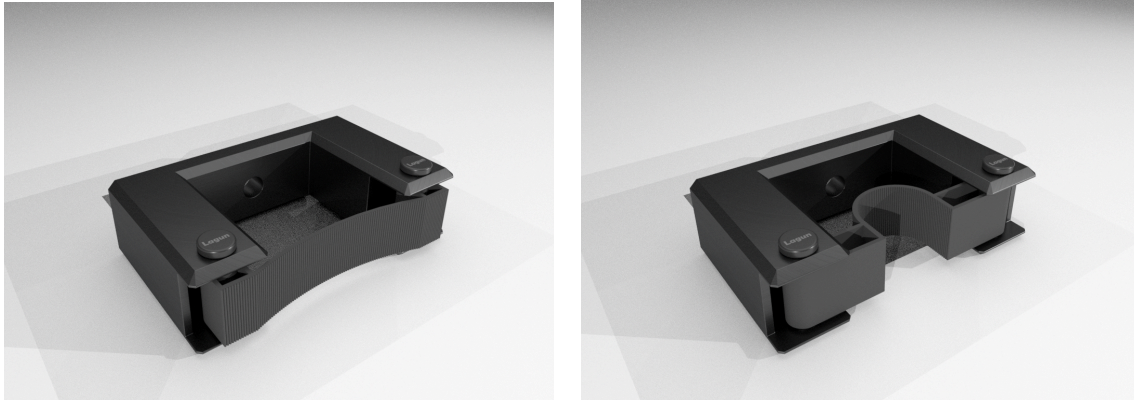


Figure 48. Renders of *The Utensil Holder* in passive and active configurations.

The concept consists of a larger housing, a flexible clamp and two pegs to connect the two main components. The housing is mounted to rail by hanging onto one of Lagun's *multistoppers* in similar fashion to *The Cross Hanger* but utilises the square top of the *multistopper* to stay level at all times. The clamp is in turn, fastened to the housing with the help of the two pegs which also allow the clamp to swivel around the vertical axes of the plugs. Once fully assembled, any kitchen utensil can be pushed against the clamp which will swivel back and hold the utensil in place using both friction from the material as well as horizontal pressure. When the user wants to remove the utensil again it can simply be pulled out horizontally and the clamp will swivel back to its open position.

When it comes to the materials and colours of this concept it follows the design profile of Lagun, again, similar to *The Cross Hanger*. The housing will be manufactured out of aluminium which will be anodised to the same black colour as the majority of Lagun's other products. The clamp will be manufactured out of rubber to allow enough flexibility and friction to hold different utensils in place. The rubber clamp will also be coloured black to match the housing. Lastly, the pegs will be of a plastic nature and have the same black colour as the rest of the product. The pegs will also feature the Lagun logo on their top.

When it comes to the shape of this concept the housing features the same octagonal shape as Lagun's tabletops and table leg systems in order to strengthen the connection to the brand. The rubber clamp is designed for maximum friction which is the reason behind the ribs that run along the length of the front. The two hollowed out slots on the left and right side of the clamp also allow it to deform slightly which enables the fastening of utensils of different

sizes. Lastly the pegs are of a cylindrical shape to allow them to rotate freely. They also feature a top with a larger diameter to ensure that it stops at the correct height when set in place and prevent them from falling out of the construction. Figure 49 presents the prototype in exploded views.



Figure 49. Prototype components of The Utensil Holder (Author's own images).

8.3 The Roller Strap

The Roller Strap is a concept designed to allow users to fasten and secure items against a wall inside their camper van, reducing the need to store them away while traveling between destinations. It can be used on the kitchen counter to secure objects such as salt and pepper grinders, oil bottles, and similar items against the wall while they remain standing on the countertop. However, it can also be used in other areas of the vehicle where there is a need to secure objects and prevent them from moving during driving. See Figure 50 for a render of the concept.

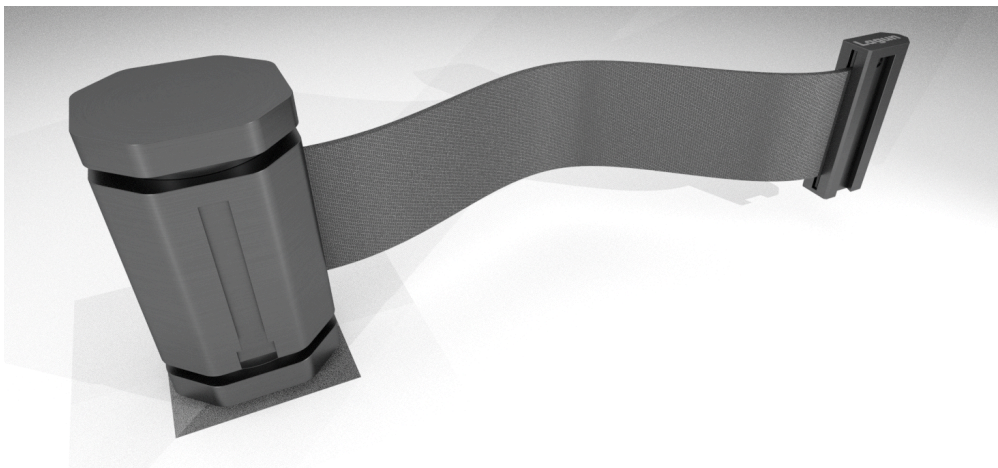


Figure 50. Render of The Roller Strap.

The concept consists of a casing and a top component around which the securing strap is wound. When assembled, both components are housed inside the casing. The casing has an octagonal profile and is approximately 10 cm high. Internally, it contains a circular cavity designed to accommodate the top component and strap, along with a central cylindrical post extending from the bottom of the casing onto which the top component is mounted. The casing includes a slit on one side that allows the strap to pass through. On alternating sides, it features grooves that match the profile of *the multistopper*; resulting in four possible mounting positions. This enables *The Roller Strap* to be attached to Lagun's rail system and positioned in different orientations depending on where it is intended to be used.

The top component provides the rotational motion enabling extension and retraction of the strap through twisting. It consists of a hollow cylindrical shaft and a flange matching the dimensions and profile of the casing. The strap is fixed to the shaft, enabling it to be wound around the component. The top component is inserted into the casing and mounted around the central post in order to maintain its alignment and centred position while still permitting rotational movement for adjustment of the strap length. An end cap is mounted at the outer end of the strap. This component incorporates the same groove profile as the casing, enabling *the multistopper* to be attached and secured within the Lagun rail system at any desired position. The groove profile is integrated on both sides of the end cap in order to maximise flexibility and support use across multiple configurations and applications.

The octagonal profiles and integrated flanges provide the concept with an appearance that aligns with Lagun's design language compared to a purely cylindrical form. Additionally, the chamfered edges of the end cap further reinforces this visual identity. All components, except for the strap, are intended to be manufactured from brushed black aluminium in accordance with Lagun's upcoming product range. The strap should be manufactured from a textile material, preferably a thick canvas-like fabric similar to a seatbelt, to provide a sense of robustness and durability while still allowing smooth rolling and operation.

8.4 The Fold Box

The Fold Box is a concept that combines the function of a regular storage box with the foldability of a paper bag. This concept is designed in a smaller size measuring 12 cm wide, 12 cm high and 10 cm deep and it is meant to fit an assortment of different items. It can be used to hold items for a kitchen, a workshop, in a living room or any other part of the camper van where the user needs to stow away items neatly. Once the box is no longer needed for use it can be folded up into a flat sheet and easily stowed away until it is needed. Figure 51 presents *The Fold Box* unfolded as well as folded together.



Figure 51. Renders of The Fold Box in unfolded and folded configurations.

The front and back sides of the box have a solid plastic sheet inside which provides structure to the whole assembly. The top of each side also features support beams to ensure that the box stays open and does not sag when in the open position. These two beams are connected with the same type of metal spring that can be found in slap on reflective bracelets. By utilising this type of spring the box stays open once they are fully engaged and by simply pushing the sides inward the springs will force the whole construction together. Apart from the springs, the construction will also make use of magnets to keep everything neatly together in the closed position. The concept also features two bottoms, one made entirely out of textiles and one foldable bottom with a solid core that provides structure in the open position. All of the internal parts can be seen in Figure 52.

