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## Upcycled liferaft bag, ecoinnovation thanks to a new material combination.

TAGS: Upcycled materials, upcycled liferaft, sustainable, upcycling,  
design strategies, experimentation, new production processes



## 1. Project definition

Two Hungarian brothers, Levante and Attila Magyar, are behind the creation of the company Mamukko, based in Kinsale (Ireland).

Having experience in leather craftsmanship, they preserved the traditional knowledge that was passed down in their family for four previous generations. But their creations have an added value: the textile used in the creation of their bags, comes from waste nautical material.

Initially, they used a basic template they acquired from their family, which they enhanced overtime, by combining sustainable new materials and urban, aesthetic designs. Thus, by utilising damaged sails and recycled leather, Mamukko forged the way forward, instigating Upcycling criteria in Ireland. They incorporated a 'Hugo Boss' sail, from the brand's racing yacht, then added recycled leather. This new material blend allowed them and their work to stand out and push it to a new level. By Upcycling material from local sails and famous international sail brands, they created opportunities to reach the public and explain their philosophy:

"Look first to our own environment for our needs, find that which is unwanted or has fulfilled its original purpose, yet, still retains intrinsic value, then rescue, and transform it into a new, useful and beautiful companion that can aid us and others in our daily life."

This philosophy transcribes physically into unique handcrafted bags made from Upcycled materials.

They manage every aspect of the circular journey, from sourcing the fabrics, to stitching the pieces, along with photographing the final products to present the outcome. Their business model and production style are not traditional. They design and make new products every week as their supply is never the same. They keep templates of nearly

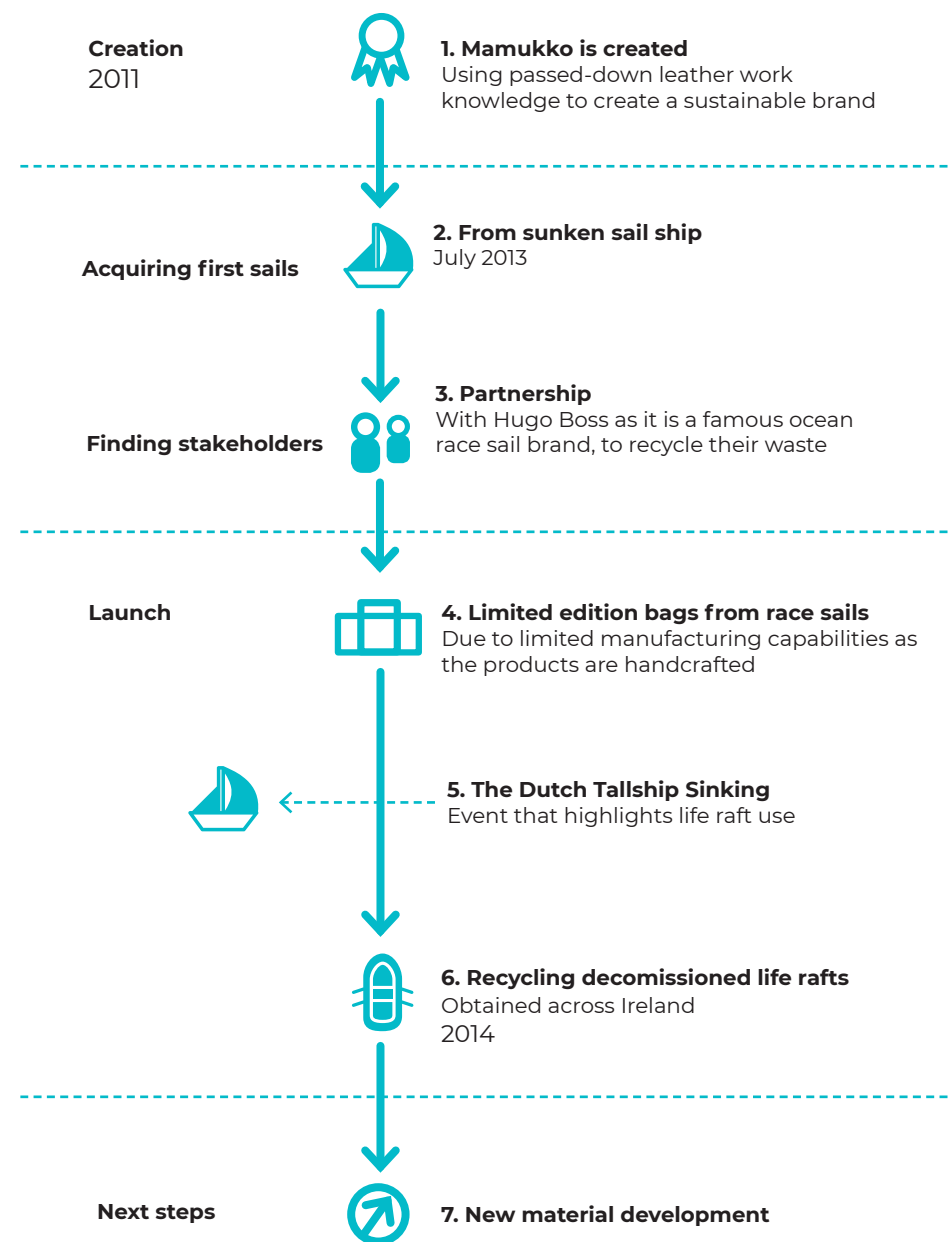
all the products they have made, but as a result of the sheer amount of new designs they create, they have stopped making some of the older designs. They are always constrained by the supply of fabrics they source. Therefore, they make small batches of limited edition ranges and one-off designs. Although they could repeat some of the designs, when the quantity of certain sails or fabrics allows it, they have until now preferred to reinvent themselves while enjoying constantly coming up with new innovative ideas and products. They continuously update their range and therefore, they recommend customers to periodically check their website if they are curious about what Mamukko is now up to.

