

Deposit Return Schemes in Europe

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Disclaimer

This document was created by the group of GS1 experts under the GS1 in Europe Packaging Activity – Workstream 2 Deposit Return Schemes. The working group was active between June 2023 and March 2024. Discussions and findings regarding DRS (Deposit Return Systems) are based on the prevailing circumstances during this period. It is important to note that DRS is an ongoing topic in many countries, and the best practices outlined herein reflect the current state of affairs, which are subject to change in the future. Therefore, stakeholders should exercise caution and stay updated with evolving regulations and practices related to DRS in their respective jurisdictions.

For up-to-date information or specific inquiries, individuals are encouraged to connect with local experts in the field of DRS or relevant local regulatory authorities.

Certain sections of this document are intended for internal use only and should not be shared externally. Please note that internal sections are clearly marked within the document. Users should adhere to these designations to ensure appropriate dissemination of information.

The document referred to here, titled “[EXECUTIVE DEBRIEF ON DEPOSIT RETURN SCHEMES](#)” is intended to be an internal GS1 guidance on GS1 relevance to Deposit Return Schemes (DRS). DRSs are much more than sustainability initiatives. When a deposit is involved, regulatory agencies that GS1 does not typically work with are engaged, such as tax and finance, e.g., taxes on manufacturers can decrease in line with the proportion of packaging collected. The guidance in this document is also relevant to any new schemes being developed that involve return and reuse of containers, such as take out containers that have similar regulatory requirements.

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1 Introduction

As a reply to the increasing European level interest towards the packaging topic, GS1 in Europe decided to launch an activity on several topics related to packaging, with the involvement of GS1 Member Organisation experts throughout Europe in the first quarter of 2023.

A survey was sent out to all European MOs to better understand which areas related to packaging are so relevant at European level that they justify creating separate workstreams on it. **Deposit Return Schemes is one of the major topics** where visible interest was shown from the European countries. In many countries, established Deposit Return Schemes are already in use, especially when it comes to traditional materials such as glass. Other materials like plastic or metal are already covered by some countries and will soon need to be covered by others based on upcoming regulatory requirements. As the DRS system implementation can differ from one country to another, GS1 in Europe decided to establish the DRS workstream as a best practice sharing activity.

The major goals for the activity are:

- Collect best practices from countries already having an existing DRS system in place;
- Structure this information in a way that it can be used to support GS1 Member Organisations in Europe in their local DRS implementation;
- Create a platform of communication for subject experts to collaborate, share news and information and help each other with questions related to DRS.

This document is the structured collection of all the inputs and best practices that were shared during the work of the group. Thanks to all the GS1 colleagues who contributed to this document by sharing their knowledge.

1.1 The relevance of packaging as a topic

Packaging is necessary to protect and to transport goods. The manufacturing of packaging is also a major economic activity in the EU. However, regulatory approaches differ from one Member State to another, which creates obstacles that prevent the internal market for packaging from fully functioning.

The increasing use of packaging is a key environmental concern. It is one of the main users of virgin materials (40% of plastics and 50% of paper used in the EU is destined for packaging) and accounts for 36% of municipal solid waste. The increased use of packaging coupled with low re-use and recycling rates hamper the development of a low-carbon circular economy. Packaging increased in recent years faster than the gross national income, which leads to soaring CO₂ – and other emissions – and the overexploitation of natural resources, biodiversity

loss and pollution.¹ The implementation of Deposit Return Schemes is one of the solutions among others like re-use and the introduction of the expanded producer responsibility approach that can help to embrace the green transition for packaging in Europe.

Deposit Return Schemes (DRS) have gained significant traction in Europe as a sustainable solution to combat plastic pollution and promote recycling. These programs are designed to reduce single-use beverage container waste, such as plastic bottles and aluminium cans, by incentivizing consumers to return them for recycling. DRS has proven to be highly effective in encouraging recycling, reducing litter, and conserving resources². Moreover, the systems often ensure that the collected materials are of high quality and can be easily recycled into new products, contributing to a circular economy.

One of the key strengths of deposit return schemes in Europe is their adaptability to various market conditions and container types. The European Union (EU) has recognized the potential of DRS as a tool to achieve its ambitious sustainability goals. By fostering consistency in DRS implementation, the EU strives to create a more unified and effective system that promotes recycling and reduces the environmental impact of plastic waste. The success of DRS in Europe not only reduces litter and plastic waste but also fosters a culture of responsibility and sustainability among consumers, setting an example for other regions seeking innovative solutions to address the global plastic pollution crisis.

¹ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022PC0677>

² <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022PC0677>

2 What are the Deposit Return Schemes?

By definition **deposit and return scheme means a system**, in which a deposit is charged to the end user when purchasing a packaged or filled product covered by this system, and redeemed to the end user when the deposit bearing packaging is returned to a collection point established for that purpose³.

Deposit return schemes are an increasingly popular solution to the challenge of recycling. They work by adding a small extra deposit on the price of drinks sold in plastic and glass bottles and cans, which the consumer gets back once they've returned the container for recycling.

This deposit can be redeemed for cash. In many European countries schemes have been used for many years for glass bottles. Now these systems are either applied to plastic beverage bottles, metals and packaging cardboard or new concepts are being developed such as the digital deposit return schemes.

Although such schemes do not typically have a specific chemical-related aspect in their design, they help capturing a specific type of material for recycling, thereby facilitating effective and efficient collection, reducing littering/material leakage and enabling reuse or recycling, which in turn encourages higher quality, purer secondary material that is not contaminated with other material or chemical additives.

In the case of material that can be reused (e.g., refillable glass or PET bottles) or reprocessed multiple times into the same product, DRS can create closed material loops, whilst in other cases it can facilitate the capture of material for recycling into other products (e.g., PET bottles into man-made textile fibres).

Deposit return schemes follow a simple three-step process.

1. Buy a drink from a supermarket, paying a deposit on top of the price;
2. Drink the beverage;
3. Return the empty container to a reverse vending machine (in some cases empty containers and/or whole crate to the deposit return centres) and receive the deposit back.

The retailer adds a small extra deposit on top of the bottled drinks they sell. This acts as a levy that can be reclaimed by the consumer upon recycling. Extra amounts that are added onto drinks range from 0.09€ to 0.30€, depending on the area or organisation running the deposit return scheme/or on legal conditions.

