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# Visible Mending - A Way to Give Knitwear a Longer Life

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## Abstract

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This project explores visible mending as a way to give knitwear an extended life. The subject is approached by researching and exploring visible mending through literature and experimenting with different mending techniques. The work aims to find new creative solutions using visible mending techniques. In addition, visible mending is explored from a sustainability and a circular fashion point of view.

The research includes visible mending techniques as well as mending techniques from different cultures and how mending is utilized today. Additionally, the project includes experiments with mending and prototypes. Lastly, the thesis provides a customer interest survey on the subject.

The project's commissioner Arela Oy has a sustainability program, which includes a care and take-back service. The project aims to find new ideas and solutions for future developments of the care and take-back services.

Keywords: Knitwear, repairing knitwear, mending, visible mending, sustainability, circular fashion, mending techniques

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Projekti tutkii näkyvää korjaamista tapana pidentää neuleiden käyttöikä. Aihetta lähestytään tutkimalla korjaustekniikoita. Työn tavoitteena on löytää uusia luovia ratkaisuja, joissa hyödynnetään neulotuissa vaatteissa näkyviä korjaustekniikoita. Työssä käsitellään näkyvää korjausta kiertotalouden ja kestävän kehityksen kautta. Työn suurimpana teemana on vaatteiden korjauspalvelu ja sille pyritään löytämään uusia ideoita.

Tutkimukseen sisältyy tietoa eri korjaustekniikoista, korjaustekniikoita eri kulttuureista, unohtamatta korjauksen tärkeyttä nykymaailmassa. Lisäksi tutkimus sisältää korjauskokeiluja. Projektiin sisältyy myös asiakaskysely, asiakkaiden kiinnostuksen kartoittamiseksi näkyvää korjausta kohtaan.

Hankkeen toimeksiantajana toimii suomalainen vaatetusalan yritys Arela Oy. Arela Oy:llä on vastuullisuusohjelma, joka sisältää hoito- ja takaisinottopalvelun. Hankkeen tavoitteena on löytää uusia ideoita ja ratkaisuja hoito- ja takaisinottopalvelun kehittämiseen tulevaisuudessa.

Avainsanat: neule, neuleenkorjaus, taideparsinta, korjaus, korjauspalvelu, kiertotalous, korjaustekniikat

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# 1 INTRODUCTION

The project focuses on visible mending as a way to repair worn-down, holey and pest-eaten knitwear. The project aims to find visible mending options that give a care service new solutions for knitwear repair. The company in question is Arela Oy and their care service is a part of the company's sustainability goals. The company takes responsibility for their products from the beginning of the production until the end of the garments lifetime. This project focuses on finding innovative solutions through visible mending to lengthen the life of knitwear.

To find balance between fashion and sustainability, one must look at their values. To reduce the textile waste produced yearly, mindful consumption comes into play. The simplest way to reduce fast fashion consumption is simply by wearing garments until the end of their time. However, to do this, mending might be necessary. By repairing and mending our old clothes, we can further the longevity of our wardrobes. Mending our clothes is essential for extending the clothe's life cycle. Additionally, by repairing our clothes, our environmental footprint is reduced.

## 1.1 RESEARCH QUESTION

The study is based on finding solutions that will give knitwear a longer life. The subject is approached through visible mending and aims to visualise different solutions, that could help lengthen the life of knitwear.

## 1.2 FRAMEWORK

This project focuses on mending worn-down knitwear. Since the project is about giving knitwear a longer life, the project falls under sustainability and circular fashion. Textile and fast fashion consumption has been at its peak for many years. However, textile's circular economy and sustainability is much more than recycling. To sustainably make a textile product, the operating model needs to include efficient use of materials in product design and include repair and maintenance services. All aspects are as crucial for extending the product's life. (Suomen tekstiili & muoti n.d.) Sustainability and circular fashion are approached by clothing repair services and visible mending. The goal is for the project's commissioner Arela Oy to benefit from the project's results and use them in their For Good concept. The concept is a part of Arela's sustainability program. The craft of mending and all that comes with it, techniques, cultural differences, and visualisation will be essential throughout the project. Arela donates all material used in the project. (Image 1)

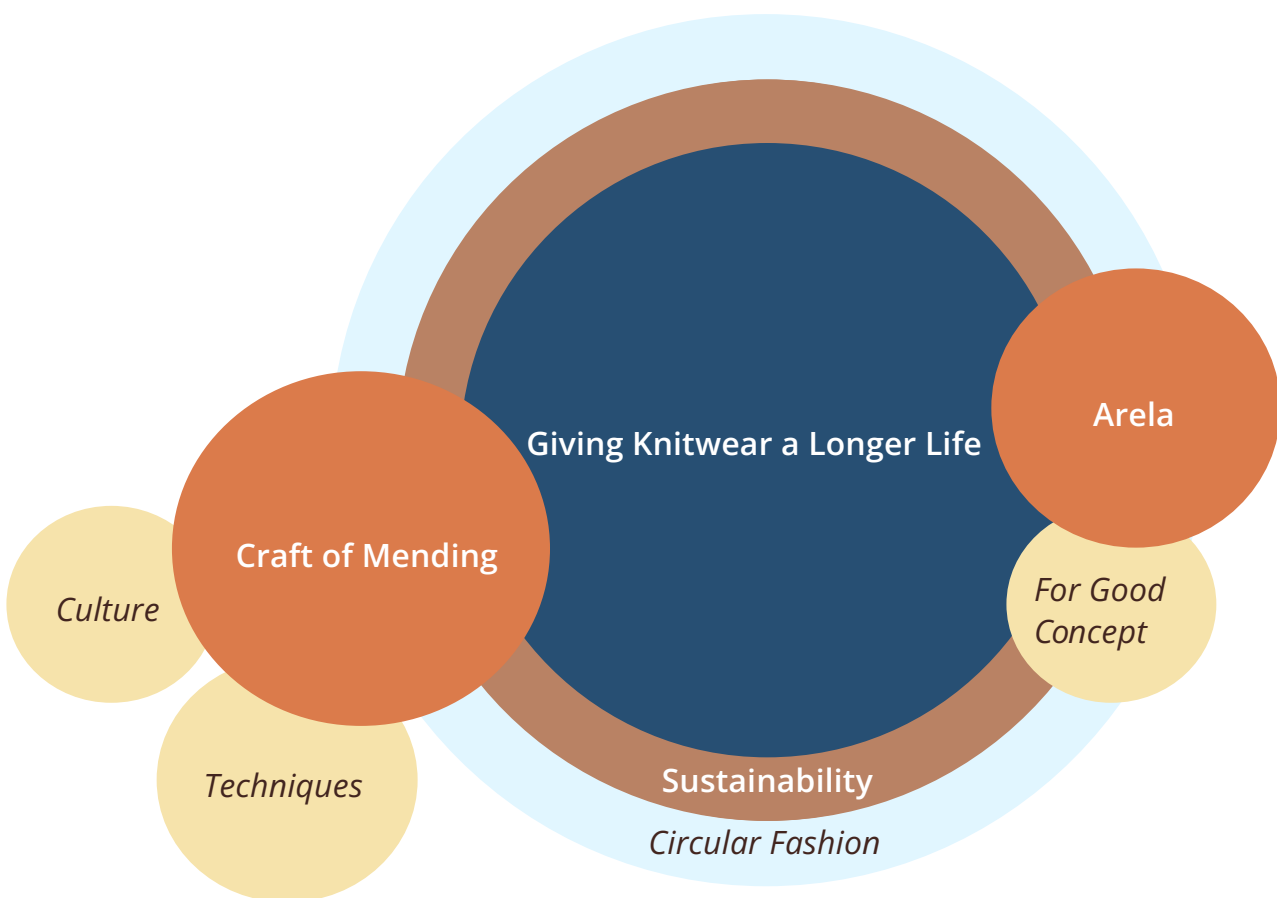


Image 1 Framework

## **1.3 RESEARCH METHODS**

The project's focus is visible mending. Visible mending is explored by a survey, literary references and articles. In addition, visible mending is approached by mending experiments and mending worn-down knitwear as prototypes that contain different mending techniques. The experiments and prototypes are based on previously made literary findings.

### **Online Survey**

The survey collects data from a predefined group of respondents, in this case, Arela's customers. The survey is made to map out the interest in mended knitwear and is distributed online through Arela's Instagram and its newsletter. Data was collected about the general interest in mended knitwear and the interest in buying mended knitwear and having knitwear repaired.

### **Researching the Craft of Mending**

The research is based mainly on articles and literature about mending and clothing repair. It contains information about the culture of mending and different mending techniques. The research is made to better understand the craft, the knowledge is later applied to mending experiments and prototypes. Image references will provide visual aids to support the research.

### **Practice-based Research**

Practice-based research is made to gain knowledge about visible mending through mending experiments, which include mending knitwear prototypes. The experiments are made to gather more information about mending by using different mending techniques as part of knitwear design. In addition, the experiments and prototypes are made to visualise the craft and opportunities it holds for care and take-back services. The practice-based research is used to present the ideas of visible mending to the project's commissioner.

# 2 ARELA OY

The commissioner for this thesis is Arela Oy. Arela is a family-based clothing label focusing on knitwear made of cashmere and merino wool. Arela is a Finnish brand founded by designer Maija Arela in 2006. Maija's daughter Anni Arela now runs the company and is the label's principal designer.

