

Tehnoeko May 2023



New ways to improve waste collection by endconsumers trough digitalization

Michaela Heigl, Managing Director, Digi-Cycle GmbH

The circularity challenge

WASTE PLASTICS
Europe faces challenges in meeting plastic bottle recovery target
The European recycling industry is going to miss a 2025 target for recycling PET bottles unless the reversal of the slowing growth rate in recycling, according to a new study by ICIS. Deposit schemes are working better as an incentive

Europe must double plastic recycling to meet 2025 target

Just over 5 million tonnes of recycled plastic made it back into the EU product stream each year between 2016 and 2019, only half of the targeted market size for 2025, according to a new report for the Circular Plastics Alliance.

by Claudia Delpero

EU at risk of missing plastic rec

By SAMUEL PETREQUIN October 6, 2020

BRUSSELS (AP) — The European U
plastic recy



Recycling of plastic packaging in the EU

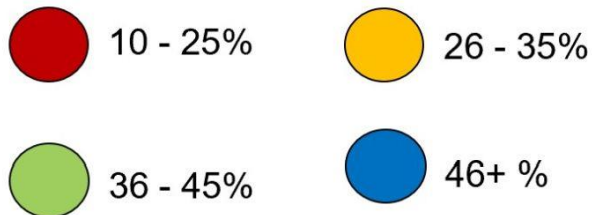
in 2020 (as of May 2023, source: [Eurostat](#))



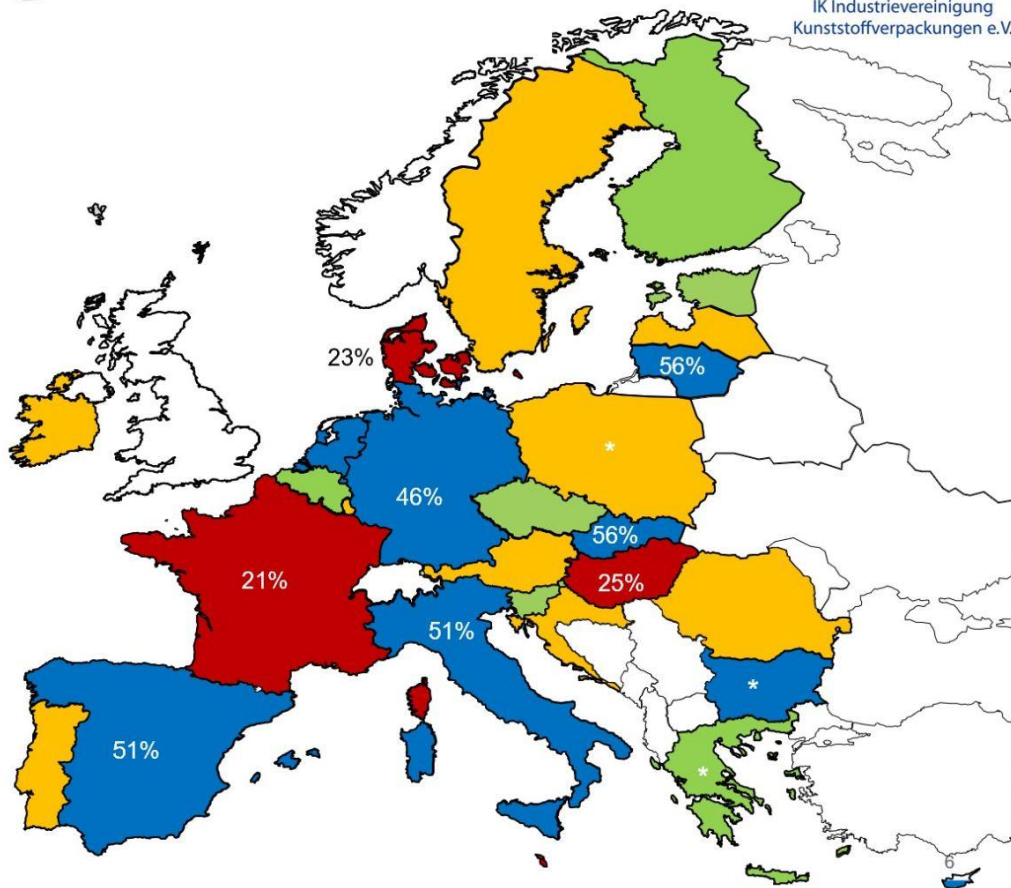
IK Industrievereinigung
Kunststoffverpackungen e.V.