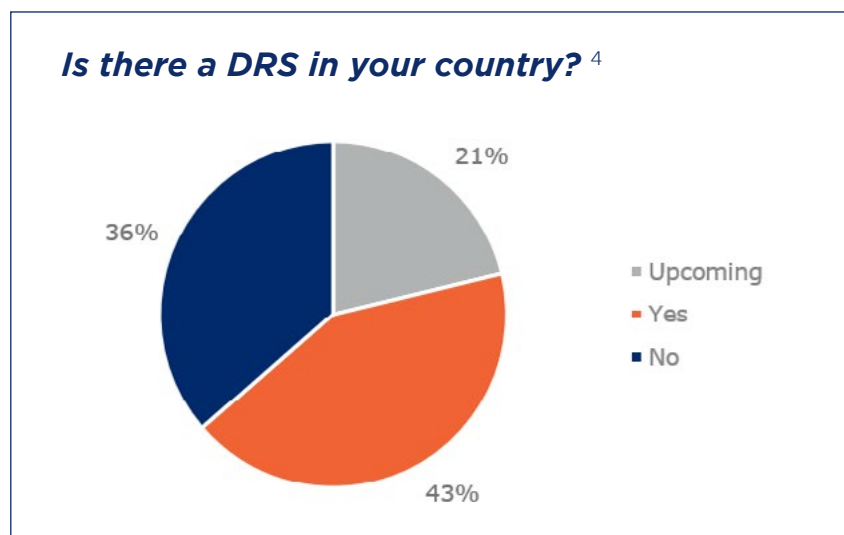
³ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022PC0677>

Deposit return schemes incentivise recycling, providing collection efficiencies for businesses that can reduce littering on a massive scale.

Regulators play different roles and in some countries, according to the regulations, all outlets selling beverages with deposit are obliged to accept deposit bottles/cans and disburse deposit as cash. In some countries, the system also accepts packaging outside the system not covered by deposit.

The chemical composition of plastics, including their additives, create physical and toxicological barriers to 'closing the loop' on the material, and creates risks such as low-quality secondary materials or ecological exposure to hazardous chemicals.

Overall, deposit return schemes contribute to a more sustainable and circular approach to packaging, minimising waste and environmental harm.

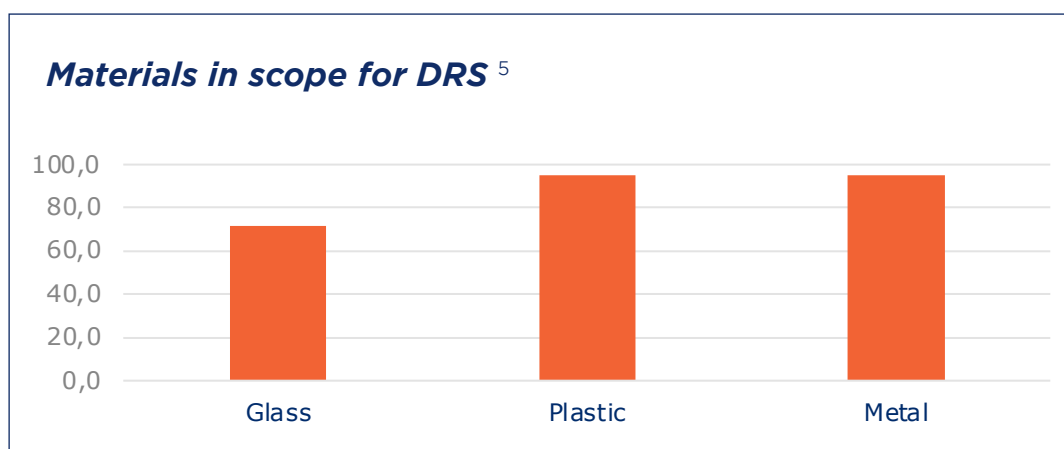


In early 2023 a survey was sent out to all GS1 in Europe GS1 Member Organisations with the objective of collecting data to get an overview of the DRS situation in Europe. 33 MOs sent back the questionnaire. Almost two-thirds of the respondents either already have an established DRS system in place or are working on the implementation of a system.

Materials in scope for DRS

According to the survey and based on the reply from MOs with established DRS or MOs starting with DRS, **plastic and metal beverage containers** are the main focus for DRS. For many countries **glass** is already included in the DRS system or is managed via a system that has been in place for decades.

⁴ Data is from the survey sent out by GS1 in Europe to all European MOs in February 2023



The European Commission proposal of the Packaging and Packaging Waste Regulation (PPWR) sets ambitious goals for EU members to drastically reduce the environmental impact of single-use plastic and metal beverage containers.

The Council conclusions of December 2020 welcomed the intention of the European Commission to ensure that all packaging is reusable or recyclable in an economically feasible way by 2030 and to reduce packaging, over-packaging and therefore packaging waste. A circular economy of packaging will help decouple economic development from the use of natural resources, contribute to achieving climate neutrality by 2050 and halting biodiversity loss, as well as reducing the EU economy's strategic dependency on many materials..⁶

According to the latest version of the Packaging and Packaging Waste Regulation, by 1st January 2029, the Member States of the EU shall take the necessary measures to ensure the separate collection of at least 90% per year by weight of the following packaging formats made available on the market for the first time in that Member State in a given calendar year:

- single use plastic beverage bottles with the capacity of up to three litres; and
- single use metal beverage containers with a capacity of up to three litres.

This obligation will not apply to two types packaging: ⁷

- wine, aromatised wine products; ⁸
- similar products to wine products and aromatised wine products obtained from fruit other than grapes and vegetables and other fermented beverages; ⁹

⁵ Data is from the survey sent out by GS1 in Europe to all European MOs in February 2023

⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022PC0677>

⁷ See Article 44 in REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on packaging and packaging waste, amending Regulation (EU) 2019/1020 and Directive (EU) 2019/904, and repealing Directive 94/62/EC

⁸ The full list is available in Part II of Annex VII to Regulation (EU) No 1308/2013 point 1, 3, 8, 9, 11, 12, 15, 16 and 17, aromatised wine products as defined in Regulation (EU) No 251/2014;

⁹ Product types falling within CN code 2206 00

- alcohol-based spirituous beverages;¹⁰
- milk and milk products.¹¹

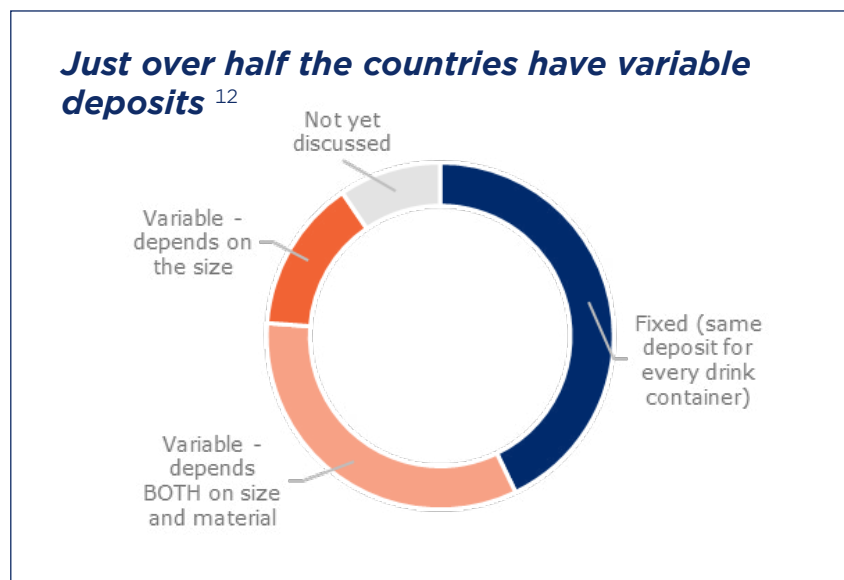
Member States providing validated data proving that the collection rate is beyond 90% can be exempted under the regulation.