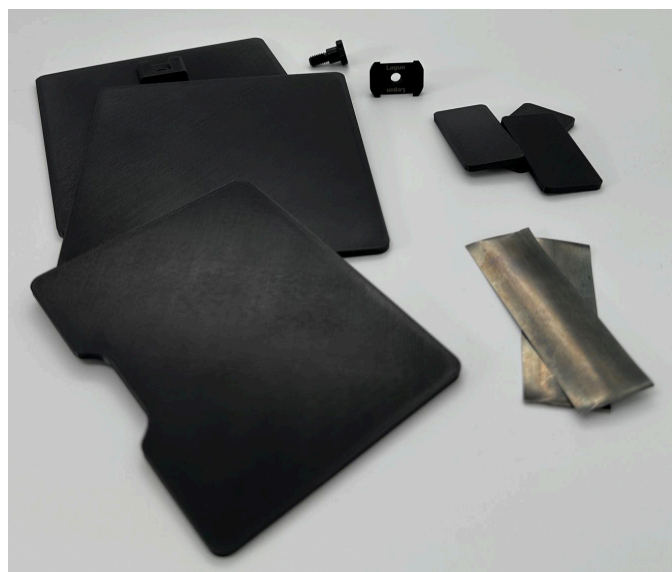


Figure 52. Prototype components of The Fold Box (Author's own image).

When it comes to the materials of this concept the entire construction is made from a black canvas textile. The internal structure is, as mentioned above manufactured mainly out of plastic with the exception being the metal springs and magnets. The concept also uses a screw at the top of its rear side to lock *the multistopper's* horizontal movement. This screw will also be manufactured out of metal which will be anodised black in order to match the other products as well as the rail itself.

The shape of the concept is determined largely based around the function of being foldable since the function relies on a rectangular shape. The box needs to be longer than it is deep in order for the sides to be able to fold in properly and not intersect in the middle of the folded mode.

8.5 The Pull-Out Clothes Rack

The Pull-out Clothes Rack is the most complex concept within the product family and is, as the name suggests, a rack that can be extendable and retracted for hanging clothes, towels, and other textiles, see Figure 53. It facilitates the process of drying laundry in a camper van, as well as providing a practical solution for drying towels or swimwear after a swim in the ocean. It can be used to hang wet ski gear, clothes, or wetsuits to dry, or simply airing out textiles.



Figure 53. Renders of *The Pull-Out Clothes Rack* in extended and retracted configurations.

Due to its modular design and integration with the Lagun rail system, the rack can be positioned wherever its functionality is needed, both inside and outside the van. Wherever a Lagun rail is mounted, *The Pull-out Clothes Rack* can be attached. Furthermore, thanks to its retractable design, it can also be stowed away when not in use, either while remaining attached to a rail or by being completely stored away.

The concept consists of several components that together form a flexible and movable construction, functioning through a scissor-like mechanism combined with a sliding feature. The mounting component contains two symmetrical horizontal elements that act as housing for the plates that retract into the structure. Between these elements, a spine connects them and defines the total width of the concept, 42 cm. This spine, integrated into the rear side of

the horizontal elements, features a matching profile to the Lagun rail, enabling it to slide securely into the rail. This creates a sturdy and stable connection due to the large contact surface established between the spine and the rail interface. The horizontal elements contain rectangular cavities that provide space for the retractable plates. At the top, a hole allows an axle to pass through, enabling the first plate to rotate. At the bottom, it features a slot that allows another axle to pass through and slide vertically, enabling the extension and retraction movement of the structure.

In total, the concept consists of a mounting component, 16 plates, four shorter plates, two of which include slots, several plugs that hold the plate assembly together, and eight wooden bars positioned between the plates to allow items to be hung. At the outer end of the construction, a larger bar is placed, serving both as a handle for easy extension and retraction and as an additional hanging element for larger or thicker items, due to the increased distance between this bar and the final wooden bar compared to the spacing between the others. Additionally, this outer bar allows the concept to function as a hanger even when the structure is fully retracted. The outer bar is held upright by a latching bracket that locks into the slots in the final plates, see Figure 54.

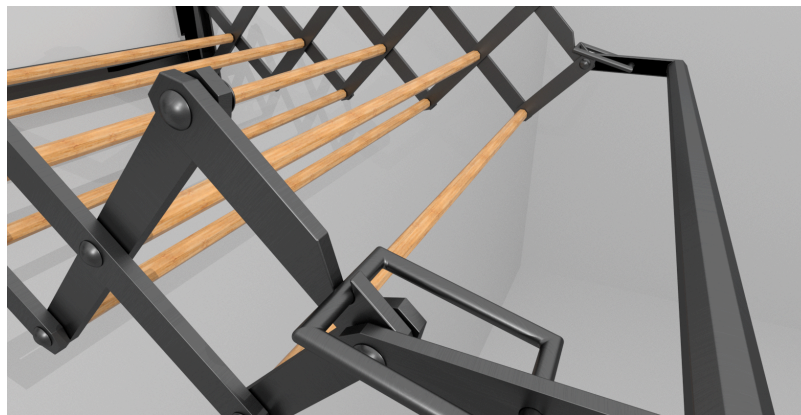


Figure 54. Renders of latch detail on The Pull-Out Clothes Rack.

When the rack is fully extended, with a 90-degree angle between the plates, the outer bar is positioned horizontally if latched into the slots. In this configuration, the construction extends 60 cm from the wall, compared to 12-15 cm when in retracted positions.

All of the bars feature an octagonal shape instead of a purely circular one, and the ends of the plates also incorporate chamfers to ensure that the concept aligns with Lagun's design language and maintains consistency with the other concepts within this product family.

All components, except for the wooden bars, are intended to be manufactured in brushed black aluminium, similar to the other concepts, in order to maintain consistency with Lagun's design language and convey a sense of premium quality and durability. The intended material choice for the wooden bars is bamboo, as it aligns with the material selection used for certain products in upcoming Lagun products.

Discussion

9. Discussion

This chapter presents a discussion of the thesis work, including the extent to which the project fulfils its purpose. It further discusses the approaches, processes, and results of the two overarching phases of the project, before reflecting upon the quality of the final outcome and outlining aspects for future work.

9.1 Project Purpose

When reflecting upon the outcome of this thesis in relation to its aim and objectives, it can be considered that the thesis has successfully fulfilled its intended purpose. The results provide a comprehensive set of insights derived from an exploration of the camper van segment and its users' perspectives. Additionally, the thesis presents a design concept consisting of a family of concepts designed to address users' needs, bridge a gap in the current market offering, and align with Lagun's design profile.

All previously established objectives of the thesis have been fulfilled. Structured user studies have been carried out, aiming to understand users' needs and experiences. The data from these studies were then thoroughly and iteratively analysed, which led to the emergence of a direction for the following phase of concept development. Furthermore, the initiation of the concept development phase was strongly based on the findings from the user studies, and continuous focus was placed on the users' perspective. Finally, design concepts were created that strongly align with Lagun's product portfolio, especially its expanding one.

To further demonstrate how the project has fulfilled its purpose, the research questions established at the beginning of the thesis can be answered as follows.

What are the key needs, pain points, and decision-making factors influencing camper van users?

One of the most important factors influencing camper van users is whether a product actually fits within the layout of their camper van. If it does not fit, it is no longer a viable option, regardless of its other qualities. Additionally, the product must offer a high level of functionality, as there is no space for unnecessary objects that do not fulfil a clear purpose within the van. This also means that modularity and multifunctionality are highly valued. Price is a further factor that influences users' decisions. Thus, the main factors identified are compatibility, functionality, modularity, multifunctionality, and price.

What design opportunities can be identified to address these needs and expectations?

The main design opportunities identified are modular, repositionable, and adjustable solutions that can be adapted to different situations and spatial conditions within a camper van. Since users value flexibility and functionality, solutions that can be moved, adjusted, or fitted into

different layouts have a higher chance of meeting user needs. Therefore, designing solutions that are not permanently fixed, but can still fulfil their intended function, represents a clear opportunity for addressing the users' needs and desires.

How can these opportunities be translated into design concepts that enhance the everyday experiences of camper van users while aligning with Lagun's design profile?

By translating the defined insights into a range of concepts compatible with an attachment system, allowing users to select the components and functions most relevant to their specific camper van. This supports modularity, usability, and multifunctionality, which aligns with Lagun's core message: Maximize your living space.

9.2 User Studies

When it comes to the methods chosen for the user studies in this project, all of them fit the workflow well and aided with the progression of the project. Each of the methods provided their own unique aspects into the user group and provided valuable information necessary to formulate the result of the project. Therefore it can be said that each of the chosen methods performed their role well and none of them were redundant or misplaced in the project.

When it comes to the process of the user studies it can be said that they were successful overall with the exception of a few hiccups. Since the project began at a point where little information existed about the user group and market as a whole, the first step then, was to create a baseline understanding of the situation. This was done partly through the pilot study but also to great extent through the initial survey and this is where first adversity was encountered.

