



RE:SERVE

— FROM SINGLE-USE TO REUSE IN PUBLIC MEAL SERVICES

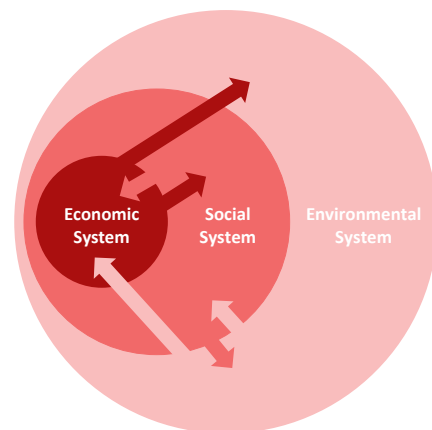


CIRCULAR ECONOMY

An **economic system** that uses a **systemic approach** to maintain a **circular flow of resources** by recovering, retaining or adding to their **value** while contributing to **sustainable development**

1 – Resources can be considered concerning both stocks and flows.

2 – The inflow of virgin resources is kept as low as possible, and the circular flow of resources is kept as closed as possible to minimize waste, losses and releases from the economic system.



The focus is on maximizing value creation while minimizing resource use and losses over time.

BACKGROUND AND RATIONALE FOR THE PROJECT

- **The UNITY project** showed that reducing the number of plastic types simplifies recycling, lowers CO₂ emissions, and increases the share of recycled plastic—but requires changes in design, legislation, and increased reuse.
 - **Vacuum-packed food** can reduce food waste by up to 25%, but single-use containers made of multilayer plastics (e.g. PE-PA-EVOH) are impossible to recycle and are incinerated.
 - **Eskilstuna example:** the Rekarne school kitchen uses around 3,000 plastic containers per day, a figure that could double within a few years—contributing to both emissions and microplastics.
 - **National and EU level:** Swedish plastic packaging waste increased from 213,000 tonnes (2012) to 265,000 tonnes (2023); recycling rose only from 35% to 39%. The EU's new Packaging Regulation (2024) introduces binding reuse targets and bans certain single-use solutions by 2030.
 - **Climate potential:** an 80% reduction in single-use plastic packaging in Sweden could cut emissions by just over 1 million tonnes of CO₂ equivalents.
-

TECHNICAL, HYGIENIC, AND LOGISTICAL BARRIERS

- **Tooling and material selection** – containers must withstand hundreds of dishwashing cycles, repeated vacuum sealing, and thermal stress without losing functionality or food safety.
 - **Film separation and washing process** – residues of barrier film must be completely removed; current washing solutions cannot achieve this without additional steps to ensure a stable process.
 - **Traceability and return logistics** – public large-scale kitchens currently lack systems to collect, inspect, and recirculate reusable packaging in a cost-effective way.
 - **Business and procurement logic** – procurement frameworks are designed for the lowest unit cost of single-use packaging; reusable systems require upfront investments in tooling, washing capacity, and digital tracking. Public actors often request proven pilot results before transitioning.
-

PROJECT OBJECTIVES

To establish a “plastic contract” that brings together Eskilstuna Municipality, Mälarplast, the distributor, and end users in a shared commitment: to develop 2–3 reusable vacuum packaging solutions to replace today’s single-use containers within a circular system.

The plastic contract will function as a joint governance mechanism that unlocks technological development, logistics, and procurement, while providing clear frameworks for responsibility, monitoring, and future scaling.