"The label continuously build upon a wardrobe of ease and joy, designing only pieces that can be worn again and again. Curated collections with functionality, effortless elegance and perfected colorways very much correlates to the Arela's idea of simplicity and minimalism." (Arela a. 2022.)

## 2.1 FOR GOOD CONCEPT

For Good is a service that Arela developed to lengthen the life of their garments, a concept based on Arela's sustainability goals. The For Good concept includes e.g. a care service, a take-back service, and reusing old knitwear for mending materials or new products such as sleeping masks. The care service provides customers with primary care services, hole mending, and seam repair. The take-back service is based on Arela taking full responsibility for their products, which is why they take back customer's used knits. The knits are then mended and sold as secondhand products or used as materials for mending or new products. All materials used in the Arela garments are of high quality, and they prefer to use 100% pure materials for best maintainability and recyclability. (Arela b. 2022.)



*Image 3 Arela Reborn*



## **2.2 REBORN COLLECTION**

Arela produced a Reborn Collection in 2021. “Reborn Capsule Collection is about bringing new life and spark to some old and forgotten treasures. This Collection reflects Arela’s core idea about creating something truly long lasting and renewable. The Reborn Collection consists of 45 one-of-a-kind pieces in cashmere and merino. All the Reborn pieces are unique and hand-dyed with different dyes, including some plant-based dyes.” (Arela c. 2022.)

Reborn Collection was made for Arela by Kaisa Kervinen and Saimi Parikka as part of their studies at Metropolia UAS. They got the idea for the Reborn Collection during their internship at Arela. Customers have returned all garments used in the project as a part of Arela’s take-back service. The key concept for the Reborn Collection is to appreciate the materials and give the garments a new life through mending, colouring, and caring for the garments. All garments were dyed by tie-dyeing with different coloured dyes. The collection launched during White Monday. White Monday is the opposite of Black Friday and praises sustainability instead of consumerism. (Kervinen & Parikka 2022.)

## **2.3 MATERIALS**

Arela chooses its materials based on their qualities, such as maintainability, durability, and recyclability. Therefore, they prefer to use materials that are 100% pure instead of blends. In addition, they prefer to use pure, 100% natural fibres that are sustainable and biodegradable. (Arela 2022 d.) As a result, Arela uses cashmere, merino wool, cotton, and linen in its products, the materials are so valuable that it is a shame not to use them until the end of their time. Hence, the importance of repairing and mending their garments.

# 3 THE CRAFT OF MENDING

Mending clothes has been around for as long as there has been clothes to wear. One of the oldest examples of mending is a child's tunic found in the Whitworth's gallery in Manchester, found on page 11 (image 4). The tunic dates to 600-700 bc. The tunic has been darned with colourful threads and is an excellent example of the mending craft's longevity. (Tuft Niamh 2020.) Mending has been a practice all around the world and different mending traditions can be traced to cultures worldwide, for example, Boro and Sashiko from Japan and Kantha from India. Most mending techniques are invisible or visible, with some exceptions, such as darning, which can be used as both. (Scott Marina 2022.)

Mending, darning and patchworking have historically been necessities. It was a sign of a low social status if somebody had visibly mended clothes. It was clear which socioeconomic group people belonged to, based on whether the mends were visible or invisible. If there were no mends that the naked eye could spot, the person wearing the garment was usually of a higher social status. The goal was to make the fabric repairs as invisible as possible. (Ilona 1945, 190.)

Historically, mending has been a necessity, and people from all economic classes mended their clothing and fabrics because new fabrics and clothes were expensive. It was common only to own a few garments, which made mending a necessity. In western society, visible mending was a sign of lower social status, and you could easily spot the poor by their visibly repaired clothing. The wealthier used hired menders, and mending was seen as a craftmanship. (Studentsewing 2012; Tuft Niamh 2020.) It is easy to trace back to when mending started disappearing from households. In the sixties, it became cheaper to buy new clothes, which in return made mending unnecessary. It was trendier to buy new clothes instead of repairing your old ones. (Scott Marina 2022.)





*Image 4 A child's tunic 600-700 bc.*



## 3. 1 MENDING TECHNIQUES

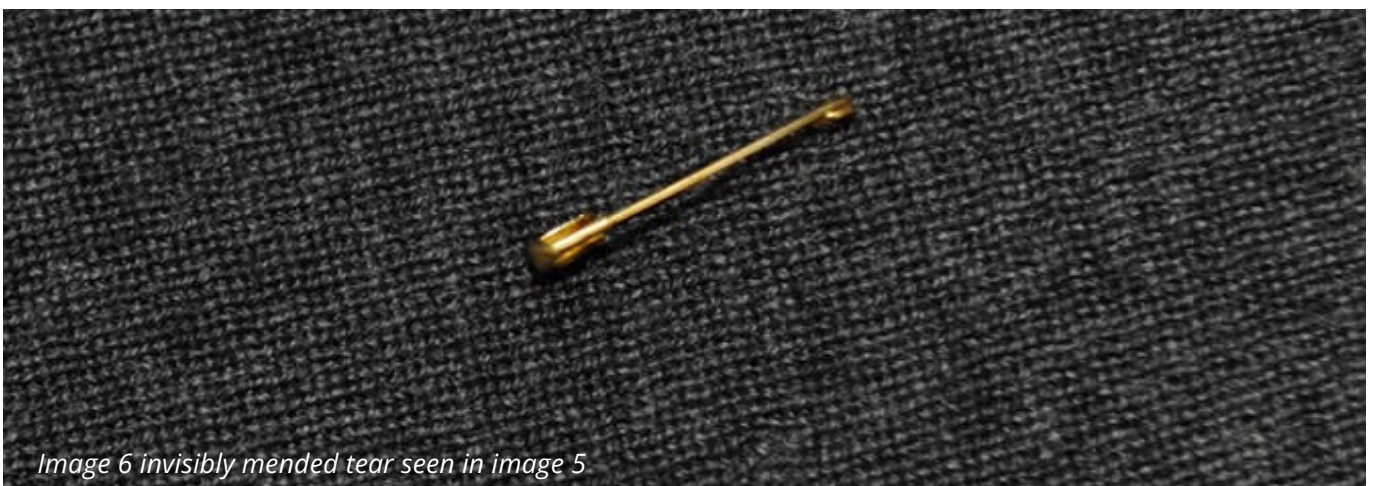
To familiarise myself with mending techniques, I explored some of the techniques before experimenting with them. There are many more ways to mend worn-down clothes than just by using the techniques mentioned. The focus is on visible mending therefore there are many examples of it. However, invisible mending is also mentioned to get a complete picture of the craft.

### 3.1.1 Invisible Mending

Invisible mending is a form of mending where you reconstruct the fabric by weaving it by hand, making a seamless repair. The goal of the reconstruction is to match the original fabric completely. Invisible mending at its core is repairing damaged clothing into its former glory. (Jacomet Hugo 2012.) In knitwear, the same concept is used, but instead of weaving the hole, it is re-knitted; the result is, therefore invisible. The result of invisible mending can be seen in images 5 and 6. The more known concept under invisible mending is the weaving technique that reconstructs the fabric through reconstructing the warp and weft, weaving the hole in the material with a long needle.



*Image 5 Moth damage in wool sweater*



*Image 6 invisibly mended tear seen in image 5*

### 3.1.2 Visible Mending

Instead of aiming for an invisible result in your mends, visible mending gives the maker a more accessible approach to mending. The mends tell the garment's story by emphasising and embracing its "flaws". For example, the garment can have holes made from a tear or holes caused by pests. The main point in visible mending is to embrace the flaws in the garment by visibly repairing them, making them a part of the garment until the end of the garment's life. Instead of trying to hide the holes and imperfections, they are welcomed and visibly worked into the knitwear, seen in images 7 and 8. There are many visible menders, books on visible mending, websites, blogs and workshops. A few good examples of visible menders are Flora Collingwood- Norris, Celia Pym and Tom of Holland. Tom of Holland (Tom Van Deijnen) is one of the menders who made the craft and term visible mending popular.



*Image 7 Portholes with an eyelet stitch*



*Image 8 Elizabeth's Cardigan, example of darning*



### 3.1.3 Darning

Darning as a concept means fixing a hole in a knit by using needlework. The simplest way of darning is anchoring the thread on both ends of the fabric hole. The hole will be covered by crisscrossing the threads over the hole. There are multiple different techniques in darning, e.g. visible darning, shown in image 9 and Swiss darning, shown in image 10. When looking back in time, girls learned how to darn as part of their education. Today darning is done either by hand or by sewing machine.

Flora Collingwood-Norris is a knitwear designer based in Galashiels in the Scottish Borders. In addition to designing and making knitwear, Collingwood-Norris is also a knitwear mender. Her website offers guidance on visible mending, particularly darning knitwear. (Collingwood-Norris, 2022.)

“When we mend our clothes, we start to appreciate the work that has gone into making them. My hope is that it sparks some thought about how long that garment took to make, what fibers were used, who made it and what conditions they worked in.” a quote by Collingwood-Norris in Skwarna.

*Image 9 Visible darning*



*Image 10 Swiss darning*



### 3.1.4 Patchwork

Traditionally patchwork is used for making quilts. A great example of patchwork is traditional Boro textiles and clothes. On its own, patchwork is a technique where you combine pieces of fabric by sewing them together. Though patchwork was traditionally primarily used for quilt making, it has become a popular clothing design technique. (Business of fashion, 2022) In this project, patchwork refers to either the traditional method of combining fabric pieces by stitching them together or covering a hole by adding a patch on top or under it and then sewing or stitching it to the garment.