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Recycling rate of plastic packaging:

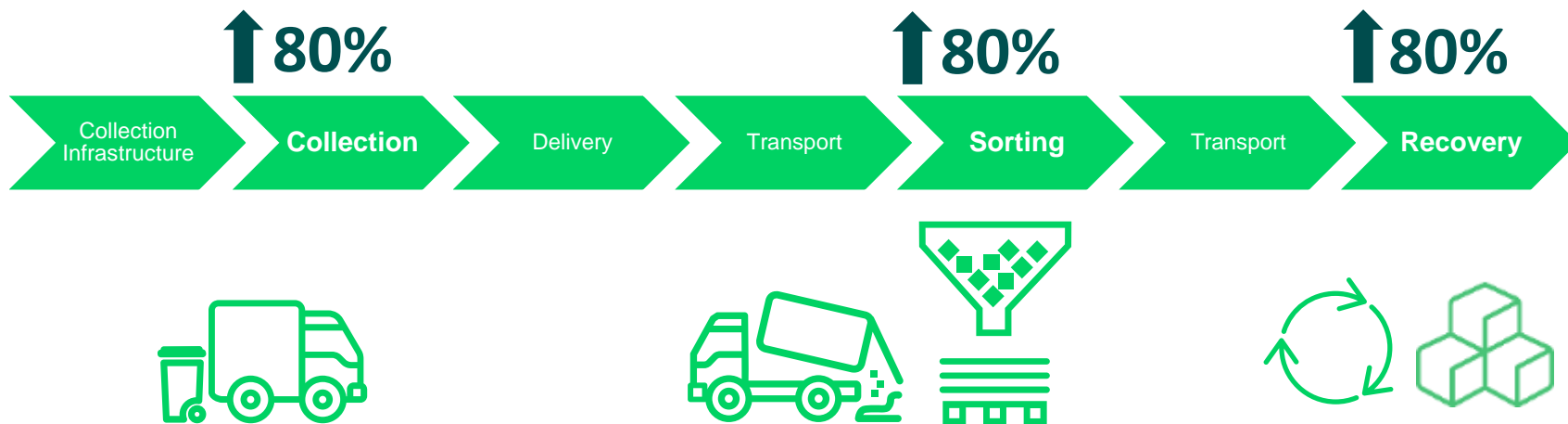


Ø 2020 = 38%
Targets for EU Member States:
by 2025: **50%**, by 2030: **55%**



* In 2019 (most recent data), partly estimated. All other quotas are according to new calculation method: input into the last recycling process (i.e. deduction of production losses).

Increasing the collection rate is the most important lever for achieving the EU plastic targets



$$0,8 \times 0,8 \times 0,8 = 0,512$$



INFORMATION AND INCENTIVE

„WE WANT EVERY PACKAGING BACK FOR RECYCLING“

Pilot project Styria Q3/21



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AT-premiere: Reward for each correctly disposed beverage packaging!

Foolproof process



Scan Packaging

Scan QR code on the packaging with the app!



Scan Container

Then simply scan the QR code on the appropriate container (e.g. yellow bag, yellow bin or blue bin for cans)!



Redeem Premiums!

Collected Digi-Cycle points can be redeemed for rewards at local partners!



Sustainable Impact

- ✓ Usability
1,5 in average
(scala from 1-6)
- ✓ minus 22% PET-misses in residual waste
- ✓ No misses of marked packaging in residual waste

A close-up portrait of a young woman with long, wavy brown hair, smiling broadly at the camera. She is wearing a green and white patterned shirt. The background is a plain, light-colored wall.

The digital way to increase recycling rates



Roll-out Plan Digi-Cycle




8

Launch by **Service-** and **Incentive Program** creates the basis for a possible expansion into a module in a deposit system.


Digital deposit system for deposited products

Proof of Purchase:
 Unique QR-Code 


Proof of Disposal:
 Unique QR-Code
resp. GPS Coord.



Incentive Program for participating products


Proof of Purchase:
 EAN-Barcodes (Quantity restriction / User)



Proof of Disposal:
 a.o. Photo resp. GPS Coordinates



Recycling instructions & Location finder for numerous FMCG-products

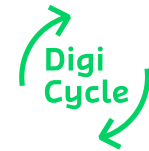
 Product identification:
Scan of EAN-Barcodes



Proof of disposal: not required, display of disposal locations via GPS coordinates





Roll-out Plan Digi-Cycle



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The most common recycling obstacles

...and the Digi-Cycle answer to them



Lack of knowledge about the correct separation of complex packaging



Especially out of home:
Where is the nearest collection point?