PROJECT PARTNERS

- **Linköping University** (project owner, analysis and project management)
- **Mälarplast AB** (deputy project owner and prototype manufacturer)
- **Roltex Nordic AB** (market actor with experience from Green Loop)
- **Menigo Foodservice AB** (distributor with insight into procurement structures)
- **Eskilstuna Municipality** (test environment and user in public meal services)



AP1 – SYSTEM DEVELOPMENT (PRODUCTS, TOOLING, PILOT IMPLEMENTATION) 2025-08-01 – 2026-06-30

- 2–3 design proposals for reusable packaging
 - Tooling and manufacturing setup for prototype series
 - Completed pilot tests in a school environment
 - Documented functionality for resealing after repeated use
 - Technical solution for hygienic handling
-

AP2 – LIFE CYCLE ASSESSMENT (LCA) AND LIFE CYCLE COST ANALYSIS (LCC) 2025-08-01 – 2026-06-30

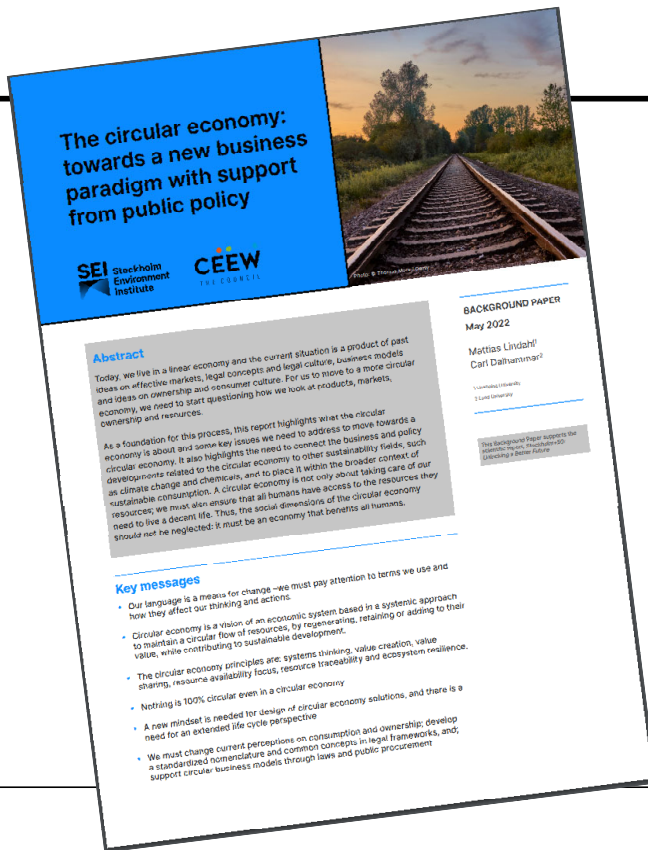
- Life cycle assessment and life cycle cost analysis of at least two reusable packaging solutions, compared with today's single-use solutions.
-

AP3 – PROJECT MANAGEMENT, COLLABORATION, AND CONTRACT DEVELOPMENT 2025-08-01 – 2026-06-30

- Established project organisation with clear roles and responsibilities
 - Plastic contract for a shared commitment within the circular system being developed
 - Reports to the funder
 - Materials for dissemination and replication of the model to other Swedish and European companies and public organisations. All materials will be made freely available through appropriate channels.
-

