



Position Paper

April 2026

Designing the future of circular beverage packaging

Guiding principles for the implementation of mixed DRS

This position paper outlines the foundational principles that support effective implementation of mixed deposit return systems. It draws on real-world experience from existing mixed DRS to highlight the conditions that enable both reuse and recycling to succeed within an integrated framework.

Introduction

Deposit return systems (DRS) have evolved significantly over the past century, from their origins as local reuse systems to their modern role in recovering high volumes of single-use beverage containers. Throughout this evolution, DRS have consistently demonstrated their effectiveness in reducing waste, improving material quality, and advancing circular economy objectives. Recent policy developments in the European Union, particularly the Packaging and Packaging Waste Regulation (PPWR), further reinforce the growing recognition of DRS not only as a tool for high-quality recycling but also as an essential mechanism for enabling reuse at scale.

A small but growing number of jurisdictions have begun integrating reusable containers into their deposit systems, offering valuable insight into how mixed DRS can operate in practice. Their experience highlights both the opportunities and complexities of aligning reuse and recycling within an integrated

*A mixed DRS is not a single prescriptive model but a principle of system integration. It aligns deposit systems for single-use and refillable containers through **shared collection infrastructure**, with or without a common organisational framework such as a central system operator.*

framework, illustrating the conditions under which mixed DRS can succeed, and the challenges that must be addressed.

While every jurisdiction must tailor its system to local market conditions and policy contexts, evidence from existing mixed DRS, particularly in Europe, shows that strong, well-designed DRS for single-use containers create favourable foundations for expanding reuse. At the same time, emerging systems underline the importance of coherent design choices that support cost-effectiveness, operational efficiency, and accessibility.

This position paper brings together key learnings from these early adopters to clarify the essential considerations that underpin successful mixed DRS. By outlining a series of guiding principles, it aims to support policymakers and system operators as they navigate the transition toward integrated reuse-and-recycling systems and work to ensure that reuse becomes a viable, scalable, and economically sustainable part of the beverage packaging landscape.



Guiding principles for mixed DRS

1. Design for integrated systems from the start

For jurisdictions developing a DRS for the first time, including both reusable and single-use containers (including single-use glass) from the start creates a more efficient, scalable, and future-proof system. It allows operators to design shared logistics, storage, IT and data systems, governance structures, and collection infrastructure, avoiding the significant cost and complexity of adding reusable bottles or single-use containers later.

Retrofitting works both ways: introducing reuse into a single-use DRS, or adding single-use packaging into an established reuse-based system, requires rethinking front-end equipment, financial flows, backend logistics, and system governance. Launching a mixed DRS also simplifies communication with consumers, avoiding the confusion of having some beverage types under deposit while other containers remain outside the system and in kerbside recycling; this can accelerate consumer understanding of the new system and increase participation.

Evidence from recent implementations supports the benefits of integrated rollout. Latvia (13 months) and Estonia (12 months) implemented mixed deposit systems within timelines comparable to, or even shorter than, the typical 2–2.5 years required to implement a single-use-only DRS.ⁱ These experiences suggest that total implementation time can be *reduced* when both systems are introduced simultaneously. This is because several major implementation steps can be pooled rather than duplicated, includingⁱⁱ:

- governance and system design
- negotiation of handling fees and operating contracts
- acquisition and installation of RVMs
- development of logistics and transport networks
- communication and public awareness campaigns

By aligning these processes, jurisdictions save time, reduce administrative burden, and establish a harmonised operational foundation that supports both recycling and reuse from day one.

2. Use pooling to enable scalable, cost-effective reuse

Pooling reusable packaging across producers is one of the most important enablers of economically viable reuse. Shared ownership and circulation reduce costs, increase return rates, and allow packaging to be used more intensively, while avoiding unnecessary duplication of assets and infrastructure.

3. Standardise bottle formats to improve system efficiency

Well-designed standards improve system efficiency by enabling shared collection, sorting, washing, and redistribution infrastructure across multiple producers. Where possible, reusable beverage containers should adhere to common agreed-upon standards for key features such as dimensions and materials, enabling compatibility with shared collection, washing, and logistics systems. At the same time, these standards should allow labels, closures, and surface design to distinguish brands and product lines.

With that said, it is paramount that the design of standards help to lower, not raise, barriers to participation in reusable systems, particularly for small and medium enterprises (SMEs). Achieving effective standardisation and interoperable pooling systems requires collaboration across the beverage value chain, including between competitors.ⁱⁱⁱ

4. Provide clear pathways for non-standard bottles

Not all producers will adopt standard reusable bottles; many will continue using their own unique, non-standard formats. In these cases, the centralised role of a DRS operator for single-use containers will be limited to some administration and collective reporting on the volumes of reusable bottles placed on the market and collected. A mixed DRS must establish clear pathways for integrating non-standard refillables and ensure that cost allocation accounts for the additional handling these formats require. This approach maintains inclusivity and supports market diversity, while preventing non-standard formats from undermining the efficiency gains of standardisation.



