

INTERNATIONAL PRACTICES OF THE DEPOSIT REFUND SYSTEM (DRS)

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In cooperation with:



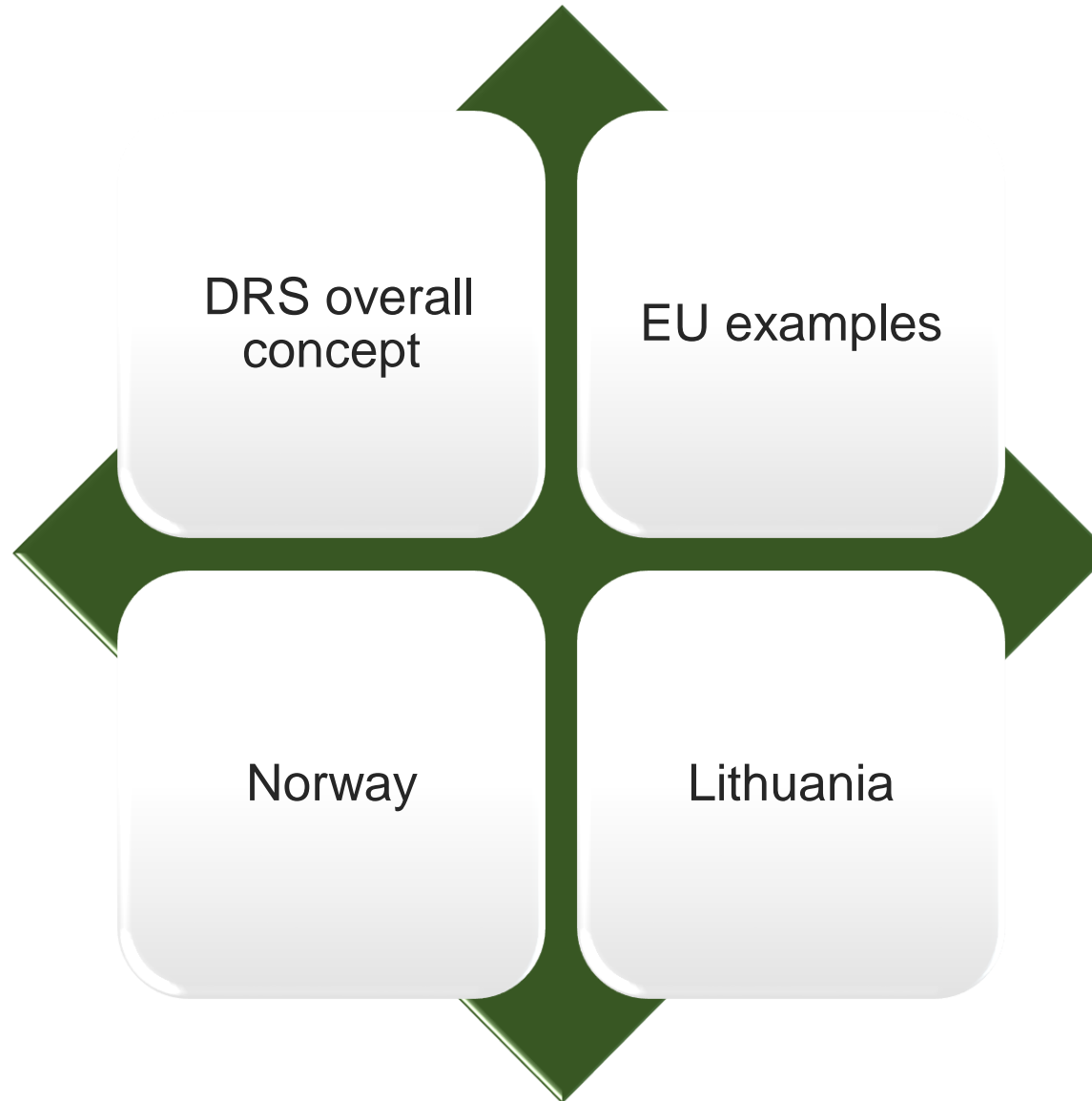
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Content of presentation



Lack of collection infrastructure blights European plastic bottle recycling



Sources: <https://www.sciencenews.org/article/chemistry-recycling-plastic-landfills-trash-materials>

**How many years does it take for the traces
of a PET plastic bottle to disappear in
nature?**



Sources: <https://www.zaliasmiskas.lt>

PET plastic bottles: facts

- EU citizens consume **>70 billion** PET drinks bottles a year

70% of soft drinks (carbonated drinks, still and dilutable drinks, fruit juices and bottled water), are now packaged in PET plastic bottles



It takes at least

450 years

For a plastic bottle to completely degrade

Globally, more than
a million
plastic bottles are sold
every single minute



1,000,000

Bottled water requires
up to

**2000
times**

the energy used
to produce tap water



x2,000

Key market players struggling to meet recycling targets

- The bottle industry must achieve **25%** recycled content in PET bottles **by 2025** (under SUP Directive)