Since the company also lacked both knowledge and connection with their customers the process of locating users began, which can be a difficult endeavour in any user study, this one included. The search began in a multitude of different forums for camper van users with large numbers of members and high levels of engagements. The questionnaire was posted in all of these groups with the hope of reaching a number of committed members which proved futile. While the exact reason behind this remains unclear, it put the entire project on hold since it could not move forward without input from the users. This problem was later overcome by switching focus from the forums to trying to reach influencers and other online profiles with a focus on camper vans. This proved a much more effective method with high levels of engagement which allowed the project to get some traction once again. However, the time lost at the beginning of the survey was not quite caught up which had rippling effects throughout the rest of the project.

One of these effects became prominent later on in the user study when the intention was to bring the users back for evaluation of the ideas and concepts created in the following concept creation. Despite this hiccup, the user studies went well and provided good feedback and

insight into the users daily struggles and challenges. With the data they provided, essential take-aways for the project's success was able to be identified with an added bonus of providing Lagun with good insight into their new market.

The original plan was to bring the users in for interactive workshops where they could discuss ideas and concepts and pitch in with their own ideas in order to refine the ideas. Since time was a bit too short to arrange this type of workshop, another survey was created which fortunately provided good feedback anyway.

9.3 Concept Development

When discussing the concept development phase of the project, it can be stated that it was carried out in a thorough and iterative manner through continuous refinement, evaluation, and screening of ideas until a final concept was reached.

It could be argued that a proper product development process should not be based on selecting favorites and the best ones, but rather on eliminating inferior alternatives in order to identify the solution best suited to its' aim and the problem being addressed in order to reach the best possible performer/solution for the situation.

This approach is well accounted for in the project, as the final concept selection is clearly justified and explains why it could no longer be followed. The final concept selection was not done simply because there were inferior remaining alternatives, but because the project had to progress and a decision needed to be made at that stage. This shows that the approach was applied throughout the development process, while also demonstrating transparency regarding the point at which it could no longer be fully followed.

In this situation, where it was not possible to identify an inferior option, and in order to avoid basing the decision solely on personal opinion, the users and the product development team at Lagun played an important role in the decision-making process. Their opinions were highly relevant when the final decision was made. It is not certain that these stakeholders would have had the same level of influence if the project had not ended up in this particular situation. However, their participation can be considered a strength of the selection process, as the stakeholders involved represent two highly important groups that are both dependent on, and partly responsible for, the future success of the concept.

If more time had been available, both the concept family and the school desk concept could have been refined and explored in greater detail. They could also have been continuously evaluated through additional iterations until an inferior concept could be more clearly distinguished, which may have affected the final result. However, due to the natural time constraints of the thesis, this was not possible. With that said, since the concepts differed

significantly and addressed different problems, it cannot be stated with certainty that additional time and further development would have changed the situation. Even if both of the concepts would have been refined in greater detail, the project could still have ended up in a similar position, where neither concept could clearly be considered inferior to another. This is because the concepts fulfilled different functions and therefore could not be directly compared solely in terms of overall performance.

The user studies were intended to identify a problem to address during the concept development phase and therefore had a significant influence on how the process was shaped and what types of solutions were sought. However, rather than resulting in one clearly defined problem, the user studies instead identified several limitations, needs and areas of potential improvement, as previously discussed. Naturally, the prerequisites established before entering the ideation or concept development phase greatly influenced its outcome. This resulted in a concept catalogue with a wide variety of concepts intended for different purposes, which can be considered both a strength and a limitation of the work. If a more specific problem had been identified at an earlier stage, the process could potentially have resulted in a greater variation for ideas addressing one particular aspect. This is because the focus would have been placed on a single situation or activity, rather than on the camper van as a whole.

With that said, the holistic perspective can also be considered a strength. Since a camper van is a very limited physical space, it is important to remain aware of constraints, requirements, and other aspects beyond the specific area placed in focus in order to create a solution that is actually beneficial for the users. Maintaining awareness of the van as a whole throughout the process therefore contributed to a holistic perspective. This perspective also led to the rejection of several concepts, as their designs were considered too invasive or disruptive to areas other than the one they were primarily intended to improve.

Continuing on this topic, the concepts developed for different purposes were all of a high standard and fulfilled most of the needs formulated earlier in the project, which was indicated by the results of the Kesselring evaluation, where all concepts received relatively high scores in relation to their individual ideal values. This suggests that the concepts performed well overall and that the concept development process resulted in a strong range of possible solutions, not only the final concept. As a result, several of the eliminated concepts are still considered to have significant potential and could be of value to Lagun beyond the final outcome of the thesis. This applies particularly to *the school desk* concept, which was the other main contender during the final concept selection. This further strengthens the success of the project in relation to Lagun's original expectations, as one of their aims from the beginning was to receive a range of ideas rather than a fully developed product ready for production.

Regarding the evaluation stage of the concept development process, it could be questioned whether the results were influenced by bias due to the way the evaluation was performed.

This mainly related to the modification made to the original method of the Kesselring-matrix, where individual ideal values were introduced instead of relying on one common ideal value for all concepts. It could be argued that this approach meant that the concepts were not evaluated entirely on the same grounds or according to identical criteria. As a result, some concepts may primarily have been evaluated based on their strengths, which could have increased their average scores and potentially led to skewed results. Furthermore, this approach made it more challenging to compare the concepts directly, as they differed significantly in terms of the purpose they fulfilled. It also made it more difficult to determine how well each concept solved its individual purpose, since there were limited competing solutions within each specific concept category. However, this approach was necessary in order to perform this type of evaluation, which was needed to avoid basing assessments and decisions solely on personal opinion. The alternative would have been to either remove the irrelevant criteria altogether or assign the lowest or highest score to criteria that a certain concept did not affect at all. This would likely have resulted in even more biased and unrealistic results. Therefore, the adapted evaluation approach can be considered to be the most appropriate and precise option under the given circumstances.

When returning to the users' participation in the project, the initial intention was to maintain and extend their involvement throughout the concept development phase in a more integrated and interactive manner. The original plan was to involve the users in workshops where they could discuss ideas and concepts and contribute their own suggestions. Involving them already during the ideation stage, almost in a co-creation manner, could have been highly beneficial considering common traits within the user group, such as curiosity, creativity, and problem-solving abilities, in combination with their real-life experience of living in camper vans and genuine interest in the subject.

However, due to the limited time available, this type of workshop could not be carried out. Instead, the users were involved during the evaluation stage through a survey regarding their opinions on the concepts before the final selection was made. Although the survey provided valuable feedback, more interactive evaluation sessions involving prototypes could have enabled even deeper insight into their opinions, perspectives, and other details.

In conclusion, greater user participation across several stages of the project would have been desirable. Despite this limitation, the information gained from the users was valuable and nevertheless supported the development process.

When the final concept was selected, aspects related to maturity and feasibility played a role in the decision-making process. Although developing a complete product proposal was not included in the scope of the thesis, these aspects were still discussed both with Lagun and within the project group. They were considered relevant, as a concept left with many unresolved aspects would likely require more extensive development before it could be realised as a commercial product. This could, in turn, reduce the likelihood of the concept

being further refined by the company and therefore affect the perceived success of the thesis outcome.

At the same time, this also introduced a potential source of bias. The desire for the project to result in a successful and useful outcome could have created underlying or subconscious preferences for concepts that appeared more mature or easier to realise. However, actions were taken to reduce this bias by continuously relating the assessment back to the scope of the thesis, where the aim was not to deliver a finished product, but rather develop and evaluate concepts. This helped ensure that the concepts were assessed on a more accurate basis and supported and supported a more honest outcome.

9.4 Collaboration with Lagun

Since this project was carried out in collaboration with the company Lagun, their participation naturally had some influence over the project's outcome. Most of the interaction with Lagun has been with their product development team which consists of three people including this project's supervisor from the company's side. In general, they wanted the project to take its natural course and tried not to influence the results too much since they did not have any prior knowledge regarding the camper van market. The only influence they had at the beginning of the project was that they said that they were primarily focusing on home offices and the kitchen area of the van in their own product development. The openness of their assignment provided a freedom over the whole project which allowed for more creativity in solutions but it was also partly the reason behind the split tracks of problems mentioned before.

Apart from this, the team at Lagun have been very helpful throughout the whole project and have been willing to assist with anything they could. This became particularly evident during the prototyping phase where they lent out their 3D-printers constantly and provided CAD models for all of their existing products for use in renders.

9.5 Final Concept

When reflecting upon the final results of the project, both strengths and limitations can be identified. One of the main strengths of the result is that the final concept supports and expands the usability of the Lagun rail system. Since the rail system is already in production and forms part of Lagun's expanding product development direction, the including concepts have the potential to increase the number of possible use cases for the system. By expanding the modular system with additional accessories and options, the concepts could provide value for users while also strengthening Lagun's product offering. This could, in turn, contribute to greater interest in the rail system and its related components.