An excellent example of patchwork in knitwear is the brand Rua Carlota (image 11). Rua Carlota is a London-based knitwear brand by Charlotte Rose Kirkham. The brand challenges waste culture by giving new life to pre-loved and deadstock materials. "It deconstructs and reconstructs with a quiet confidence, and with freedom of creativity at its forefront. It begins with something rendered useless by society and ends with something beautiful." (Rua Carlota 2022.)

Image 11 "Moodswings" dress





## 3.2 MENDING TECHNIQUES FROM DIFFERENT CULTURES

I wanted to further my knowledge of mending by exploring the culture behind it. I started by researching mending in different cultures. All techniques and methods are fascinating and differ from each other. Mending can be found everywhere and is a big part of textile tradition. To truly understand the impact that mending has had and can have, it is crucial to understand the heritage of the craft.

### 3.2.1 Darning Sampler

Most darning samplers date back to between the 15th and early 20th centuries. Western countries, including Belgium, Denmark, Britain, the Netherlands, and Germany, primarily made the darning samplers. However, it is essential to mention that any culture with decorative needlework may have had similar practices.

The darning sampler's purpose was to teach girls how to mend fabrics used for garments and household items, such as tablecloths. Darning was a part of the girl's education. The darning used in the samplers often imitated various weaves or motifs, some more difficult than others. The better the girls got, the more challenging motifs and weaves they would darn and embroider. (Willem n.d. ; V&A 2016.) Examples of darning samplers can be seen in images 12 and 13.

*Image 12 Dutch darning Sampler 1797*



*Image 13 Sampler, Mildred Mayow, 1633, England*



### 3.2.2 Boro

Boro is a traditional Japanese mending technique. Boro textiles date back to the Edo period (1608-1868) and means “ragged” or “tattered”. Boro textiles are garments that have been repaired and mended multiple times through patchwork and stitching and were necessary for poor labourers from the Edo period to the 20th century. Boro textiles are repaired and patched with scraps of fabrics, often coloured with Indigo (image 14). The tradition behind Boro is that the textiles were passed on for generations and mended by multiple people with different stories. At the end of its life, the Boro textile was used as rags, for example, to clean the household. The philosophy behind Boro is that nothing is of waste. (Scott 2022; Howie 2018.) Boro is an excellent example of using garments and fabrics for as long as possible and using them until there is nothing left to use.



*Image 14 Traditional Boro kimono*



### 3.2.3 Sashiko

Sashiko is a Japanese stitching technique that dates to the Edo period and is often used in Boro textiles to hold the patches together. Sashiko is a stitching technique with simple running stitches in repeating and interlocking patterns. Historically, the working class used Sashiko to make their workwear stronger and long lasting. A traditional sashiko jacket is seen in image 15. Today Sashiko can be seen even in high fashion, for example, Maison Margiela (image 16). (Japan Objects n.d.)

*Image 15 Sashiko Jacket*



*Image 16 Maison Margiela Jacket*







*Image 17 Antique kantha quilt from 19th century*



*Image 18 Kantha fabric*

### 3.2.4 Kantha

Kantha is a traditional stitching and embroidery technique from eastern India, the earliest written record of Kantha is from around 500 years ago. However, Kantha is traced to the pre-Vedic era (before 1500 bc). (House of wandering silk 2022.)

Traditionally Kanthas were made by layering around five to seven used sarees and stitching them together, first stitching the edges. After stitching the edges, artisans stitched the fabrics with the “Kantha stitch” throughout the width and length. The stitches created patterns, and traditionally the craftsmanship of making Kantha textiles was passed on for generations. A traditional Kantha quilt can be seen in image 17. Today Kantha is mainly known as the stitch. The Kantha stitch can be as simple as a straight-running stitch. The running Kantha stitch creates artistic patterns or geometric patterns, as seen in image 18. In running Kantha, the motifs’s inspiration is from religion, culture and the artisan’s lives. (Kantha karma 2022.)

### 3.3 MENDING TODAY

*“Visible mending is a quiet, global protest movement that’s happening at a grass-roots level, challenging the way we consume clothing.”*

(Brayshaw Emily, n.d.)

When discussing mending, it is essential to remember that mending and extending the life of our clothes is a part of circular fashion. Lately, consumers have been more concerned about the environmental impact their purchases cause. As a solution consumers have increased circular fashion in their lives. Circular fashion reduces the environmental impact and amount of textile waste produced annually. There has been an increased interest in extending the life of garments, e.g. numerous secondhand shops and platforms, rental, and resale services, all celebrated. In addition, to keep clothes in cycle, repairing old clothes is just as important. Mending clothes is a vital part of the circular system. The consumer’s environmental footprint is reduced by repairing clothes since there is no new consumption. Repairing clothes is a counterweight to the throwaway culture that has flourished for years. (Sierra Brittany n.d.)

Mending is becoming increasingly popular today. We are returning to our roots and finding the beauty in repaired and mended clothes. The widespread interest in sustainability and circular fashion explains the expanding interest in mending. Instead of buying new clothing, it is popularised to either shop secondhand, mend old clothing or upcycle clothes. Multiple books, blogs and websites work as guides on mending clothes. On Instagram, you can find a whole world of mending through hashtags such as #visiblemending and #mendingmatters. There is an entire world involving mending online; you just have to look for it. Today, some known menders are Flora Collingwood-Norris, Lily Fulop, Kate Sekules and Katrina Rodabaugh. A collage of some of their work can be seen in image 19 on page 21. These menders have welcomed us all to the world of visible mending. They have released books on mending to give everyone access to the craft. Some of them even have online courses on the subject. What brings all menders together is their love for used and worn-down garments, the need to continue the garment’s story and add a patch of honour to it. Visible mending celebrates the wear and tear that comes from loving our clothes. It is comparable to the Japanese practice of Kintsugi, where broken pottery is mended with gold, transforming the pottery and celebrating the crack. As Kintsugi celebrates the flaws in pottery, visible mending does the same for clothing.

It is fair to say that mending is a counterweight to fast fashion. Mending, especially visible mending, is a way to tell the garment’s story. It is fascinating to think of the unique stories behind mends, especially if the garment has been passed on for generations. Even if the garment only has been worn by one person, it still has a story to tell through the patches and mends made to it. Mending and repairing clothes is incredibly interesting since all mends are unique, depending on the maker. Mending and repairing clothes is a way of taking responsibility for what is ours. Instead of throwing out a ruptured moth-eaten knit, it can be mended and brought back to life.





Image 19 Mending collage

# 4 DESIGN PROCESS

I began my design process by researching and gathering inspiring pictures of mending techniques and mended clothing. I started collecting a “photo bank” with images for inspiration. My second step was to explore mending techniques by making mending experiments. Next, I designed prototypes by using different mending techniques. Finally, I finalised the design process by organising a photoshoot to take pictures of the prototypes.

## 4.1 RESEARCH AND IDEATION

In addition to previously made research, a customer interest survey was constructed to map out Arela’s customer’s interest in mending. The ideation part of the design process is determined by a mood board and mending exploration.

### 4.1.1 Customer Interest Survey

I constructed a survey for Arela’s customers to gather data on their interest in mended knitwear. The survey aimed to gather insight into the general interest in mended knitwear. It contained questions that collected data on Arela’s customer’s interest in having their knitwear mended. Additionally, data was collected on the interest of buying mended knitwear.

Distributed to Arela’s customers via a newsletter and two Instagram stories, the survey got 71 answers and was open for ten days. The full survey can be found in appendix 1, along with the newsletter text and Instagram stories pictures in appendix 2.

The survey was a great way to map out the interest in mended knitwear. As expected, primarily women answered the survey with a few exceptions. A pleasing surprise was the wide variety of ages. The majority age group were women between 30 and 50 years old. However, there were answers from all age groups between 20 and 70+ years. 84,5% of the people who answered had mended their knitwear before. All who answered either might have interest or have full interest in mended knitwear. Throughout the survey, the response was positive, and it was clear there is an interest in both invisible and visible mending. In the answers, there was some uncertainty towards visible mending. However, curiosity and interest towards the subject overshadowed the uncertainty. The majority showed interest or cautious interest towards a visibly mended knit. Only one in ten respondents had no interest in a visibly mended knitwear.

In conclusion, it is clear that there is interest towards visibly mended knitwear. Throughout the survey, the interest in mended knitwear stays consistent. Summing up the survey, Arela’s customers would find it easier to bring their knits to be mended if examples of the possible outcomes were available. Additionally, most respondents are interested or curious about buying mended knitwear.



#### 4.1.2 Mood Board

At the beginning of this project, before any experiments or sketches, I presented Arela with five preliminary mood boards. I made these mood boards to visualise ideas for the project. I showed the mood boards during a meeting where Arela and I discussed our ideas for the project. Finally, based on our discussion, I continued collecting pictures and inspiration, some used in the final mood board. You can find all preliminary mood boards in appendix 3.

My final mood board inspired my mending experiments and design for the prototypes. The point of the mood board was to remind me that every mend is unique, and all imperfections have beauty in them, hence the name “beautiful imperfections”. The mood board was aimed to work as inspiration for me throughout my design process.