DEPOSIT RETURN SCHEME MANIFESTO

DRS

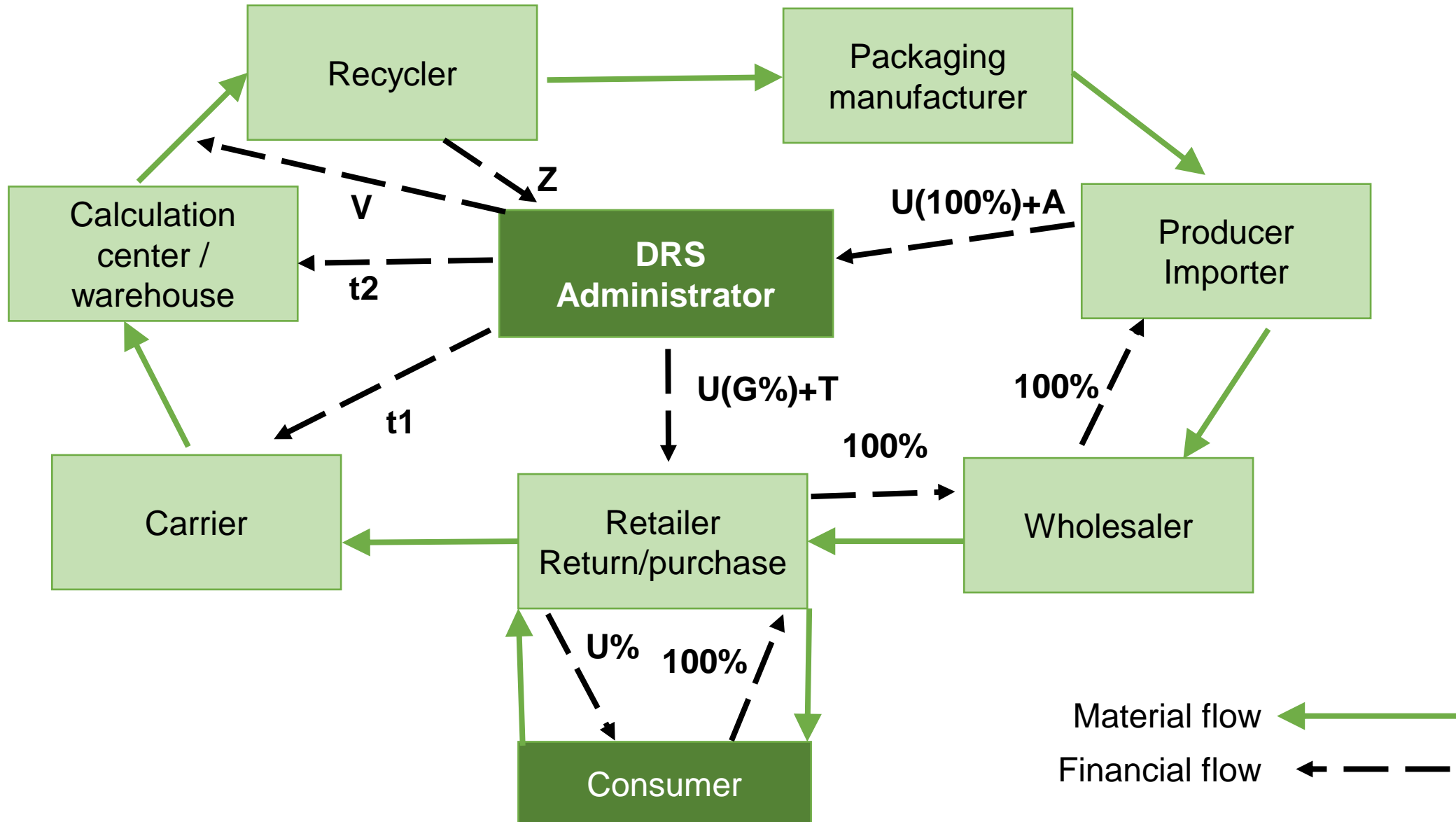


Sources: <https://zerowasteurope.eu/2019/07/deposit-return-systems-an-effective-instrument-towards-a-zero-waste-future/>