The modularity aspect of the result can also be considered a strength from a user-centred perspective. By allowing the system to serve different purposes in different locations, the

concepts support a higher degree of customisation and personalisation. And since the user studies indicated that the desired use situations varied greatly between users, meaning that flexibility and adaptability were important qualities, it is a positive aspect. Furthermore, modularity may also be considered beneficial from an ecological perspective, as it can reduce the need for entirely new products while still enabling users to fulfil different needs through adaptable and modular solutions.

Another strength is the compatibility between Lagun's upcoming products. This supports Lagun's rail system as part of their expansion while also increasing the likelihood that the project could be realised in practice. Since the concepts are built upon an upcoming product system, the amount of additional work required from Lagun may be reduced compared to a solution that would need to be developed independently from their rail system.

The prototypes also indicate a strong final result. Since they were developed in full scale and closely resemble the intended final concepts, it was possible to test their compatibility with the Lagun rail and *the multistopper* and their functions in a realistic context. The concepts performed well during these tests, which suggests that they are capable of fulfilling their intended functions and therefore strengthens the validity of the project outcome. The only exception was the physical prototype of *The Fold Box*, which would require further refinement in order to reach the same level of functionality and performance as the other prototypes. Some sub-functions indicated that the final product could work as intended, but certain aspects, such as the snapping motion at the top of the box that initiates the folding movement, would need further investigation before the same level of success could be claimed.

Another aspect that can be considered a strength of the final result is its fulfillment of the list of needs formulated during the project. The concepts performed well in the Kesselring matrix, which was based on these needs. This indicates that the result aligns with what the users expressed as important and suggests that future products developed from the thesis outcome could be appreciated by users in practice.

From an innovation and uniqueness perspective, it could be argued that some of the internal concepts within the concept family are somewhat weaker as they contain features that closely resemble existing products. This particularly applies to *The Pull-out Clothes Rack*, *The Utensil Holder*, and *The Rollable Strap*, since they share similarities with an already existing wall-mounted foldable drying rack, a holder for tools and cleaning equipment, and a retractable belt barrier often used to direct queues or create temporary barriers. It should be acknowledged that inspiration was taken from these existing products, which is often the case within innovation and product development. In this project, the inspiration was transferred into a new context in order to address problems beyond the original intended purposes of the reference products. Although the ideas were strongly inspired by existing solutions, several

modifications were made to adapt the concepts and their functions to the context of a camper van, especially by enabling compatibility with Lagun's rail system and *the multistopper*.

In addition, the visual design language was adjusted to align with Lagun and to create coherence between the concepts within the family. This similarity could also be seen as a strength from another perspective, as the widespread use and proven functionality of comparable solutions could further support the likelihood that the concepts would function as intended.

9.5.1 Future Work

When it comes to the future development of the final family of design concepts there are a few clear next steps to be taken. To start off, they are still design concepts and not fully realised products, therefore, there are several aspects to consider in future development.

Some examples of these are exact dimensions and tolerances of the different concepts since they are currently just based on estimations. On the same track, the different materials of the concepts were chosen mainly to match Lagun's brand image and not based on their material properties. It is therefore important to investigate these to make sure that they can handle enough weight and are of sufficient quality to create a long product lifespan. Throughout the project there was also a want to not eliminate concepts too quickly which in turn led to the final concept decision having to arrive rather quickly. For this reason there might still be some refinement to be done to the final concept family which is also important to investigate.

Apart from the mechanical properties it could also be interesting to invite the users back for a larger scale of evaluation as mentioned above. By hosting a workshop of a more interactive nature the users could test the prototypes of the concepts and possibly provide feedback that could otherwise have been missed since they are the ones with the actual experience.

Another important aspect to consider before putting any of the concepts into production is patents. Since this project focused on creating design concepts and not fully realised products patents have not been considered until this point. It is therefore important that Lagun makes a thorough analysis of active patents for similar products before finalising the concepts and starting to produce them in order to avoid any legal twists.

Lastly, since many of the concepts that went through the Kesselring matrix scored well and received positive feedback from the users it would be interesting to explore those more as well. This is especially true for the concept *School desk* that utilises Lagun's existing table leg system and was left at a slightly higher level of detail than other concepts. This is also why Appendix J was created to give Lagun as much information on that concept as possible to enable them to continue working on it in the future.

Conclusions

10. Conclusions

As the results of the user studies suggest, it can be concluded that it is difficult to distinguish one area as more problematic than another, since they are all closely connected within the restricted spatial environment of a camper van. Although a design direction can always be selected, it is difficult to justify such a decision by arguing that one specific area is the most challenging or most in need of solutions, as user's needs and priorities within this segment vary greatly across different areas and problems.

Instead, one of the main challenges in enabling users to live in the way they ideally want is ensuring compatibility with each individual van. Since no two vans are exactly the same, it becomes difficult for users to solve problems or decide on layouts without making several product adjustments. In many cases, this means that users either need highly adaptable solutions or have to create customised solutions themselves to fit their specific van and situation.

Moreover, it can be concluded that a flexible system that allows users to decide how products should be used and in what configuration, could provide a valuable opportunity to meet users' needs and address the challenges associated with finding solutions suitable for each individual van.

Finally, the project reaches the conclusion that living in a camper van usually requires a curious, open-minded, and problem-solving mindset. However, life in a home on four wheels still involves several practical challenges in different aspects of everyday life. Therefore, the outcome of the project could be highly beneficial for camper van users and significantly facilitate certain situations within van life. Additionally, it can be concluded that the outcome of the project could also strengthen Lagun's expansion by creating several new areas of application for the planned upcoming products, while providing the new user group with solutions that could facilitate certain aspects and challenges of van life.

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Appendix

Appendix A. Search History

Manufacturer of caravaning furniture VanDerMoon.com	https://www.vandermoon.com/eng/en/?srsltid=AfmBOoqHdC4uKFREMrKgl-vDbsfOgWv5pjTc2VDqrTpYoVaJ0OqL_mX
STORAGE SOLUTIONS CamperVantastic Camper Van and Accessories Online Shop	https://www.campervantastic.com/shop/storage-solutions/
camper van storage - Sök på Google	https://www.google.com/search?q=camper+van+storage&client=s...OyBwM2Lje4B8sKwgcFMI06LjXIB2WACAA&scilient=gws-wiz-serp
Campervan Conversion Parts - Autocraft Motor Caravans	https://autocraftmotorcaravans.co.uk/shop/?srsltid=AfmBOorHLia5wVml84NI4znq9iziE-6VSKAaHPMcDzhLncfv6fzjS
Shop Combe Valley Campers	https://www.combevalleycampers.co.uk/?srsltid=AfmBOordMaK_udWys6K2QnY2GgFJBsvz3CnrzdmFNL3quWVRGJElliciV
RB Components / Adventure Vans	https://rbcomponents.com/
Campervan Conversion Kits & Accessories VW T4 T5 T6 Parts Kiravans	https://www.kiravans.co.uk/
glava sverige - Sök på Google	https://www.google.com/search?client=safari&rls=en&q=glava+sverige&ie=UTF-8&oe=UTF-8
Campervan Conversion Parts - Reimo-Pan Reimo-Pan	https://shop.reimo-pan.de/en/camper-van-conversion-shop/campervan-conversion-suppliescamper-van-conversion-parts/
Page not found - EL KAPITAN	https://elkapitan.com/rv-models/sprinter-features/sprinter-camper-van-interiors/
(ingen titel)	https://elkapitan.com/camper-van-components/sprinter-camper-van-interiors/
Camper van components - El Kapitan Van Conversions	https://elkapitan.com/camper-van-components/
Campervan Conversion Supplies Reimo English	https://www.reimo.com/en/camper-van-conversion-shop/campervan-conversion-suppliescamper-van-conversion-parts/
Sequoia - Dutchvanparts	https://dutchvanparts.com/product-category/brands/sequoia/
Upgrade your van for the Ultimate Adventure with Dutch van Parts	https://dutchvanparts.com/
camper van components - Sök på Google	https://www.google.com/search?q=camper+van+components&clie...KSAXUeQIUHTJ2AlgQ8tMDegQIFBAE&biw=1440&bih=722&dpr=2
Uptäck den bästa husbilsutrustningen för ditt nästa äventyr	https://www.lyacampers.com/se/?gad_source=1&gad_campaignid=...dL93eFPM-3FvQvtjEuwGq02__Fu_rHw1uWZ6saMaAJNIEALw_wcB
(ingen titel)	https://www.lyacampers.com/?gad_source=1&gad_campaignid=21...L93eFPM-3FvQvtjEuwGq02__Fu_rHw1uWZ6saMaAJNIEALw_wcB
Van Conversions, Camper Van Kits, Parts, and Accessories - Timber Van Kits	https://www.timbervankits.com/?srsltid=AfmBOopLw1vNuZt62cBeOLOhu-7N_j2hWRlndOyQmamPVA05x_MYGr2l
Van Conversion Shop Self-Build Camper Motorhome Parts Specialist	https://www.vanconversionshop.co.uk/
Rock and Roll Beds for VW T5, T6 and various other campervans Reimo English	https://www.reimo.com/en/camper-van-conversion-shop/rock-and-roll-bed-campervan-rock-and-roll-bed/
Everything you need for your Campervan...onversion and much more! Reimo English	https://www.reimo.com/en/camper-van-conversion-shop/