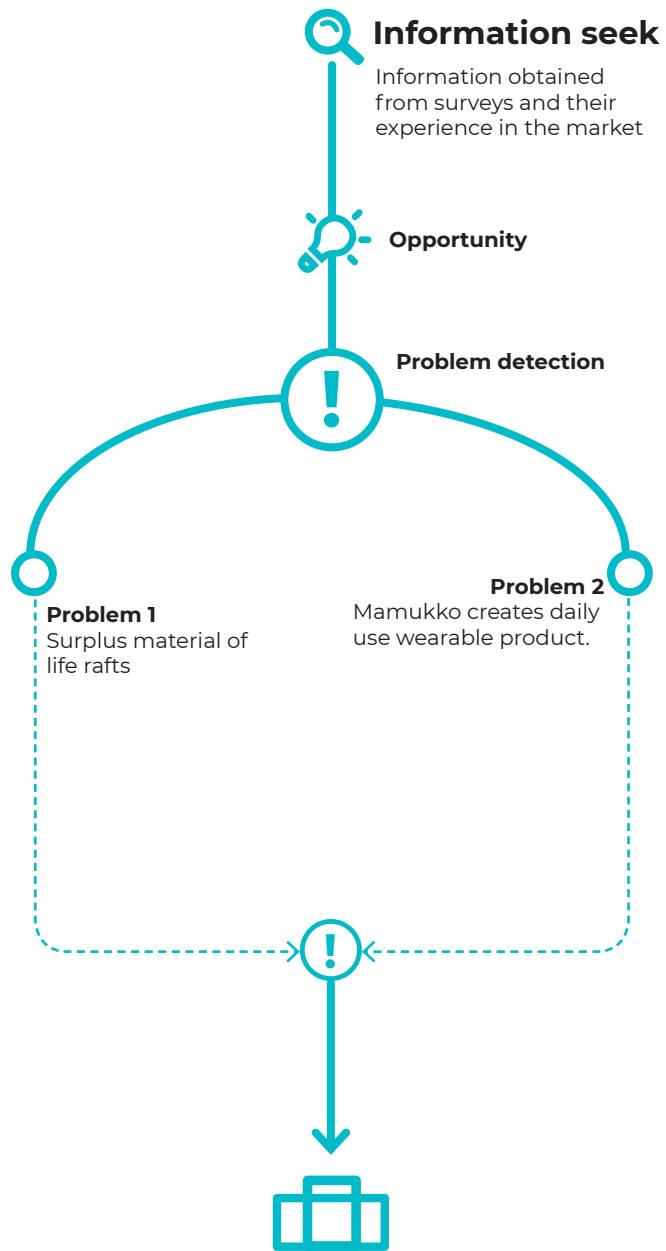
However, one event has greatly shaped their brand: the Dutch Tall ship, Astrid, sunk at the mouth of Kinsale harbour on 24th of July 2013. This opportunity to acquire different fabric from a beautiful Tall ship helped reinforce the sea related element of their brand. Further, they realised the potential of Upcycling life rafts, which had never been used as a material in the bag market. This innovative source of material had the potential to push the identity of their brand further: bags made with Upcycled materials from the sea. Moreover, it allowed them to expand their brand, thanks to the new possibilities of this strong, rainproof and efficient material, at the same time offering a solution to the Life raft waste problem.