This document focuses on the current regulatory requirements for beverage containers. However, we hope that the best practices collected here can be used in the future in case of introduction of new deposit systems for reusable packaging.

Deposit types

Countries introducing DRS systems can decide whether to implement fixed or variable deposit levels for beverage containers. Both aim to encourage the recycling and responsible disposal of beverage containers, but they differ in how the deposit amounts are structured.

In a **variable deposit return scheme**, the deposit amount varies depending on the type, size, or material of the beverage container. For example, larger containers may have a higher deposit than smaller ones, and glass bottles may have a different deposit amount than plastic bottles. The variability in deposit amounts is designed to incentivise consumers to return a wider range of containers and to make environmentally conscious choices. It encourages recycling and can influence consumer behaviour by rewarding them for returning containers based on their environmental impact.



¹⁰ Products corresponding to heading 2208 of the Combined Nomenclature in Annex I to Council Regulation (EEC) No 2658/87 of 23 July 1987 on the tariff and statistical nomenclature and on the Common Customs Tariff

¹¹ listed in Part XVI of Annex I to Regulation (EU) No 1308/2013

¹² Data is from the survey sent out by GS1 in Europe to all European MOs in February 2023

In a **fixed deposit return scheme**, a fixed deposit amount is applied uniformly to all beverage containers, regardless of their type, size, or material. This means that all containers have the same deposit fee, typically a fixed amount.

Fixed deposit return schemes are generally simpler to implement and administer because they have a standardised deposit rate. However, they may not provide the same level of incentive for consumers to make sustainable choices as variable deposit return schemes, as there is no differentiation in the deposit amount based on the environmental impact of the container.

3 Types of DRS, deposit types

3.1 Traditional DRS

In a traditional DRS, consumers pay a refundable deposit when purchasing certain beverage containers, such as glass bottles or refillable plastic containers. The deposit is typically added to the price of the beverage at the time of purchase. After enjoying the beverage, consumers have the option to return the empty container to a designated collection point, which could be a grocery store, redemption centre, or a reverse vending machine.

Upon returning the empty container, consumers receive their deposit back. This financial incentive encourages people to return their containers, promoting recycling and reducing litter. Once collected, the returned containers are typically cleaned and then refilled or recycled. Traditional DRS systems have been in use in various parts of the world for decades and have proven to be an effective way to boost recycling rates and reduce the environmental impact of single-use beverage containers. These systems have evolved over time, with modern DRS programs often including technology-driven solutions and expanded container types, such as plastic bottles and aluminium cans, to address contemporary recycling challenges.



In the traditional DRS system, **reverse vending machines (RVMs)** are often used next to the **manual takeback** of bottles.



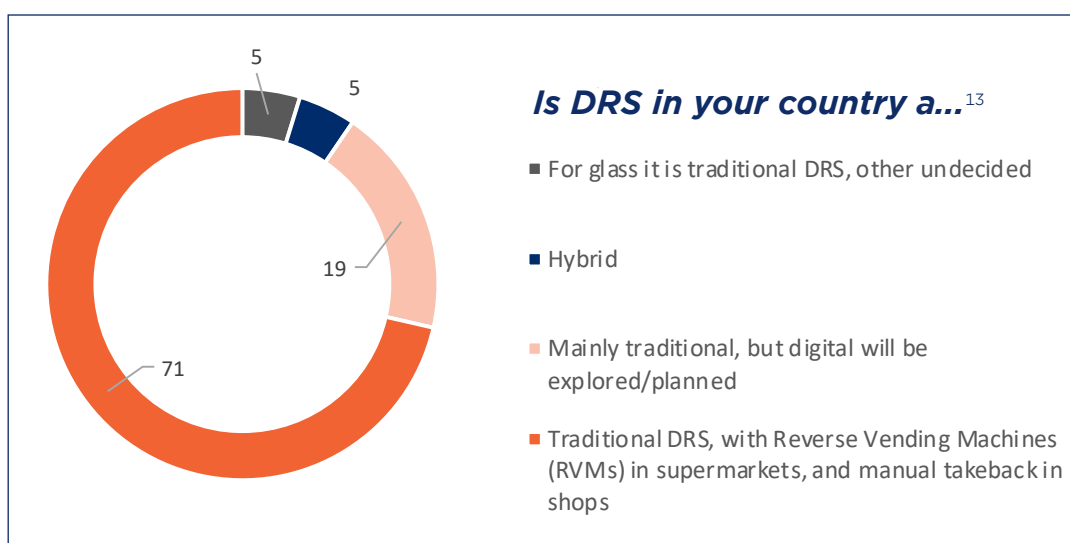
Reverse vending machines (RVMs) are automated devices designed to accept empty beverage containers, such as bottles and cans, from consumers and provide a financial incentive, typically a deposit refund, in return for recycling. They play an essential role in deposit return schemes, which aim to encourage recycling and reduce litter by creating a financial incentive for returning containers. When consumers deposit their empty containers into a reverse vending machine, they receive a refund of the deposit they initially paid when purchasing the beverage, thereby promoting recycling and environmental sustainability.



Manual takeback involves returning containers to designated stores or collection points where store employees or attendants manually inspect and process the returned items. Consumers can bring their empty containers to these stores, where they are typically inspected, counted, and then exchanged for the deposit refund. This approach offers flexibility by allowing consumers to return containers at participating retail locations, often including supermarkets, convenience stores, or specialised return centers, in addition to using reverse vending machines.

Manual takeback at stores is a complementary component of deposit return schemes, alongside reverse vending machines, making it convenient for consumers to participate in recycling and ensuring that the recycling process is accessible and efficient.

According to the survey conducted at the beginning of 2023, more than two-third of European countries have or plan to have traditional DRSs. Almost every fifth country is considering to investigate more on digital DRS.



¹³ Data is from the survey sent out by GS1 in Europe to all European MOs in February 2023

3.2 Digital DRS (DDRS)

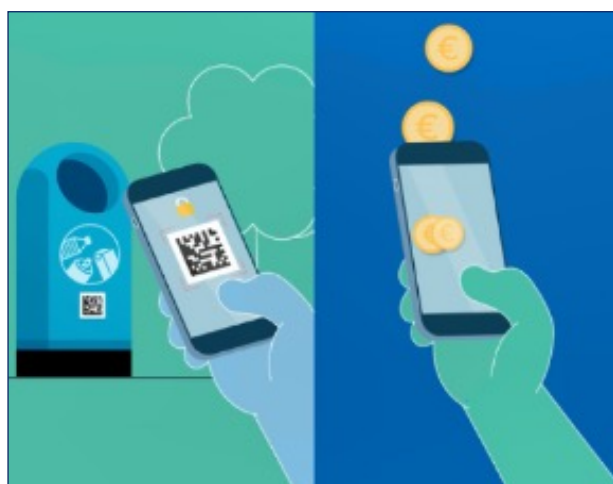
Digital deposit return scheme refers to a modernised or technologically enhanced version of traditional deposit return schemes (DRS). In a digital DRS, the process of returning and receiving deposits for beverage containers is streamlined and often made more convenient through the use of digital tools, apps, and other technologies.

