

# SSKe - Large-Scale, Coordinated Customized e-commerce Deliveries

**Deliveres of refridgerated goods without active cooling**

A pilot study with Sustainable Innovation, StoraEnso,  
Dagab, Freelway and Lunds University cofunded by Drive  
Sweden and Aster



# The project

- **The challenge** is radically increased energy demand – up to 40% - for cooling units in vehicles for distribution of groceries. **This is a hinder for efficient electrification.**
- The project's goal is to verify a **large-scale solution for sustainable deliveries of chilled food** in a **verified unbroken cold chain** adapted to e-commerce's distribution processes.
- Unique solution **without active cooling during transport** through a insulating cardboard with connected temperature sensor to verify unbroken cold chain.



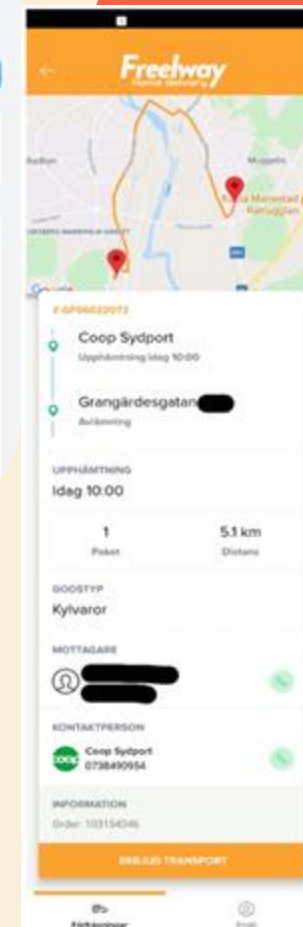
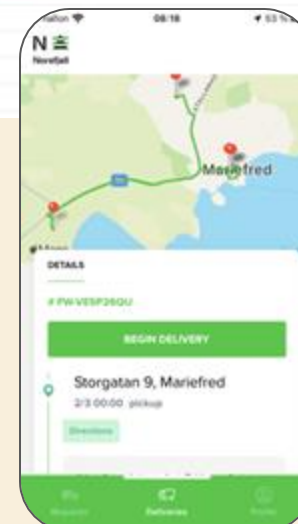
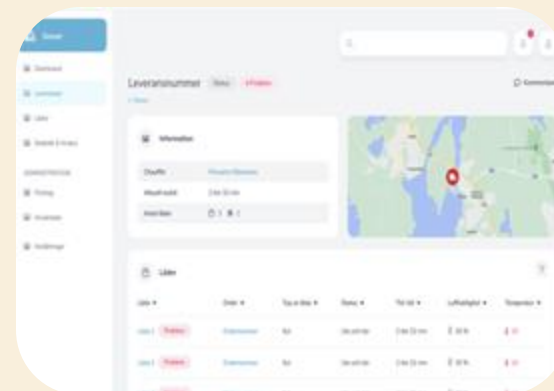
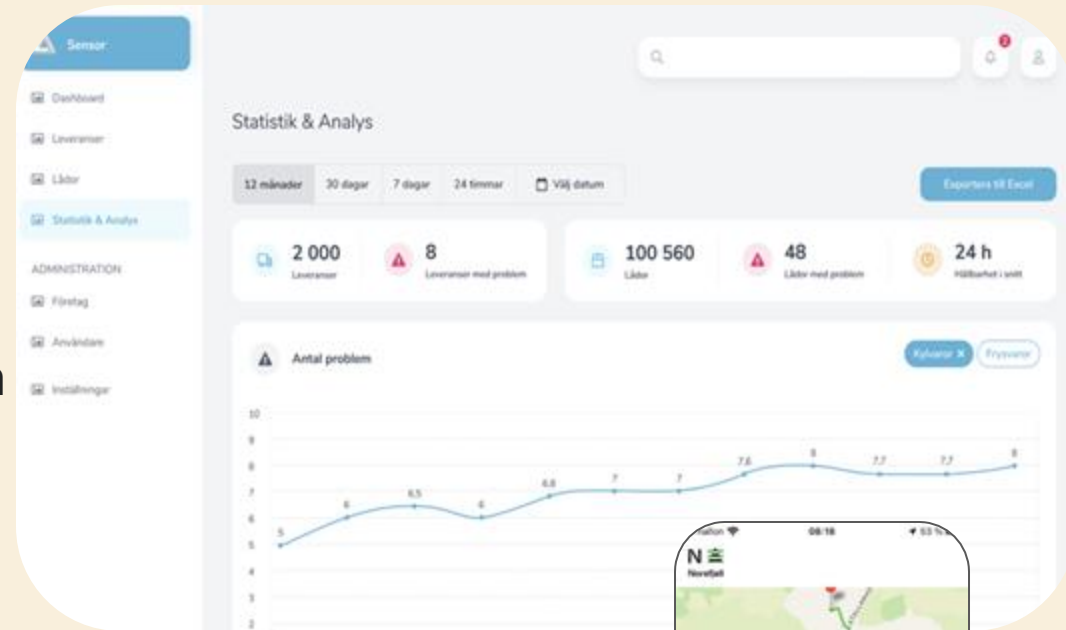
# Cool chain without active cooling

