Case studies:

Circular food delivery systems in institutional catering

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CIRCULAR ECONOMY
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INSTITUTIONAL

ÖKOMARKT HAMBURG

Introducing reusable deposit systems in school canteens in Hamburg

Two vocational schools piloted reusable deposit containers to reduce single-use takeaway packaging.

Hamburg tested reusable deposit systems in two vocational school canteens. The pilots introduced reusable bowls and cups for takeaway food and drinks, combined with a deposit-return model.

The aim was to reduce disposable packaging in school catering while encouraging behavioural change among students and staff.

Category
Public institutional catering (schools)

Theme
Reusable packaging systems & circular catering

Climate technology
Reusable deposit cups and bowls (RECUP / REBOWL system)

Organisations
Ökomarkt Hamburg, vocational schools, catering companies, Kiel University

Reductions

Single-use takeaway containers replaced with reusable deposit cups and bowls

Gains

2 school pilots implemented in 2025

Reusable system integrated into daily canteen operations

Investment

Reusable RECUP / REBOWL containers

Communication materials and awareness activities

Pilot coordination and surveys

Acceptability

Feasibility

Scalability

Climate return on investment

The pilots demonstrate that reusable deposit systems can significantly reduce disposable packaging when integrated into everyday school catering. By replacing single-use takeaway containers with reusable cups and bowls, the system creates a circular flow of packaging materials.

The climate benefit depends on consistent return rates and user participation. When reusable systems are clearly explained and embedded in daily routines, students adapt quickly and packaging waste can be reduced without major operational disruption.

Things to be aware of

User convenience is critical. Some students perceived deposits or carrying containers as inconvenient.

Return infrastructure and clear communication strongly influence participation and return rates.

Scaling potential

- High relevance for schools and public catering environments where takeaway meals are common.
- Reusable deposit systems can be scaled across school networks if supported by clear communication, staff engagement and accessible return infrastructure.

Requirements

Technical:
Reusable container systems (e.g. RECUP / REBOWL) and return logistics.

Organisational:
Coordination between schools, caterers and system providers.

Economic:
Initial support for start-up costs and deposits.

Competence:
Communication and awareness activities for students and staff.

How to get started!

1. **Engage the school community**
   Work with teachers, students and caterers from the start.
2. **Communicate clearly**
   Explain the environmental benefits and how the deposit system works.
3. **Provide accessible return points**
   Ensure containers can easily be returned during school hours.
4. **Download**
   Tools & templates on Change(K)now's website.

INSTITUTIONAL

CITY OF COPENHAGEN

Reusable food containers in Copenhagen’s schools

Testing RFID-enabled reusable containers in Copenhagen’s EAT programme

The City of Copenhagen tested reusable food containers within its EAT school food programme. By introducing containers equipped with RFID technology, the pilot combined circular packaging with data collection to better understand usage patterns, return rates and operational performance.

Category
Public institutional catering

Theme
Reusable food containers in school food services

Climate technology
Reusable containers with RFID tracking

Organisations
City of Copenhagen, EAT programme, technology providers and knowledge partners

Reductions

Single-use takeaway packaging reduced in school food services

Gains

RFID-enabled containers introduced in EAT programme

Data collected on usage and return rates

Operational insights used for system optimisation

Investment

Reusable containers and RFID technology

Staff training and system implementation

Data collection and analysis

Acceptability

Feasibility

Scalability

Climate return on investment

The pilot demonstrated that reusable food containers can be implemented in institutional catering when supported by data and strong stakeholder collaboration. RFID tracking enabled improved decision-making and system optimisation over time.

Things to be aware of

Operational complexity and staff workload can increase during early implementation. Return systems must be simple and clearly communicated to ensure user participation.

Scaling potential

- Data-driven reusable systems can support scaling in institutional catering.
- The approach is particularly relevant for schools and large-scale public food services.

Requirements

- **Technical:** RFID-enabled containers and tracking systems.
- **Organisational:** Coordination between kitchens and partners.
- **Economic:** Investment in containers, technology and logistics.
- **Competence:** Staff training and user communication.