The Digi-Cycle **Recycling Guide** shows the regionally valid separation instructions and the nearest collection points for each EAN.



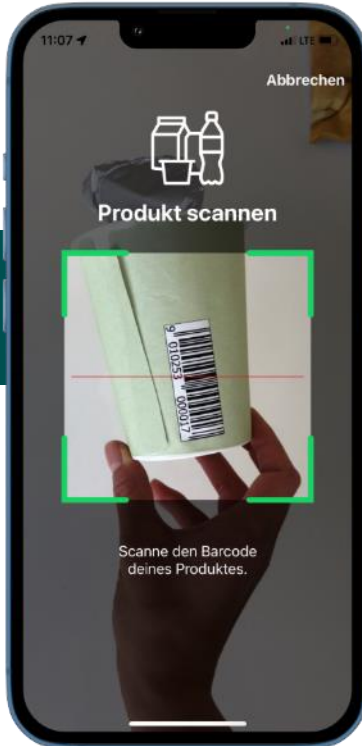
Digi-Cycle Recycling Guide

Nation-wide Recycling instructions for consumers

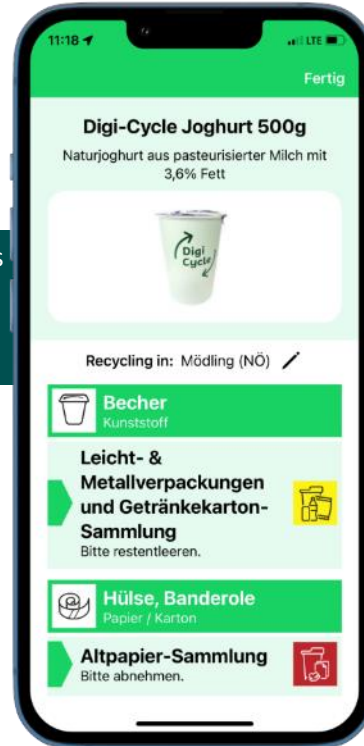


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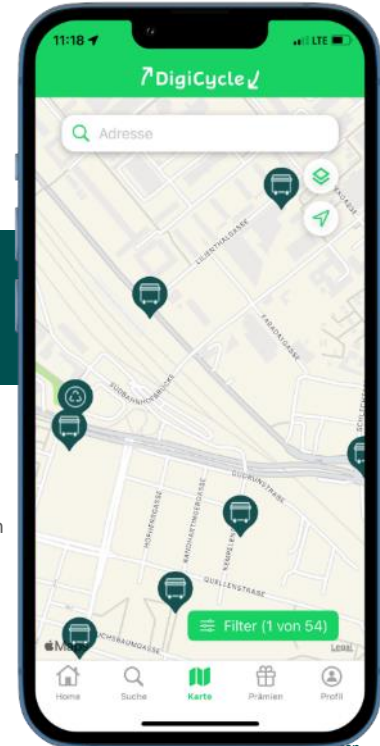
1. Start by scanning an EAN code of the packaging



2. The app shows location-specific info on correct recycling



3. The user sees the locations of the next collection points



Packaging parts:

- Components incl icons
- Material of components
- The waste fraction with icon where it belongs to in the respective region
- Additional hints for each component (e.g. please remove)

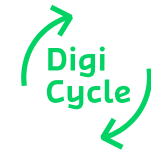
Our partners



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Roll-out Plan Digi-Cycle



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Launch by **Service-** and **Incentive Program** creates the basis for a possible expansion into a deposit system.

Digital deposit system for deposited products

Proof of Purchase:



Unique
QR-Code



Proof of Disposal:

Unique QR-Code
resp. GPS Coord.



GEO

Incentive Program for participating products

Proof of Purchase:



EAN-Barcodes (Quantity
restriction / User)



Proof of Disposal:

a.o. Photo resp. GPS
Coordinates



GEO

Recycling instructions & Location finder for numerous FMCG-products



Product identification:
Scan of EAN-Barcodes



Proof of disposal: not required, display of disposal
locations via GPS coordinates



GEO

Digi-Cycle informs and provides incentives

The most common recycling obstacles and the Digi-Cycle answer to them



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Lack of knowledge on how to properly separate complex packaging



Especially out of home:
Where is the nearest collection point?