*Image 20 Final mood board “Beautiful imperfections”*





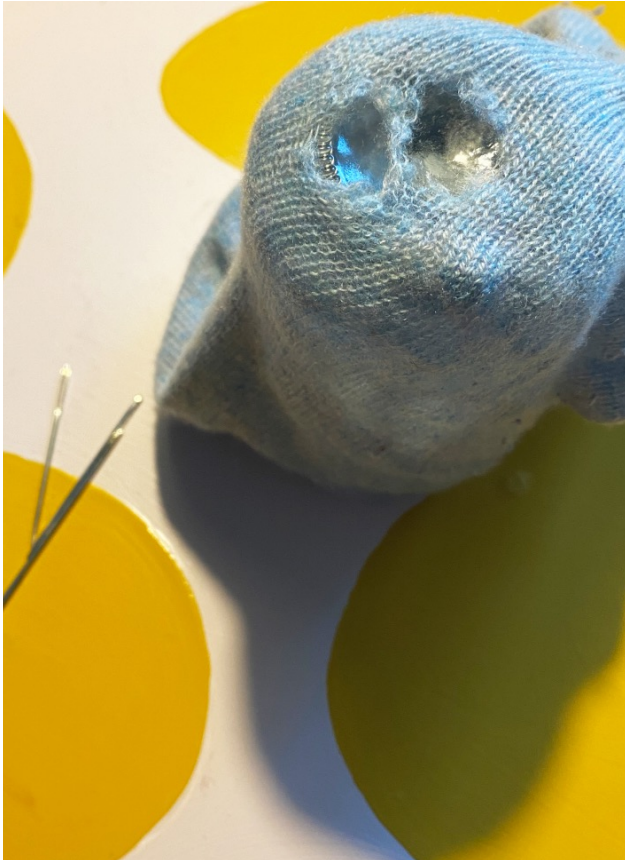
### 4.1.3 Exploring Mending

Before this project, I had never mended a garment, so I started exploring mending by darning a sock with holes in the heel. The final result is seen in image 21.

I did some more exploring and experimentation during which I tried different mending techniques to familiarise myself with the craft. Throughout my experiments, I realised what a fascinating craft mending is. I explored, making both visible tone-to-tone mends and colourful bold mends. I later made mock-up pictures of the mends, using look book images of Arela's knits found on their website. The mock-up images can be found in appendix 4. The point of my mending experiments and mock-ups was to give a clearer visual view of how mending techniques can be applied to knitwear. The mending experiments worked as my initial sketches. Based on the experiments, I better understood how to apply different mending techniques to my final prototypes.

*Image 21 Mending experiment 1: Darning squares*





*Image 22 Sock on glass jar*



*Image 23 heel of sock before repair*

## **Mending Experiment 1: Darning Squares**

For my first mending experiment, I darned squares onto a sock with holes in the heel (image 23). Around the holes, the knitwear was extremely worn-down, which meant I had to extend the darning further than just over the hole, a revelation I discovered during my darning process. Since I did not have a darning mushroom, I used a glass jar instead (image 22). The pattern created by darning the neon pink and yellow squares welcomed a breath of fresh air to the sock. I decided to use colourful yarn to contrast the sock's light blue colour.

Darning is one of the more common mending techniques. Therefore, I decided to first learn how to darn before exploring more challenging techniques. As earlier explained, darning is a way of repairing a hole by weaving over it. Darning, at its core, is quite simple but can be modified by using a more demanding weave. Great examples of more intricate darning techniques are seen on traditional darning samplers.



## Mending Experiment 2: Eyelet Stitching Portholes

For this experiment, I used eyelet stitching. I had to make small tears on my patch to begin my experiment (image 23). During stitching, I discovered that holes which were close to each other linked because the stitching expanded them (image 24). By having some linked portholes and some individuals, the design opportunities are endless with this technique (image 25).

The eyelet stitch is a great way to enhance the holes and tears in knitwear. By eyelet stitching multiple holes, it creates a pattern. It should be considered adding more tears and holes in addition to the originals, to make a more intriguing eyelet stitched design. For my stitching, I experimented with tone-to-tone colours; however, the stitches can be made with any coloured thread.

The eyelet stitch is made by covering the hole's edges by stitching over them. The stitching needs to be dense to cover the border completely. The eyelet stitch can be used either to enhance the hole and "frame it" or by combining it with a patch underneath.







*Image 26 Pinned down patch to cover hole*

*Image 27 Close-up of stitching*

*Image 28 Finished mend*

### **Mending Experiment 3: Eyelet Stitching Combined with Patchwork**

I combined patchwork with eyelet stitching for this experiment. I began by choosing a patch of a different coloured knit. Then, I placed the patch underneath the hole and secured it with pins. After I pinned the patch, I began eyelet stitching. This technique is suitable when wanting to embrace the knitwear's flaw but without the hole. The process is visualised in images 26, 27 and 28.

Combining eyelet stitching with patchworking opens a new world of opportunities for the two techniques. For example, creating a pattern using these techniques allows one to cover certain holes and leave others as portholes. There are endless options with these techniques since you can combine multiple colour schemes or keep it simple with tone-to-tone colours.







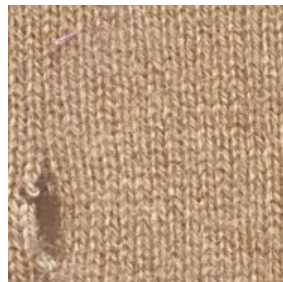
## Mending Experiment 4: Darning Circles

I started this experiment by making a few holes in the knit (image 29). I wanted to utilise darning again. This time I decided to darn circles as seen in image 30. I found inspiration for this experiment from my mood board (image 20 on page 23). I extended my darning further than just over the holes for this experiment. For all darns, I made slight differences in the weaves (image 31). I made some darns with thicker yarn or I had the weaves begin from different directions. By doing this, I started seeing the possibility of creating a pattern with darning circles, making it more elaborate by making small changes to the weave. A possible pattern using this technique is found on the mock-up image in appendix 4.

In conclusion, creating a pattern by darning shapes of different colours and sizes is a great way to give a worn-down knit a new look. Darning can be applied around the knitwear, even on spots that are in perfect shape. For future experiments with darning, making darns with multiple colours and different weaves should be considered to create more intricate designs; this, however, demands a certain skill level.



*Image 29 Tears in knit*



*Image 29 Tears in knit*



*Picture 31 Different weaves*

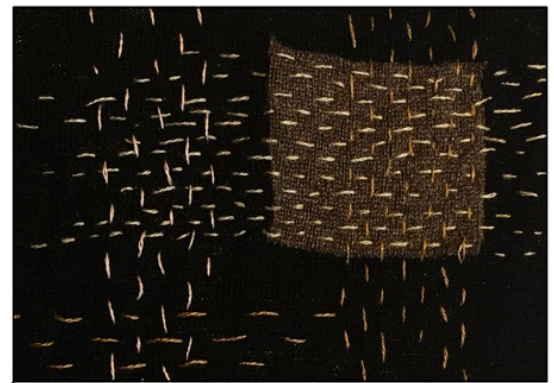


*Picture 30 Close-up of darning*

## Mending Experiment 5: Patchwork Combined with Stitches

I combined a simple running stitch with a patch for this experiment. My inspiration was Sashiko and Boro. I wanted to adapt and combine these two techniques into mending knitwear. The idea of the mend is first to choose a colour for the patch and then do simple running stitches. The stitching creates a pattern on top of the patch and covers a broader area than just the patch. I used three different colours of thread: a light beige, a darker beige and a very light pink.

A combination of patchworking and running stitches opens the door to loads of different designs. The mix allows the maker to explore different shapes and colours, creating a never ending list of design choices. Similarly to previous experiments, even these two techniques could be placed all over the knit. The colour scheme can be changed and should be chosen specifically for each project. In image 32 the mending experiment is showcased on a mock-up picture.



*Image 32 Mock-up: Patchwork combined with running stitches*



## Mending Experiment 6: Darning Combined with Running Stitches

I used a combination of darning and stitching in this experiment. I started my experiment by making tears to the patch (image 33). For this darning experiment, I wanted to trail the hole's borders to create unique shapes. After darning I made stitches around the darn to improve the visual appeal of the experiment (image 34).

These techniques give the maker an alternative to the combination of patchwork and stitching. The combination of stitching and darning creates a unique textured pattern. Additionally the stitching helps blend the darning in with the rest of the garment as seen in image 35.

*Image 35 Mock-up: Darning combined with stitching*



*Image 33 Starting point for experiment*



*Image 34 Finished patch*







*Image 36 Process picture of Swiss darning*



*Image 37 Close-up of finished patch*

## **Mending Experiment 7: Swiss Darning**

For my final experiment, I wanted to explore Swiss darning. I had found a patch with float stitches that made the perfect base for Swiss darning (image 36). However, I wanted to create a textural difference from the patch's original knit, so I used a thicker colourful yarn. As a result, the textural contrast is significant. Swiss darning is a technique where you sew yarn over your existing stitches, making the repair look as if it was knitted. Depending on the thread or yarn used, it is possible to create textural differences. In addition to Swiss darning I had to darn over a few tears around the float stitches. The result is seen in image 37.

In this experience, the Swiss darning technique is modified on top of float stitches. Worth mentioning is that Swiss darning can be applied to broader areas, not just as a straight line, as seen in this experiment.