DIY Camper Van Conversion Guide - Build Journal & How-To's	https://faroutride.com/build-journal/?srsltid=AfmBOop778MCJN3PkZKAhG6NPns2JgrgU3Rg-Mh4HmWf69oG6yI5he54
Campervan Conversion Parts DIY Camper Conversion Parts Just Kampers	https://www.justkampers.com/conversions.html
Campervan HQ	https://www.campervan-hq.com/?srsltid=AfmBOorOhSEgCzhOaQVo2H6ul9hEYPwbrYos3veiToXMD6i-6YxRkMU
Vanlife Outfitters	https://www.vanlifeoutfitters.com/?srsltid=AfmBOoemhLFriYg4XFrdlYfF6oUquKD7mcTkG-VtugM_ntrDFAQQP
camper van components - Sök på Google	https://www.google.com/search?q=camper+van+components&clie...uMTS4B9QSwgciMC42LjE2LjXIB6EBgAgA&scilient=gws-wiz-serp
Vancubic Conversion Custom Capsule Un...uilt-in Bathroom Product on Alibaba.com	https://www.alibaba.com/product-detail/Vancubic-Conversion-Custom-Capsule-Units-Cabinet_1601282848124.html
bro sverige - Sök på Google	https://www.google.com/search?client=safari&rls=en&q=bro+sverige&ie=UTF-8&oe=UTF-8
vancubic prices - Sök på Google	https://www.google.com/search?client=safari&rls=en&q=vancubic+prices&ie=UTF-8&oe=UTF-8
leads	https://ops.vancubic.com/leads?cta_type=CATALOGO&_gl=1*yvz4...3NzE5MzU5NDYkbzEkZzEkdDE3NzE5MzU5OTQkajEyJGwwJGgw
Prices - Vancubic	https://vancubic.com/prices/
vancubic - Sök på Google	https://www.google.com/search?client=safari&rls=en&q=vancubic&ie=UTF-8&oe=UTF-8
FLIP Camping Box - Lyxig husbilsmodul — Offgridconnection	https://offgridconnection.se/collections/campervan-moduler-omd...cts/flip-camping-box-kompakt-bil-til-campervan-ombygningssaet
Campervan Modules - Gör om din bil till e...porter-esr7498812" — Offgridconnection	<a "="" href="https://offgridconnection.se/collections/campervan-moduler-omd...sr7498812?grid_list=grid-view&filter.v.price.gte=&filter.v.price.lte=">https://offgridconnection.se/collections/campervan-moduler-omd...sr7498812?grid_list=grid-view&filter.v.price.gte=&filter.v.price.lte=
Campervan Modules - Gör om din bil till e...porter-esr7498812" — Offgridconnection	https://offgridconnection.se/collections/campervan-moduler-omdan-din-bil-til-en-campervan/vw-transporter-esr7498812
QUQUQ BusBox 3 - Husbilsmodul för VW T7 Multivan — Offgridconnection	https://offgridconnection.se/collections/campervan-moduler-omd...n/products/ququq-busbox-3-campervan-modul-til-vw-t7-multivan
Campervan Modules - Gör om din bil till en husbil — Offgridconnection	<a "="" href="https://offgridconnection.se/collections/campervan-moduler-omd...campervan?grid_list=grid-view&filter.v.price.gte=&filter.v.price.lte=">https://offgridconnection.se/collections/campervan-moduler-omd...campervan?grid_list=grid-view&filter.v.price.gte=&filter.v.price.lte=
Campervan Modules - Gör om din bil till en husbil — Offgridconnection	https://offgridconnection.se/collections/campervan-moduler-omdan-din-bil-til-en-campervan
camper van modules - Sök på Google	https://www.google.com/search?client=safari&rls=en&q=camper+van+modules&ie=UTF-8&oe=UTF-8
HYMER Center - Sveriges ledande fullserviceleverantör av husbilar	https://hymercenter.se/husbilar/ji-lager/hymer-grand-canyon-s-xperience-2026-dxytmdt
HYMER Center - Sveriges ledande fullserviceleverantör av husbilar	https://hymercenter.se/personbilar/ji-lager
CAMPING-PIONEERS Smart RV and camping gear!	https://www.camping-pioneers.de/en?srsltid=AfmBOor1cm2_-SBYtQjfgBzTDvwp5aojTCxZJSLtUMGWi0a1Nkojt-yM
Uptäck den bästa husbilsutrustningen för ditt nästa äventyr	https://www.lyacampers.com/se/

Appendix B. Notes from Site Visit at HYMER Center in Gothenburg

Notes from conversation with HYMER Center

In what capacity are you working with campervans today?

Only sell fully refurbished campervans that we buy from different suppliers.

When consulting with a potential customer, are there certain requests that you find more common than others?

Most questions we get are budgetary. Also get a few questions about sleeping arrangements and storage inside and at the back of the van.

Is it normal for all of your campers to have 4 legal seats or is there a demand for less?

Most common with 4 seats since the most common customers are families and most other customers want to be able to bring friends along on travels.

Is there a lot of demand for campervans or is it mostly for RV?

We've sold campers for many years but there has been a new hype and trend for campers following the pandemic.

Additional comments from workers at the store.

People usually buy them to live full time and not as often for vacations or shorter trips.

Appendix C. Questionnaire



Understanding User Values in Camper Van Design

We are two students from Chalmers University of Technology conducting our master's thesis in collaboration with the brand Lagun. Our research focuses on camper vans, and in particular on what users think and value in such products 🚐

In order to help shape Lagun's future by integrating user and customer values into their products, we need to understand your perspective. We would be very grateful if you could take the time to fill out the form and share your opinions.

This survey is conducted by Lovisa Flodman and Douglas Van Leeuwen, students at Chalmers University of Technology, in collaboration with Boatsystem Group & Lagun. Your answers will be analyzed anonymously and used solely for the purposes of this research project.

Thank You!

In what country do you live or use your camper van? *

Kort svarstext

Do you currently own, or have you previously owned a camper van? *

- ☐ Yes, I currently own one
- ☐ Yes, I have previously owned one
- ☐ No, I don't own one yet, but I'm planning to
- ☐ No, but I own an RV or a caravan

Did you renovate your camper van yourself, or did you buy it already refurbished? *

- ☐ I renovated it myself (bought a van and turned it into a camper van)
- ☐ I bought it refurbished but have made modifications to suit me
- ☐ I bought it entirely refurbished (either from a reseller or a private individual who built it)

In which area of the vehicle have you experienced most difficulties when finding interior solutions or utilizing space efficiently? *

Lång svarstext

In your vehicle, are most solutions...? *

- ☐ Hand-crafted or modified by yourself
- ☐ Products originally intended for other purposes
- ☐ Products specifically designed for camper vans and their current purpose.
- ☐ Övrigt: _____

If you have built solutions yourself, what is usually the reason for doing so?

- ☐ Because I wanted to create something of my own
- ☐ Because I couldn't find a product that suited my needs
- ☐ Because I wanted to keep costs down
- ☐ Övrigt: _____

Can you give an example of a situation where you couldn't find a suitable product and therefore had to build a solution yourself?

Lång svarstext

...

When you are looking for a new product, what are the most important factors you consider? *
Please choose your top three!

- ☐ Functionality
- ☐ Design / Aesthetics
- ☐ Price
- ☐ Modularity / Flexibility / Configuration
- ☐ Easy acquirement (geographically)
- ☐ Quality / Durability
- ☐ Ease of use / Intuitive use
- ☐ Sustainability / Environmental impact
- ☐ Brand familiarity / Brand loyalty
- ☐ Övrigt:

How or where do you usually get a hold of your products? Do you usually look for them online, *
at different physical locations or somewhere else?

Lång svarstext
.....

...

What are the most challenging aspects when buying/trying to find products for your camper van? *

Lång svarstext
.....

Are there any situations or activities related to using the interior of your camper van and/or *
living in it that you find particularly annoying, challenging, or uncomfortable? (Excluding the
engine, water/ power supply, drainage and insulation.)

