

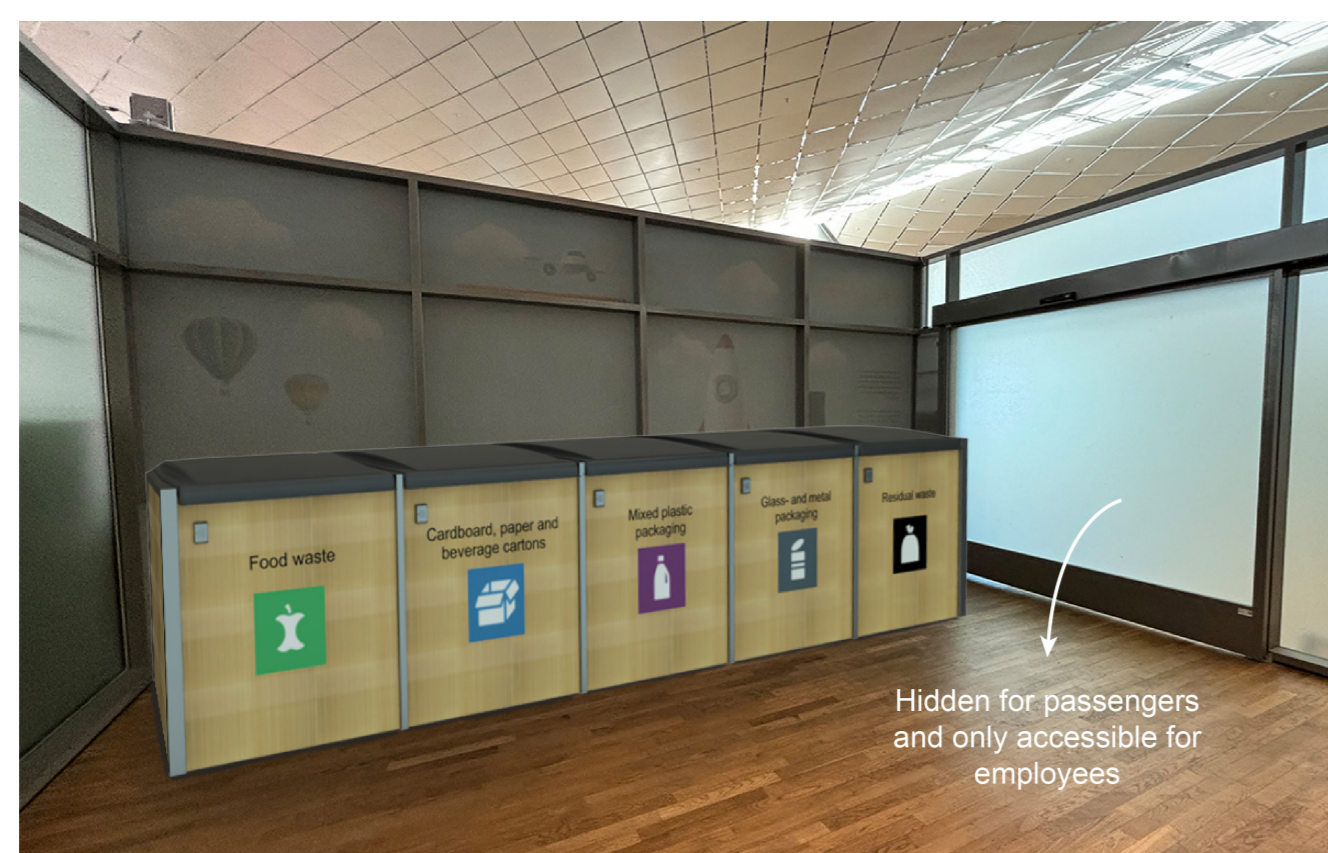
# TAKE-OFF TOWARDS CIRCULARITY

The design of a comprehensive product-service system to establish a sustainable and centralised internal waste logistics system for Oslo Airport

## Context

With thousands of passengers passing through daily, efficient and sustainable waste management is crucial for modern airports. As Oslo Airport continues to grow and handle increasing passenger volumes, the need for a streamlined, centralised waste logistics system becomes of great importance. Also, to reach the sustainability goals for 2030 and 2050 actions to innovate and implement sustainable practices in aviation must be taken. The EU funded TULIPS consortium contributes to the green transition by developing and implementing innovative solutions on airports. Together with TULIPS and TU Delft, Oslo Airport aims to reach their goal of zero-waste in 2030 and to become fully circular by 2050.

The focus of this specific project lies on enhancing waste disposal efficiency, ensuring proper waste separation, reducing waste and promoting circularity within the airport terminal.



