RSVP
ReuSe Vanguard Project

Navigating the reality of reusable packaging systems

Stories from the ReuSe Vanguard Project (RSVP) pilots

Tallinn 2026

Reuse Vanguard Project in a nutshell

Phase 1 (2020-2023)
Research and scoping

Phase 2 (2023-2025)
Pilots

Phase 3 (2025-2028)
Conditions for scaling

The brave pilotees

7 cities in 6 countries

Ghent & Leuven

Kombak project

- Reluctance from businesses to charge for single use voluntarily
- Limited return options reduce adoption
- Intention - action gap from citizens is wide
- Lack of data colection makes it difficult to optimize the system

Rotterdam

Statiegeldbeker

- Limited geographic scope hinders adoption
- Scattered operation models make it hard for the businesses to adopt
- Not following the customers habits and daily paths reduces participation
- Relying on staff promotion only is not efficient to improve adoption

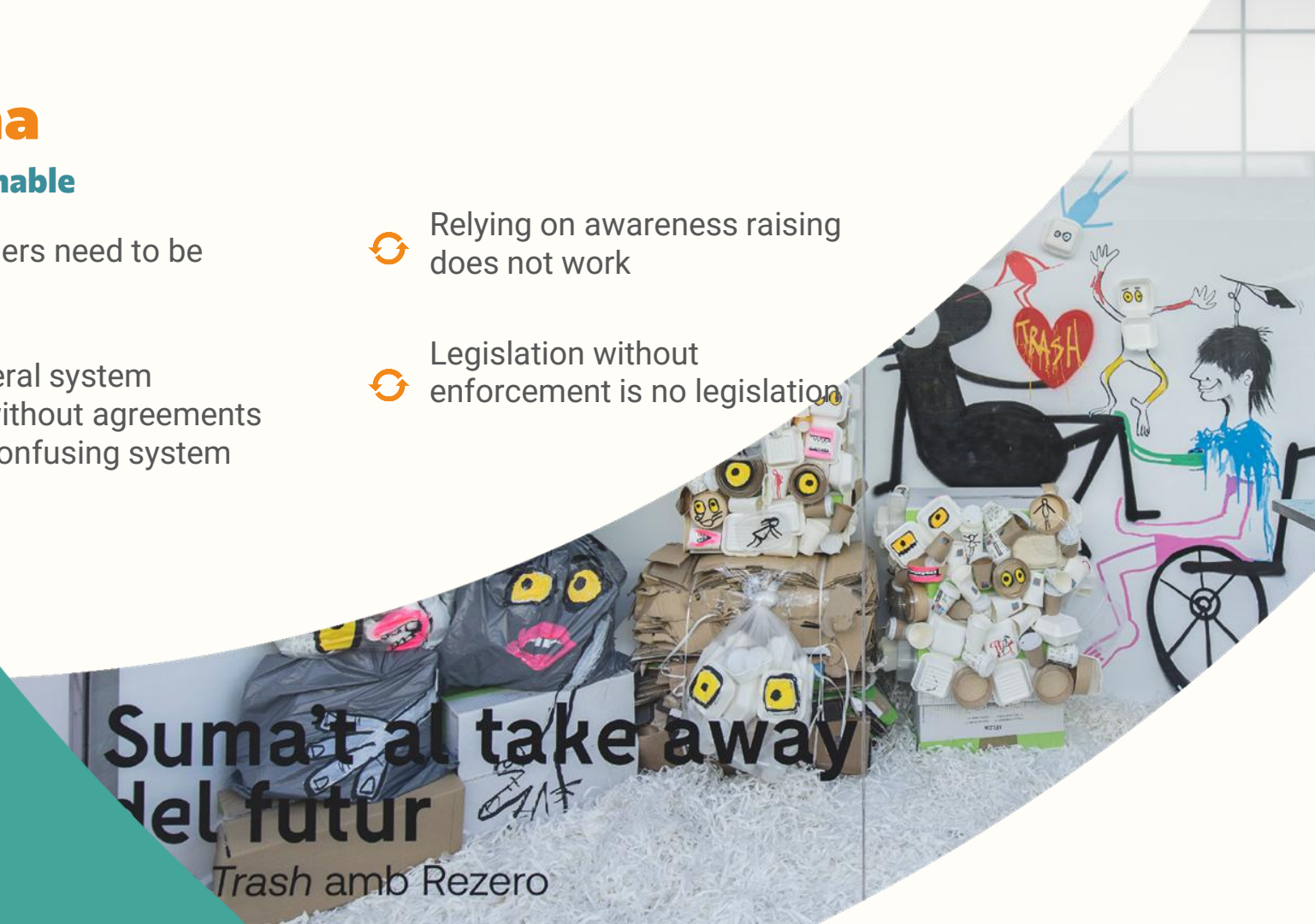
Key Point: the continued dominance of cheap single-use packaging - whose true environmental costs (e.g. littering, carbon emissions, biodiversity loss) remain unpriced - makes the transition to reuse difficult without public sector intervention.