Lång svarstext
.....

Are there any situations that you have not solved in your camper van that hinder you from using it as you would want to? (Excluding the engine, water/power supply, drainage and insulation) *

Lång svarstext

Are you familiar with the brand Lagun and their modular table system? *

☐ Yes

☐ No

Do you use the Lagun table today, or have you used it in the past? *

☐ Yes

☐ No

If yes, what do you think about it?

Lång svarstext

Would you be interested in participating in further interviews or more in-depth research to help us develop the future of Lagun products? If so, please leave your email address below, and we will contact you with more information.

Kort svarstext

By submitting this survey, you consent to the processing of your answers for research purposes in accordance with GDPR. *

☐ I consent

Appendix D. User Interview Template

Let's start with some introductions! We are Lovisa and Douglas from Chalmers, and who are you (What's your name, where are you from, how long have you been working with campervans?)
What van do you have/ are you looking for? What is your experience with using the van?
How often do you/do you plan to use it/live in it? In what situations? Are you doing everything yourself?
How do you get inspiration on what to do?
How do you decide what to do?
What do you think will be the biggest challenges with actually living in it? Do you foresee any situations that might be 'annoying' that you might not experience otherwise if you were not living/being in a van?
What types of solutions/ spaces are you planning on installing into your van? Sleeping area, kitchen, bathroom, garage etc?
When planning your conversion of the van, do you usually look for existing products from different suppliers or are you mostly thinking of creating your own solutions? (If so, why? And are there specific types of problems that lack finished components or products?)
Focusing on the interior of the van, are there any specific areas that you experience as harder to find a good solution for at this stage of your build?
Lagun, the brand we are doing our thesis with, have the intention of making all of their new

products modular and they are all supposed to work with the same type of locking mechanism for the best cross-compatibility. Do you see any potential for such solutions in your work?

For this first round of new products, Lagun is mostly focused on the kitchen and on solutions made to ease a home office setup now that working remotely is becoming more common. Do you have any insights into these areas or have you gotten any requests for solutions in those areas before?

Lastly, do you have any other insights that you want to share or are there any other types of products that you have been looking for?

Appendix E. Expert Interview Template

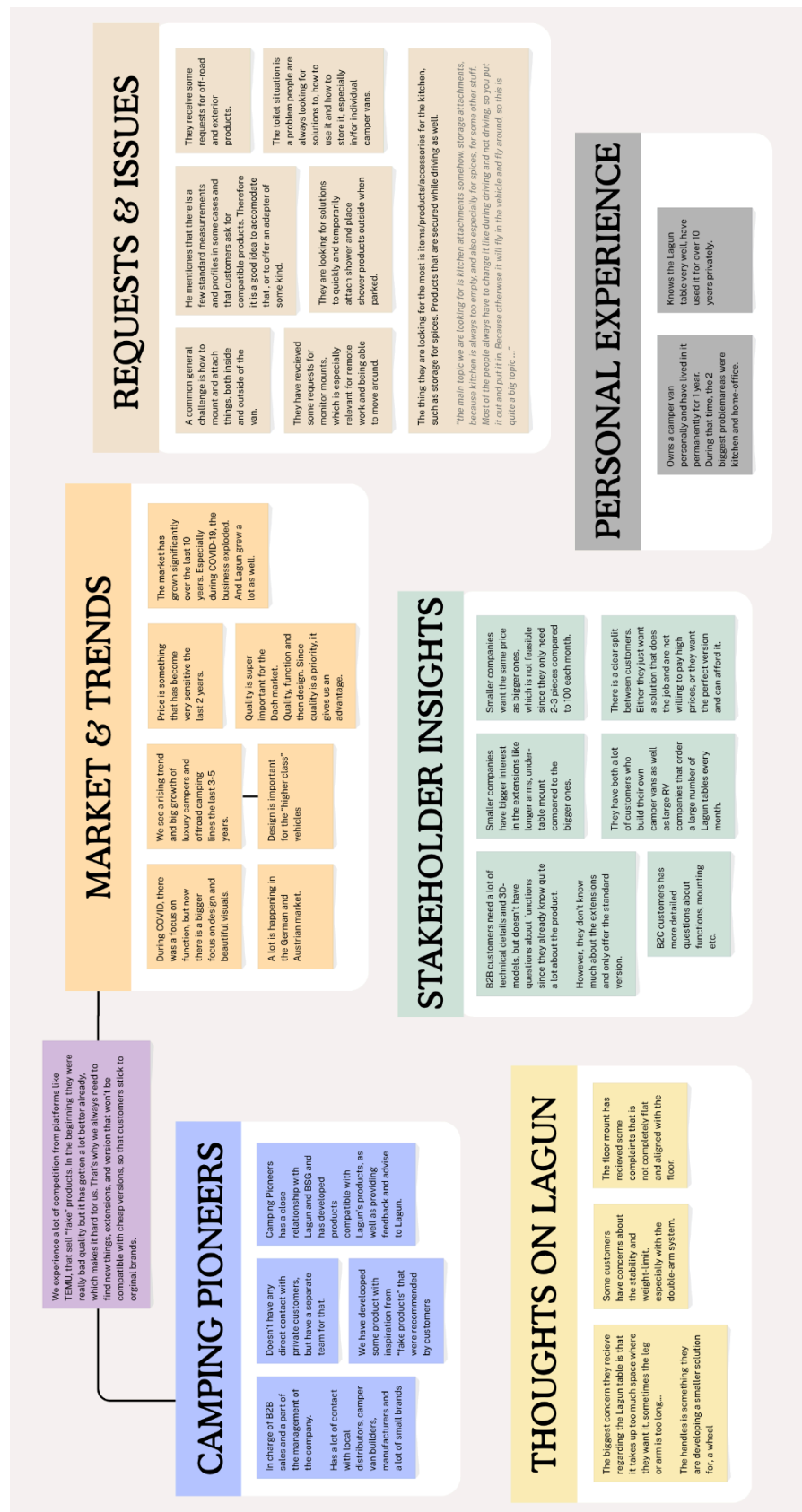
Let's start with some introductions! We are Lovisa and Douglas from Chalmers, and who are you (Do you want to start off with telling us a bit more about your role and how you work with products for camper vans?)
Which types of customers do you encounter the most? (Do you have direct contact with users?) (Do you notice any difference between new van lifers and more experienced customers)
Do you work with/have better insight into finished factory-built vans as a distributor or people who convert them themselves? (Do you notice any difference between new van lifers and more experienced customers)
Have you noticed any changes in the market in recent years and/ or do you see any trends that are currently in the market segment?
If we focus on the interior of the van, do you have any insights into what areas people experience as harder to find the right solution for?
Which types of products do most users prioritise? Nice design or practical solution?
When consulting with a potential customer, are there certain requests that you find more common than others? (Do you get requests for solutions or products that you can't provide them with?)
Are there any common mistakes that you would deem that a lot of users do when planning their conversion that hinder them from having the best possible experience? For example, not installing a certain type of product. (Do you think that there is a product that customers often disregard or think that they don't need but that can actually provide a lot of ease?)
Do you have any kind of feedback system from your customers once you've delivered products to them? (If so, is there any recurring feedback you receive?)

Are you planning to, or do you want to bring in other/more types of products, if so, what? (Does your customers want to? Do you see a demand for it?)
If Lagun were to produce and launch new products designated for camper vans, would you want to sell them as well?
As far as we know, they have the intention of making all of their new products modular and they are all supposed to work with the same type of locking mechanism for the best cross-compatibility. Do you see any potential for such solutions in your work?
For the intended first round of new products, they are mostly focusing on the kitchen and on solutions made to ease a home office setup now that working remotely is becoming more common. Do you have any insights into these areas or have you gotten any requests for solutions in those areas before?
Do you own a camper van yourself/ have you done it in the past/ planning to? (What would be your best tip/plan/tactic when building one, as an experienced person in the field, what would you think of and what wouldn't you miss or compromise on?)
Lastly, do you have any other insights that you want to share or are there any other types of products that you have been looking for but can't find?