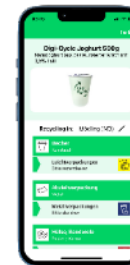


Convenience – residual waste bin as the easiest way



„Everything is burned anyway“ – urban legends as showstopper

The Digi-Cycle **Recycling Guide** shows the regionally valid separation instructions and the nearest collection points for each EAN.



The **Digi-Cycle incentive program** rewards correct recycling and provides information about the elements of the circular economy in a playful way



Sources: doi:10.3390/su2092799 www.mdpi.com/journal/sustainability "Uncertainty Regarding Waste Handling in Everyday Life"; <https://www.muelltrennung-wirkt.de/neue-muellertrennungsstudie-die-deutschen-brauchen-nachhilfe-im-muellertrennen/>; <https://www.bvse.de/recycling/recycling-nachrichten/5523-vorurteile-hauptgrund-fuer-trennmuedigkeit.html>; <https://www.kleinezeitung.at/wirtschaft/6025512/Alarmierende-Umfrage-Jeder-vierte-unter-30-verzichtet-auf-die>

Digi-Cycle incentive system in a nutshell



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1

MANUFACTURER

Labeling all products with a unique Digi-Cycle Code OR using existing Barcodes



2

RETAIL



The retailer does not have to be involved – but can of course support the action!

3

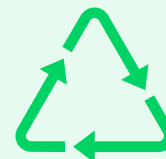
CONSUMER

The Customer scans the Code from the product and the appropriate Recycling Point!



4

RECYCLING



Digi-Cycle checks the validity of the Codes and releases the reward (material incentive, money or lottery possible) to the consumer's account!