### 4.1.3 Thoughts on Experiments

The mending experiments and mock-up images showcase a variety of mending possibilities. The experiments, though comprehensive, are only a scratch on the surface of the mending world and mending opportunities. These experiments reveal beauty in flaws and imperfections, creating new intriguing visual designs.

By making mock-ups of mends and repairs on garments, there is a wider variety of mending solutions to holes and abrasion showcased. Mock-up images are useful in customer meetings, since they help visualise the possible outcome of the repair. In addition, having pictures at hand of mends helps both the designer and the customer to decide the best solution for the problem presented.







## 4.2 DESIGNING PROTOTYPES

I was given five garments from Arela. These garments were for me to mend and gave me the opportunity to try and find new solutions for reoccurring problems, such as abrasions on the backside and inner thighs. Another usual problem is tearing on the elbow.

Initially, I planned on mending three prototypes. Unfortunately, I only had the opportunity to mend a long black shirt and a pair of pants. I began mending a third garment, a shirt, but decided not to continue. The garment was so worn-down that the fabric was extremely thin and had loads of float stitches. I had already begun mending the shirt but soon realised the garment would be of better use as felted patch material.

Before beginning mending, I assessed what needed repairing on each garment. Based on this assessment, I started sketching (Image 39). After I began mending, I discovered my sketches were a bit off. The sketches were a great way to get ideas flowing but making final decisions in mending based on them, was impossible in this project.

Image 38 Sketches for prototypes



## 4.2.1 Unfinished Shirt

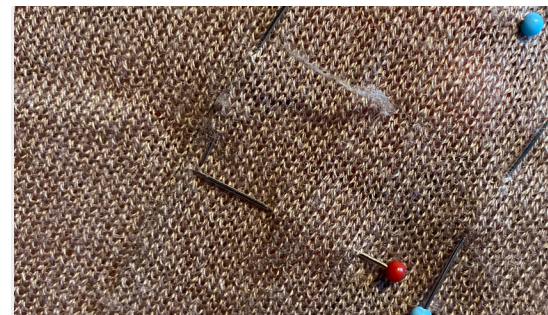
I started this mending project by assessing the problems that needed solving. Initially, I found that this shirt had two big holes on the front side and some float stitches, an example of a float stitch can be seen in image 39. Next, I began sketching based on my assessment and made a plan on how to mend the shirt.

I started mending the shirt by darning different-sized squares and rectangles over the float stitches I had found (images 40 and 41). I soon realised the shirt was full of float stitches and small holes. I decided to stop mending the shirt since it was more suitable to be used as felted patch material for other repair projects. Even though I never finished the shirt, I made a mock-up image of the darned squares I had already made. The mock-up can be found on page 37 (image 42).

*Image 41 Finished darns*



*Image 39 Float stitch in shirt*



*Image 40 Darning process*







*Image 42 Mock up of how different sized darned squares could be used*

## 4.2.2 Black Shirt

I started by assessing the problems of the shirt. I found the shirt only had one issue, a previous repair in the front right side. This repair was not too visible since the colour of the shirt is a deep black.

Based on the assessment, I started sketching solutions. Since I was so inspired, I made elaborate plans for the shirt but ended up making the simplest of repair to it. I first thought I would mend the shirt by darning simple shapes and creating a pattern. But, after drawing my plans, I revisited the problem and found the best solution to be the simplest of repairs, Swiss darning. Then, I started thinking about my colour scheme and decided to combine black and light grey yarn for the mending.

I started my process by needling the line I would follow whilst Swiss darning my way to the previously made repair (image 43). After needling, I began darning (image 44). Finally, in its simplicity, I darned from the hem to just a bit above the previously made repair. The mended shirt can be seen on page 39. An additional solution to the problem can be seen in image 45.

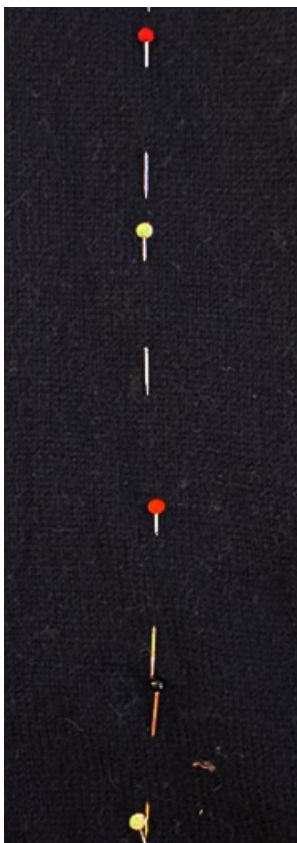


Image 43 Pinned line

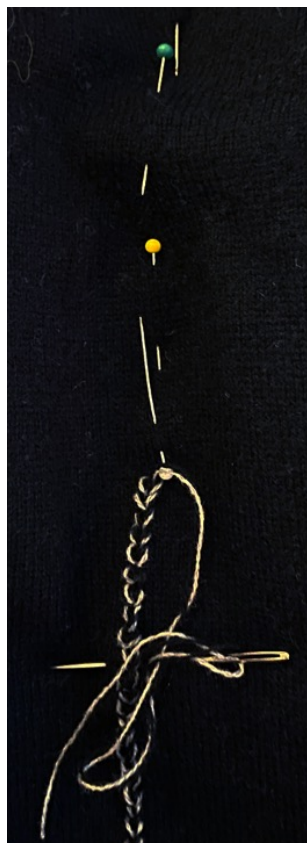


Image 44 Process



Image 45 Option for shirt repair with Swiss darning







### 4.2.3 Pants

As I did for previous garments as well, I started my mending by assessing what needed repairing. On the left leg the pants had a big hole with abrasion around it. The crotch had been mended before but needed new mending. The backside of the pants was extremely worn-down and needed either Swiss darning or a large patch. I also found small holes around the pants.

I started planning my mending by sketching. I made simple sketches and used the knowledge I had previously gotten from my research and experiments. These sketches were meant to work as maps and solutions of what needed repairing. I soon discovered that the sketches were great for mapping ideas on paper. However, the final product differs quite a bit from the original sketches. I discovered in this case that mending could only be planned to a certain point, after which new ideas and combinations of techniques were needed for the best outcome. These pants had more problems than the usual garments that need mending. To conclude, I still believe mending can be entirely planned beforehand; it truly depends on what and how much mending the garment needs.

I decided to use bold neon-coloured yarn and patches for these pants. I decided upon these colours because they show up in the original yarn of the pants. The original grey yarn has traces of yellowish-green, pink, and orange yarn. I achieved the best result by using similar colours to the ones already found in the pants. I wanted these pants to be bold and show off the flaws and faults found on them. For me, mending these pants was often challenging, but the result was worth all the effort I put into them. The techniques I used were patchworking, eyelet stitching, stitching, and darning.

I began my mending process by repairing the massive hole on the left leg (image 46). I discovered how worn-down the knitwear around the hole was. This discovery was the first of many challenges. I solved the problem by combining the patch as reinforcing material for the abraded area and as a patch for the hole. I stitched the patch onto the pant by eyelet stitching it. I then made simple running stitches around the patch to reinforce the abraded area (image 47).

*Image 46 Eyelet stitching in process*

*Image 47 Process of making running stitches*











*Image 48 Previously made repairs of crotch*



*Image 53 Sewing the backside patch*



*Image 49 Hole on crotch*



*Image 52 Backside patch*



*Image 50 Felted patch*



*Image 51 Abrasion on backside*

For the crotch, I found it essential first to take apart the previously made repairs to create new, more suited ones, seen in images 48 and 49. Removing the previous crotch repair resulted in a bigger hole in crotch (image 49). The hole meant I had to devise a new plan to repair the crotch. I started by placing a felted patch inside the crotch area and sewing it, as seen in image 52. However, it looked silly, so I had to start over. Finally, I had a scrap of purple knit that suited the crotch perfectly. I eyelet stitched the patch in place and made some darning repairs around it.

For the repair of the backside, I thought it would be interesting to Swiss darn over the worn-down area. I thought about the time it took to make such a large Swiss darning repair and decided to instead move forward with patching the abraded area of the backside. Swiss darning would have been too time-consuming to use in such a large area. I thought about placing the patch underneath the abraded area (image 51 shows the abrasion) and then stitching over it. However, I put the patch on top of the abrasion, first sewing it in place (images 52 and 53) and then eyelet stitching it. The patch, made of multiple scrap pieces of neon yellow knit, was on its own a puzzle, as seen in image 52, and looked silly before the eyelet stitching. To finalise the backside, I made the same simple stitching on each side of the patch as I made on the left leg.

The large repairs were the most time-consuming. But the pants also had small holes and tears, which I repaired with darning and eyelet stitching patches.





#### 4.2.4 Thoughts on Prototypes

The extensive tears, holes and abrasions on the pants made them suitable for combining different mending techniques and displaying them on a knitted garment. The pants are great examples of interpreting visible mending to your taste. However, they were very time consuming to mend. During mending, I divided and timed each repair to see how long each mend took. All techniques used can be adapted to fit Arela's care service, depending on the service's timetable and how much the customer is willing to pay to get their knitwear mended.