How to get started!

1. **Introduce reusable containers**
   Replace single-use takeaway packaging with reusable alternatives.
2. **Integrate tracking systems**
   Use data to monitor usage and return rates.
3. **Train staff and inform users**
   Ensure clear understanding of system use.
4. **Adapt and optimise**
   Continuously improve based on operational data.

INSTITUTIONAL

CITY OF LAHTI

Embedding circular packaging criteria in public procurement in Lahti

Lahti tested sustainable procurement criteria to reduce food packaging impacts through upstream public purchasing decisions.

The City of Lahti piloted the integration of nine sustainability-related packaging criteria into public procurement processes for institutional catering during 2025. Rather than testing a single technical solution, the pilot embedded circularity requirements directly into tender documents and supplier contracts. The aim was to reduce fossil-based plastics, increase recyclability and reuse, and stimulate innovation in packaging materials while maintaining cost neutrality.

Category
Public institutional catering (procurement level)

Theme
Circular procurement & sustainable packaging criteria

Climate technology
Bio-based materials, reusable systems, recyclable and reduced packaging

Organisations
City of Lahti & institutional catering suppliers

Reductions

Reduction of fossil-based plastics through procurement criteria

Minimisation of unnecessary packaging (≤50% empty space requirement)

Promotion of reusable transport packaging systems

Gains

Cost-neutral sustainability integration in procurement

Improved supplier dialogue and transparency

Alignment with EU packaging regulation

Investment

Staff time for criteria development and market dialogue

Contract drafting and monitoring adjustments

Capacity building for procurement units

Acceptability

Feasibility

Scalability

Climate return on investment

The pilot demonstrates that packaging reduction can be achieved through systemic procurement leverage rather than individual product substitution. By integrating sustainability criteria into contracts, Lahti influenced suppliers to reduce fossil-based plastics, optimise packaging weight, improve recyclability and promote reusable transport systems.

The main climate return lies in structural impact: procurement criteria affect entire product categories and supplier practices across large volumes. Most criteria were assessed as cost-neutral, meaning environmental gains can be achieved without increasing municipal expenditure.

Things to be aware of

Market readiness varies. While reusable transport boxes and recyclable packaging are widely available, fully renewable GN containers and certain bio-based solutions are not yet mature. Implementation depends on supplier dialogue, verification mechanisms and policy literacy. Clear contract drafting and monitoring are essential, and cost neutrality remains a key political condition.

Scaling potential

- High relevance for municipalities and public authorities using Green Public Procurement.
- Because criteria are integrated at procurement level, replication does not require new infrastructure at canteen level. The approach can be transferred to other cities, regions and national authorities with similar procurement structures.

Requirements

- **Technical:** Availability of bio-based, recyclable and reusable packaging solutions; verification through recognised standards.
- **Economic:** Cost neutrality or political willingness to allocate sustainability budgets.
- **Organisational:** Integration into procurement workflows; supplier dialogue and contract monitoring.
- **Competence:** Procurement officers trained in sustainability criteria and regulatory frameworks.

How to get started!

1. **Start upstream**
   Embed sustainability criteria directly into tender documents.
2. **Engage the market**
   Conduct supplier dialogue to assess feasibility and innovation potential.
3. **Secure political backing**
   Ensure alignment with municipal sustainability targets and budgets.
4. **Download**
   Tools & templates on Change(K)now's website.

INSTITUTIONAL

CITY OF LAHTI

Optimising wholesale packaging practices in Lahti’s institutional catering supply chain

Lahti analysed wholesaler packaging practices to identify circular solutions in inbound food logistics.

Lahti examined packaging practices in food wholesale and inbound logistics for institutional catering. The objective was to identify barriers and opportunities for reducing single-use transport packaging and promoting reusable or recyclable alternatives within the supply chain.