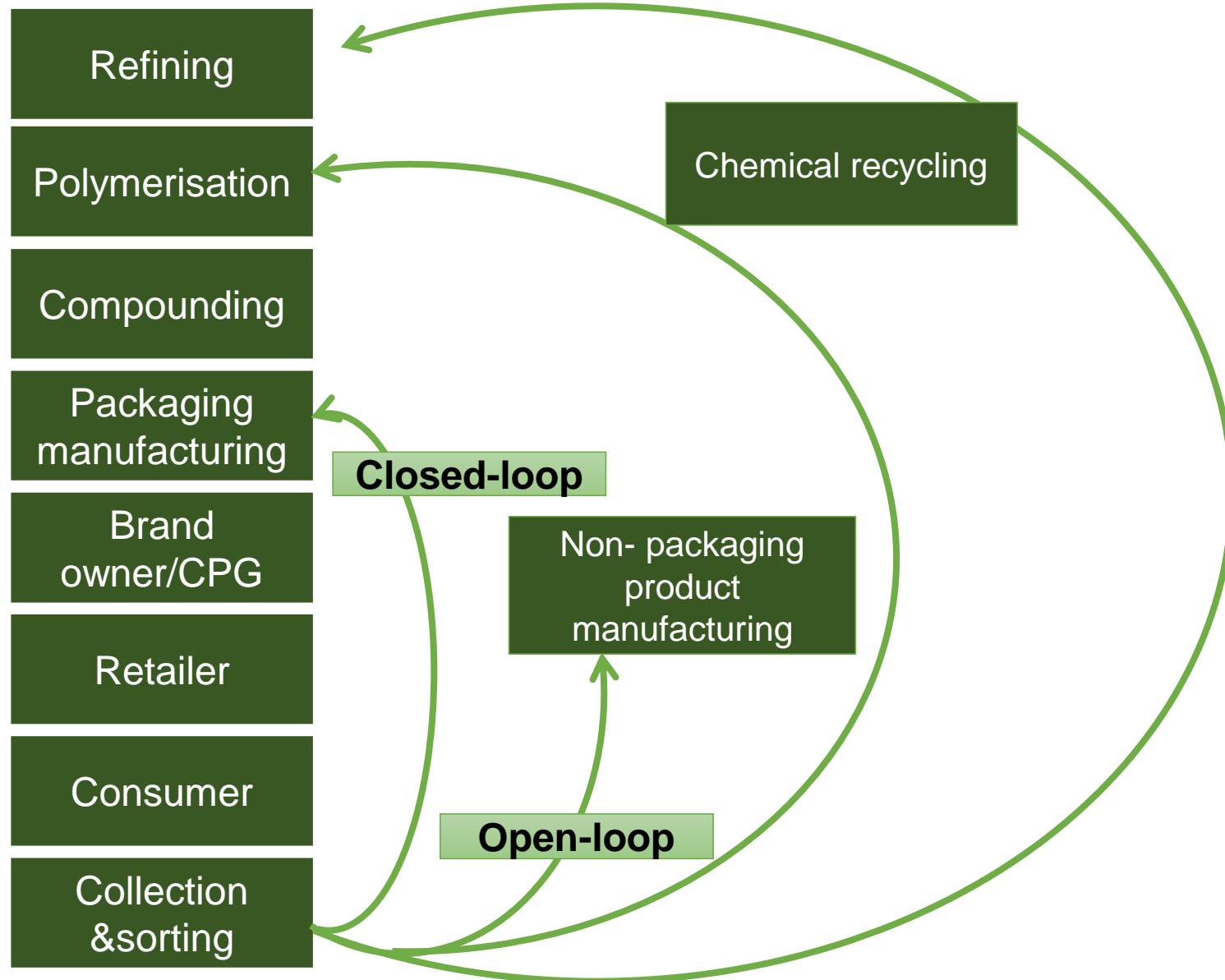


The DRS overall concept

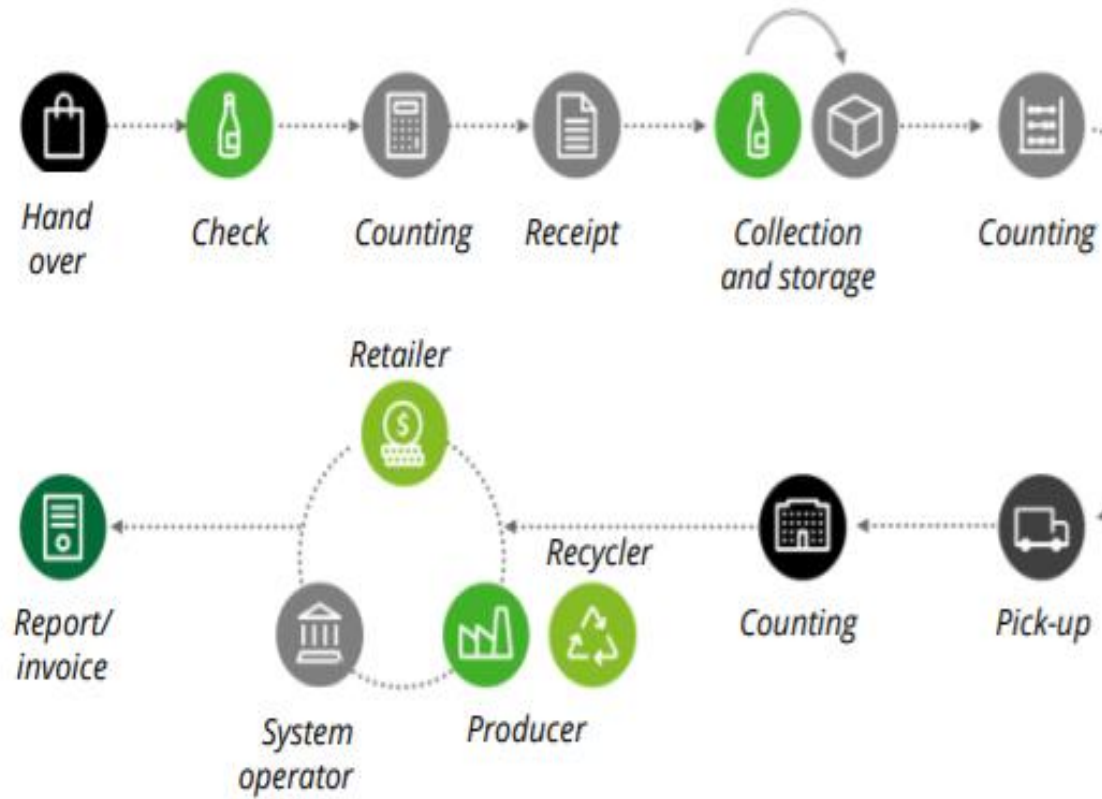
Principal DRS model



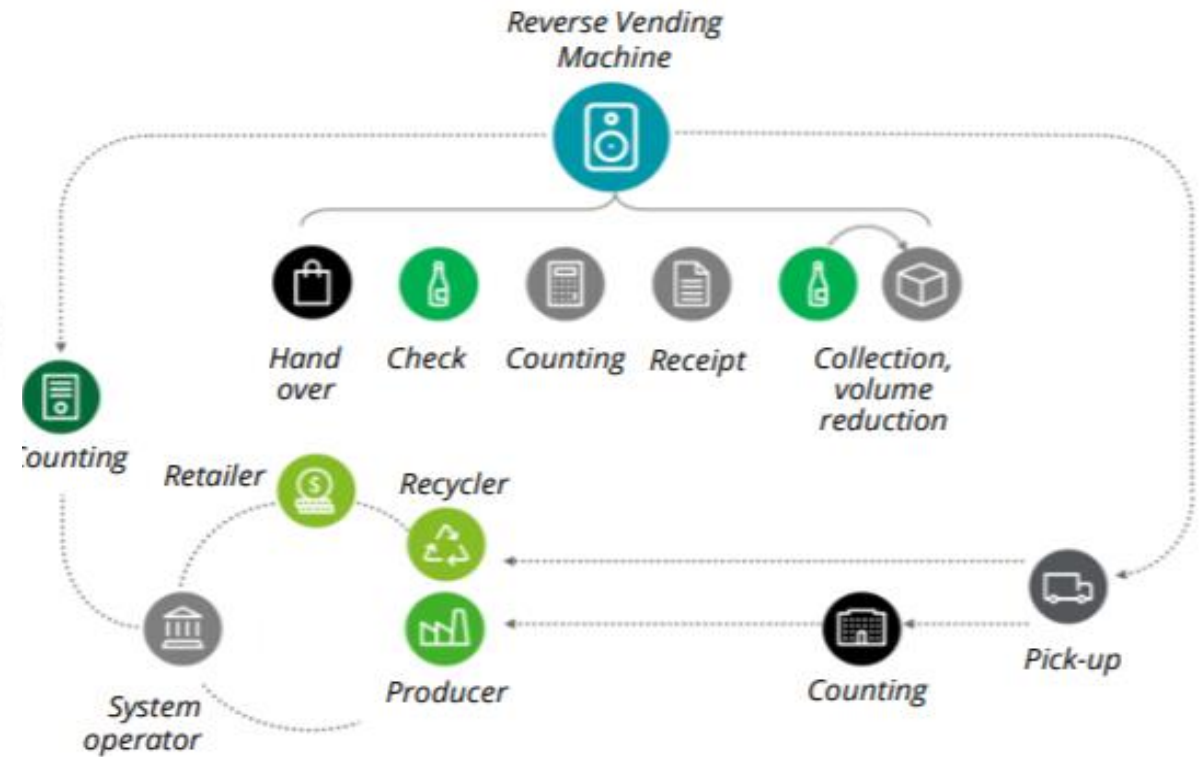
Possible options



DRS collection types



1) Manual






2) Automatic

International practices

Deposit refund systems in Europe



-  Countries that already operate the deposit-refund system
-  Countries that consider introducing the deposit-refund system
-  Countries that have decided to introduce the system in the near future