Digital DRS is currently being investigated, with several successful trials (already undergoing in the UK) by many stakeholders not just in Europe but on a global scale.

In many instances the concept utilises the already existing collection infrastructure and focuses on avoiding future challenges for the system. Implementation of a digital DRS could enable already existing system to easily evolve, as digital solutions are easier to improve than hardware (e.g. new types of packaging could be added in a simpler way). As instance level identification is required for a fully functional digital DRS system, it also enables better traceability of packaging across its life-cycle; however, instance level identification could create extra costs and challenges for the participating stakeholders.



Digital DRS would also utilise the advanced opportunities in the 2D barcodes.

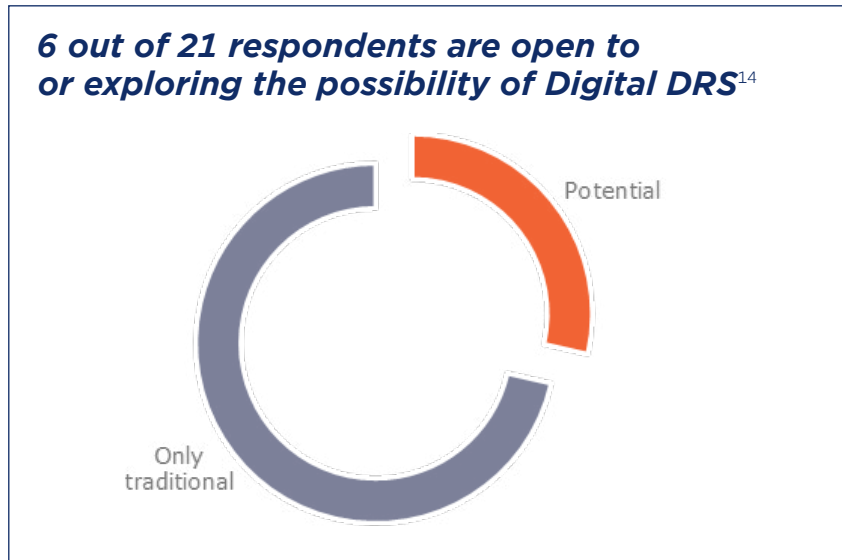


How could a Digital DRS work?

1. You install a dedicated app
2. You scan your empty beverage container (identified with a serialised GTIN)
3. You scan your appropriate bag/ public bin (identified with a serialised GLN)
4. You receive the deposit back

Source of image: Fost Plus website

Digital DRS technology is currently investigated by some European MOs.



¹⁴ Data is from the survey sent out by GS1 in Europe to all European MOs in February 2023

	Deposit Return Scheme (DRS)	Digital Deposit Return Scheme (DDRS)
What are they?	Recycling systems where consumers pay a small deposit for drinks containers, which can be refunded upon return.	
How do the schemes differ?	Consumers return drinks containers to a reverse vending machine or hand them back to retailers.	Consumers recycle at home , scanning serialised barcodes on the drink containers and their own bins, or on the go (hybrid DRS).
What products are in scope?	Drinks containers: plastic bottles, glass bottles and metal cans. Some countries are not planning to include glass.	
Where are they being implemented in other countries?	20+ countries, including Denmark and Norway, Netherlands, Sweden and Finland where recycling rates are over 90%	Belgium, Poland, Israel and Portugal, are also exploring a hybrid, digital solution, based on a GS1 2023 survey
Why is GS1 working in this space?	Deposit return schemes are a great example of GS1's "standards-in-action" and will help deliver to our core purpose by supporting efficient and effective supply chains and allowing consumers to make informed sustainable choices.	
What does GS1 bring to the table?	<p>Members and wider industry neutral advisor: 90% of affected organisations are already GS1 members</p> <p>Standards: use of GTINs, SSCCs and linear barcodes, can simplify the scheme interoperability. GS1-powered QR codes can help consumers understand how to correctly recycle in-scope items and find convenient locations. This would also help futureproof the scheme.</p>	
Are there examples of DRS/DDRS implementations by other GS1 membership organisations?	<p>20+ countries operate a traditional DRS using GS1 GTINs for scheme article identification. For example:</p> <ul style="list-style-type: none"> <i>Germany</i>: implemented with TOMRA RVMs. In place since 2002 and achieves almost 100% collection. Uses the GTIN. Deposits vary depending on the material <i>Sweden</i>: in place since 1984, has an 84% collection rate, uses GTINs. It is managed by Pantamera. Almost identical DRSs are implemented in Norway and Finland 	<p>The UK is world-leading in this area, with several trials running using GS1 standards:</p> <ul style="list-style-type: none"> <i>Polytag</i>: Partnered with Biffa, Ocado, Co-op, and Aldi, to provide them with packaging lifecycle data through bottles marked with UV 2D tags. Using GS1 standards, Polytag have also trialed 'unique-every-time' QR codes in North Wales for DDRS. <i>Re-Universe</i>: Two DRS projects using serialised GTINs. <p>Belgium is looking to implement a Digital DRS from the get-go. We will refer back once we have more details.</p>

4 Role of GS1 standards

In the inverse supply chain, the identification of different organisations, companies as legal entities and locations is as important as in the traditional supply chain. Furthermore, from the public administration point of view it's maybe even more important.

GS1 provides proper solutions and a common global language for the open supply and inverse supply chain and for internal applications as well.

As a consequence of legal and business requirements it is necessary to have a global identification standard as a common language when trading partners and other different actors in recycling and deposit management (e.g., public administration) want to communicate and manage material, and information flows in order to establish a traceability system.

A document titled "[*EXECUTIVE DEBRIEF ON DEPOSIT RETURN SCHEMES*](#)"¹⁵ is created as an **internal GS1 guidance** on GS1 relevance to Deposit Return Schemes (DRS). DRSs are much more than sustainability initiatives. When a deposit is involved, regulatory agencies that GS1 does not typically work with are engaged, such as tax and finance, e.g., taxes on manufacturers can decrease in line with the proportion of packaging collected. The guidance in this document is also relevant to any new schemes being developed that involve return and reuse of containers, such as take out containers that have similar regulatory requirements.