- Logistics solution for sustainable e-commerce of refrigerated goods
- No cooling units during transport - electric vehicles can be used efficiently
- New sustainable material from StoraEnso replaces active cooling and plastic boxes



# IT platform and sensor solution

- Cloud based solution with dashboard for deliveries, route and temperature data
- **Verifies an unbroken cold chain**
- Based on Freelways share mobility platform



# Test with Coop in Mariestad



# Pilot with Middagsfrid Dagab in Stockholm City and suburbs

- Purpose: Learning and verifying the concept with an unbroken cold chain – stress test of concept
- Production: Middagsfrids pre-planned grocery bags
- Volume: 40 boxes in circulation, biweekly deliveries
- Customers: Household customers in Stockholm city and suburbs
- Evaluation: Production process, cooling capacity, end customer respons and boxes circulation durability




# 2nd Pilot Foodora Stockholm City



- Purpose: Learning and verifying the concept with an unbroken cold chain – totally different application
- Production: in Stockholm City from Foodora Markets with Starship robots
- Volume: 4 test deliveries and 1 week full production from Foodora Market at Södermalm.
- Customers: Household customers in Stockholm city.
- Evaluation: To verify temperature differences and secure food safety.



A large, ornate fountain with multiple tiers and water jets is the central focus. In the background, a grand, classical-style building with columns and a pediment is visible. The scene is set in a park with greenery and a blue sky with light clouds.

# Circular home deliveries of groceries – a packaging logistics perspective

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FREDRIK NILSSON & NATHALIE SILVA

# Circular home delivery concepts of groceries need end-customer involvement!



## Consumer experiences

- “light, easy to carry, good protection and good isolation, “allows groceries to be well packed and stable” and “better than 5 paper bags”.

But also some issues in keeping the box until next delivery (particularly those living in smaller apartments)

- “I want to know why it has to be returned to justify keeping it for a whole week”.

The current issue and full text archive of this journal is available on Emerald Insight at:  
<https://www.emerald.com/insight/0959-0552.htm>

## Enabling competitiveness in home-delivery through sustainable packaging logistics

Nathalie Silva and Fredrik Nilsson  
Department of Design Sciences, Centre for Retail and Logistics (REAL),  
Lund University, Lund, Sweden

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**Abstract**  
**Purpose** – The purpose of this research is to examine the role of logistics and packaging in home-delivery of food and groceries and identify opportunities for sustainable packaging logistics innovations that can enable competitive advantages for retail actors.  
**Design/methodology/approach** – This research is based on a case study of a novel home-delivery concept for food and groceries, together with a structured literature review on recent literature. Building on the key findings from the case study and the literature review, the Resource-Advantage theory is used for knowledge development and formulation of research propositions.  
**Findings** – This study identified a clear gap in the literature on the integration of logistics and packaging in home-deliveries while the case study revealed potentials of packaging logistics in home-delivery settings. For retail actors, it is argued that packaging logistics can enhance competitiveness of e-commerce by increasing efficiency and effectiveness and reducing environmental impact.