Packaging included in the DRS

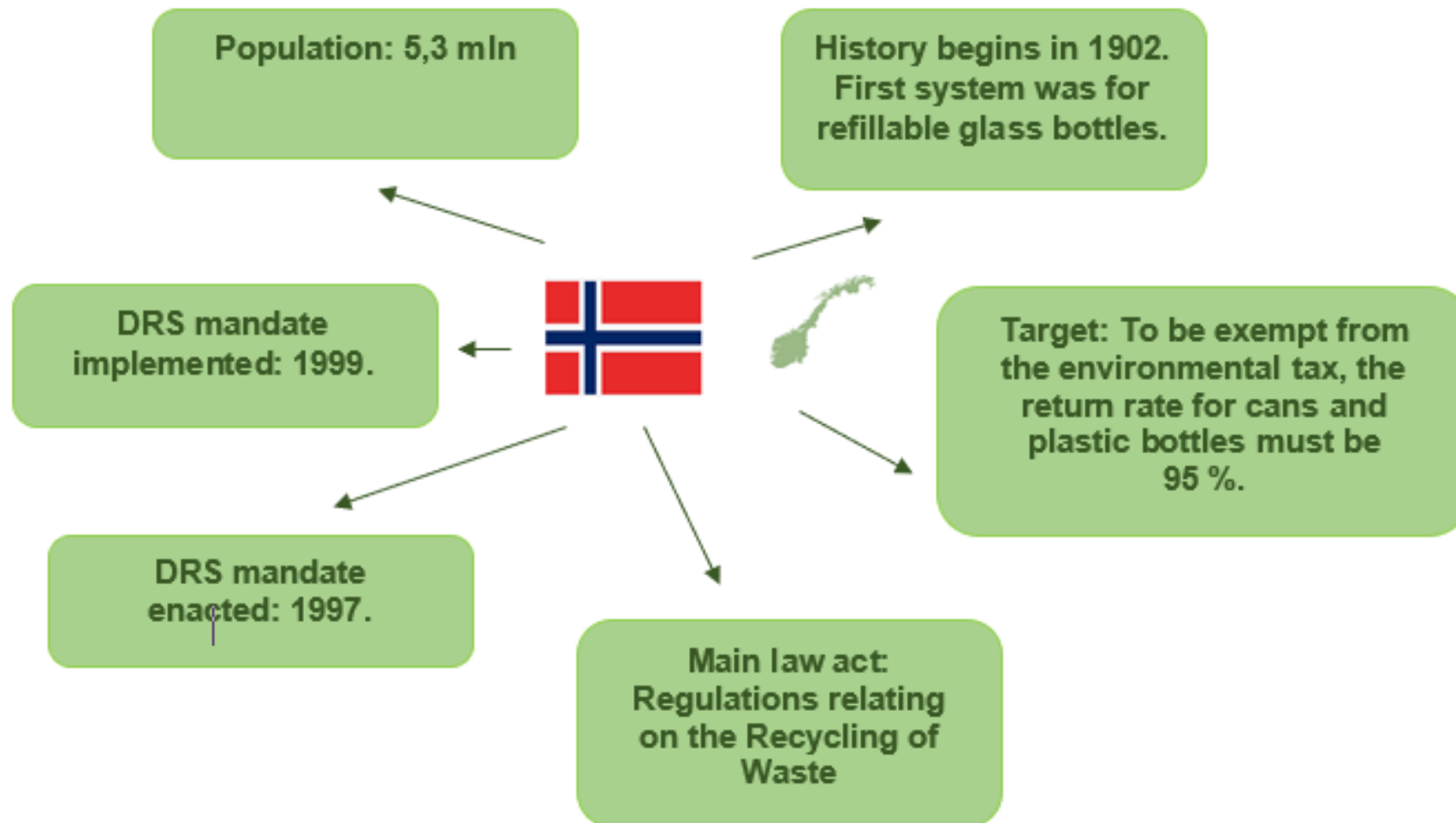
COUNTRY	Plastics (mainly PET, in Norway also HDPE bottles)	Metals (mainly aluminium cans, in Croatia, Sweden and Norway – also tinsplate; steel packaging in Estonia)	Glass (depends on the country, i.a. beer, wine, soft drink, juice)	Average system efficiency
CROATIA	●	●	●	90%
DENMARK	●	●	●	89%
ESTONIA	●	●	●	82%
FINLAND	●	●	●	93%
GERMANY	●	●	●	97%
ICELAND	●	●	●	89%
LITHUANIA	●	●	●	90%
NETHERLANDS	●		●	95%
NORWAY	●	●		96%
SWEDEN	●	●		88%

Comparison of DRSs

Country	Mandate enacted	Mandate implemented	Return rate	System operator
Croatia	2005	2006	89	Centralized
Denmark	2000	2002	92	Centralized
Estonia	2004	2005	87,2	Centralized
Finland	N/A	1996	93	Centralized
Germany	1991	2003	98	Decentralized
Lithuania	2014	2016	92	Centralized
Sweden	1982	1984	84,9	Centralized
The Netherlands	2003	2005	95	Centralized

Norway example

Norway: facts

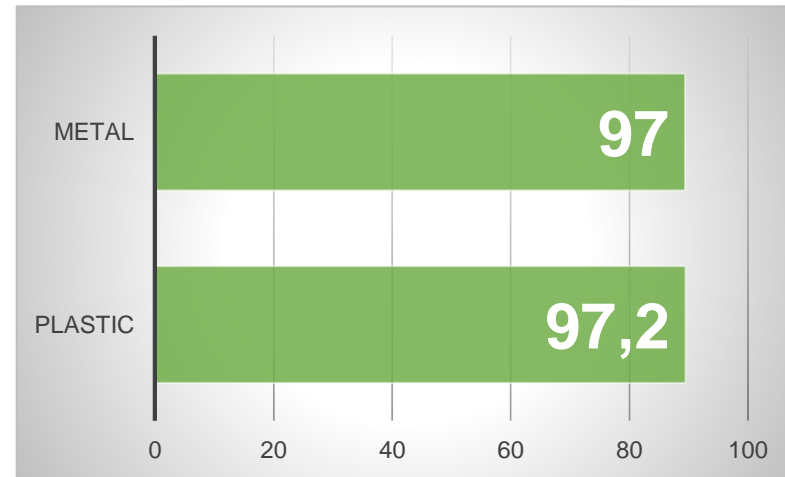


Norway: achievements (2019)