Category
Food wholesale & inbound logistics

Theme
Circular transport packaging & supply chain optimisation

Climate technology
Reusable transport boxes, optimised plastic films, fibre-based bands, pallet lids, RFID-enabled reuse loops

Organisations
City of Lahti & food wholesalers

Reductions

Overpackaging and multilayer transport packaging identified as key reduction targets

Single-use stretch film use analysed for optimisation potential

Gains

Identification of reusable packaging loop opportunities

Digital tracking (RFID) recognised as enabler for circular systems

Investment

Stakeholder workshops and supply-chain analysis

Exploration of material innovation and equipment adaptation needs

Acceptability

Feasibility

Scalability

Climate return on investment

The analysis demonstrates that transport-level packaging offers significant reduction potential when optimised across large food volumes. Reusable boxes, thinner plastic films, and improved pallet systems can reduce material intensity without altering food products.

However, transformation depends on system-level coordination between wholesalers, producers and municipal actors. The climate return is therefore linked to supply-chain collaboration rather than isolated operational measures.

Things to be aware of

Hygiene requirements and regulatory restrictions limit the use of recycled materials in food contexts.

Cost, equipment compatibility and operational efficiency remain key barriers to large-scale transition.

Scaling potential

- High relevance for municipalities with centralised catering systems relying on wholesale supply chains.
- Reusable packaging loops supported by digital tracking (e.g. RFID) show strong long-term potential but require cross-sector cooperation and aligned incentives.

Requirements

Technical:
Reusable containers, optimised transport films, fibre-based alternatives, tracking systems.

Economic:
Cost-competitive solutions and investment capacity within wholesale logistics.

Organisational:
Collaboration between producers, wholesalers and municipal buyers.

Competence:
Knowledge of regulatory constraints and packaging innovation.

How to get started!

1

Map current flows

Analyse inbound logistics and packaging layers in detail.

2

Engage wholesalers

Identify innovation pilots and reuse-loop opportunities.

3

Test incremental changes

Start with material reduction (thinner films, pallet lids).

4

Download

Tools & templates on Change(K)now's website.

INSTITUTIONAL

BALTIC RESTAURANTS ESTONIA

Replacing single-use food packaging with reusable trays in Tallinn hospitals

Reusable Gastronorm (GN) trays were piloted in two hospitals to eliminate hundreds of disposable food containers per day.

Baltic Restaurants Estonia as caterer of two large hospitals in Tallinn with support from Tallinn municipality tested reusable transport packaging to replace single-use plastic food containers in daily patient catering. The pilot introduced reusable Gastronorm (GN) trays for transport of sandwiches. Instead of packing each sandwich in a disposable plastic box, they were transported to hospitals in large reusable GN trays with lids. In hospitals, the sandwiches were served on reusable plates (washed on-site at the hospital). GN trays were returned to the caterer for washing . The aim was to significantly reduce packaging waste while maintaining hygiene standards and operational efficiency in hospital food services.

Category
Healthcare institutional catering (hospitals)

Theme
Reusable food service systems & packaging reduction

Climate technology
Reusable GN trays and centralised washing loops

Organisations
Baltic Restaurants Estonia AS, Tallinn hospitals, Tallinn City

Reductions

≈600 disposable plastic sandwich boxes eliminated per day

Gains

Reusable system implemented in 2 hospitals across 8 buildings

Reduced transport volume for catering deliveries

Cost savings for the caterer due to less packaging needed and for hospitals due to reduced waste generation

Investment

Reusable GN trays

Additional dishwashing capacity

Staff training and operational adjustments

Acceptability

Feasibility

Scalability

Climate return on investment

The pilot demonstrates that reusable transport packaging can eliminate large volumes of disposable packaging in institutional catering. Previously, each sandwich prepared for hospital patients was individually packed in plastic containers, generating around 600 disposable boxes per day.

By introducing reusable GN trays, the need for individual packaging was removed while also reducing transport volume. The new system allowed smaller delivery vehicles to be used and reduced recurring procurement costs for disposable packaging.

Things to be aware of

Staff routines must change when shifting from disposable packaging to reusable systems. Placing of sandwiches on plates and washing of plates increases daily workload of the hospital kitchen

Strong management support is essential to overcome resistance during the transition period.