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## Exploring the circular last mile: reusable packaging in home delivery of food and groceries using a design science approach

Nathalie Silva and Fredrik Nilsson

Division of Packaging Logistics, Department of Design Sciences, Lund University, Lund, Sweden

**ABSTRACT**  
The market for home deliveries of food and groceries has been growing in the last years, and with it so have the associated environmental impacts: emissions from the delivery routes, energy for the cold chain and packaging waste are some of the main concerns. The purpose of this paper is to contribute with knowledge to support the development and implementation of circular retail supply chains, with focus on customer involvement and logistics operations in home deliveries of food and groceries. This study is based on a design science approach that follows three main steps: (1) development of the ‘circular delivery concept’ (i.e., the artefact), (2) field-test in real-life conditions and (3) key-learnings and implications on theoretical, managerial, and policy domains. The feedback from the actors involved in the concept (customers

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Circular economy; food and groceries; home delivery; packaging logistics; sustainability



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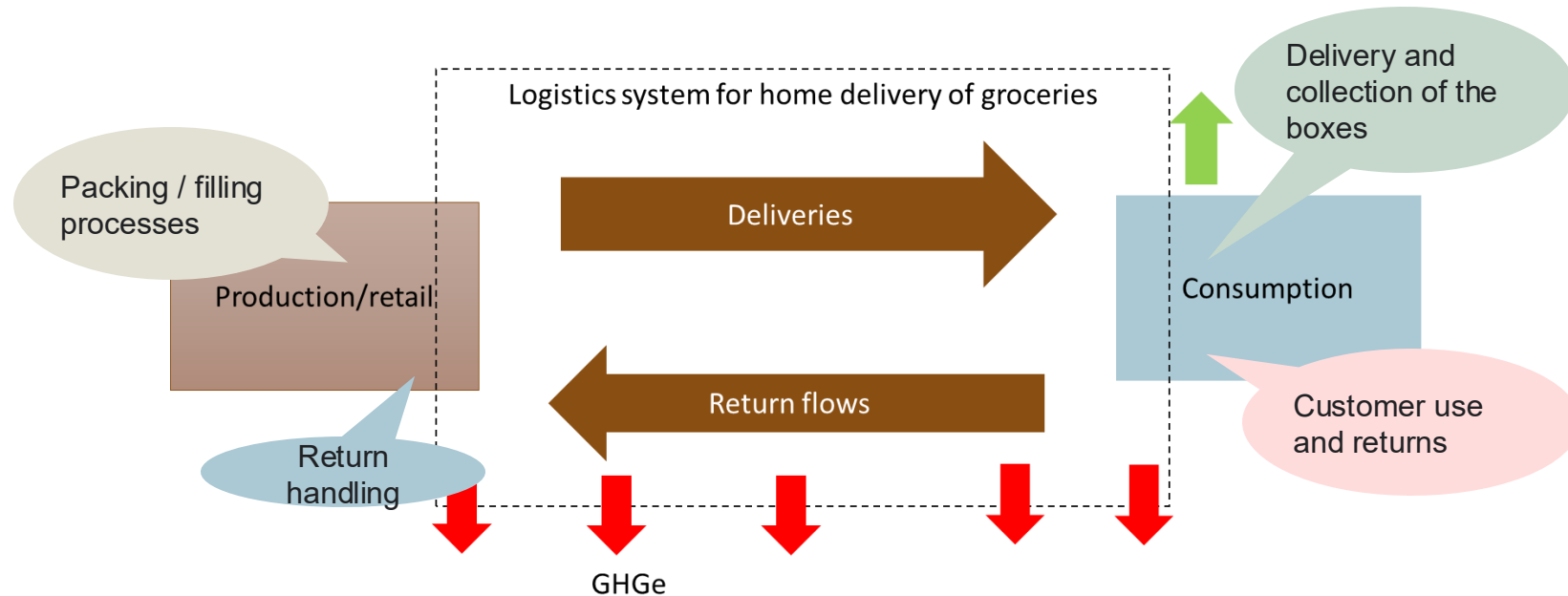
# Towards climate-neutral home deliveries

Non refrigerated home-delivery is possible and provides new values, however,

- (1) customers need to be included as active actors in circular supply chains and,
- (2) the use of circular packaging in production (reverse handling) needs further development to become cost-effective.



# Central areas for further development



- Concept is verified in production and stress test
- Next steps are is identifying use cases in different fleets and commercialization





**Project manager  
Roland Elander  
roland.elander@sust.se**



**Sustainable  
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