The next step in the evolution of this project was to find the answer to the following questions: how to find providers, where to stock and clean the Life rafts, whether the material would adapt to the handcrafted handbag.

**KEYWORDS:** Damaged sail, craftsmanship, traditional, waste nautical materials, sustainable, upcycling, innovative ideas, liferafts, waste problem, rainproof, multi-disciplinary team

## Timeline





**A daily use wearable bag made with a material created for extreme situations.**

## 2. Research

In using the materials sourced from life rafts, Mamukko entered a bigger industry than they had expected. Life rafts currently represent a growing industry, which, will consequently generate ever more waste in the future.

Technavio's market research analysts forecast the global inflatable marine life raft market to grow at a CAGR of close to 4% during 2017-2021, according to their latest report.

The report also lists ocean, offshore, and coastal as the three major application sectors, of which the ocean sector accounted for more than 56% of the market share in 2016. According to Neelesh Prakash Singh, a lead analyst at Technavio for power research, "The growth of the market is mainly driven by an increase in the demand for naval vessels, owing to the growth in the cruise industry and seaborne trade. This demand is likely to have a positive impact on the demand for inflatable marine life rafts which are a necessity for seaborne vessels."

A growing industry also means an increase in waste generation. The two main types of life rafts are inflatable or pressurized, neither of which can be packed again once deployed, which makes them useless. Most companies do not currently recycle their waste and therefore it ends up destroyed or burnt. Few companies around the world recycle life rafts but this process is expensive, complicated to manage and it requires a material transformation. It involves a large amount of energy and carbon emissions. Thus, it is not profitable for companies to invest in doing so.

Through this research, the opportunity became clearer: the main question for Mamukko became how to transform a material created for an extreme situation in the sea, into one for daily use as a wearable product. They took this opportunity as an interesting challenge and a great topic to expand their knowledge on nautical materials.

**KEYWORDS:** Direct observation, information from reputable sources, seaborne vessels, waste generation, global inflatable marine life, Cruise Industry, seaborne trade, inflatable marine liferafts



The Mamukko bags are produced with upcycled liferaft, thanks to a recycling process developed by them and to a washing system installed locally.

### 3. Analysis

The two Hungarian brothers waited a year before beginning to work with this new material, to further develop their idea. Upcycling was a new opportunity and challenge they brilliantly decided to take upon by relying on their knowledge of sewing.

The first step was to recover the Life rafts that had been saved by the Coast Guard and the RNLI rescue. They then learned how to work this new material as well as how to combine it with leather. This analysis came in the form of experimentation. Thanks to their workshop, they already had all the necessary tools to transform the Life raft.

They quickly realized it needed special preparation as a post-consumer product, starting with power washing the fabric in industrial washing machines.