GTIN management

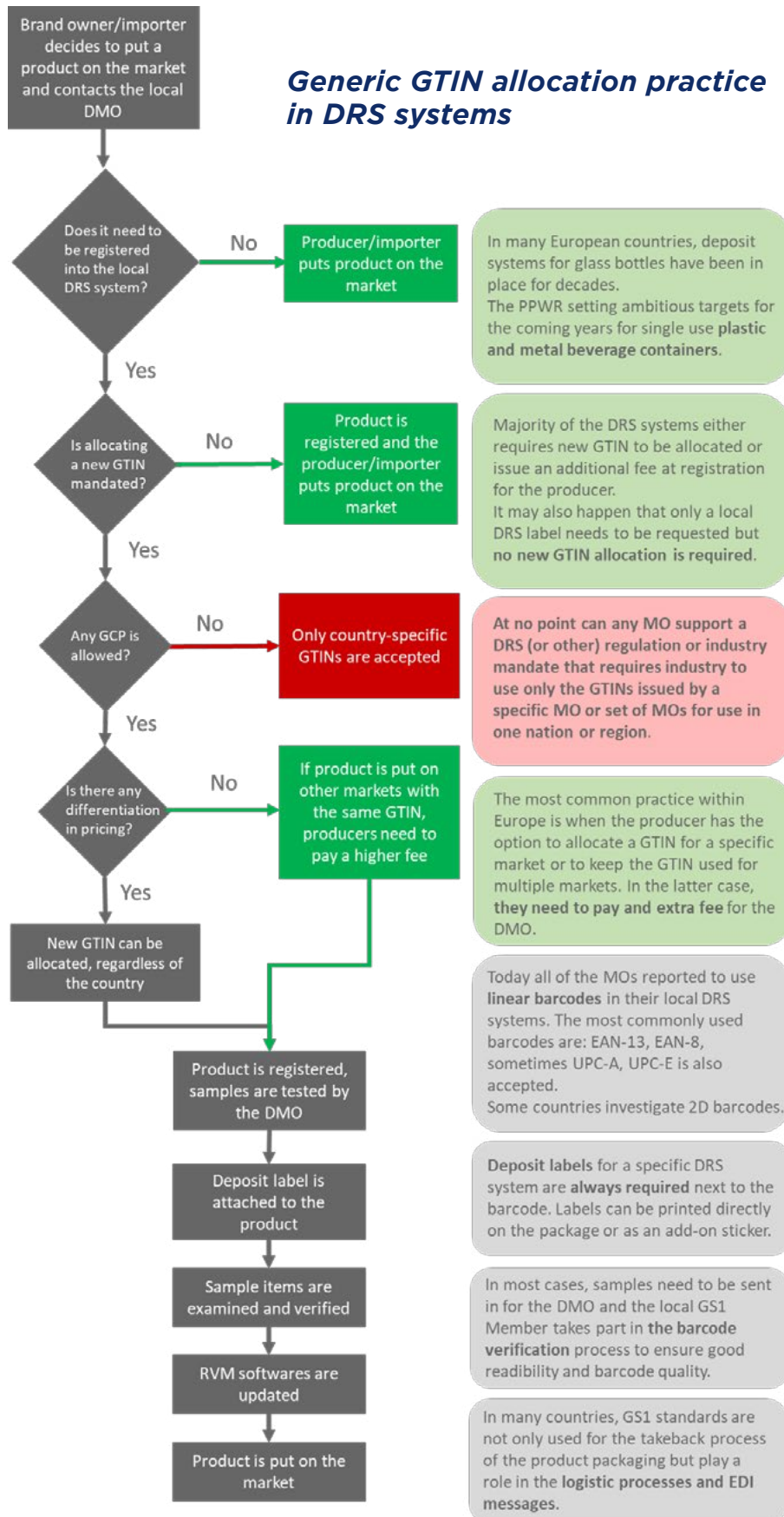
In all the collected best practices in Europe, the main identifier used is the **GTIN**.

The following process flow summarises the generic flow for the European DRS systems, focusing on GTIN allocation questions. During the work of the Packaging Activity, many MOs kindly provided the GTIN allocation flow that is used in their country. The flow below focuses on the generic approach with highlighting different variations of the practices.

Currently the level of identification in the European established DRS systems is the GTIN (class level identification). Some MOs have already started to investigate the possible role and advantages/disadvantages of using more granular level on identifiers like serialisation, which will be a pre-requisite for introducing Digital DRS systems.

¹⁵ https://mozzone.gs1.org/docs/sustainability/Deposit_Return_Schemes.pdf

Generic GTIN allocation practice in DRS systems



In many European countries, deposit systems for glass bottles have been in place for decades. The PPWR setting ambitious targets for the coming years for single use plastic and metal beverage containers.

Majority of the DRS systems either requires new GTIN to be allocated or issue an additional fee at registration for the producer. It may also happen that only a local DRS label needs to be requested but no new GTIN allocation is required.

At no point can any MO support a DRS (or other) regulation or industry mandate that requires industry to use only the GTINs issued by a specific MO or set of MOs for use in one nation or region.

The most common practice within Europe is when the producer has the option to allocate a GTIN for a specific market or to keep the GTIN used for multiple markets. In the latter case, they need to pay an extra fee for the DMO.

Today all of the MOs reported to use linear barcodes in their local DRS systems. The most commonly used barcodes are: EAN-13, EAN-8, sometimes UPC-A, UPC-E is also accepted. Some countries investigate 2D barcodes.

Deposit labels for a specific DRS system are **always required** next to the barcode. Labels can be printed directly on the package or as an add-on sticker.

In most cases, samples need to be sent in for the DMO and the local GS1 Member takes part in the barcode verification process to ensure good readability and barcode quality.

In many countries, GS1 standards are not only used for the takeback process of the product packaging but play a role in the logistic processes and EDI messages.

In the examined DRS systems, the GTIN of the product was used as the main identifier. In some systems, additional GTINs are used to identify the empty bottles, either for the retailers to identify the main characteristics of the packaging (deposit fee, weight, dimensions, etc.) or generating the receipt the consumer can use when collecting the deposit for the empty bottle. There are also examples using GTINs together with other AIs (e.g. AI(90)) in return logistics (see MO best practices for examples).

Data carriers in the DRS

According to the group's research, most of the countries around Europe already having existing DRS systems in place based on GS1 standards are using linear barcodes. These barcodes include **EAN-13, EAN-8, UPC-A, UPC-E**.

When the manufacturers/importers register into the local DRS, they need to provide samples to the local DMO (Deposit Management Organisation) to ensure that the packaging materials have every pre-requisite to be recycled. In many countries there is a collaboration between GS1 MOs and DMOs and GS1 members are also provided with samples of the product packaging. GS1 MOs can play a crucial role to ensure the readability and correct placement of the barcode on the product.

Based on the survey results, 2D barcodes are not used yet for the local DRS systems. Nevertheless, some countries are already investigating the possible use cases for 2D barcodes for either traditional or Digital DRS.

How GS1 standards can power DRS

	Traditional DRS	Digital DRS	Why?
GTIN	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> Traditional 1D (linear) barcode already found on 90% of in-scope products throughout Europe Already used to implement DRS in all 25+ countries surveyed
Serialised GTIN	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Serialised GTIN could be encoded in GS1 powered QR code.
SSCC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> SSCC's are used in Denmark on bags and containers for DRS items collection Can enable seamless collection data to be shared with authority and DMO, without provider lock-in No example yet for DRS trials
GLN	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Potential opportunity to identify location of Reverse Vending Machines (RVMs), recycling bins and possibly collection vehicles
GS1-Powered QR Codes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Ensures consumers can interact digitally with the scheme, receiving correct scheme and product information Currently used in a trial in Wales to enable deposit and inform consumers of the recycling process Enables 'futureproofing' of the scheme, e.g. transition to a hybrid digital scheme in the future
EDI	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> Support the process for charging/exchanging, deposits and producer fees within the current GS1, EDI messaging standard. Opportunity to facilitate a common industry approach for EDI messaging.
Global Data Model	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> Requirements currently unknown.