Public authorities must create conditions that make reuse the default, accessible, and economically viable choice.

Barcelona

Takeaway Retornable

- All stakeholders need to be onboard
- Having several system operators without agreements leads to a confusing system
- Relying on awareness raising does not work
- Legislation without enforcement is no legislation



Paris

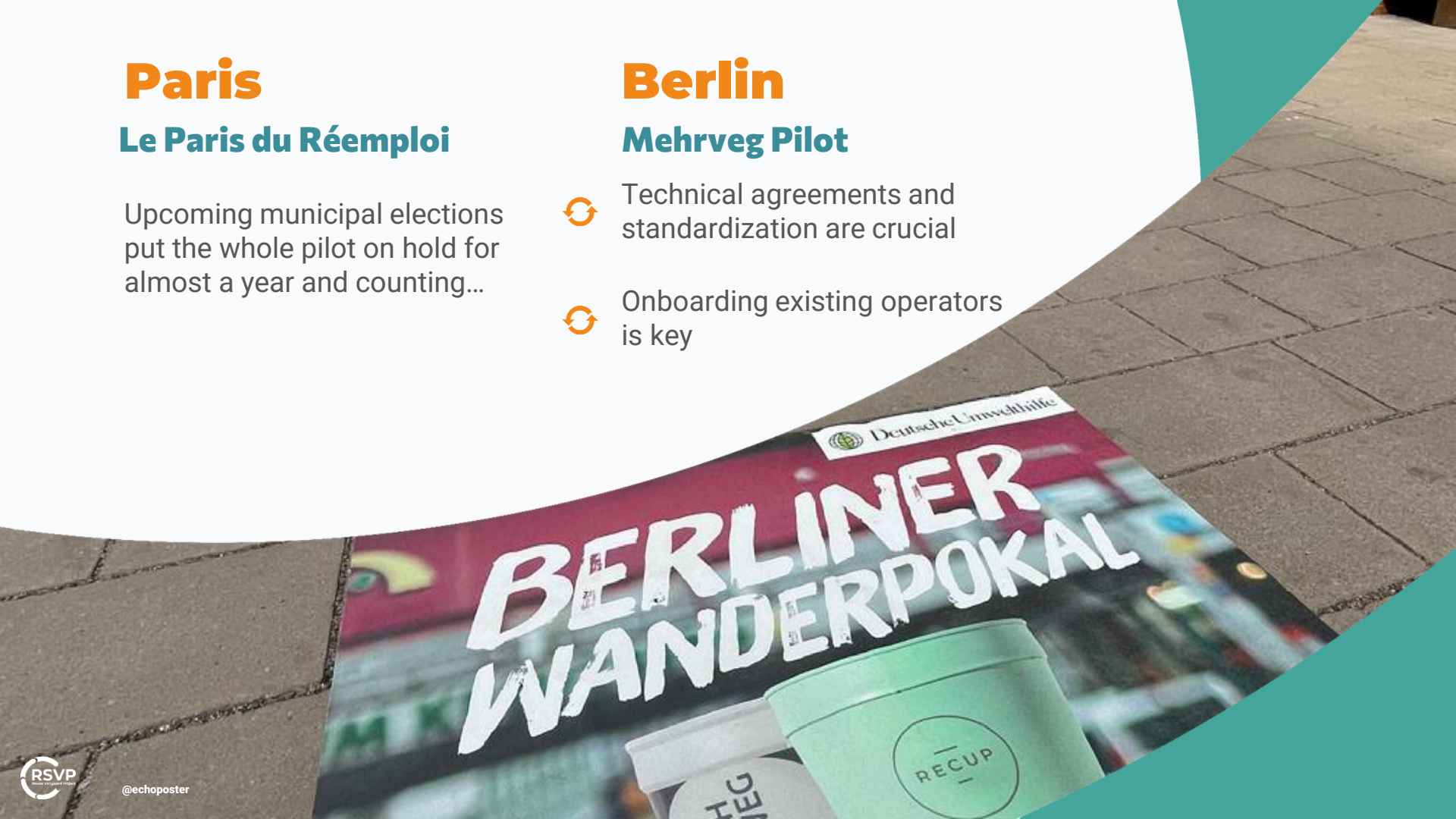
Le Paris du Réemploi

Upcoming municipal elections put the whole pilot on hold for almost a year and counting…