5. Prioritise consumer convenience and universal accessibility

Systems must be designed for ease of use, minimising extra effort for consumers. A single return point, such as one RVM that accepts both single-use and reusable containers, ensures that consumers do not need to interact with multiple machines or systems. Clear labelling of containers and accessible return locations further simplify the process, increasing participation, and improving return rates. Systems should be accessible to all consumers, including those in remote areas or with mobility constraints.

6. Ensure transparent reporting and data integrity

Accurate and consistent reporting on container rotations, returns, and end-of-life management is essential for system accountability. Transparent data allows operators to optimise logistics, identify bottlenecks, and demonstrate compliance with regulatory requirements. System operators should report on pooled performance; individual companies should not bear disproportionate burdens. Existing tools (barcodes, QR codes) should be leveraged where appropriate, without mandating item-level tracking in all systems.

7. Establish clear regulatory requirements and performance targets

A strong regulatory foundation that includes clear performance targets is essential to the success of mixed DRS. Legislation should define minimum deposit values, reuse rotations, collection rates, and other operational standards, providing certainty for producers and system operators. These targets create a predictable environment that enables scaling, ensures accountability, and drives consistent results across both single-use and reusable streams. Legislation should also include clear reuse requirements: reusable containers should be designed and managed to meet a minimum number of rotations, durability standards, and handling protocols. This ensures that the environmental and economic benefits of reuse are realised, while maintaining product safety and quality.

8. Embed circularity through full life cycle management

All reusable containers should ultimately be recycled or reprocessed at the end of their life. Systems should be designed to maximise circularity, ensuring that materials remain in productive use and environmental impact is minimised. This principle aligns with the broader 3Rs hierarchy and European trajectories under PPWR.

9. Measure performance at the system level

Effective performance measurement in decentralised and mixed reuse systems should be system-based, outcome-focused, and proportionate, ensuring environmental integrity while remaining feasible for operators and authorities. At a high level, three core dimensions need to be tracked consistently across sectors:

- *Circulation and system throughput:* Measurement should focus on how reusable packaging performs at system level, not at the level of individual units. Key metrics include: placed on the market (POM) and units made available within a defined timeframe (with clear definitions distinguishing shelf availability vs. point-of-sale); circulation volumes, showing how often packaging re-enters the system over time (reported annually, with transitional flexibility for new systems); as well as system scale and maturity indicators (e.g. years of operation, geographic coverage). This approach allows pooled reporting by system operators, reducing administrative burden on small producers and retailers.
- *Return, reuse, and loss performance:* To ensure enforceability and prevent greenwashing, reporting must distinguish clearly between the return rate (proportion of packaging returned to the system), the reuse rate (proportion of packaging that is successfully refilled/reused, accounting for discard or scrap), and the loss/discard rate (packaging that exits the system due to damage, hygiene constraints, or operational failure). Return rates should act as the primary compliance indicator, while reuse and loss rates provide the necessary context to demonstrate real environmental performance (e.g. avoiding “fake reuse” where returns are high but reuse is low).
- *Minimum rotations:* Rather than tracking rotations per item, systems should demonstrate average achieved rotations over defined reporting periods.

Final thoughts

Ultimately, the transition toward mixed DRS that effectively support both recycling and reuse is still evolving. While existing systems provide a strong evidence base, further research and policy experimentation are needed to deepen understanding of how different design choices (such as pooling models, deposit differentiation, and governance structures) interact to influence performance and consumer behaviour. Building on the valuable experience already available on the ground will be essential to refining these systems and ensuring that reuse can scale in a way that is both environmentally effective and economically sustainable.

Photo credit: Canva



Endnotes

ⁱEY. (14 May 2024). *Opportunity and feasibility analysis of the deployment of the Mixed Deposit System in France (reuse and recycling of beverage packaging)*. <https://www.reloopplatform.org/wp-content/uploads/2024/05/Reloop-Mixed-Deposit-in-France.pdf>

ⁱⁱIbid.

ⁱⁱⁱEllen Mac Arthur Foundation. *Unlocking a reuse revolution: scaling returnable packaging*.

https://content.ellenmacarthurfoundation.org/m/791a4013fead211e/original/Unlocking-a-reuse-revolution-Scaling-Returnable-Packaging.pdf?_gl=1*bmd8qa*_gcl_au*Mjg2Nzg4MzkyLjE3NjM1NjQ2NzI.*_ga*MTYyNDIyNjUzNS4xNzYzNTYONjcy*_ga_V32N675KJX*czE3NjYwMDQxNjAkczMkZzEkdDE3NjYwMDQxNzgzakajQyJGwwJGgw



Residence Palace
Rue de la Loi 155, bte 97
Brussels 1040
Belgium

www.reloopplatform.org

Registered number: 0632 493 844

