

# Designing a reusable packaging solution for KPN

KPN wants to accelerate the journey to become near 100% circular by 2025, in which the reduction of packaging waste plays an important role. To meet this goal, this project proposes a new, zero-waste packaging approach for networking equipment used in KPN's business-to-business market.



## The Product: A Reusable Messenger Bag

With insight from this research and pilot, a final product is developed; a reusable messenger bag. It is a durable, relatively cheap, functional product that's already known, and valued, among the manufacturer and mechanics of KPN. The reusable 'messenger bag' is made to package three of the most popular Cisco devices being used in KPN's business market.

The exterior of the messenger bag is made of a water- and dustproof polypropylene liner. The interior consists of a stiff container with a soft padding to ensure protection throughout the delivery process. The cables and accessories that come with the Cisco device are separately stored in a pouch, to improve overview and workflow during installation. The bag is opened with a roll-top, which is secured by velcro and two buckles. This option is cheaper and more durable than a zipper. The packaging has three designated sticker areas for the 6-8 stickers it needs during one use cycle. This sticker area is made of a special underlayer (Swaplabel) that allows for easy label removal after use.

The material of the packaging has been carefully thought out to ensure recyclability at end-of-life. The exterior (inc. buckles etc.) and boxy interior are all of polypropylene, which is an excellent plastic to recycle. As all these parts are sewed together, it can be recycled in its integrity. The only part that's not mono-material is the inside padding, which is made of recycled felt, produced from 80% disposed garments. As this is a different material, it is not permanently fastened to the packaging, allowing it to be separated easily.



## The System: Existing & tested return logistics

In a pilot, the forward and return process of KPN were successfully tested, showing that the current, existing logistic system is resilient to reusable packaging. With a distribution model that's built around the mechanic, who is the initiator of return, the return logistics can potentially even be improved. This 'mechanic-centred system architecture' makes sure the mechanic always has a stockpile of reusable packaging to allow a smooth and quick return process. The supply of the packaging to and from the mechanic is regulated using an automated stock system.



## Resulting in:



### Reduction of Product Damage

It was also found that electronics are potentially damaged due to improper use of return packaging in a rough return process. By consistently providing the right return packaging to the mechanic, electronics could be packaged more safely and therefore decrease the product damage by an estimated 5%



### Reduction of Packaging waste

The reusable packaging saves around 0.8 kg of cardboard and plastic waste per trip. In its entire lifetime, the reusable packaging has the potential to reduce 8kg's of CO2. This results in an environmental CO2 break-even between 4 - 7 use cycles.



### Improvement of Workflow

The pilot showed that the manufacturer could potentially save 15% of time spent on packaging by introducing the reusable packaging. The mechanic also saves time and hassle, because he no longer has to get rid of packaging waste. Small functionalities like handles to easily carry the packaging and a pouch to store adapters add to a smooth workflow for all involved.

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