Berlin

Mehrveg Pilot

- Technical agreements and standardization are crucial
- Onboarding existing operators is key



The distillation

5 ESSENTIAL CRITERIA FOR REUSE SYSTEMS

1. **Effectiveness**
   delivering environmental and economic performance, supported by the right incentives.

2. **Recognition**
   systems must be easily understood and highly visible to users.

3. **Interoperability**
   different actors and systems must be able to work together.

4. **Inclusiveness**
   systems must be accessible, fair, and easy for everyone to use.

5. **Guaranteed Safety**
   systems must meet high hygiene and safety standards.

The Case of Tübingen

In January 2022, Tübingen introduced a municipal tax on all single-use packaging, tableware, and cutlery intended for immediate consumption - regardless of material.

Tax rates:

- **€0.50 per beverage container, food dish, or packaging item.**
- **€0.20 per cutlery set or similar auxiliary item.**

The tax is levied on businesses at the point of sale. Most businesses pass the cost onto customers by including it in menu prices, creating a **clear financial incentive** for consumers to opt for reusable alternatives.

Impact:

- **Sharp increase in the number of businesses offering reuse options.**
- **Tübingen now leads Germany in reusable packaging density per capita.**

Administration:

- **Minimal staff required: 1.75 full-time positions at launch, reduced to 1.25.**
- **Annual operating cost: ~€100,000 (including subsidies); tax revenue in 2022: €1 million, reinvested in waste prevention initiatives.**

Indicator	Target
Average Return Rate	
Year 1	60–80%
Year 2	75–90%
Year 3	≥90%
Rotation cycles before end of life	Min. 10 cycles[8]

Key elements of a recognisable system

To differentiate from non-compliant or poorly performing reuse efforts, systems should ensure both the **system design** and the **packaging** are clearly identifiable.

The system:

Clear **signage** at return points (e.g. maps, arrows, pictograms, stickers).

Online tools that show **where to return**.

Visual and/or digital confirmation when a return is made (e.g. beeps, receipts, screen messages).

Distinctive infrastructure that does not resemble general waste bins or habits.

The packaging:

Made from **durable, safe materials** (see Section 6: Guaranteed Safety).

Recyclable at end-of-life (both container and lid).[9]

Marked with **traceability codes** (e.g. QR, RFID).

Displays **clear visual symbols** linking it to the return system (crucial for unmanned machines).

Interoperability

Implementation Tip:

all return infrastructure should be backed by pre-agreed operational arrangements between stakeholders - including roles for collection, deposit handling, storage, and cleaning logistics.

Scenario 1:
markets with existing, competing reuse systems

In mature markets, multiple reuse solutions may already coexist, each with its own packaging types, return schemes, and incentive mechanisms.

Germany exemplifies this case, where several large market players operate thousands of points of sale (PoS), but with **divergent financial return systems** (e.g. cash-based vs. cashless).

In such contexts, **full standardisation may be neither feasible nor desirable**.

Instead, the goal should be **pragmatic interoperability,** focusing on:

- Aligning **packaging dimensions.**
- Coordinating **return logistics**.
- Establishing interoperable **data and deposit mechanisms**.

A practical example of this approach is the **Berlin pilot project** (see ANNEX 1), where **two major reuse operators are collaborating** to integrate their systems using **shared Reverse Vending Machine (RVM) infrastructure** originally deployed for beverage packaging.

This demonstrates how leveraging shared infrastructure can **foster interoperability without requiring full uniformity from day one**.

Scenario 2:
markets with limited or no existing reuse infrastructure

In emerging contexts, the absence of dominant reuse operators offers a **strategic opportunity** to build interoperability from the ground up, aiming for scalability, cost-efficiency and environmental performance.

In **Rotterdam**, the ***Statiegeldbeker* pilot project** (see ANNEX 1) is a strong example. Implemented collaboratively with **HORECA stakeholders**, the initiative introduced **standardised**, **non-branded reusable cups** supported by a **centralised collection system at Rotterdam Central Station**. As there were **no dominant market players to accommodate**, stakeholders were free to co-design a streamlined, scalable system based on **shared infrastructure and governance**.