The prototypes are great examples of the variety visible mending offers. The pants however, were so torn up that even mended, they aren't suitable to be sold as a secondhand product. Instead, the pants are suited to be used as inspiration for a collection based on only mended knitwear. The pictures taken of both prototypes can be used in social media marketing for the care and take-back services or as examples for customers.

The mending done on the black shirt is a definition of less is more. The whole shirt was given a new look with just a simple Swiss darning repair. Swiss darning is a good way to strengthen abraded areas on knitwear by recreating the stitching on top of the old stitches. It could even be considered to make a pattern by Swiss darning a larger area with multiple colours. If a tear is sewn shut, Swiss darning is a way of hiding the seam created. The darned area can be long or wide, or both. The only downside of the technique is that the darning is quite time-consuming if it is used on a large area. However, the repair can be done relatively quickly in a small area. Swiss darning could easily be adapted to the care service.

The darning made on the unfinished shirt gives a different visual output than the previously made darning experiments. The darning used on this prototype can be adapted to problems such as tears, float stitches or covering stains. The darning on the shirt differs from the experiments because there is a darned "frame" around the actual darning.

To conclude my observations, all techniques have the potential to be used in Arela's care service. I recommend a precise and entirely laid out plan for the mending, especially when planning mends for a customer's garment. I struggled with making a precise plan since it was my first-time mending garments. It is important to remember that every technique is slower for a beginner than for a professional, the time it took me to mend was probably slow compared to someone who mends regularly. Even so, the timetable I made can be found in appendix 5. The examples presented in this project work as references for future visible mending projects, such as a visibly mended collection.



## 4.3 PHOTOSHOOT

The photoshoot was executed at the photography studios at Metropolia UAS campus in Arabia. I had one of my friends model the prototypes for me. Initially, the plan was not to have any props and only focus on the model and her clothes. However, I wanted to bring a visual aspect of mending to the shoot, hence the yarn cones. I got all the props used in the photoshoot from Arela. Image 53 shows behind the scenes of the photoshoot.

In addition to photographing the prototypes, I also wanted to take pictures of my first darning experiment. To do so, however, I had to darn one more sock. The new sock was a different colour than the first one, but they turned out to be a great match, as seen in image 21 on page 26. I had a more relaxed approach for the new sock, and the darning I made has a different visual impact compared to the first sock I darned.

I was lent a white t-shirt from Arela to go with the pants, the t-shirt was a perfect fit. The pants caused a bit of a struggle when photographing them. It was easy to get great pictures of the pant's frontside, but the backside caused some struggle in the beginning, because it seemed as if it wasn't possible to get a flattering picture of the backside. After the struggles, I managed to get good photos of the pants from multiple angles, including the backside. The pictures turned out great and can be found all around the study.

The black shirt was photographed with two different pairs of jeans, a pair of dark grey wide-legged jeans and a pair of light blue jeans. I also took pictures of the shirt as a dress, because the shirt was long enough for the model to use as a mini dress, as seen on page 46.

The photoshoot and pictures of the prototypes were the perfect way to finalise this project and brought all aspects of the project together. In addition, the pictures helped visualise the trend of visible mending by showcasing how much small and large repairs can change the design of a garment. The pictures taken during the photoshoot can be found all around the study.

*Image 53 Behind the scenes*







# 5 CONCLUSION

Visible mending is a way to further the life of knitwear. By visibly mending old holey, pest-eaten and worn-down knitwear, an opportunity for a new design opens up. Visible mending gives the mender a large variety of options on how to repair worn-down knitwear. By exploring mending and presenting prototypes, the project shows that visible mending opens various knitwear repair opportunities.

Exploring visible mending has given a broader picture of how it can be adapted and modified. The experiments and prototypes made for Arela are great examples of how the results differ depending on the problems that are in need of mending. Different effects are achieved by combining mending techniques, finding a suitable solution for each mending project.

Mock-up images of mending experiments on knitwear give customers a clearer visual of what mending techniques could be adapted to their worn-down knitwear. On the other hand, the prototypes give tangible examples of the outcome and results of visible mending. To further develop the For Good concept after this project, it could be considered to make more mock-up images of visible mending to show customers while discussing repairs for their knitwear.

Throughout the study, it is shown that visible mending is a part of sustainability and circular fashion. Visible mending opens opportunities other circular fashion business models do not; a creative output for garment repair, which indeed is a sustainable choice in fashion. Sustainability and visible mending walk hand in hand with slow fashion and upcycling clothes. The endless mending opportunities open the possibility of passing on garments for generations. Repairing an old knit is always more sustainable than buying a new one. If Arela showcased visibly mended clothing, it could open up a new type of visibility in circular fashion for the company. Mending is not the first thing that comes to mind when mentioning sustainability and circular economy in fashion. Nevertheless, sustainability and circular economy surround mending. Mending is as essential when compared to business models such as second hand and rental shops. The companies that offer repair and maintenance services for their products are genuinely ahead of time.

The main findings in the study include a significant interest in visible mending. The fact is that mending always has been and always will be a part of our culture. Mending is found all around the world, and there are loads of similarities in mending techniques and traditions worldwide. The changing values of the world's population explain the increased interest in mending. Fast fashion, constant spending and consumption is slowing down and allowing a new chapter for slow fashion. The formed appreciation of garments means there no longer is a constant need to purchase new things. It is fair to say that the interest in visible mending is growing. New platforms and books dedicated to mending are continuously released and talked about, not to mention the community of menders online.

The study aimed to find new innovative ideas for further developing Arela's care and take-back services, using visible mending as the starting point for the development. The positive customer survey results proved customer interest towards the subject. Therefore, it should be deliberated, to use the experiments and/or prototypes made during the study on the company's social media to gain visibility for their care and take-back service. Based on the customer interest survey, this could bring wanted attention to the service and offer customers visual examples of visible mending. In the future, it would make sense to consider visibly mending and reselling knits that have been returned through the take-back service.

In the future, moving forward with a collection of visibly mended knitwear could be considered. By showcasing options of visibly mended knitwear it could spark customer's interest in having their knitwear mended and/or buying mended knitwear. When planning mending projects with customers, mock-up images could be presented to bring light to the endless options visible mending offers. The images of mended knitwear could help customers comprehend multiple mending options, which would include the customers more in the design of their soon-to-be-mended knit.





Emmy Tarvasahon opinnäytetyö avasi uusia näkökulmia ja mahdollisuuksia huolto- ja korjauspalvelumme kehittämiseen. Työn esitystapa, jossa Emmy oli ottanut kuluttajan näkökulman esille, oli erityisen ilahduttava. Puhuttaessa näkyvästä korjausompelusta, saattavat erilaiset tekniikat jäädä asiakkaalle hyvin abstraktille tasolle, mikäli hänellä ei ole aiempaa kosketuspintaa aiheeseen. Tässä suurena apuna toimivat Emmyn laatimat mock-up kuvat, joissa tekniikat on esiteltyä Arelan look book -kuvia hyödyntäen.

Työn sisältämä asiakaskysely avasi, ja osaltaan myös vahvisti, näkemystä siitä, että kiinnostusta erilaisille korjaus- ja huoltovaihtoehtoilta on olemassa. Kuten Emmy työssään toteaa, vaatii erilaisten korjausompelutekniikoiden implementointi kuitenkin vielä tarkempaa konseptointia, erityisesti ajankäytöllisestä näkökulmasta.

Erityiskiitoksen haluaisimme antaa Emmyn toteuttamista prototuotteista, mock-up kuvista ja asiakaskyselystä, joista on meille varmasti apua kun huoltopalvelumme uusia palvelukonsepteja tulevaisuudessa kehitetään. Niiden avulla pääsemme konkreettisesti tutkimaan, miten asiakkaat ottavat näkyvät korjausratkaisut vastaan.

Emmyn kanssa työskentely prosessin aikana oli kokonaisuudessaan sujuvaa, mukavaa ja ammattimaista.

Onnea Emmylle valmistumisen johdosta!

- Arela



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## Image References

Image 1. Framework

Image 2. Arela care service. Arela.com (<https://www.arelastudio.com/pages/knitwear-care>)

Image 3. Arela Reborn. Arela.com (<https://www.instagram.com/p/CifGVK4Nlfv/>)

Image 4. A child's tunic. The University of Manchester the Whitworth. (<http://gallerysearch.ds.man.ac.uk/Detail/22540>)

Image 5. Moth Damage in wool sweater (<http://www.invisible-mending.co.uk/why-repair/>)

Image 6. Invisibly mended tear seen in picture 5 (<http://www.invisible-mending.co.uk/why-repair/>)

Image 7. Portholes with an eyelet stitch. Bel Jacobs. (<https://www.beljacobs.com/latest/the-art-of-visible-mending-a4x5k>)

Image 8. Elizabeth's Cardigan / Celia Pym (<http://celiapym.com/work/elizabeths-cardigan/>)

Image 9. Visible darning. Flora Collingwood-Norris. (<https://www.collingwoodnorrisdesign.com/knitwearblog/category/Visible+Mending>)

Image 10. Swiss darning. Bel Jacobs. (<https://www.beljacobs.com/latest/the-art-of-visible-mending-a4x5k>)

Image 11. "Moodswings" dress. RUA CARLOTA. (<https://www.instagram.com/p/CCBa4o-A1dh/>)

Image 12. Dutch darning sampler 1797. Metropolitan Museum of Art. (<https://www.metmuseum.org/art/collection/>

[search/228077](https://www.metmuseum.org/art/collection/search/228077))