They then identified a set of problems that arose from using life rafts as a fabric for bags. Firstly, the life raft is, obviously, a post-consumer material. It has already been used and been in contact with the sea which presents a hygiene hazard. Secondly, they did not know how daily use would affect the life raft material's properties. It is designed to prevent stretching during an emergency in the sea and not designed to be worn as an accessory. Finally, the supply of this material is limited in Ireland. The objective was to acquire this material in reasonable quantities to allow for the development of several ranges.

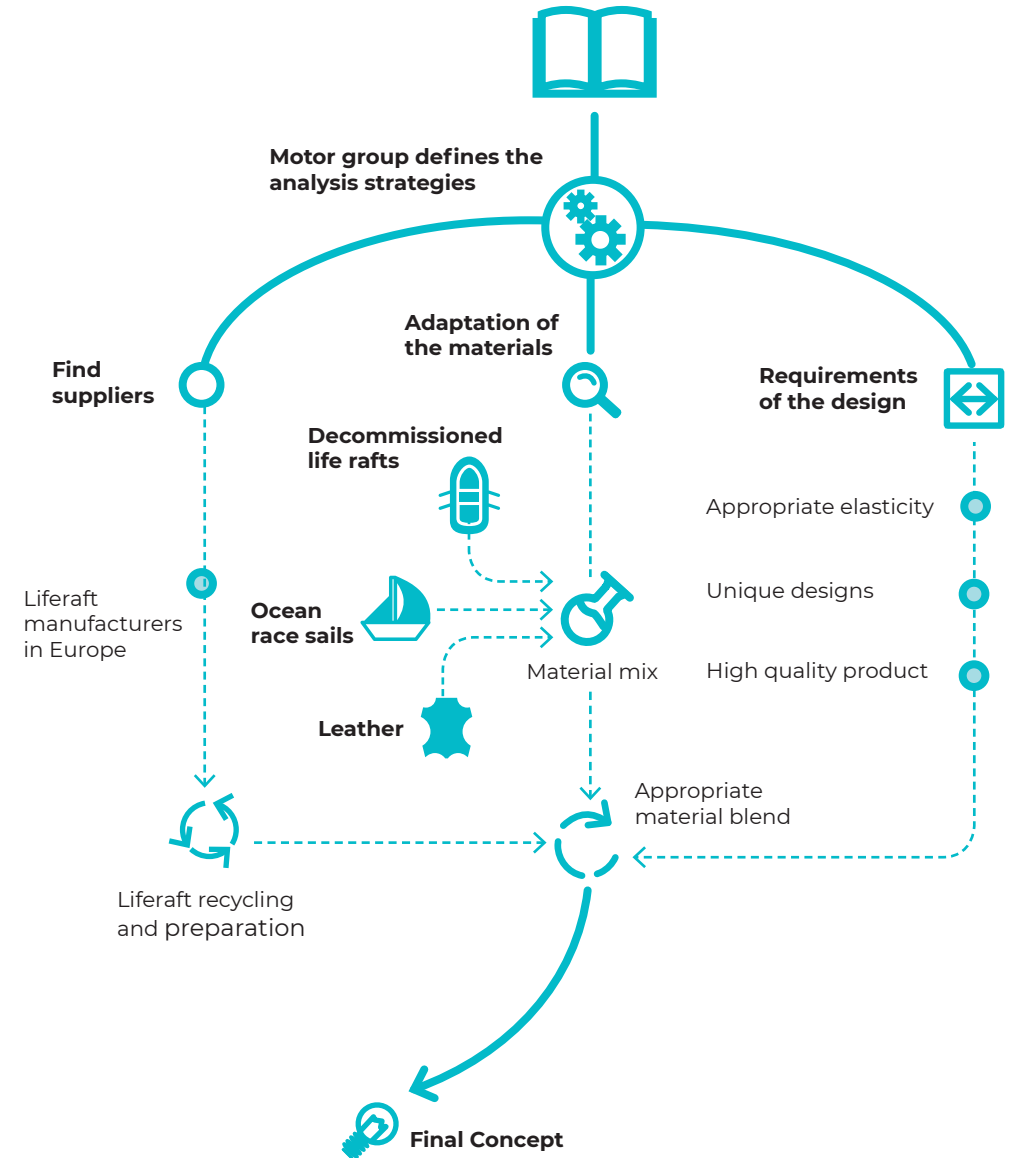
Once the fabric was ready, the challenge they faced was the rubber in Life rafts and leather had very different properties. While leather is a very elastic material, Life raft rubber does not allow stretching. So they experimented with design to find out what materials would work well together.