Other initiatives like Le Paris du *Réemploi* project in Paris or else REUSEABLE in Aarhus, show how **cities or PROs** can establish new reusable system standards from the outset, by:

- Leading **inclusive stakeholder processes** to define packaging standards.
- Launching **public tenders** to select one or more system operators.
- Investing in **shared infrastructure**, managed under transparent and inclusive governance.

Standardisation from the outset in such markets helps avoid later fragmentation and builds the conditions for **scalability**, **cost-efficiency**, **and environmental performance**.

Inclusiveness

Not only the inclusiveness of citizens but also the businesses

Considerations for implementation

To enhance **inclusiveness** while ensuring l**ong-term viability and scalability**, system designers should:

- **Adapt to local context:** design systems that reflect the local population's payment habits, digital access levels, and socio-economic profiles. There is no one-size-fits-all solution..
- **Phase implementation where appropriate:** start with the dominant local preference (cash or digital) and gradually expand or diversify options as infrastructure and user readiness evolve.
- **Issue return tickets (with QR codes or similar):** allow flexibility in the timing and channel of reimbursement, and reduce transaction costs by consolidating multiple returns where possible.
- **Minimise friction at first-use moments:** particularly in contactless or app-based systems, ensure clear prompts and intuitive instructions (e.g. reminding users to tap their card before depositing at RVMs).
- **Continuously monitor user feedback and accessibility barriers:** use insights to refine system design, remove participation hurdles, and support broader adoption across diverse user groups.

Guaranteed safety

- Tackle user concern
- Ensure the safest possible material/product

Action Checklist for Public Officials Drafting the Safety part of a Reuse Tender

- ☑ Require certified food-contact materials, while the final packaging must not intentionally contain any **chemical of concern** in Tier 1 of the **UP SCorecard** Food Contact Chemicals Priority List.
- ☑ Set minimum durability standards (i.e. wash cycles without losing critical properties).
- ☑ Demand written hygiene and cleaning protocols compliant with local food safety laws.
- ☑ Include traceability and labelling (e.g. QR codes, usage guidance).
- ☑ Ask for documentation on safe storage, transport, and filling.
- ☑ Include compliance with evolving EU safety and labelling requirements (PPWR, CEN standards).

PROJECT SNAPSHOT 1

Aarhus – REUSEABLE

RSVP
ReuSe Vanguard Project

RSVP core local partner:
Plastic Change.

Key Local Partners:
City of Aarhus (Project Lead), Tomra, local retailers, waste servicesl.

Funding Sources:
Municipal funding, supported by infrastructure partnerships.

Duration of Test Phase:
3 years (2023-2026).

Core Goals & Key Elements Tested:
The project is testing both cups and food containers, which are returned in specially designed Return Vending Machines placed around the city center. Highly user-friendly digital system using contactless refunds.

Geographical Scope:
City centre, Aarhus.

Regulatory Context:
There are no specific targets or fiscal incentives to drive reuse in Denmark at the time of launching this project. The Municipality of Aarhus plays a central role in prioritising reuse and investing in this specific project. On a national level, the Danish government and the political parties supporting the Finance Act of 2025 have agreed to establish a partnership of relevant stakeholders within reuse, e.g. recycling companies, municipalities, industry associations, deposit system, restaurants, etc. The partnership will receive a subsidy of €670.000 annually in 2025-2027. Building on REUSEABLE, the partnership must identify challenges and opportunities for introducing a national deposit and return systems for e.g. plastic cups etc.

Reuse System type (Closed/Open):
Closed loop system with shared infrastructure.

System Operator:
Tomra (machines and logistics).

System Participants & Roles:
Municipality coordinates; Tomra operates; retailers distribute and collect.

Type of Incentive to Return:
€0.67 refundable deposit via contactless bank card.

Tracking System:
Biometric QR codes scanned at RVMs.

Key Learnings:
- A well-designed system can achieve return rates above 85% within a year and continue improving, while significantly reducing waste in public spaces.
- Simplicity and visibility of reuse options—especially at retailers and RVMs—are essential for user uptake.
- Staff engagement at local retail points is crucial to encouraging consumer participation.

PROJECT SNAPSHOT 2

Barcelona – Retornable Takeaway

RSVP
ReuSe Vanguard Project

RSVP core local partner:
Rezero Foundation (Project Lead).