598,643,369 cans returned

1,155,213,872 total returns

556,570,503 plastic bottles returned

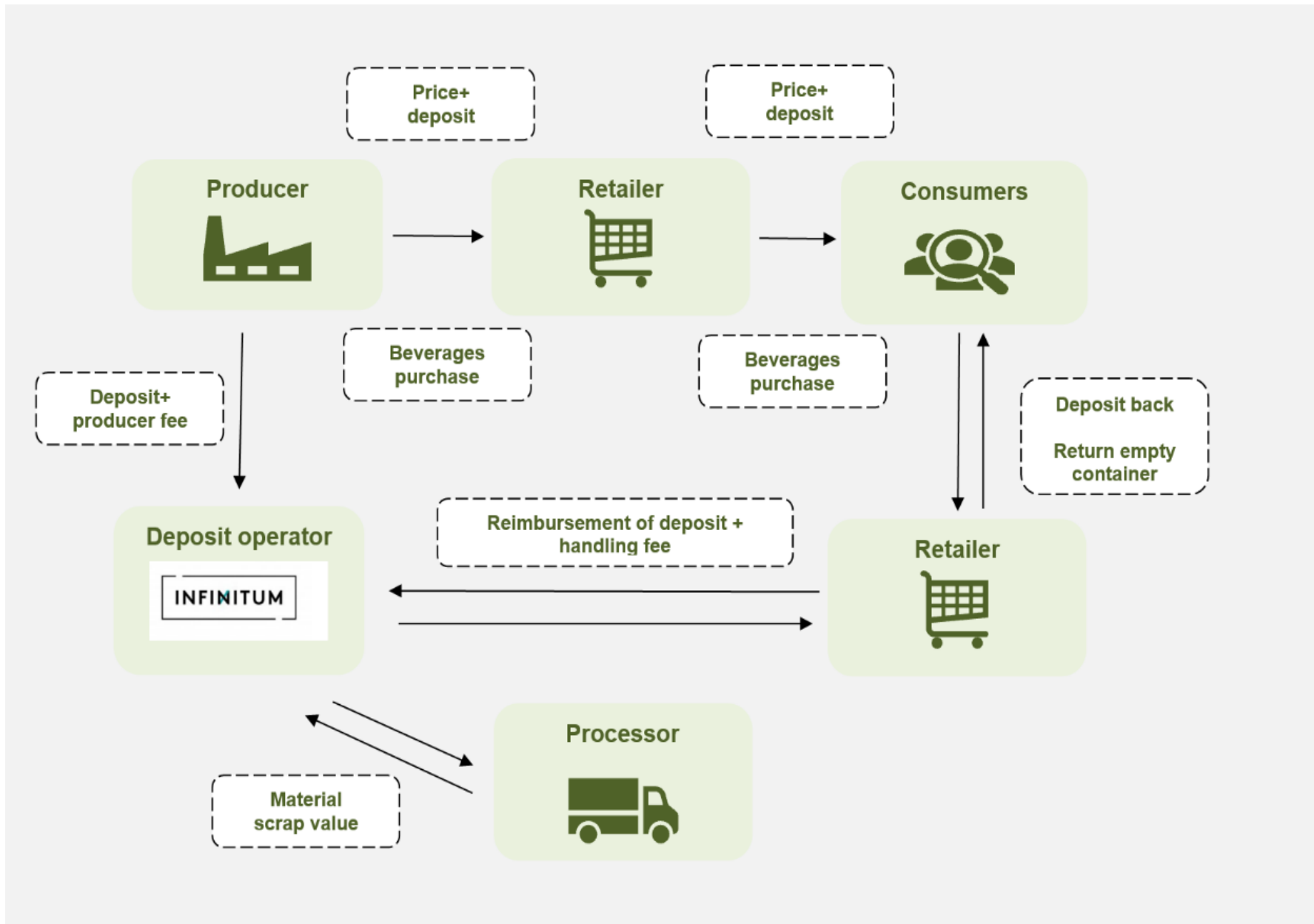


Return rate – 97 %

20,219 tonnes of plastic were returned and recycled by Veolia and Wellman

9,025 tonnes of aluminium were returned and recycled by Norsk Hydro

Norway: DRS scheme (1)



Norway: DRS scheme (2)

System type: centralized

Deposit value:

Plastic, metal \leq 0.5 L (0.13 gal): 2 NOK (€ 0.16).
Plastic, metal > 0.5 L (0.13 gal): 3 NOK (€ 0.25)

System finance:

Material revenues, unredeemed deposits,
producer fees

System material:

Plastic (predominantly PET, HDPE), metal
(aluminium/tinplate)

Beverages type:

All (the regulation does not regulate the type
of beverage product covered by DRS)

Handling fees (2020):

RVM with compaction: Plastic: 0.25 NOK. Metal: 0.20
NOK

Manual or RVM without compaction: plastic: 0.10
NOK. Metal: 0.05 NOK

Producer fees (2020):

Aluminum: 0.00 NOK (€ 0.00), Steel: 0.21 NOK
(€ 0.02), PET: 0.18 NOK (€ 0.02), HDPE: 0.18
NOK (€ 0.02)

System operator & administrator: Infinitum. Established in 1996 under the name Norsk Resirk, Infinitum began operations in 1999 and is owned by the beverage producers and Norwegian grocery producers

Lithuanian example

Lithuanian DRS: success story

EU PET recycling

targets by 2025 already achieved

2025



Only 9 people

administrate the whole system

Lithuanian DRS

For refillable packaging – since 2006
Only manual collection in shops



For non-refillable (single-use) packaging – since 1 st
February 2016

RVMs and manual collection in shops



Lithuanian DRS management

A public institution *Užstato Sistemos Administratorius (USAD)* is a non-profit organization that has an underlying objective of managing the deposit system as indicated in Law on Packaging and Packaging Waste

- Founded and managed by directly involved industries

- › Lithuanian Brewers Association
- › Association of Lithuanian Trade Enterprises
- › Lithuanian Natural Mineral Water Manufacturers' Association



Lithuanian DRS infrastructure

Amount of collection points and their types:

Reverse vending machine (RVM) points –

close to 1.000

RVM устанoвлено

Manual collection points –

over 1.700

Total 2.700

In total over

1.100

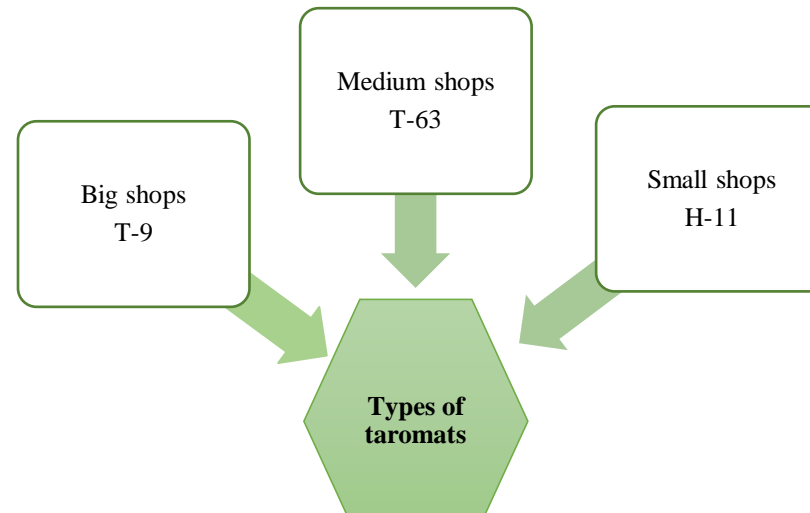
RVMs installed

89%

of packages
are collected
in RVM points



Lithuanian DRS infrastructure



TOMRA
COLLECTION SOLUTIONS | REVERSE VENDING

T-9 MAKE IT EASY

T-9 is a new front end machine featuring TOMRA Flow Technology™ - the world's first 360 degree recognition system in a reverse vending machine.

T-9 solves core tasks in completely new ways providing unique benefits to new as well as existing customers. It is the first of a new generation that will redefine industry standards leaving you prepared for today and tomorrow.

- + Faster than ever
- + Easier to keep clean
- + Prepared for other types of beverage packaging
- + Perfect for customization



FASTER

The T-9 instantly reads barcodes and security marks without rotation stops, allowing the user to insert containers in a rapid continuous flow, increasing convenience and peak-hour capacity.