As a result of this process, they grew familiar with this new material, first,

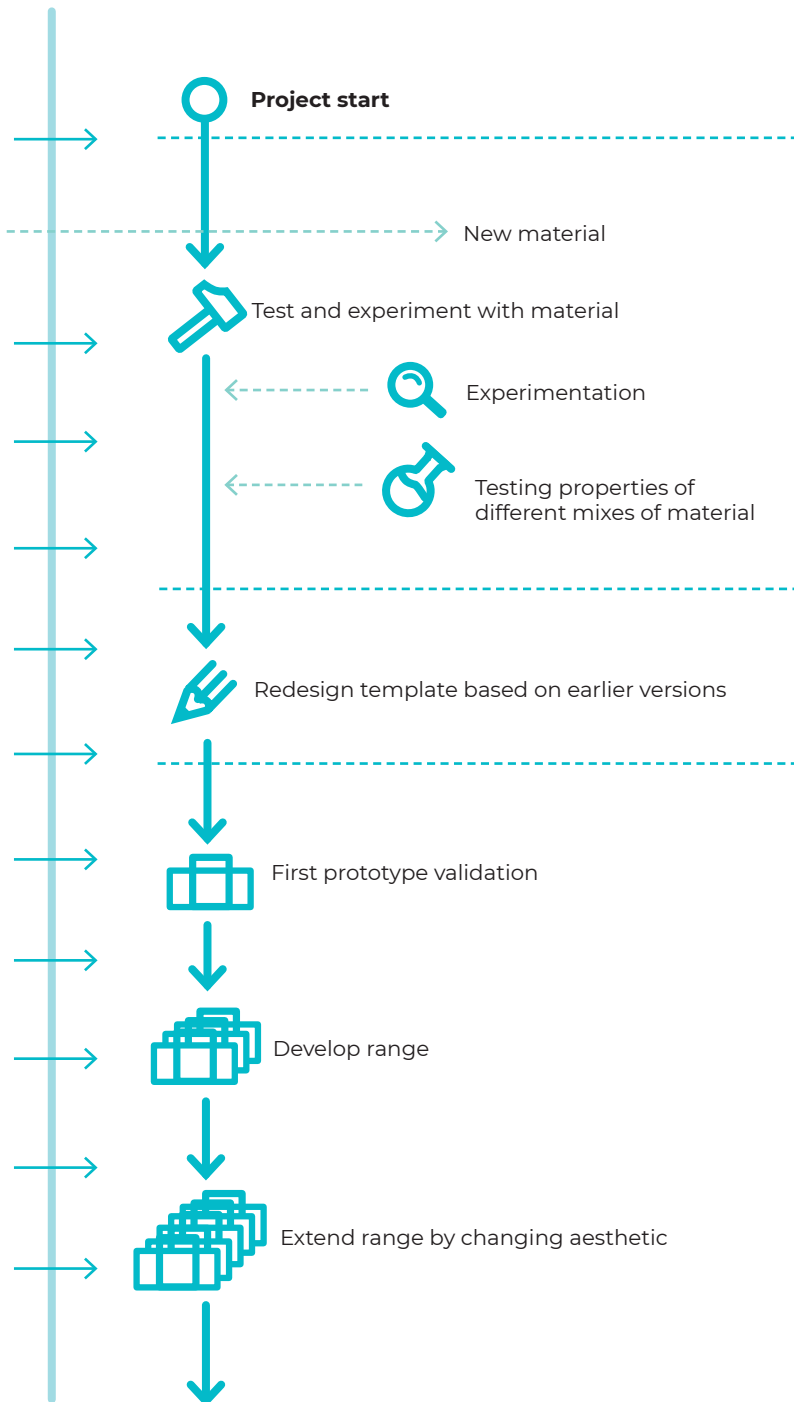
remodeling some of their classic designs to include Life raft rubber, then, with experience, allowing the rubber to inspire new functional designs. They remain open to work on a larger scale with certain grades of Life raft, as most of this material is shredded when it comes to the end of it's original nautical purpose.