Key Local Partners:
Barcelona city, Vasovengo, Bumerang, Pacto Zero, Restaurant Guild, 22@network Barcelona, Eix Comercial Poblenou, Westfield, Clear Channel.

Funding Sources:
Plastic Solutions Fund; co-funding from Barcelona town hall and waste company.

Duration of Test Phase:
(April 2024–July 2025).

Core Goals & Key Elements Tested:
Increase HORECA sector and consumer awareness about reusable cup and bowl systems and their benefits; create a network of allies to promote their adoption as well as test incentives and reward systems.

Geographical Scope:
Barcelona city, focus on Poblenou district.

Regulatory Context:
No binding local regulation at the time; supporting voluntary uptake. By Spanish legislation, establishments must charge a fee for single use plastic take away containers but it is not implemented.

Reuse System type (Closed/Open):
3 closed loop systems, no shared infrastructure.

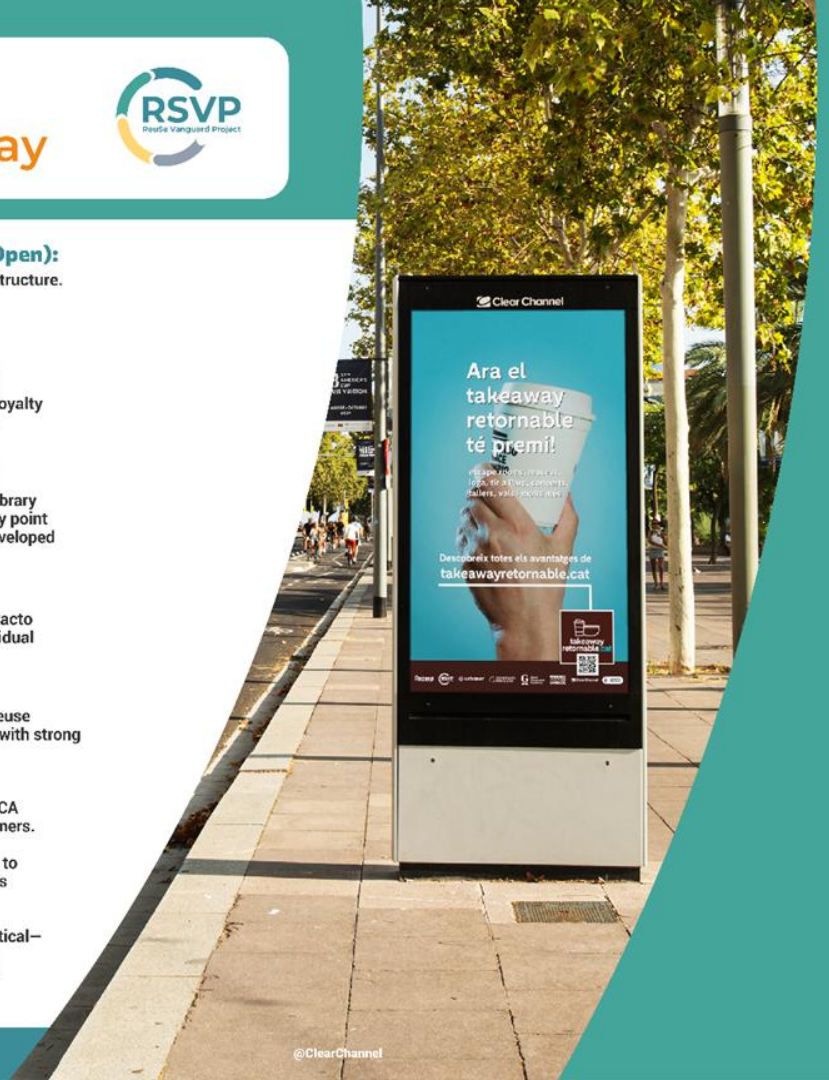
System Operator:
Vasovengo, Bumerang and Pacto Zero.

System Participants & Roles:
Rezero leads, recruits and implements loyalty system; providers manage logistics and digital platforms.

Type of Incentive to Return:
Deposit-based model (Vasovengo) and library system (Bumerang, Pacto Zero). A loyalty point system redeemable for gifts was also developed as an additional incentive.

Tracking System:
QR codes via Bumerang; Barcodes for Pacto Zero, Vasovengo operates without individual packaging traceability.