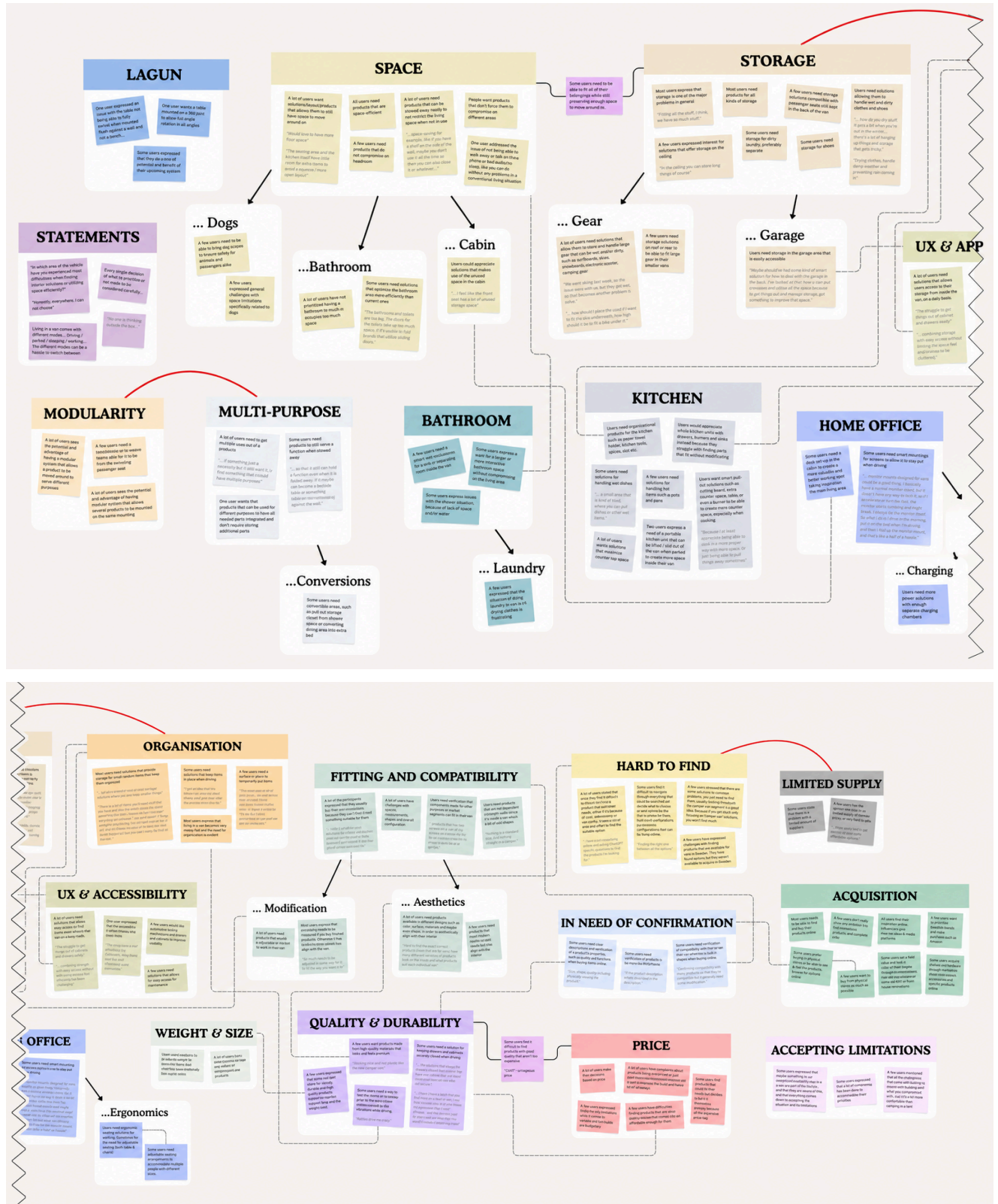
Appendix F. KJ-analysis of Open-Ended Survey Responses



Appendix G. Compilation of Expert Interview



Appendix H. Synthesised Analysis of User Studies



Appendix I. Elimination Matrix

Elimination Matrix					
Criteria →	Non-Invasive Installation	Size & Geometry Compatibility	Broad Applicability	Brand Alignment	Decision ↓
Ideas ↓					
L1	✓	✓	✓	✓	Save
D1	✓	✓	✓	✓	Save
D3	✓	✓	✓	✓	Save
L4	✓	✓	✓	✓	Save
D4	✓	✓	✓	✓	Save
D5	✓	✓	✓	✓	Save
L6	✓	✓	✗		Eliminate
D6	✗				Eliminate
L7	✓	✓	✓	✓	Save
D7	✗				Eliminate
L8	✓	✓	✓	✓	Save
L9	✗				Eliminate
D9	✗				Eliminate
L10	✓	✓	✓	✓	Save
D10	✓	✓	✓	✓	Save
L11	✗				Eliminate
D11	✗				Eliminate
L12	✓	✓	✓	✓	Save
D12	✗				Eliminate
L13	✓	✓	✓	✓	Save
D13	✓	✓	✓	✓	Save
L15	✗				Eliminate
D15	✗				Eliminate
L17	✓	✓	✓	✓	Save
L18	✓	✓	✓	✓	Save
D18	✓	✓	✓	✓	Save
L20	✓	✓	✓	✗	Eliminate
D23	✓	✓	✓	✓	Save
L24	✓	✓	✗		Eliminate
D25	✓	✗			Eliminate
D26	✓	✓	✓	✓	Save
L27	✓	✓	✓	✓	Save
D27	✓	✓	✓	✓	Save
L29	✗				Eliminate
D29	✓	✓	✓	✓	Save
L30	✓	✗			Eliminate
D30	✗				Eliminate
L31	✓	✓	✓	✓	Save
D31	✓	✓	✓	✓	Save
D32	✓	✓	✓	✗	Eliminate
L33	✓	✓	✓	✗	Eliminate
D34	✗				Eliminate
D35	✓	✓	✓	✓	Save
L37	✓	✓	✓	✗	Eliminate
D37	✗				Eliminate
L38	✓	✓	✓	✗	Eliminate
D38	✓	✓	✓	✓	Save
L40	✓	✓	✓	✓	Save
A	✓	✓	✓	✓	Save
B	✓	✓	✓	✗	Eliminate
C	✗				Eliminate
D	✓	✓	✓	✓	Save
E	✓	✓	✗		Eliminate
F	✓	✓	✓	✓	Save
G - 1	✓	✓	✓	✓	Save
H - 2	✓	✓	✓	✓	Save
I - 2	✓	✓	✓	✓	Save
J - 1	✓	✓	✓	✓	Save
K	✓	✓	✓	✓	Save
B - L1	✓	✓	✓	✓	Save
B - D1	✓	✓	✓	✓	Save
B - L2	✓	✓	✓	✓	Save
B - D2	✓	✓	✓	✓	Save
B - L3	✓	✓	✓	✓	Save
B - D3	✓	✗			Eliminate
B - L4	✓	✓	✓	✓	Save
B - D4	✓	✓	✓	✓	Save
B - L5	✓	✓	✓	✓	Save
B - D5	✓	✓	✓	✓	Save
B - L6	✓	✓	✓	✓	Save
B - D6	✓	✗			Eliminate
B - L7	✗				Eliminate
B - D7	✓	✗			Eliminate
B - L8	✓	✓	✓	✓	Save
B - D8	✓	✓	✓	✓	Save
B - L9	✓	✗			Eliminate
B - L10	✓	✓	✓	✓	Save
B - L11	✓	✓	✗		Eliminate
B - L12	✓	✓	✓	✓	Save
B - L13	✓	✓	✓	✓	Save
B - L14	✓	✓	✓	✓	Save