### Container hubs

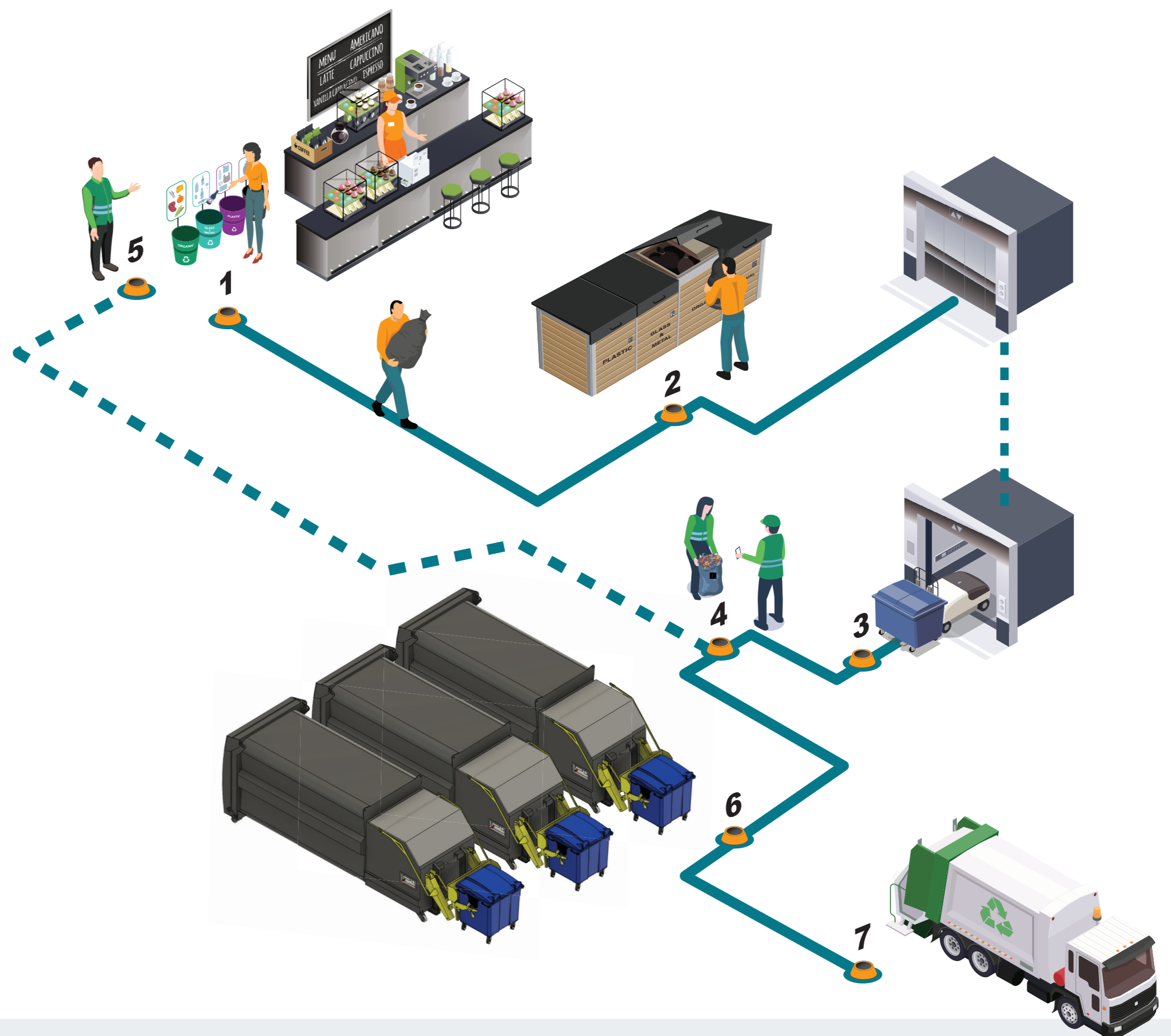
These container hubs reduce walking distances between commercial units and Returpunkten. They are placed throughout the terminal and are only accessible by employees via ID cards.

## Result

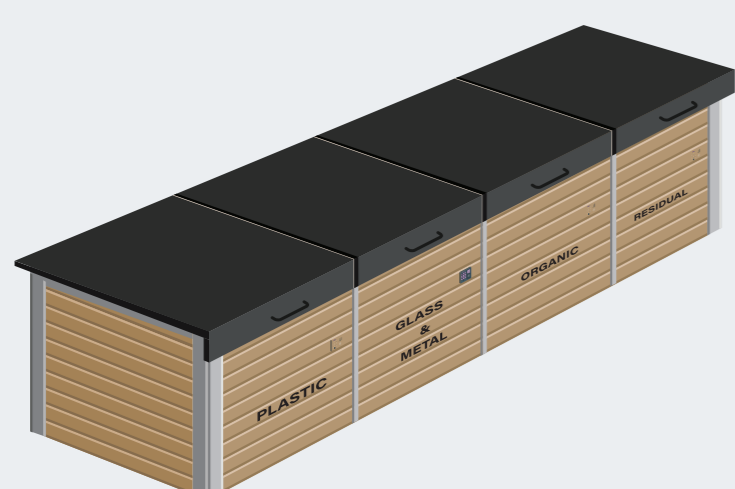
With the insights from various research techniques, such as interviewing stakeholders, observation studies, a co-creation workshop, analysing best practices and stakeholder- and waste mapping, a foundation for informed design decisions was created. The insights showed that the service should provide solutions for the logistical constraints at the airport, for motivating the people to properly reduce and recycle waste and to fix the information provision regarding waste that is sub-optimal currently.