Key Learnings:
- Without binding regulation, scaling reuse systems is extremely difficult—even with strong public outreach.
- Success also depends on collective commitment from authorities, HORECA actors, service providers, and consumers.
- Reuse systems can act as a gateway to other sustainable behaviours, such as refill and bring-your-own.
- Simplicity in the return process is critical—especially the need for unified digital interfaces in multi-provider settings.



PROJECT SNAPSHOT 3

Berlin – Mehrweg pilot

RSVP Reuse Vanguard Project

RSVP core local partner:
DUH (Environmental Action Germany - Project Lead).

Key Local Partners:
REWE, Sykell (Einfach Mehrweg), Recup, Tomra, Sielaff, Profimiet, Berlin Senate.

Funding Sources:
Plastic Solution Fund, Environmental Defense Fund and Berlin Senate.

Duration of Test Phase:
12 months (March 2025- February 2026).

Core Goals & Key Elements Tested:
Return of reusable to-go-cups from the two system providers RECUP and EINFACH MEHRWEG via RVMs in supermarkets; serialisation of existing reuse packaging (Recup); the goal is to explore improvements in convenience for the HORECA sector and consumers by simplifying the return of reusable packaging through reverse vending machines (RVMs), as well as to test opportunities for scaling reusable systems via shared infrastructure.

Geographical Scope:
Friedrichshain-Kreuzberg district, Berlin with around 85 gastronomy partners of RECUP and eight REWE stores.

Regulatory Context:
German packaging law encourages reuse partly through an obligation for large gastronomy businesses to offer reusables; is going to be aligned with EU PPWR.

Reuse System type (Closed/Open):
2 separate closed loop systems sharing the reverse logistics (collection, washing, redistribution).

System Operator:
DUH coordinates the project activities, manages press and public relations and evaluates the results (with support from the Kühne Logistics University)..

System Participants & Roles:
Tomra and Sielaff collect through their RVM technologies; Sykell manages the data through its IT system Circular ERP and organises the logistics together with the retailer REWE; Profimiet is the washing provider, sorts and scans the packaging; city actors coordinate.

Type of Incentive to Return:
Deposit-based model (RECUP and EINFACH MEHRWEG).

Tracking System:
Recup and Einfach Mehrweg use several types of codes for the tracking (data matrix, barcode, QR-code).

Key Learnings:
- The success of the project depends on the commitment of key stakeholders in the German reuse-to-go sector. For cities looking to implement similar pilots, it's crucial to identify and involve existing players, as their participation can significantly impact pilot development.
- While the project is in its early stages, it has already highlighted the need for unified digital interfaces for automated returns. Supermarkets and vending machine manufacturers in Germany currently use barcodes and data-matrix codes, while reusable packaging system providers prefer QR codes.For new reuse systems, automated returns should be facilitated through serialised printing. We recommend that industry representatives agree on standardised codes.

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PROJECT SNAPSHOT 4

Ghent & Leuven – Kombak project

RSVP
Reuse Vanguard Project

RSVP core local partner:
Fair Resource Foundation.

Key Local Partners:
IVAGO (WM company in Ghent - Project Lead), futuREproof, L'Empoteuse, City of Leuven, OVAM.

Funding Sources:
Plastic Solutions Fund, Green Deal Anders Verpakt, IVAGO, City of Leuven.

Duration of Test Phase:
12 months (April 2024 - April 2025).

Core Goals & Key Elements Tested:
Adoption of reuse systems by local HORECA, A-B testing of library system and classic deposit system, public instances support through funding and communication materials.

Geographical Scope:
Ghent and Leuven city centres.

Regulatory Context:
Voluntary schemes encouraged; no formal reuse mandate.

Reuse System type (Closed/Open):
Closed loop systems, no shared infrastructure.

System Operator:
L'Empoteuse (Ghent), Futureproof (Leuven).

System Participants & Roles:
Restaurants serve and clean; app provider manages tracking in Leuven.

Type of Incentive to Return:
€1,5 - 8 deposit in Ghent; app-based late fee model in Leuven.

Tracking System:
None in Ghent; mobile app in Leuven.

Key Learnings:
- Without binding regulation, restaurants are reluctant to charge for single-use packaging or make reuse the default—slowing adoption and scalability. Complementary measures like EPR schemes or local single-use packaging taxes could fund reuse infrastructure and ease the transition.
- Despite positive feedback and stated interest, low consumer uptake reveals a persistent gap between intention and action, pointing also to structural friction in the system rather than lack of willingness.
- Limited return points and short return windows create friction and discourage consistent participation. A wider, more flexible collection network is needed.
- Lack of clear, consistent communication—combined with limited visibility and incentives—undermines restaurant engagement and user awareness.
- Gathering qualitative feedback in existing circumstances, labor-intensive and often yields low returns
- System-level data collection has proven challenging both on the restaurant and consumers side, hindered by low adoption rates, reliance on low-tech processes, or a lack of visibility into end-user behaviour—calling forbetter-integrated digital tools and shared infrastructure for monitoring.