CLEANER

Smart design and intuitive interfaces reduce the need for cleaning and at the same time make the machine easier to clean.



TAKES ALL

TOMRA Flow Technology™ handles containers other technologies can't. This opens new possibilities for what can be collected – even new material fractions in future recycling schemes.



T-9 is equipped with TOMRA Flow Technology™, the world's first 360 degree instant recognition system in a reverse vending machine. TOMRA Flow Technology™ ensures a unique level of operational efficiency and reliability, and the most flowing user experience.

TOMRA
COLLECTION SOLUTIONS | REVERSE VENDING

T-63 TRISORT TRIPLE PLAY

T-63 TriSort is an InPac™ solution that handles up to three fractions within the freestanding cabinet.

T-63 TriSort is the ideal choice for medium volumes of both refillable and non-refillable containers (PET, can and glass).



ALL-FRACTIONS INTEGRATED

- Freestanding with a shallow depth makes this a good alternative when space is limited
- Can be configured in any combination of can, glass and PET (compaction or no compaction for refills)
- Consumers can avoid presorting before returning the containers

FLAT SIDE CABINET

- Easy to change door decor plate
- Ideal for custom branding

EASY EMPTYING OF REFILLABLES

- Available with a special SoftDrop™ refillable containers
- Docking station for power, no cable detach for emptying
- The SoftDrop™ has wheels and adjustable floor for good ergonomics

TOMRA
COLLECTION SOLUTIONS

REVERSE VENDING

H-10/H-11 THE ENGAGING

The H-10 and H-11 reverse vending machines (RVMs) offer a clean and robust design, ideal for receiving low to medium volumes of containers. These RVMs are reliable in use and scaled for retailers in need of an efficient and basic return solution for handling empty beverage containers. H-10 and H-11 take one-way, non-refillable containers. Additionally, H-11 is equipped with a SoftDrop safe-landing unit to receive refillable containers.

Both H-10 and H-11 feature a touch screen with a large, 21.5" display suited for branding and promotional activities.



- Collection of cans and/or plastic bottles (H-11 can also take refillable containers with SoftDrop)
- 66% higher storage capacity than its predecessor, the Uno/Uno Promo
- Optical fraud protection
- Electronic door lock
- Support for various card readers
- Re-routing or sorting into two material types
- Thermal printer as standard

DURABLE AND ROBUST

- Reinforced and durable steel doors
- Ideal for sheltered outdoor / parking area installations

FLAT CABINET

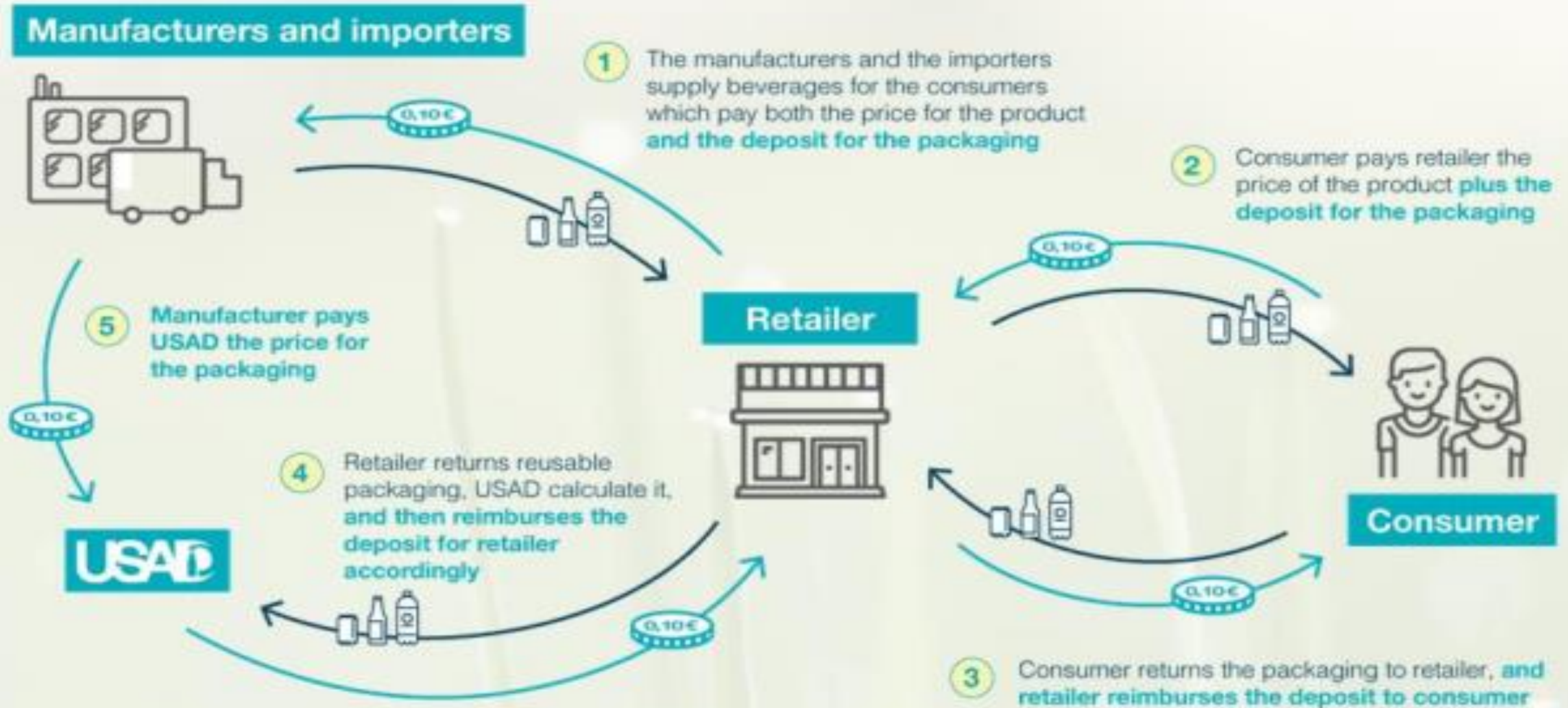
- Ideal for custom wrapping and advertising
- Customizable to fit your brand profile
- Ideal for tight spaces

TOUCH EDITION

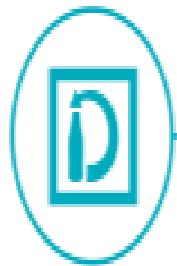
- Self-explanatory guidance for customers on the display
- Intuitive guidance for store personnel