Appendix J. First Iteration of the Kesselring Matrix

KESSELRING 1.0																																
Concepts →			Ideal		Burner Cover		Compressible		School-Desk		Ceiling Desk		Gear Hooks		Shoe Storage		Drawer Handle		45° Swivel		Bag shelf		Que-Band		Silicon Shelf		Mop-Holder		Clothes Rack		Table Shelf	
	Criteria ↓	Weight	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score
Functionality	Compatibility with Lagoon	4	5	20	2	8	4	16	5	20	4	16	5	20	1	4	3	12	5	20	4	16	5	20	5	20	4	16	3	12		
	Space Efficient	5	5	25	4	20	4	20	5	25	4	20	5	25	3	15	5	25	5	25	5	25	5	25	4	20	5	25	4	20	5	25
	Stowable / Easy to store	4	5	20	2	8	4	16	4	16	4	16	-	-	1	4	-	-	4	16	5	20	4	16	4	16	5	20	5	20	5	20
	Easy to clean	3	5	15	4	12	3	9	4	12	1	3	2	6	5	15	4	12	5	15	3	9	2	6	5	15	3	9	4	12	4	12
	Enable Organisation	5	5	25	1	5	5	25	5	25	5	25	2	10	3	15	-	-	2	10	3	15	1	5	2	10	4	20	3	15	3	15
	Secured while driving	4	5	20	2	8	5	20	4	16	4	16	4	16	5	20	5	20	5	20	5	20	5	20	5	20	4	16	2	8	2	8
	Good accessibility	4	5	20	4	16	4	16	5	20	3	12	4	16	5	20	4	16	5	20	4	16	5	20	5	20	4	16	5	20	5	20
	Intuitive use / Usability	3	5	15	4	12	3	9	5	15	2	6	4	12	4	12	4	12	4	12	4	12	5	15	5	15	5	15	3	9	3	9
	Lightweight	5	5	25	5	25	4	20	3	15	3	15	5	25	5	25	5	25	5	25	5	25	5	25	5	25	5	25	5	25	5	25
	Do not restrict headroom	1	5	5	-	-	3	3	-	-	3	3	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aesthetics	Maximise surface area	2	5	10	4	8	-	-	3	6	3	6	-	-	-	-	-	-	3	6	2	4	1	2	4	8	1	2	-	-	4	8
	Adjustable	4	5	20	4	16	4	16	3	12	3	12	5	20	1	4	2	8	3	12	3	12	4	16	1	4	4	16	2	8	2	8
	Multi-functional	5	5	25	5	25	3	15	5	25	3	15	3	15	4	20	4	20	3	15	1	5	2	10	2	10	1	5	2	10	1	5
	T= Σ G'S		245		163		185		207		165		169		154		150		196		179		180		183		181		181		167	
Performance	Individual Ideal		245		240		235		240		245		215		230		185		240		240		240		240		240		230		240	
	T/ Tmax		1		0.68		0.79		0.86		0.67		0.79		0.67		0.81		0.82		0.75		0.75		0.76		0.75		0.79		0.7	
	Ranking				8		4		1		9		4		9		3		2		6		6		5		6		4		7	

Appendix K. Second Iteration of the Kesselring Matrix

KESSELRING 2.0																																
Concepts →																																
Criteria ↓	Weight	Ideal		Burner Cover		Compressible		School Desk		Ceiling Desk		Gear Hooks		Shoe Storage		Drawer Handle		45° Swivel		Bag shelf		Que-Band		Silicon Shelf		Mop-Holder		Clothes Rack		Table Shelf		
		Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	
Compatibility with Lagoon	2	5	10	2	4	4	8	5	10	4	8	5	10	1	2	3	6	5	10	4	8	5	10	5	10	5	10	4	8	3	6	
	5	5	25	4	20	4	20	5	25	4	20	5	25	3	15	5	25	5	25	5	25	5	25	4	20	5	25	4	20	5	25	
Stowable / Easy to store	4	5	20	2	8	4	16	4	16	4	16	-	-	1	4	-	-	4	16	5	20	4	16	4	16	5	20	5	20	5	20	
Easy to clean	2	5	10	4	8	3	6	4	8	1	2	2	4	5	10	4	8	5	10	3	6	2	4	5	10	3	6	4	8	4	8	
Enable Organisation	4	5	20	1	4	5	20	5	20	5	20	2	8	3	12	-	-	2	8	3	12	1	4	2	8	4	16	3	12	3	12	
Secured while driving	5	5	25	2	10	5	25	4	20	4	20	4	20	5	25	5	25	5	25	5	25	5	25	5	25	4	20	2	10	2	10	
Good accessibility	3	5	15	4	12	4	12	5	15	3	9	4	12	5	15	4	12	5	15	4	12	5	15	5	15	5	15	4	12	5	15	
Intuitive use/ Usability	4	5	20	4	16	3	12	5	20	2	8	4	16	4	16	4	16	4	16	4	16	5	20	5	20	5	20	5	20	3	12	
Lightweight	5	5	25	5	25	4	20	3	15	3	15	5	25	5	25	5	25	5	25	5	25	5	25	5	25	5	25	5	25	5	25	
Do not restrict headroom	1	5	5	-	-	3	3	-	-	3	3	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Maximise surface area	2	5	10	4	8	-	-	3	6	3	6	-	-	-	-	-	-	3	6	2	4	1	2	4	8	1	2	-	-	4	8	
Adjustable	4	5	20	4	16	4	16	3	12	3	12	5	20	1	4	2	8	3	12	3	12	4	16	1	4	1	4	4	16	2	8	
Multi-functional	4	5	20	5	20	3	12	5	20	3	12	3	12	4	16	4	16	3	12	1	4	2	8	2	8	1	4	2	8	1	4	
T = ∑ G*S		225		151		170		187		151		156		144		141		180		169		170		169		168		169		153		
Individual Ideal		225		220		215		220		225		195		210		170		220		220		220		220		220		210		220		
T/ Tmax		1		0.69		0.72		0.85		0.67		0.8		0.69		0.83		0.82		0.77		0.77		0.77		0.76		0.8		0.7		
Ranking				9		7		1		10		4		9		2		3		5		5		5		6		4		8		

Appendix L. Third Iteration of the Kesseling Matrix

KESSELRING 3.0																															
Concepts → Criteria ↓	Weight	Ideal		Burner Cover		Compressible		School-Desk		Ceiling Desk		Gear Hooks		Shoe Storage		Drawer Handle		45° Swivel		Bag shelf		Que-Band		Silicon Shelf		Mop-Holder		Clothes Rack		Table Shelf	
		Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score	Grade	Score
Compatibility with Lagoon	2	5	10	2	4	4	8	5	10	4	8	5	10	1	2	3	6	5	10	4	8	5	10	5	10	4	8	3	6		
Space Efficient	5	5	25	4	20	4	20	5	25	4	20	5	25	3	15	5	25	5	25	5	25	4	20	5	25	4	20	5	25		
Stowable/ Easy to store	3	5	15	2	6	4	12	4	12	4	12	-	-	1	3	-	-	4	12	5	15	4	12	4	12	5	15	5	15		
Easy to clean	1	5	5	4	4	3	3	4	4	1	1	2	2	5	5	4	4	5	5	3	3	2	2	5	5	3	3	4	4		
Enable Organisation	4	5	20	1	4	5	20	5	20	5	20	2	8	3	12	-	-	2	8	3	12	1	4	2	8	4	16	3	12		
Secured while driving	5	5	25	2	10	5	25	4	20	4	20	4	20	5	25	5	25	5	25	5	25	5	25	5	25	5	25	4	20		
Good accessibility	4	5	20	4	16	4	16	5	20	3	12	4	16	5	20	4	16	5	20	4	16	5	20	5	20	5	20	4	16		
Intuitive use/ Usability	4	5	20	4	16	3	12	5	20	2	8	4	16	4	16	4	16	4	16	4	16	5	20	5	20	5	20	3	12		
Lightweight	5	5	25	5	25	4	20	3	15	3	15	5	25	5	25	5	25	5	25	5	25	5	25	5	25	5	25	5	25		
Do not restrict headroom	1	5	5	-	-	3	3	-	-	3	3	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Maximise surface area	2	5	10	4	8	-	-	3	6	3	6	-	-	-	-	-	-	3	6	2	4	1	2	4	8	1	2	-	4		
Adjustable	5	5	25	4	20	4	20	3	15	3	15	5	25	1	5	2	10	3	15	3	15	4	20	1	5	4	20	2	10		
Multi-functional	4	5	20	5	20	3	12	5	20	3	12	3	12	4	16	4	16	3	12	1	4	2	8	1	4	2	8	1	4		
T= ∑ G'S		225		153		171		187		152		163		144		143		179		168		173		166		167		168		151	
Individual Ideal		225		220		215		220		225		200		210		175		220		220		220		220		220		210		220	
T/ Thmax		1		0.7		0.73		0.85		0.68		0.82		0.69		0.82		0.81		0.76		0.79		0.75		0.76		0.8		0.69	
Ranking				9		8		1		11		2		10		2		3		6		5		7		6		4		10	

Appendix M. The School Desk Tabletop

This concept combines the functions of a traditional school desk with integrated storage and Lagun's table mount system. The new tabletop will work just like the normal one when closed with the exception of being slightly thicker. Once the user wants to access their home office, they can simply lift the lid up and the concept quickly converts into a complete office desk with all tools and gadgets already in place.



The inside of the desk can also have compartments for organising smaller objects as well as a non-slip surface on the bottom to keep items in place while driving. The outside wall of the tabletop that sits opposite the hinges for the lid will also be able to fold outwards which creates a large flush surface. As mentioned, the tabletop will be mounted on Lagun's standard table leg to ensure a good connection to the brand and good backwards compatibility.

If the user doesn't have the need for a home-office, this desk can also be used simply as an extra storage unit for napkins, plates, candles or anything you want to keep hidden away and secured while driving.

Since the school desk is still in the concept stage there are a few things to work out before putting it into production. Firstly, since this tabletop will be heavier than the original ones, the weight needs to be tested on the existing table legs to ensure that they can handle the extra load. Apart from this, exact material selections and dimensions will have to be decided since the concept is only roughly based on Lagun's existing products.



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