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PROJECT SNAPSHOT 5

Paris –
Le Paris du Réemploi

RSVP
Reuse Vanguard Project

RSVP core local partner:
Réseau Vrac et Réemploi (Project Lead until 2024).

Key Local Partners:
CITEO (Producer Responsibility Organisation (PRO) - Project Lead since 2024) and Ville de Paris.

Funding Sources:
CITEO (operating and financing the project).

Duration of Test Phase:
12-24 months.

Core Goals & Key Elements Tested:
Launch an experimental reuse scheme for takeaways and deliveries in a target area for a period of 12 to 24 months to assess key to assess the optimum conditions for success such as :

- A dense and easily accessible network of RVMs to simplify the consumer journey
- A turnkey solution for restaurant owners with all the operations externalised.

Geographical Scope:
8th, 9th, 11th, 12th, and 13th arrondissements (pre-selected - to be confirmed)

Regulatory Context:
Since 2023, the French AGEC law requires all restaurants, including fast-food chains, to provide reusable tableware for dine-in customers. This regulation aims to significantly reduce single-use waste and promote a circular economy in the food service industry. Also thanks to AGEC-law, sellers of takeaway drinks must offer a lower price when the beverage is served in a reusable container brought by the customer, compared to one served in a disposable cup.

While the AGEC law does not yet mandate the exclusive use of reusable containers for takeaway sales, it sets progressive targets. For example, at least 5% of packaging placed on the market must be reusable, with a goal of 10% by 2027.

Reuse System type (Closed/Open):
Closed loop with shared infrastructure.

System Operator:
To be defined.

System Participants & Roles:
A dense network of easily accessible RVMs to simplify the consumer journey.

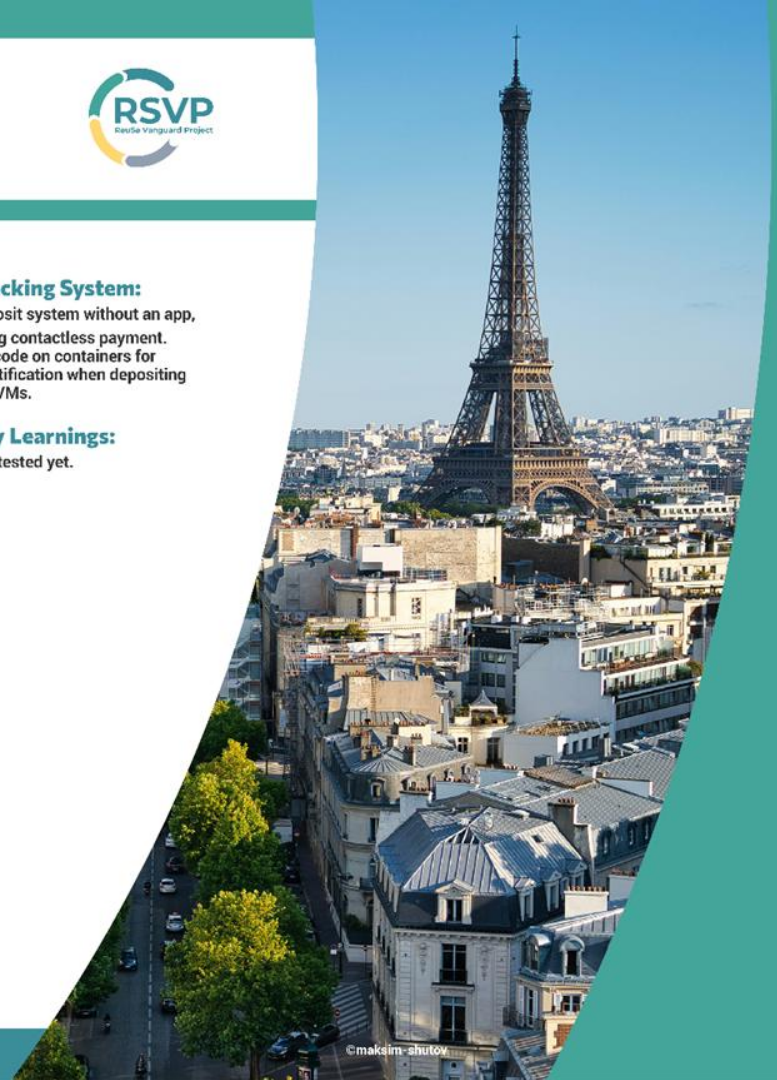
Target restaurants of all types: offering a diverse food selection in reusable containers and all operational processes are fully outsourced.