Scaling potential

- Highly relevant for hospitals, care homes and other large-scale catering environments.
- Reusable tray systems can be scaled across institutional kitchens when supported by centralised washing capacity and standardised food service routines.

Requirements

- **Technical:** Reusable GN trays and dishwashing infrastructure.
- **Economic:** Initial investment in trays and washing capacity.
- **Organisational:** Coordination between production kitchens and service kitchens.
- **Competence:** Staff training and operational guidelines for reusable systems.

How to get started!

1. **Map packaging flows**
   Identify high-volume items currently packed individually.
2. **Introduce reusable packaging for transport**
   Introduce larger reusable transport packaging instead of disposable individual containers.
3. **Ensure washing capacity**
   Integrate collection and washing routines into kitchen workflows.
4. **Download**
   Tools & templates on Change(K)now’s website.

INSTITUTIONAL

BALTIC RESTAURANTS ESTONIA

Introducing packaging-free solutions for school cafeterias in Tallinn

Two schools tested paper wrapping, reusable dishes and packaging-free solutions in everyday operations of the school cafeteria.

Tallinn piloted circular food packaging solutions in two schools during November 2024. The pilot replaced plastic sandwich packaging with paper wrapping, introduced reusable glass bowls for selected meals, and shifted some products to no-packaging formats. The aim was to reduce disposable plastic while assessing operational feasibility and sales impact.

Category
Public institutional catering (schools)

Theme
Circular food packaging & reuse systems

Climate technology
Biodegradable wrapping, reusable glass dishes, packaging-free serving

Organisations
Tallinn schools, Baltic Restaurants Estonia, Tallinn City

Reductions

Single-use plastic sandwich boxes replaced (tested)

Disposable dishes replaced with reusable glass bowls (selected products)

Packaging-free serving introduced for cookies and rice waffles

Gains

Practice continued for multiple product categories

Operational insight on product suitability for paper wrapping

Increased awareness among pupils on packaging reduction

Investment

Reusable glass bowls purchased

Large glass jars for bulk serving

Campaign materials and communication

Staff training and workflow adaptation

Acceptability

Feasibility

Scalability

Climate return on investment

The pilot demonstrates that disposable packaging can be reduced through a combination of biodegradable materials, reusable dishes and packaging-free serving formats. Simple measures - such as selling cookies and rice waffles without packaging - were well received and required minimal adjustment.

However, product characteristics and cafeteria layout significantly influenced feasibility. For triangle sandwiches and poke bowls, operational challenges and reduced sales in one school limited continuation. The main return from the pilot is practical knowledge about which circular solutions are scalable and under what conditions.

Things to be aware of

Paper-wrapped triangle sandwiches dried quickly and were discontinued. Reusable dishes increased washing workload and limited takeaway options, which affected sales in one school. Space constraints in cafeterias can be a decisive barrier.

Behaviour change requires more than a one-month pilot period.

Scaling potential

- High relevance for municipalities and caterers operating school cafeterias.
- Low-complexity measures (no-packaging cookies, bulk rice waffles, paper-wrapped standard sandwiches) showed strong continuation potential. Reusable dishes are scalable where cafeteria infrastructure supports dine-in consumption and washing capacity.

Requirements

Technical:
Biodegradable wrapping, reusable dishes (glass bowls), bulk storage jars.

Economic:
Slightly lower material cost for paper vs plastic; investment in reusable dishes and washing capacity may be required.

Organisational:
Workflow adjustments; coordination with school management.

Competence:
Staff training; pupil awareness activities on waste reduction.

How to get started!

1

Start simple

Introduce packaging-free products (e.g. cookies in jars) before shifting complex meal formats.

2

Match solution to setting

Assess cafeteria space and takeaway behaviour before introducing reusable dishes.

3

Train and communicate

Provide clear staff guidance and visible campaign materials to explain the purpose.

4

Download

Tools & templates on Change(K)now! project website.

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