They now collaborate with appropriate companies and individuals who are able to supply them with decommissioned Life rafts. The early years Mamukko worked with various unwanted materials found locally, now, they rescue unwanted rubber, damaged or old sail cloth and old leather, all destined for landfill, this has become Mamukko's mission. A combination of quality materials, each with their own unique history, an aesthetic eye for beauty, along with sound application of design principles and skills, teamed with an innate understanding for customer's urban life style needs, all these elements are not enough to keep Mamukko producing sustainable Upcycled products. The will and desire to make the world better in their local environment, using all they have, to make, if even just a small difference, is the main reason Mamukko is still here to tell their own story. They offer marine companies and government agencies a solution to lessen their carbon print, thereby closing the loop.

**KEYWORDS:** Analysis by experimentation, search of qualified providers, design collaboration, Post-consumer product, decommissioned life rafts, Upcycled.



The MG has the task of checking the result of each of the phases before moving on to the next



## 4. Concept

Once they found a way to combine these two materials, the prototyping process took about two days. Their goal with this project was to create an eco-urban vertical laptop bag, made from a combination of liferaft rubber and leather, that could accommodate a 15" MacBook computer and had a shoulder strap that was functional in an urban environment, on the road or on a bike. To do so, they worked with Marc O'Rian, with whom they discussed ideas for the design, but also with the previous owners of the Tallship Astrid, with whom they made a deal to recycle the life rafts as well as to be able to use the original Tallship Astrid logo for the bags.

They began to design a bag based on the template of one of their past models that found great market success. The aim was to devise an ergonomic design with straps and a comfortable handle to facilitate transportation, along with a size that would fit a 15" laptop.

Levi Magyar, textile artist and designer, sketched the idea he had for the bag and started working on the prototype right away by creating patterns from paper, cutting them from sails and stitching the parts together. Once the prototype was ready, the template was approved and Levi crafted more of them.

The cutting is done manually and is an important step. In order to have an original and authentic Liferaft feature on each bag, such as text or arrows, the pattern placement has to be strategic. The goal was to optimize the amount of the Liferaft material used while creating each bag.

There was no need for user testing as it was developed from an already successful template. Marc O'Riain kept one of the bags which he uses to this day.

**KEYWORDS:** Handcrafted bag, limited edition, unique design, test and experiment with material, project start, testing properties.