Reusable plastic containers designed for takeout food.

Type of Incentive to Return:
Deposit-based model (RECUP and EINFACH MEHRWEG).

Tracking System:
Deposit system without an app, using contactless payment. QR code on containers for identification when depositing in RVMs.

Key Learnings:
Not tested yet.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PROJECT SNAPSHOT 6

Rotterdam – Statiegeldbeker Pilot

RSVP Reuse Vanguard Project

RSVP core local partner:
Mission Reuse.

Key Local Partners:
NS (Dutch Railways - Project Lead), PackBack, WeCup, DutchCup, Lekkerland, Cupstack, 20+ participating food and drink retailers (including chains like Starbucks, Hema, Kiosk, AH to go), Municipality of Rotterdam, Verpact, Province of South Holland, Transitieagenda Consumptiegoederen, Versnellingshuis NL Circulair.

Funding Sources:
Municipality of Rotterdam, Province of South-Holland, Transitieagenda consumptiegoederen, Verpact, Plastics Solutions Fund.

Duration of Test Phase:
3 months pilot (March-May 2024) following 8-month pilot preparation phase and 4 months coalition building.

Core Goals & Key Elements Tested:
Test an open-loop reuse system using a deposit-return model in a high-traffic public transport hub; test QR-based tracking and app refund system; engage mixed vendor types.

Geographical Scope:
Rotterdam Central Station and surrounding small outlets.

Regulatory Context:
Dutch regulation (July 2023) mandates reusable or BYO cup options for takeaway drinks; pilot also supports compliance with future EU PPWR reuse targets.cup.

Reuse System type (Closed/Open):
Open loop system with shared infrastructure.

System Operator:
PackBack (with support of WeCup, DutchCups, Lemontri, Grin, Lekkerland, Tikkie, Cupstack.

System Participants & Roles:
NS – project lead and infrastructure host; Municipality; Reuse providers – operation and digital backend; Retailers – serve and collect cups.

Type of Incentive to Return:
€1 refundable deposit via app or bank transfer (Tikkie).

Tracking System:
QR-coded cups linked to user refund apps.

Key Learnings:
- A shared, universal return infrastructure—involving multiple hospitality venues and packaging providers—is both technically and operationally feasible, with existing logistics and technologies enabling hygienic returns and improved traceability, even with several packaging types.
- Making reuse the default option significantly boosts uptake and simplifies operations; optional models relying on staff promotion are less effective, especially under pressure.
- Reuse systems benefit from a level playing field—uniform adoption across venues builds user familiarity, reinforces sustainable habits, and makes staff engagement more consistent.
- High return rates depend on widely distributed return points, ideally integrated into users' daily routes. Centralised handling (e.g. for deposits and cleaning) is more efficient than placing full responsibility on individual venues.

Special Notes:
Strong governance and pre-launch stakeholder alignment are crucial. Scalability in high-traffic areas depends on sustainable infrastructure, clear roles, and system usability.Consumer research of the pilot can be found here: https://circulaireconsumptiegoederen.nl/wp-content/uploads/2025/01/Consumentenonderzoek-finaal.pdf (in Dutch)

Next steps

Ecosystem of actors grows in size, formalises and improves impact across all projects

Glass reusable packaging systems expanded across North-West European countries via **Interpool**

Supporting well-performing and resilient reuse systems for packaging

Growing evidence of best practices

More data and impact measured

Stronger networks & partnerships within a coordinated ecosystem

Increased knowledge inspiring further replication

Supporting accessible and inclusive solutions for preventing single-use materials & the required infrastructure

Takeaway packaging reuse models scaled in more cities via **Circulandia**

Coming up

- Methodologies for feasibility assessment, street bin audits, citizen & HoReCa engagement
- Guidelines
- Tools for impact assessment, trainings and study tours
- Possibilities to connect with likeminded experts, cities and other stakeholders

Join the fun!

Interpool updates

Circulandia multiplier cities

Keep in touch: www.linkedin.com/in/kaisakarj