Lithuanian DRS principle scheme



Producers obligation



- Marking deposit packages with **deposit logo**



- **Charging deposit** for each sold deposit package



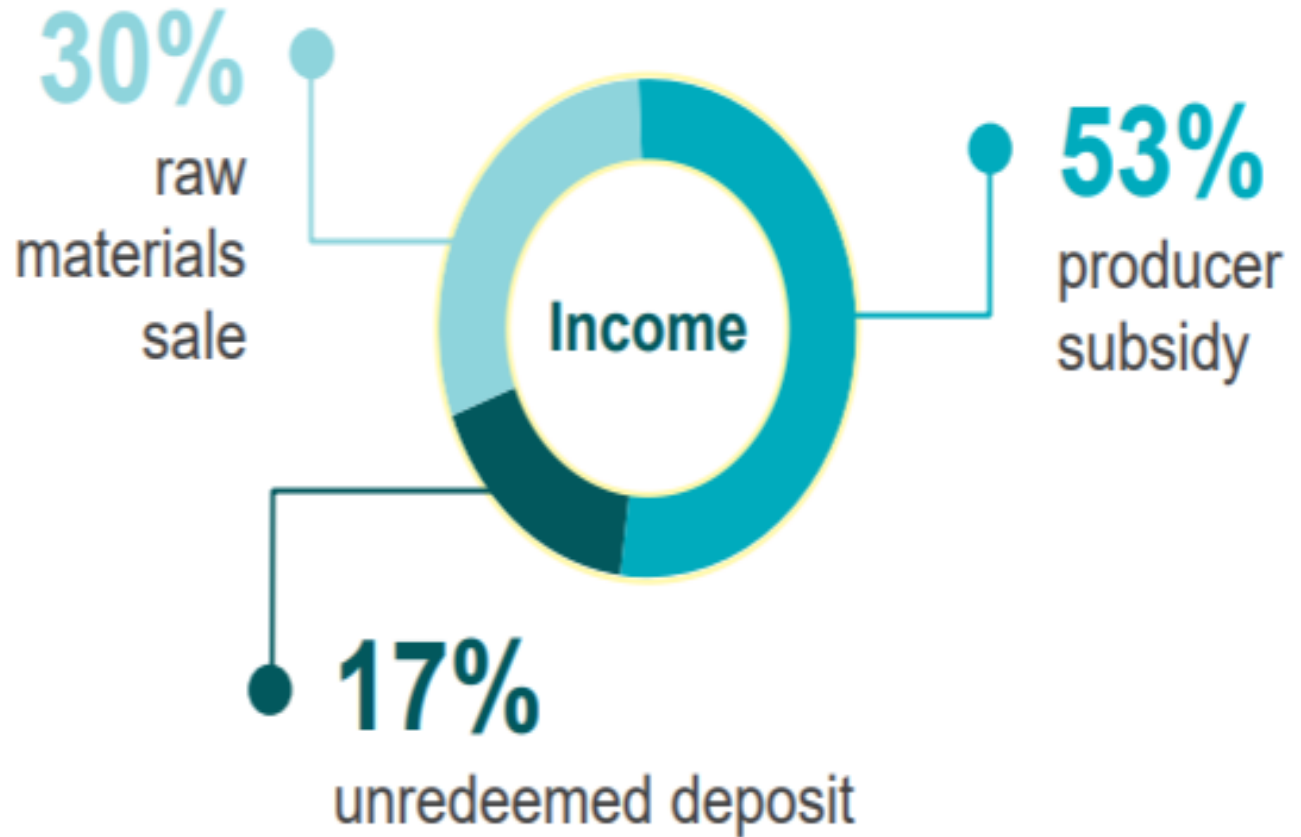
- Choosing type of **barcode**: universal or unique