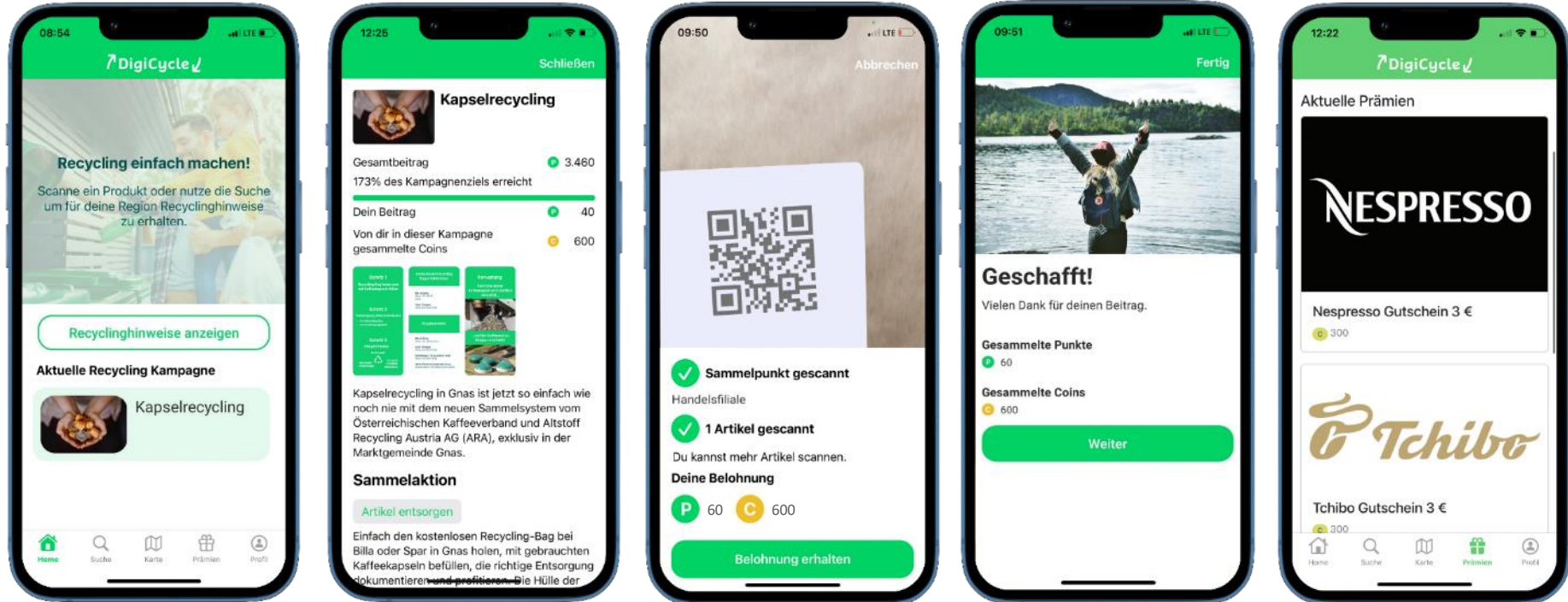


Incentivation through campaigns

Example: Reward for the correct disposal of coffee capsules



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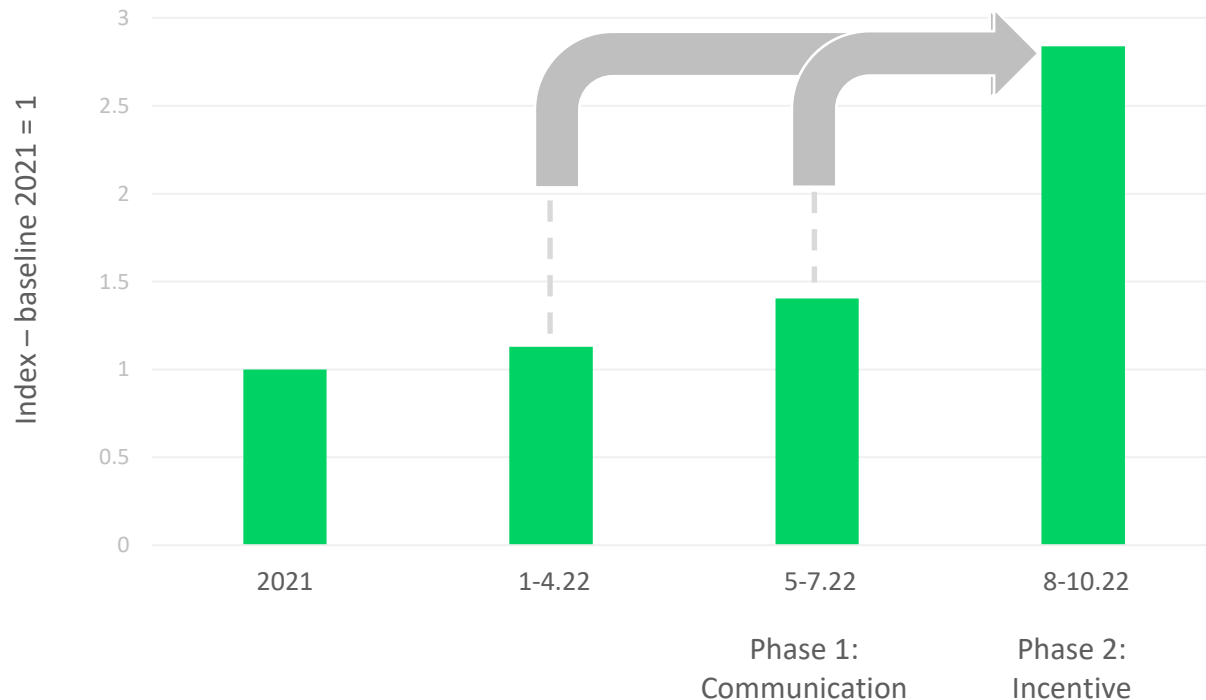


Coffee & tea union: 2.5 times the amount collected by expanding the collection and digital incentives



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Ø Collected amount per day



Cross-manufacturer collection in waste collection center and local shops



Communication



Incentive



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Roll-out Plan Digi-Cycle




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Recycling instructions & Location finder for numerous FMCG-products

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The way to a Digital Deposit System

Digital – because it's 2023

Vending machines are often only a intermediate stage of digitization

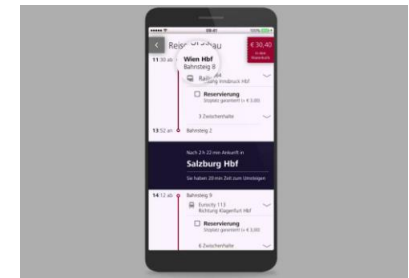


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Banking



Train tickets



A digital deposit system also allows the integration of further packaging like bonded drink cartons



“Clearly the most straightforward, user-friendly Deposit Return Scheme is one that includes a wide range of materials, and offers a digital option, allowing consumers to engage with the scheme from home.”