## 5. Prototyping

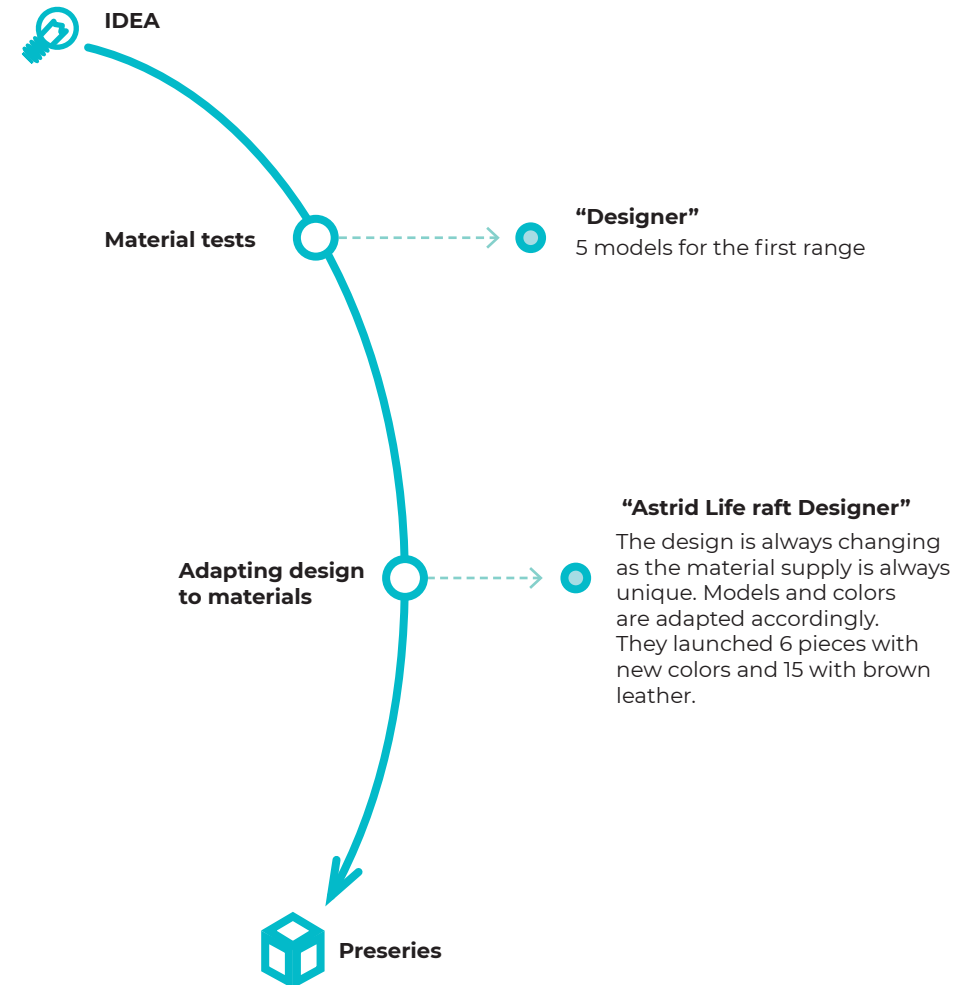
The prototypes were made from a material combination of sail fabric and leather and then crafted employing the same template used for the Liferaft-leather combination, using recycled paper to create the patterns.

While prototyping they had to keep in mind that because they were using a post-consumer material, the textile would not come in a roll and thus it would require special care in the optimisation of the material. This was already one of their practices due to the short supply and their sustainable values.

As a result of this stage they created a limited-edition range comprised of five bag models called "Astrid Life raft Designers". These were made using the salvaged sails and liferafts of a historic tallship named Astrid. The bags were sold in their shop in Kinsale between 2014 and 2015.

This range marked Mamukko's first step toward becoming a pioneer in Life raft upcycling in the sustainable market. Since then, they have created more than 5,500 bags from recovered fabric. They continue to search for new fabrics to upcycle, delivering the resulting bags around the globe.