- **Participating** in deposit system and **financing** it

Producers obligation

Producers
and **importers** are
the main sponsors
of the deposit system

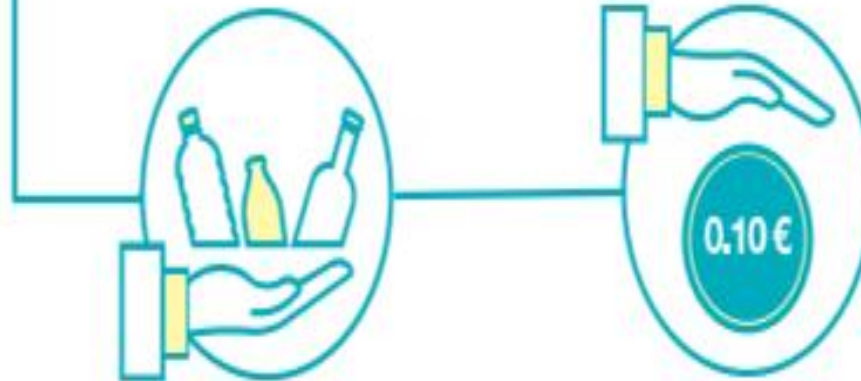


Retailers obligation

- Taking deposit from consumers

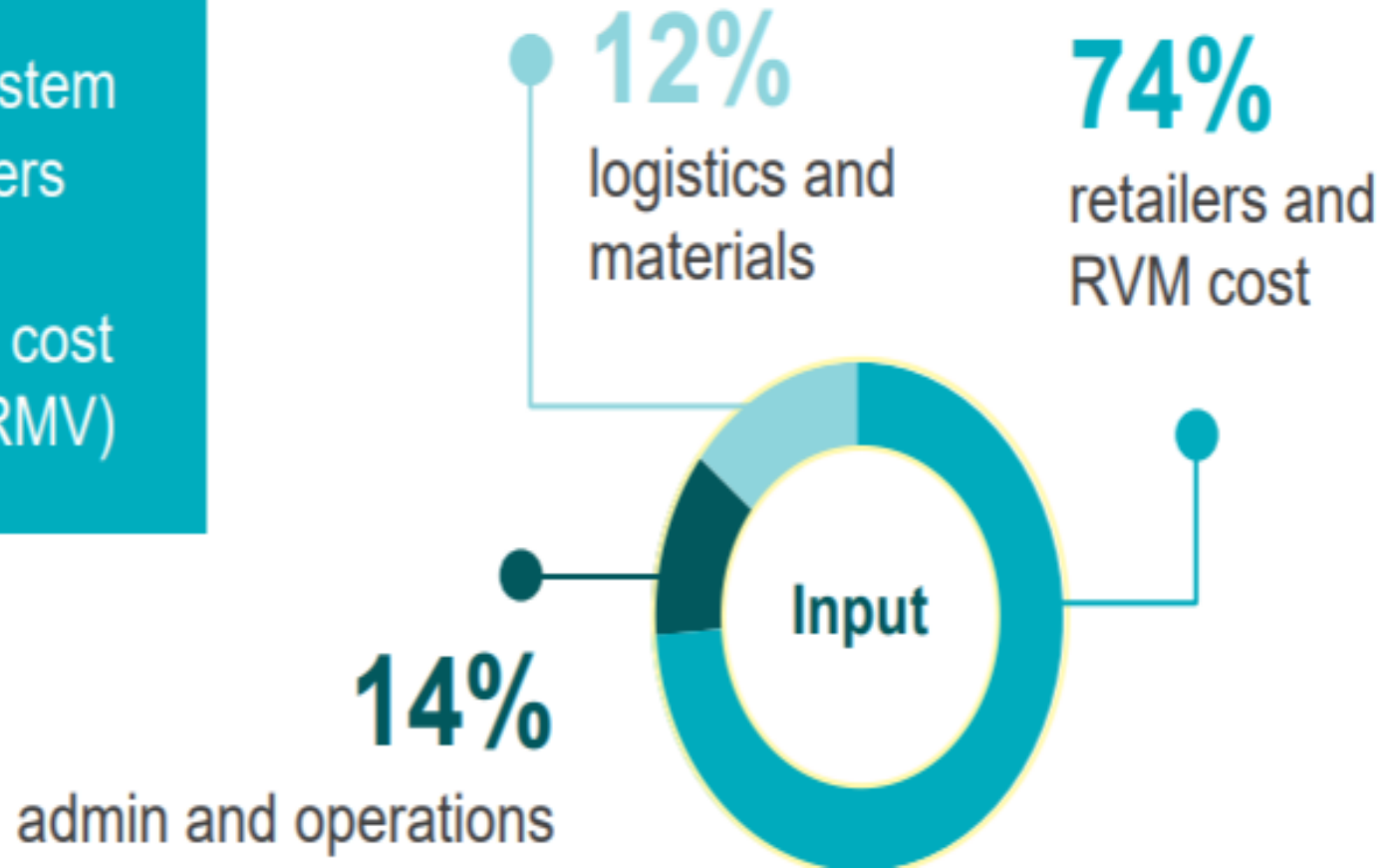


- Taking back deposit packages from consumers and returning deposit

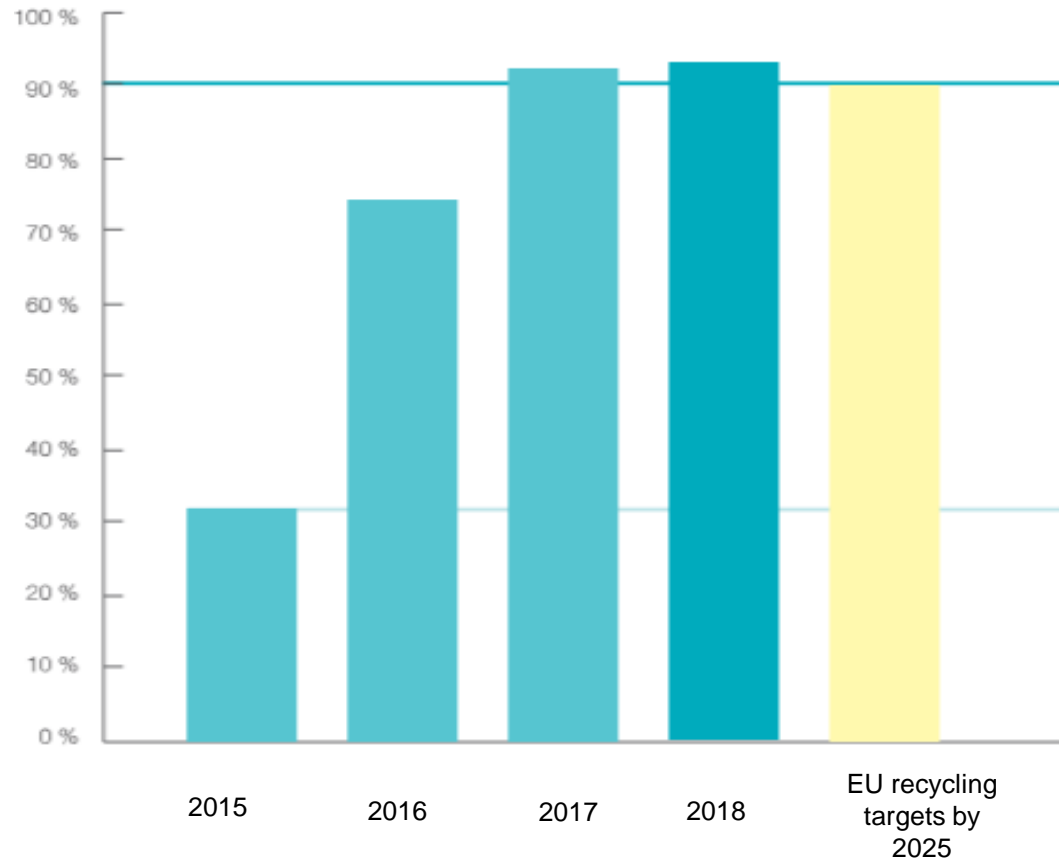


Retailers obligation

74% of the deposit system expenses include Retailers and RVM cost (such as compensating collection cost and expenses of using RMV)



Lithuanian DRS results



Targets for **2025** are already **achieved and exceeded**

Deposit system allows higher recycling targets vs. container system

Before deposit system introduction PET bottles recycling **was below 33%**

Key facts and figures

- Investments in the DRS – about 30 million EUR
- New job created – about 1200
- Quantity of RVMs – about 1100
- The returned and recycled rate in the first year – 70%, last year – 93 %.
- About 90% of packaging returned using RVMs

Consumer approach

Consumer survey conducted in 2018* resulted:

**2 years after launching the deposit system*

- **97%** of consumers answered that they are **satisfied** in general with functioning of the deposit system for single-use packaging



- **95%** of consumers indicated that the **amount of garbage** in parks, at lakes and other natural places, visited by people, **decreased** after introduction of the packaging deposit system

Lessons learned

- Decrease of beverage packaging waste in public spaces, landfills, sorting promotion
- Loyalty: about 70% of deposit is spent in the same shop
- Allows to return up to 95% of packaging, better quality of waste materials
- No public investments, no funds needed, only private investments
- Orders to transport companies, new job creation



Lessons learned

- In the specific case of glass, according to studies conducted by the Federal Office of the Environment of Germany the **reuse** for **20 times** of a **glass bottle** also involved an **energy saving of 76.91%**



Key findings

- DRSs achieve the highest rates of separate collection i.e. approx. 90% in Europe
- DRSs are one of the most efficient instruments to tackle plastic waste. DRS can reduce by up to 40%
- DRSs result in net savings for municipalities and they do not imply extra costs for public institutions
- DRSs create local jobs and supports a thriving local economy

Questions for discussion

- In principle, do you support the DRS creation and implementation idea to Your countries?
- What do you think are the most important considerations (for example, legal, technical, financial, psychological aspects) for the successful implementation of the DRS system in Your country?
- Please identify the 3 biggest waste management challenges in Your country



Thanks for your attention



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