Alex Henriksen,
managing director at
Tetra Pak North Europe

Digi-Cycle as a Deposit System in a nutshell



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1

MANUFACTURER

Labeling all products with a unique Code



2

RETAIL



The retailer buys the product incl. deposit from the manufacturer and sells the product to the consumer.

3

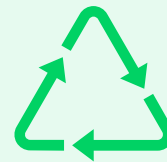
CONSUMER

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RECYCLING



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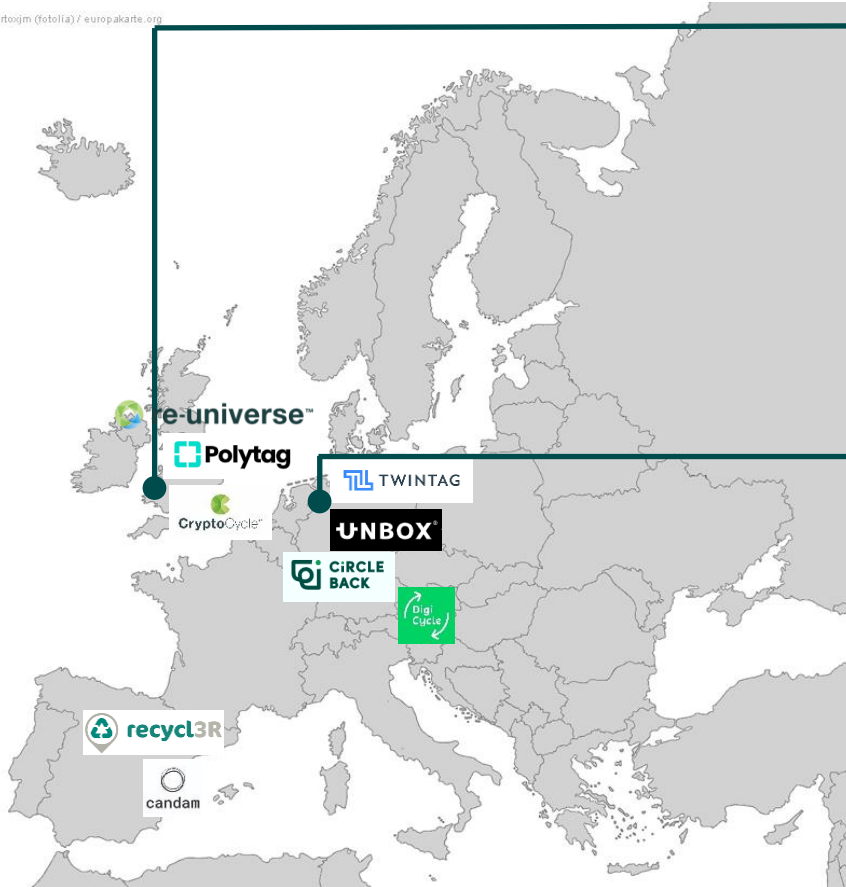


Digital deposit systems on the rise

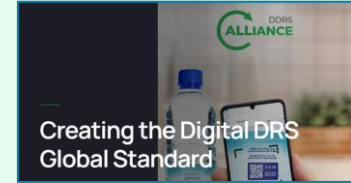


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Wales: local government is testing DDRS



Belgium: Fost+ is executing three trials



en

A sustainable system to efficiently achieve all recycling goals

BEVERAGE INDUSTRY



- Coverage of the deposit costs in the course of dispensation - competition between the systems ensures cheap tariffs
- Purchase rights for recycle
- 24/7 return is sales-promoting

RETAILER



- Fewer vending machine infrastructure necessary
- Fewer personnel and space requirements, since systems takes place mostly outside of trade
- Avoidance of odor and hygiene problems
- Frequency of customers still guaranteed because the deposit can be redeemed in the supermarket.

CONSUMERS



- Convenience for citizens through many return points, supplemented by vending machines in e.g. waste collection centers, larger grocery stores
- Innovative solution for maximum collection efficiency esp. attractive for rural areas
- Returns possible around the clock

MANUFACTURERS WITH PLASTIC PACKAGING



- The additional effort to achieve the EU quotas by 2025 will be borne by more shoulders
- Possibility to opt-in of other products / types of packaging (e.g. batteries, aerosol cans)

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