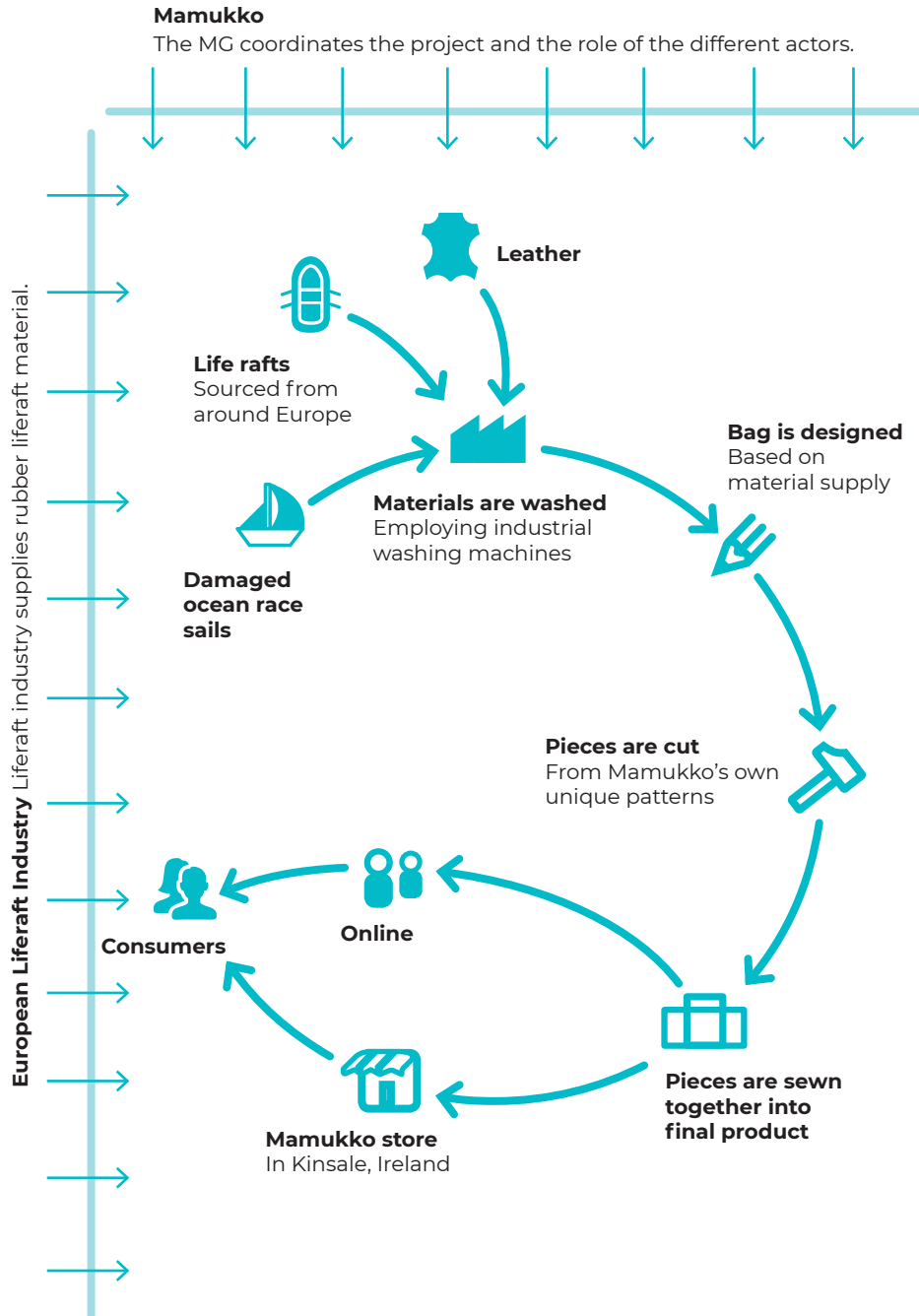
KEYWORDS: Functional prototype, material tests, extended range.





Mamukko bags are handmade and precisely cut to optimise the unique graphics in the material. They prefer to preserve the authenticity and the strength of the material by keeping its original aesthetic.





## 6. Project

Having an experience in leather craftsmanship, Attila and Levente make modern bags using upcycling criteria. Their innovation consists in reusing a material that is new to the bag market and transforming it into new products with added value.

Mamukko's system is sustainable from a social, environmental and economic point of view, and it's growing in popularity within the sea industry abroad.

As explained in previous sections, most inflatable and pressurized life rafts are not reused or recycled. Mamukko gives these strong, high-quality materials a second use through multiple processes.

The small scale of the company facilitates local production, with a supply from around Europe. Basing their manufacturing in Ireland has had a very positive social and environmental impact. The material is stocked, washed, and prepared for processing in Ireland by Mamukko and sold in their shop based in Kinsale or online and delivered around the globe.

Although leather has the opposite properties to those of a life raft, the combination of the materials was possible due to Mamukko's expertise and a lot of experimentation, which resolved all the issues that initially arose.

It is important to highlight the example they are setting within the fashion industry by succeeding to sell high-quality, luxury products from a material that would otherwise be discarded and perceived as waste. They are not only giving this material a second use, but adding value to it through expert

artisanal skills and a beautiful design. They are demonstrating the value of rethinking the purpose of a material and applying it outside of its typical domain.

**KEYWORDS:** Recycled material, experimentation, new material combination.