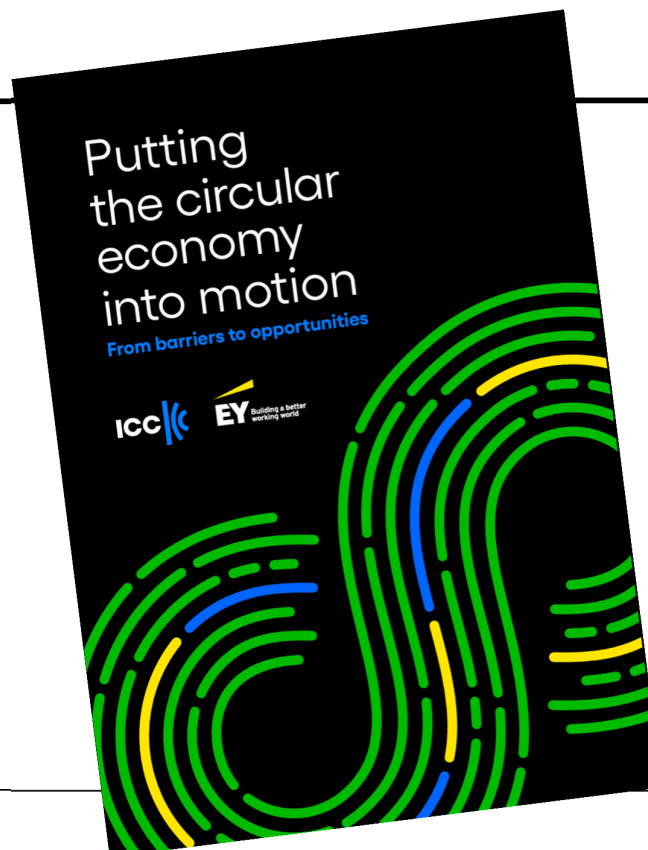
FRÅGOR





Lindahl, M. and Dalhammar, C. (2022).

The Circular Economy: Towards a new business paradigm with support from public policy. Stockholm+50 background paper series. Stockholm Environment Institute, Stockholm.



International Chamber of Commerce and Ernst & Young (2024) ***Putting the Circular Economy into Motion – From Barriers to Opportunities. P. 27***





Abstract
The transition towards a circular economy (CE) relies on a supporting policy framework. The EU is currently recognised as a global leader in climate action and has adopted a comprehensive policy package to reach the objectives set out in its Circular Economy Action Plan. This paper examines current and planned CE policies, their key impact on industries – with a focus on established manufacturing industries – and where additional policy interventions are needed. It is recommended that the EU strengthens its policy framework in several areas, including the adoption of CE targets, product policy and law, standardisation, waste law, public procurement, and industrial policy. EU Member States can support the developments through complementary policies.



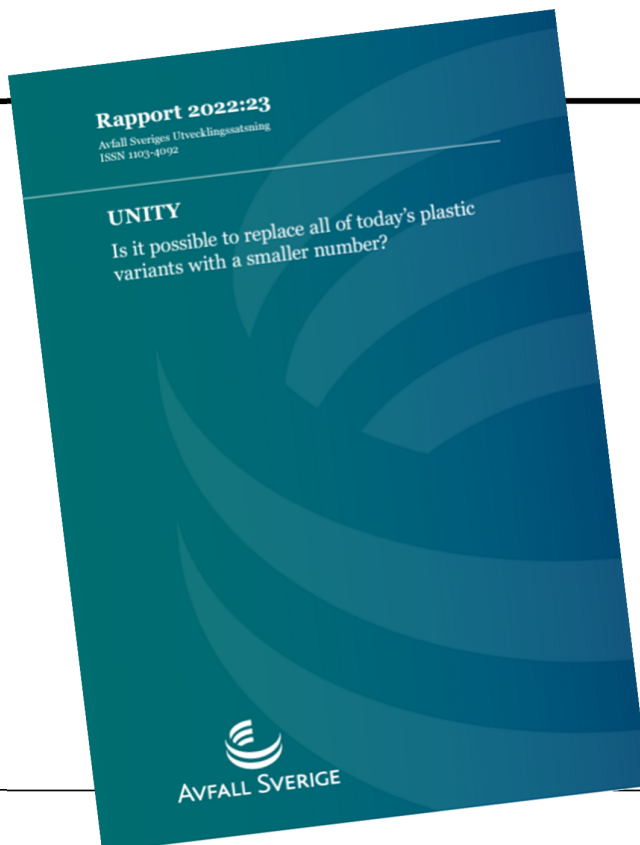
Carl Dalhammar
Associate Professor at
IIEE, Lund University



Mattias Lindahl
Professor at the Department
of Management and
Engineering, Linköping
University



Dalhammar, C. & Lindahl, M. et al. (2024). *Developing Policies for a Smart and Inclusive Circular Transition in Europe*. European Liberal Forum Publications, Policy Paper October, ISSN 1103-4092.



UNITY
Is it possible to replace all of today's plastic variants with a smaller number?



Lindahl, M. et al. (2022). *Unity – Is it possible to replace all of today's plastic variants with a smaller number?*. Avfall Sveriges Utvecklingsatsning ISSN 1103-4092.