5 External and internal engagement

Throughout Europe, DRS is one of the core topics around circularity and in most of the countries GS1 standards are involved at a certain extent, DRS could serve as a starting point for the discussions around sustainability regulations that are starting to be implemented in Europe.

Being involved in the discussions around DRS also provides an excellent opportunity to GS1 Member Organisations to engage in discussions with local governmental departments and policy makers to support a good delivery on the scheme, meanwhile learning and being part of a valuable information exchange on how GS1 standards can be used the best way to support sustainability even in other areas beyond DRS. These discussions become even more relevant given that GS1 standards are widely used today on a global scale and especially in Europe.

The international and political scene described above shows the complexity of the topic which serves as a main driver for GS1 Member Organisations to plan their internal and external engagement the most efficient way. In the section below, we collected some examples from GS1 Member Organisations on how to approach these topics.

5.1 Internal engagement - FOR INTERNAL USE

Why is it important?

Internal engagement within a company is of utmost importance as it serves as the foundation for effective communication and organisational cohesion. When employees are aligned internally on key messages, there is a shared understanding of the company's mission, values, and goals. The risks of non-coordinated internal engagement can result in duplication of work, lack of inconsistent messages and sometimes conflicting approaches and press releases. Well organised internal coordination enhances teamwork and collaboration and establishes and contributes to more authentic external communication strategy.

Internal coordination of work

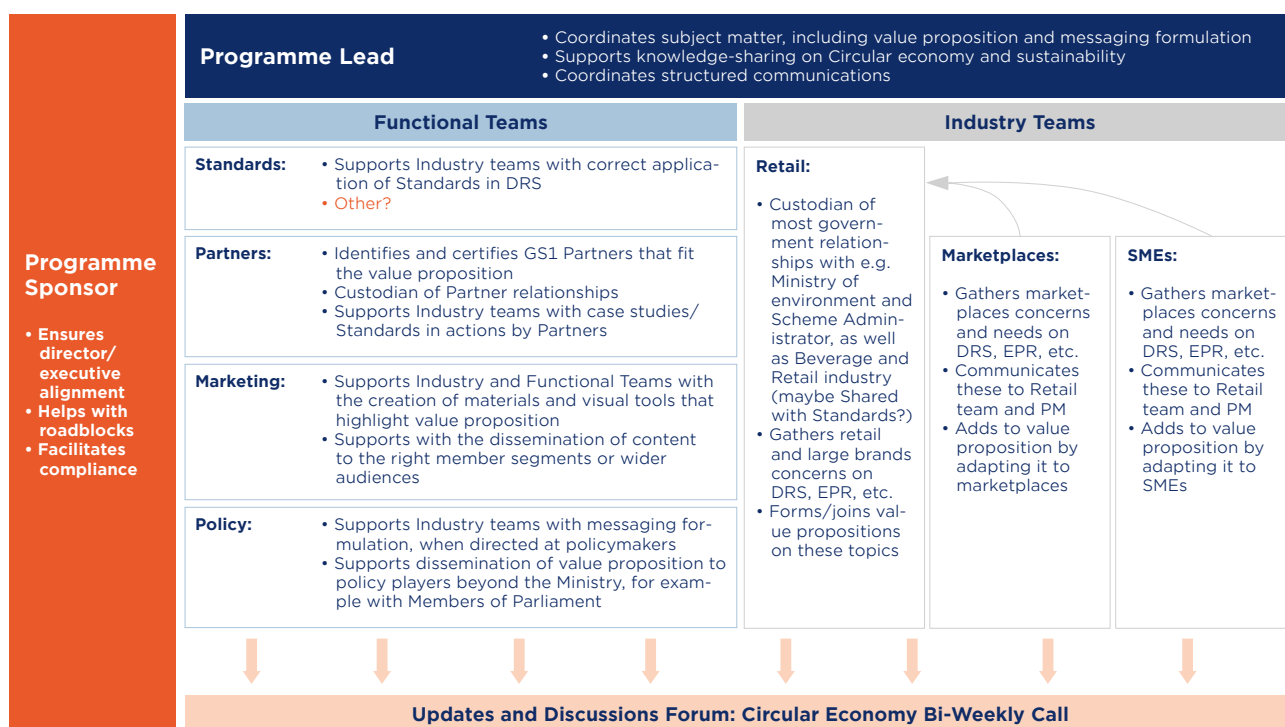
In major projects, **internal coordination of teams** is crucial for success. This involves clearly defining and aligning the roles and responsibilities of teams from different areas like functional and industry-specific teams. Coordination is vital, as it serves as the foundation for effective collaboration and ensuring smooth teamwork.

In addition to that, for successful communication throughout the project it is important that the colleagues have a shared understanding of the core objectives and main messages. This also requires well balanced **communication** and structured **internal education** which ensures that all teams within the company can get the right level of understanding of the high-level objectives for the project and their role in how to achieve them. At the start of the project, the objectives the organisation wants to achieve should be determined and communicated.

The challenge in projects as big and as complex as the activities around DRS is that it involves many teams (retail, marketplaces, marketing, partners team, standards team). These groups by nature have different perspectives and different expectations from the upcoming work. There should always be a person or team in charge of coordination, one that is capable of overseeing all the related activities on a high level and defining a programme establishing who's responsible for what and unifying the messages.

The example below shows how the internal coordination can be planned and designed with clear roles and responsibilities by each team within the organisation.

Packaging and Sustainability Governance



Internal coordination of messages

Effective coordination of messages within a company for a project is of utmost importance to streamline communication and enhance overall efficiency. At many companies, different departments or different teams take care of fields which sometimes overlap with each other. This results in duplications or inconsistent communication which can easily confuse the customers visiting the company's website or other social media platforms. Minimising the number of storage locations for documents is crucial, as it avoids confusion and ensures that information is easily accessible to all team members. This coordination is needed around documents with similar contents to show that GS1 is in charge of all the related topics as a whole.

On the example of GS1 UK, a decision was made not long ago to streamline and coordinate all the communication around topics related to sustainability and circularity. One webpage, a “hub” is being prepared collecting all the relevant links related to the topic. The design below shows one of the possible ways to collect and structure related topics to build up a consistent communication plan.

Structure the information on your websites



Showing one consistent image to the external world improves credibility externally (i.e. GS1 is not just a ‘barcode manufacturer’), improves member experience with more intuitive access to sustainability-related content and guides and forces the GS1 MO to be more coordinated and informed internally.

5.2 External engagement – FOR INTERNAL USE

Why is it important?

Interacting with external stakeholders, such as customers, partners, and the broader community, provides valuable insights into market trends, customer preferences, and emerging opportunities. external engagement helps build strong relationships, establishes trust, and enhances the organisation’s reputation, ultimately contributing to long-term sustainability and success.

When it comes to external engagement, GS1 UK is one of the countries in Europe with the most complex scene for DRS. The UK consists of four countries, each having different approach when it comes to DRS.

The first thing an MO needs to clearly define is who to approach when it comes to the discussions on DRS in the country. The political environments can vary widely even within Europe so there's no way to set one solution that can work to all of the countries.

When approaching the DRS topic on an engagement level, the first thing that should be done is the identification of the different stakeholders with their roles and responsibilities within the process.