Image 13. Sampler, Mildred Mayow, 1633, England. Victoria and Albert Museum, London. (<https://www.vam.ac.uk/articles/embroidery-a-history-of-needlework-samplers>)

Image 14. Traditional boro kimono. Image via Gerrie Congdon. (<https://www.heddels.com/2015/08/all-about-boro-story-japanese-patchwork/>)

Image 15. Sashiko Jacket, Metropolitan Museum of Art New York. (<https://www.metmuseum.org/art/collection/search/50805>)

Image 16. Maison Margiela Jacket. japanobjects.com (<https://japanobjects.com/features/sashiko>)

Image 17. Antique Kantha quilt. from 19th century. wanderingsilk.com (<https://www.wanderingsilk.org/kantha-history-and-meaning>)

Image 18. Kantha fabric. wanderingsilk.com (<https://www.wanderingsilk.org/kantha-history-and-meaning>)

Picture 19. Mending collage, Emmy Tarvasaho (<https://www.instagram.com/p/CcqlI2IuvQG/>) (<https://www.instagram.com/p/Cf9-pwFjhXS/>) (<https://www.instagram.com/p/Cji6-OLJ0uC/>) (<https://www.instagram.com/p/CSwWpBIIRXb/>) (<https://www.instagram.com/p/Cj8AQF2ovxz/>)

Image 20. mood board "beautiful imperfections", Emmy Tarvasaho (<https://www.instagram.com/p/B-99x3HDlhD/?igshid=1o26vv1ngfs4o&epik=dj0yJnU9RmxxM1daWWRqeW1ZNktxV1JWSDdzZmRRT0FQWUxma04mcD0WjM49b0IRVWxDY3ZtVzIERGNFVIQ4MI8xQSZ0PUFBQUFB-R04zV1k0>) (<https://www.marthastewart.com/274965/how-to-patch-a-hole-mend-a-seam-and-fix>) (<https://www.selvedge.org/blogs/selvedge/why-do-we-mend-3?epik=dj0yJnU9X0p4bDJNd3c0SjRiSVdaUXVMUGF6RC1tOUIqTTN5WGQmcD0WjM49d0kxZGIwYTZEbnlZUnVFavJWWnZHUSZ0PUFBQUFB-R04zV2RR>) ([https://www.instagram.com/p/CRo5uM5I\\_0a/](https://www.instagram.com/p/CRo5uM5I_0a/)) (<http://celiapym.com/work/orange-shoelaces/>)

Image 21 - 31. Emmy Tarvasaho.

Image 32. Mock-up of patchwork combined with running stitches. Emmy Tarvasaho and Arela.com (<https://www.arelastudio.com/collections/for-good-2nd-hand/products/for-good-black-cotton-cashmere-sweater>)

Image 33 - 34. Emmy Tarvasaho.

Image 35. Mock-up: Darning combined with stitching. Emmy Tarvasaho and Arela.com (<https://www.arelastudio.com/collections/sweaters-1/products/aspens-hoodie-in-grey>)

Image 36 - 41. Emmy Tarvasaho.

Image 42. Mock-up of shirts darning. Emmy Tarvasaho and Arela.com (<https://www.arelastudio.com/collections/a-w-22/products/andie-turtleneck-sweater-in-beige>)

Image 43 - 56. Emmy Tarvasaho.

Image 57. Preliminary mood board 1. Emmy Tarvasaho. (<https://studiomend.net/Medal-Collection>) (<http://www.yrurari.com/ekkisvona>)

Image 58. Preliminary mood board 2. Emmy Tarvasaho. (<https://pixabay.com/fi/photos/autiomaa-dyynit-hiekka-aallot-2042738/>) (<https://pixabay.com/fi/photos/dyynit-meri-it%c3%a4merenranta-1936086/>) (<https://www.flickr.com/photos/gambastyle/2884710621/in/photostream/>) (<https://deviantart.com/>)

Image 59. Preliminary mood board 3. Emmy Tarvasaho. ([https://www.instagram.com/benjamin\\_thomson](https://www.instagram.com/benjamin_thomson)) (<https://mythinghenzu.blogspot.com/2017/01/yayoi-kusama-helsinki-art-museum.html?m=1>) ( ) (<http://www.vollebak.com/>)

Image 60. Preliminary mood board 4. Emmy Tarvasaho. (<https://www.wgsn.com/fashion/article/93932#page>) (<https://www.wgsn.com/fashion/article/93730>) (<https://www.wgsn.com/fashion/article/92628?show=34537611>) (<https://www.wgsn.com/fashion/article/92626?show=35122201#page5>) (<https://www.wgsn.com/fashion/article/92627#page6>)

Image 61. Preliminary mood board 5. Emmy Tarvasaho. (<http://www.instagram.com/celiapym>) (<http://www.martinaalmquist.com/>) (<https://www.instagram.com/moreorlessmag/>)

Image 62. Mending experiment 1: Darning squares. Emmy Tarvasaho & Arela.com (<https://www.arelastudio.com/collections/all-items/products/copy-of-alma>)



cashmere-scarf-in-mint)

Image 63. Mending experiment 2: Eyelet stitching portholes. Emmy Tarvasaho & Arela.com (<https://www.arelastudio.com/collections/all-items/products/dagny-double-knit-jacket-in-light-beige>)

Image 64. Mending experiment 3: Eyelet stitching combined with patchwork. Emmy Tarvasaho & Arela.com (<https://www.arelastudio.com/collections/all-items/products/ingred-v-shape-tunic-in-light-beige>)

Image 65. Mending experiment 4: Darning circles. Emmy Tarvasaho & Arela.com (<https://www.arelastudio.com/collections/all-items/products/eelia-tunic-1>)

Image 66. Mending experiment 5: Darning combined with running stitches. Emmy Tarvasaho & Arela.com (<https://www.arelastudio.com/collections/all-items/products/aspens-hoodie-in-grey>)

Image 67. Mending experiment 7: Swiss darning. Emmy Tarvasaho & Arela.com (<https://www.arelastudio.com/collections/all-items/products/eelia-tunic-in-grey>)

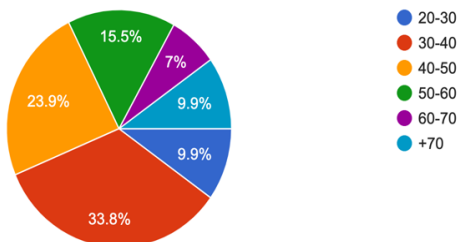
## Appendices

### Appendix 1: Customer interest survey

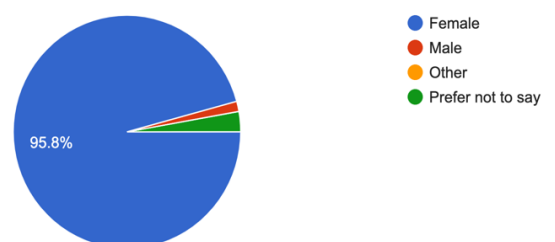
This survey is made to gather information about the interest in mended knitwear from Arela's customers. It is anonymous and the data is used for a thesis work at Metropolia University of Applied Sciences.

Kysely on tehty Arelan asiakkaiden kiinnostuksen kartoittamiseksi korjattuihin neuleisiin. Kysely on anonyymi ja kerätty informaatio käytetään Ammattikorkeakoulu Metropoliaassa toteutettavaan opinnäytetyöhön.

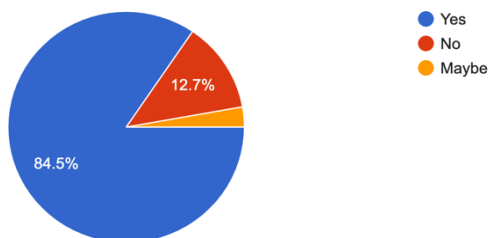
How old are you?  
71 responses



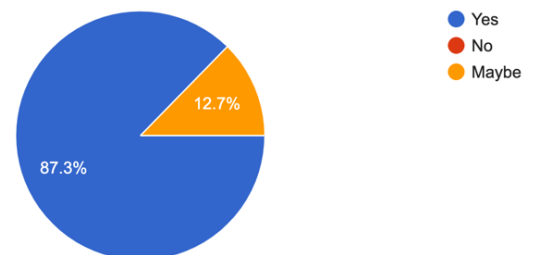
Gender  
71 responses



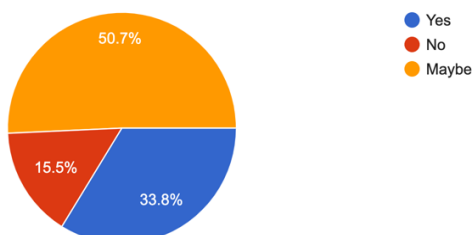
Have you ever mended your knitwear?  
71 responses



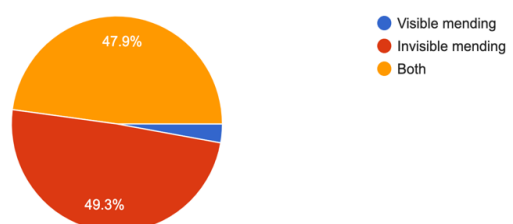
Would you be interested to have your worn-down knitwear mended?  
71 responses



Would you buy a visibly mended knit?  
71 responses



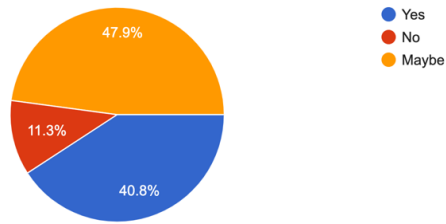
Do you prefer visible or invisible mending? (visible mending = embracing the holes in a knit by mending them in a visible way, making the mended ... seamless in a way the holes are no longer visible)  
71 responses





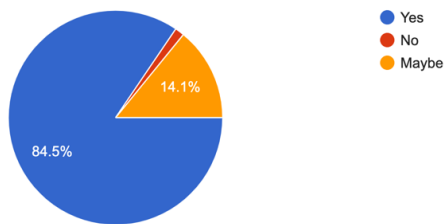
Would you find interest in a visibly mended knit? ( The mends would bring out a new design in the knit)

71 responses



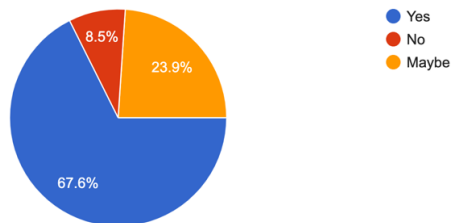
If not interested in purchasing a mended knit, would you find it interesting to see examples of what a mended knit could look like?