The proposed service includes a centralised waste disposal intervention in the form of container hubs placed throughout the terminal, a feedback system for improper waste separation, and a weighing solution for waste measurement, supplemented with a financial disincentive mechanism to stimulate waste reduction.

- [1] waste separating at commercial unit.
- [2] waste bag deposit in container hub with instant weighing.
- [3] automated guided vehicle transports waste to Rp19.
- [4] waste team performs spot checks on separation.
- [5] tenants receive feedback and a fee for residual waste.
- [6] waste bags are emptied in compactors.
- [7] recycling company hauls the containers.



### Pilot test 2024



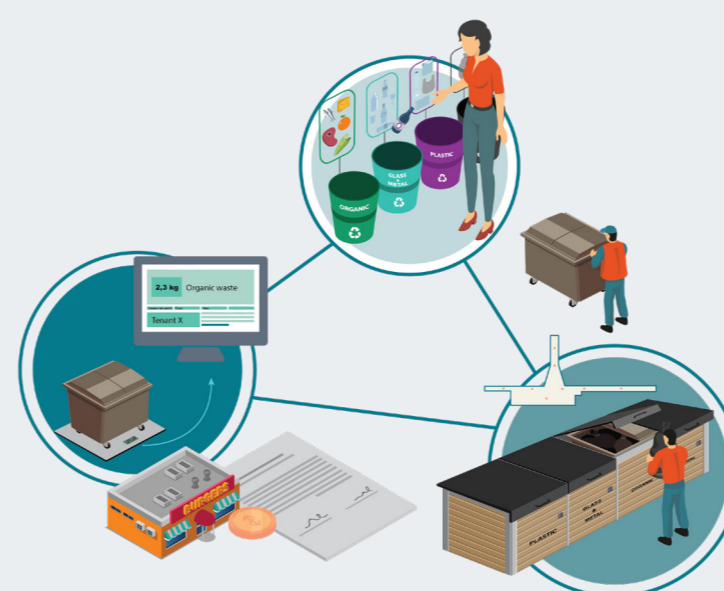
A pilot with one container hub to test the feasibility of the concept.

### Introduction 2025



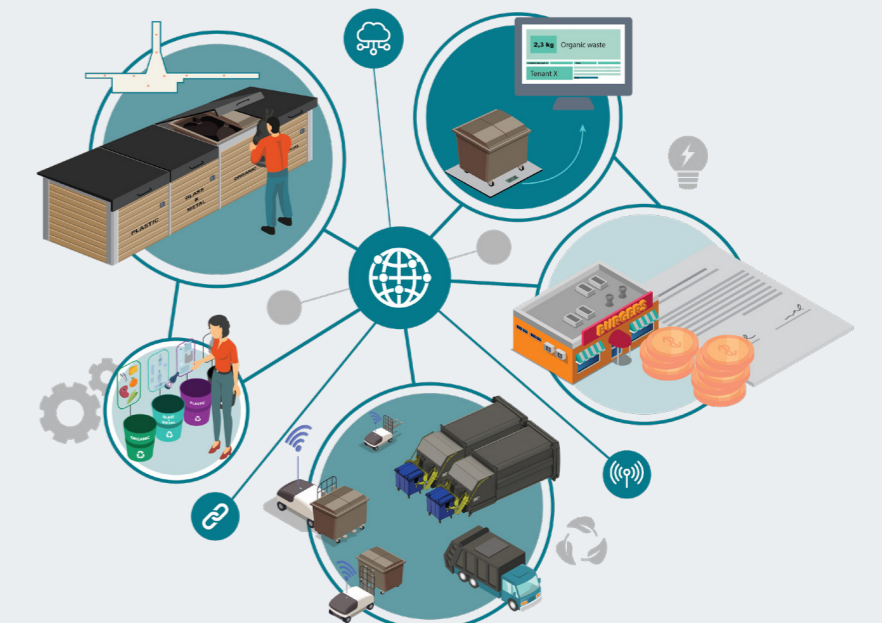
Improving employees' awareness and understanding on waste reduction and recycling.

### Development 2025 - 2030



A waste management system consisting of aligned information signs, container hubs in the terminal hall and a waste fee for residual waste.

### Maturation 2030 - 2025



A robust waste management system with automatic waste transportation that helps achieving the goal of becoming a circular airport.

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Creating a sustainable and centralised  
internal waste logistics system for Oslo Airport  
08-07-2024  
Strategic Product Design

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