- Who writes the regulations around DRS?
- Who are the ones debating and voting on the regulations around DRS?
- Who are the main industry stakeholders having particular interest and wanting to be represented?
- Are the individual contacts to these companies available?
- Who are the technical partners that could support the correct implementation of GS1 standards in a DRS context?

To facilitate the **political discussions**, MOs can hire a head of policy. The head of policy has the overview of the political landscape and has the sufficient network of contacts to start and facilitate the conversations with the right level of people. The head of policy is also responsible for leveraging between the different political actors in the discussions meanwhile ensuring the neutrality of the GS1 system.

Reaching out to different **industry groups** having interest in DRS is crucial for better understanding the industry's approach, perception and broader perspective and needs on DRS. These groups can be consortia, trade or industry associations either around the materials involved for DRS (e.g. aluminium or plastic) or the products falling under the local DRS regulations (e.g. soft drinks). The discussions with these groups are also essential to engage with more technical/operational discussions on the needs and possibilities of the implementation of DRS systems, such as:

- the type of DRS,
- the scope of packaging materials included (e.g. multipacks),
- the level of industry knowledge on GS1 standards and
- identification of gaps in this knowledge which information can be used in the more efficient planning of workshops and other educational materials.

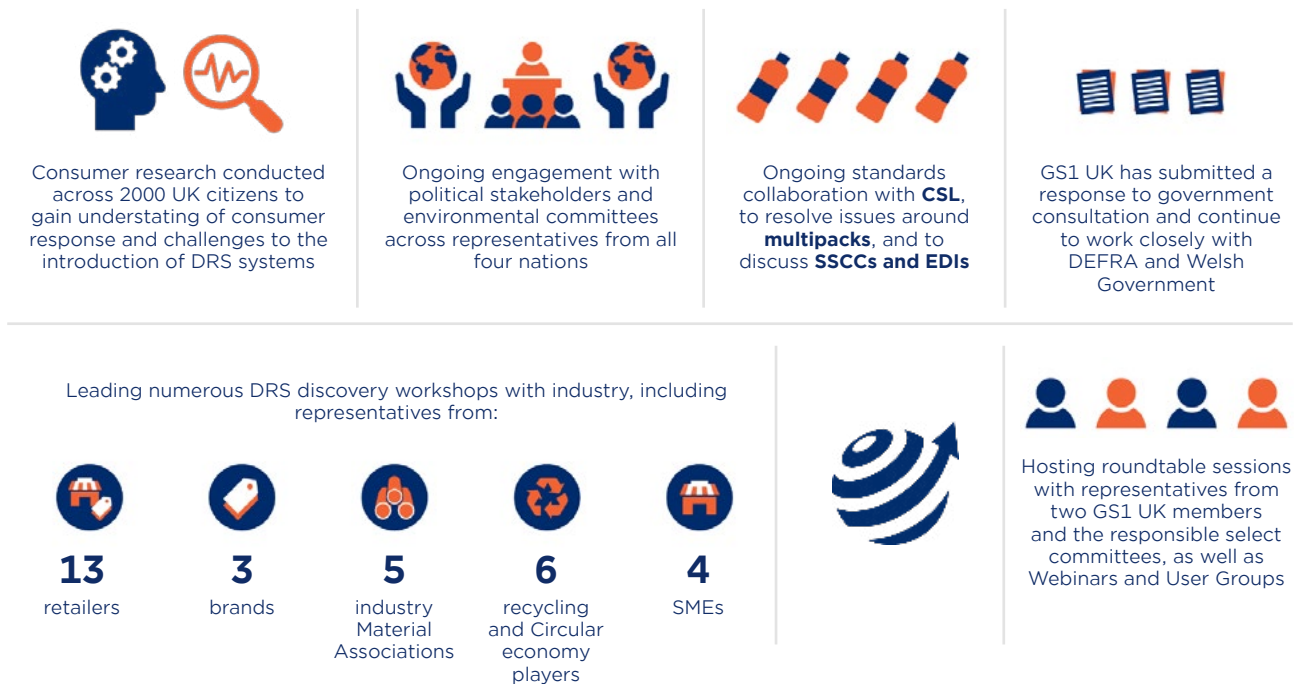
Engaging with **technical partners and solution providers** is crucial not only to get a better grasp on the technical perspective of the currently used mainstream technologies for DRS but also to get involved with the newest technologies being developed from the start. It is recommended that GS1 Member Organisations lay out a stakeholder map of the relevant technical partners to see the level of engagement they are at (are they part of any user groups or working groups with which GS1 is also involved with? Is there any existing relationship with GS1? Should there be? etc.) and what directions they should continue with when it comes to more detailed discussions.

In terms of DRS, there is a certain level of interest in the potential of Digital DRS. Digital DRS is at the time of this document not implemented in large scale in any of the European countries, but trials and pilots are being carried out throughout Europe around the large-scale feasibility of a possible future Digital SRD solution. In many cases, GS1 Member Organisations find it chal-

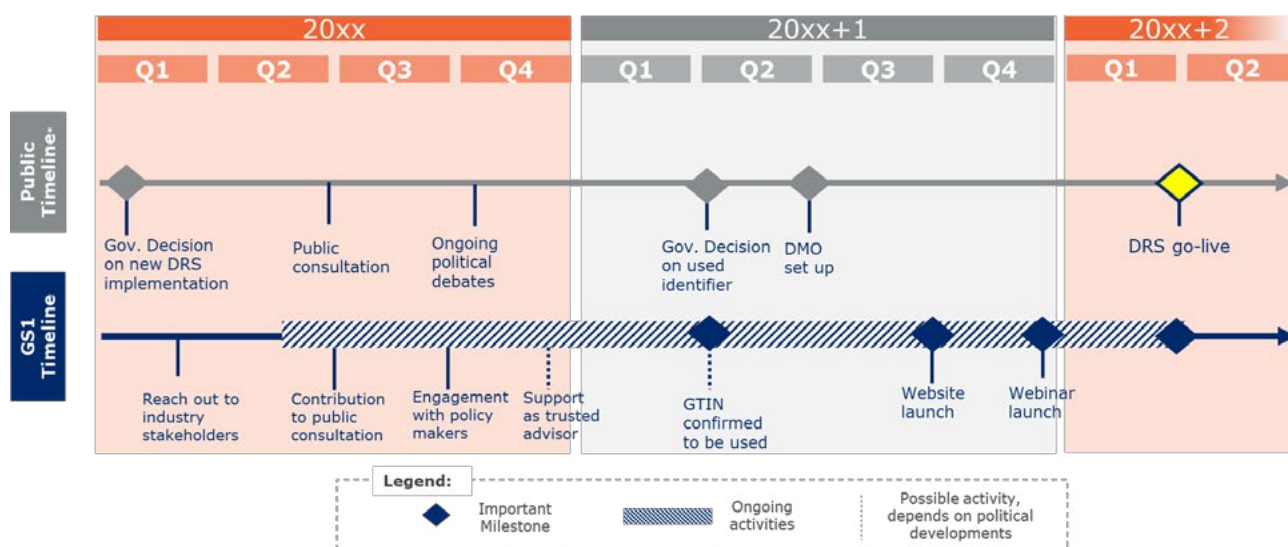
lenging to get the right level of information around the technological aspect as it would require a high level of engagement and resources. Nevertheless, instead of being proactive in this field, it is highly recommended for GS1 to be at least reactive and follow the main technological advancements to monitor the potential role for identification in the future solutions.