71 responses



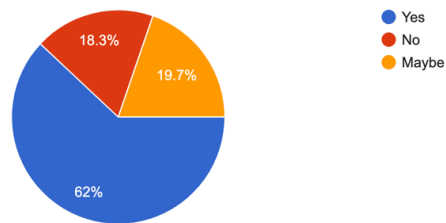
Would you be more interested in mending your worn-down knitwear if there were examples of mended knitwear available?

71 responses



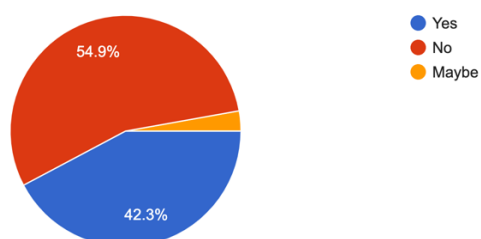
Would you find it easier to bring your knitwear to be repaired at Arela if there would be examples the possible outcome of the repair?

71 responses



Have you used Arela's care service before?

71 responses



Please write a short answer if you have something you would like to add about your interest in mended knitwear

10 responses

If I want to have my valuable and loved knitwear invisibly mended, there are practically no services/expertise available, except Arela for its own knitwear, which of course is greatly missed. (Could this old art be revived?) Visible mending could be done by almost anybody, especially as there are a lot of examples available online and in books.

This is a very good service. Especially when it concerns expensive knits and materials like cashmere.

It would be great to have a mending service, and that the service would not be limited to Arela brand but also other (good quality) knits. I personally lack the skills to mend any bigger holes in a neat way and it would be great to be able to extend the lifetime of the knits and even update the design at the same time. I think both visible and invisible mending options are interesting, depending on the knit.

This is an important topic from the point of view of sustainability and appreciation of the material - go for it!

Korjattujen vaatteiden myyminen on hieno ja kannatettava idea! Tosin toivoisin, että korjaaminen heijastuisi vaatteiden hintaan. Tuntuu hassulta huomata liikkeeseen tuomani neule korjattuna lähes alkuperäisen hintaan Arelan verkkokaupassa.

I can mend, so in order to save money, I think I'd do it myself. But for some more trickier problems I would like to use a professional, though I would like to see earlier results first, to be sure about the quality.

I would Expect Mended kaiteesta to be a lot cheaper compared to new ones, not as highly priced as your other items

-

I've used a mending service before (from Allude) and was happy with the results - unfortunately that service only caters for cashmere knits and I'd love to have also merino mended.

I have mended my knitwear already for many years, mainly in an invisible way but also felted them in high temperatures in order to make afterwards e.g. mittens.



## Appendix 2: Newsletter text and Instagram stories

This attachment has the newsletter text as well as the pictures used to distribute the survey in Instagram stories. Please note that the survey link is not included in the attachment.

### Kysely Arelan asiakaskunnan kiinnostuksesta korjattuihin neuleisiin

Ohessa olevan kyselyn tarkoituksena on kartoittaa Arelan asiakaskunnan kiinnostusta korjattuihin neuleisiin. Kysely on englanniksi ja on anonyymi. Kyselyssä kerättyä dataa käytetään Arelan kanssa yhteistyönä tehtävässä opinnäytetyössä Ammattikorkeakoulu Metropoliaassa. Opinnäytetyössä tarkastellaan ja kartoitetaan vaatteiden korjauksen historiaa sekä pyritään löytämään uusia kiinnostavia ratkaisuja neuleiden korjauksessa. Kyselyyn pääsee alla olevan linkin kautta.

### Survey of interest in mended and repaired knitwear for Arela's customer base

The attached survey has been created to collect data on Arela's customer base's interest in mended knitwear. The survey is anonymous. The data collected will be used in a thesis for Metropolia University of Applied Sciences. The thesis examines and maps out the history of clothing repair and aims to find new engaging solutions in repairing and mending knitwear. You can find the survey by clicking the link below.

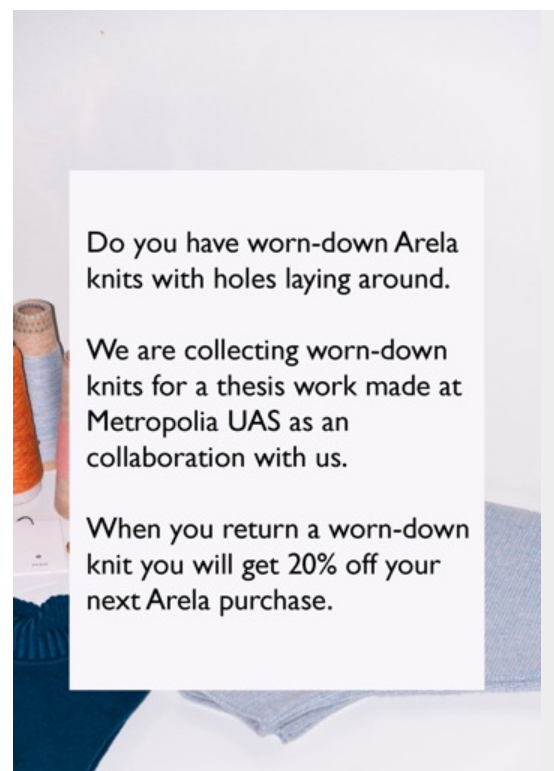
### Instagram Stories

These pictures were used in Arela's Instagram stories picture 0 was used to distribute the customer survey, and the second picture was shared to collect new worn-down knitwear for this project.

*Image 55 Instagram story 1*



*Image 56 Instagram story 2*



Appendix 3: Preliminary mood boards



Image 57 Preliminary moodboard 1



CALMN COLOURS



Image 58 Preliminary moodboard 2

VIVID COLOURS



Image 59 Preliminary moodboard 3

PATCHWORK



Image 60 Preliminary moodboard 4



Image 61 Preliminary moodboard 5



## Appendix 4: Mock-up images of mending experiments

All mock-ups are made using darning experiments. I have specified what experiment or experiments have been used for each mock-up image.

*Image 62 Mending experiment 1: darning squares*





Image 63 Mending experiment 2: Eyelet stitching portholes



Image 64 Mending experiment 2: Eyelet stitching combined with patchwork





Image 65 Mending experiment 4: darning circles



*Image 66 Mending experiment 6: darning combined with running stitches*





Image 67 Mending experiment 7: Swiss darning



## Appendix 5: Timetable for repairs

The timetable shows how long each project took to mend. The time it took to mend different techniques is specified.

<b>Project</b>	<b>Technique</b>	<b>Time</b>
<b>Sock</b>	Darning	1 x Square 1 h 45min 4 x Squares 7 h
<b>Beige patch</b>	Darning	1 x circle 45 min 5 x circles 3h 45 min
<b>Light beige patch</b>	Eyelet stitching portholes	3 h
<b>Blue sleeve</b>	Eyelet stitching a patch	2 h
<b>Black patch</b>	Patchwork and stitching	2 h
<b>Grey patch</b>	Darning and stitching	4 h
<b>Grey patch with float stitches</b>	Swiss darning	1h 30 min
<b>Orange sleeve</b>	Eyelet stitching patch and darning sleeve	Darning 1 h 30 min Eyelet stitching 1 hour



<b>Pants</b>	-	24h 55min
<b>Leg</b>	Eyelet stitching patch and running stitches	Eyelet stitching 2h 30min  Running stitches 2h
<b>Leg</b>	Darning	2 x small holes 30min
<b>Tears by waistband</b>	Eyelet stitching patch	2 x small holes 30 min
<b>Front side</b>	Darning	2 x small holes 40min
<b>Crotch (Final solution)</b>	Taking apart previous repair and applying new patch	2 h
	Eyelet stitching patch	3 h
	Darning	Green darning 1h 15min  Pink darning 30min
<b>Backside (Final solution)</b>	Making patch for backside + applying it	2h
	Eyelet stitching patch	4 hours

	Running stitches	2h
<b>Finishing pants</b>	-	1h
<b>Black Shirt</b>	Swiss darning	2h 30min
<b>Grey shirt (unfinished)</b>	Darning	3h