GS1 UK since the starting point of their DRS work three years ago took many steps to convey the message of GS1 being the trusted advisor and neutral convener of open standards to support DRS in many ways that included offering the government free of charge workshops on DRS and Digital DRS and conducting consumer research to gain understanding of consumer response and challenges to the introduction of DRS systems. The work that GS1 UK has done during these workshops and research resulted in an exceptionally good working relationship with the Welsh government.

What we've been up to: trusted advisor and neutral convener



Follow the public timeline on DRS and build up your **MO strategy accordingly**. Establish the connection points for each milestone. Coordinate your internal activities so that they reflect the requirements coming from the public timeline and provide answers. Draw up several scenarios on the basis of the outcome of different political decisions. The image below shows an example of a summary of how to follow and match both GS1 and public timelines.



Conclusion

External and internal engagement is a complex topic and the best applied practices can differ from one country to another as there are a lot of external factors that impact how companies and market stakeholders act and work. Nevertheless, the table below summarises in a generic way some of the ideas that could provide a solid base for further work within an GS1 MO.

Summary of good practices for external engagement

Establish your role as a **trusted advisor** on standards application in a variety of operational challenges of DRS, as well as that of a **neutral convener** of industry representatives on a number of operational challenges and opportunities relating to labelling and supply chain standards.

Some activities that an MO can carry out in order to define and efficiently communicate the role of GS1 in DRS:

Government and wider Industry engagement	Members, Partners and GS1 in Europe
<ul style="list-style-type: none"> • Conduct surveys to better understand the requirements and level of knowledge of stakeholders: <ul style="list-style-type: none"> • Via consumer or industry surveys, you will be able to better understand how other stakeholders face with the DRS challenge and identify the gaps; • It is also a great opportunity to build up good relationship and work routine with stakeholders via knowledge sharing. • Deliver industry workshops to understand process challenges and opportunities for a Digital DRS; • Set up regular informal catch ups with the relevant partners as a stakeholder management and support, by; • Supporting local DRS Management Organisation with GS1 standards implementation, from the GTIN to multipacks, SSCCs, EDIs; • Liaise with key political stakeholders: <ul style="list-style-type: none"> • Support the better understanding of the standard on technical and higher level; • Hire a public policy expert if necessary. • Follow the regulatory changes on local and European level and get engaged in the conversation. 	<ul style="list-style-type: none"> • Engage with potential technology partners in a DRS and EPR context; • Facilitate Retail User Group workshops to support members who were frustrated by uncertainty and unclear requirements, also in partnership with IT managers at Circularity Scotland; • Conduct a survey for your members on Extended Producer Responsibility to understand high-level awareness and key support needed from the GS1 MO; • Participate on local and international events to learn best practices from other stakeholders and raise awareness towards the standards; • Repeat, repeat, repeat – one of the biggest learning from established MOs is that you can never stop education on the standards.

6 Links & Sources

Name	Country	Description	Link
Pantamera Express website	Sweden	Detailed description and extra materials about the Swedish DRS system	https://pantamera.nu/en/
Technical Specification and Marking Manual	Sweden	Manual for metal and plastic containers in the Swedish Deposit Return System	https://assets.rp-pm-prod.pantamera.nu/4ab6f4/globalassets/documents/appendix-2-technical-specification-20230201.pdf
Infinitum is the recycling company responsible for DRS in Norway	Norway	Detailed description and extra materials about the Norwegian DRS system	https://infinitum.no/deposit-journey/
Infinitum - Spa ad	Norway	Educational video on recycling by the Norwegian DMO	https://www.youtube.com/watch?v=P0KSuheX8
Dansk Retursystem website	Denmark	Guide for different stakeholders on how to join the Danish DRS system	https://danskretursystem.dk/en/for-companies/
Užstatos Sistemų Administracijos (USAD)- Lithuanian DRS system website	Lithuania	Guide for different stakeholders on how to join the Lithuanian DRS system	https://grazintiverta.lt/en/about/74
Statutory Instruments S.I. No 599 of 2021 - SEPARATE COLLECTION (DEPOSIT RETURN SCHEME) REGULATIONS 2021 in Ireland	Ireland	Legislation in Ireland establishing the Deposit Return Schemes	https://www.irishstatutebook.ie/eli/2021/si/599/made/en/pdf

Name	Country	Description	Link
How Deposit Return Works in Ireland	Ireland	Collection of manuals about the Irish DRS system	https://re-turn.ie/retailer/
Ireland's new Deposit Return Scheme, IT&Data Flows	Ireland	June 2023 presentation on the Irish DRS by Re-Turn	https://re-turn.ie/wp-content/uploads/2023/07/IT-Data-Flow-Webinar-29.6.23.pdf
Statiegeld Nederland - Deposit Return Scheme Netherlands Manual for P/Is	Netherlands	Manual for the Dutch DRS system	https://www.statiegeldnederland.nl/wp-content/uploads/0230127-producers-portal-manual-v2.1-ENG-1.pdf
Statiegeld Nederland website	Netherlands	Guide for different stakeholders on how to join the Dutch DRS system	https://www.statiegeldnederland.nl/nieuws/deposit-information-english/
Správca zálohového systému n.o	Slovakia	Website of the Slovakian Deposit Management Organisation	https://www.spravcazalo.sk/en/
Design Manual for logo (Z) Zálohované	Slovakia	Guideline for label and barcode placement	https://www.spravcazalo.sk/Logo_Z_Design_Manual_1_2_4_5_2021_EN.pdf
Deutsche Pfandsystem	Germany	Step-by-step process of the German DRS	https://dpg-pfandsystem.de/index.php/en/stakeholders/beverage-manufacturers-and-importers.html
DPG: One-way deposit and recyclable material cycle	Germany	Video about the German DRS	https://www.youtube.com/watch?v=qSd_3QystRk&t=49s
Responsibilities as a first distributor	Germany	Video about the German DRS	https://www.youtube.com/watch?v=vXSoKgOfFD8
Applying for GLN and GTIN	Germany	Video about the German DRS	https://www.youtube.com/watch?v=-eN0_SMb47I
Applying to DPG	Germany	Video about the German DRS	https://www.youtube.com/watch?v=Dbq7VvI_j4I
Entry in the Database	Germany	Video about the German DRS	https://www.youtube.com/watch?v=3T4NpZGEz7Q
Product Labeling	Germany	Video about the German DRS	https://www.youtube.com/watch?v=sUyMoN9wO_g

Name	Country	Description	Link
Return and Deposit	Germany	Video about the German DRS	https://www.youtube.com/watch?v=YJBwjWJkpCw
Administering the Deposit	Germany	Video about the German DRS	https://www.youtube.com/watch?v=eQ8zjHQP07o
Digital DRS Feasibility Study – Phase 1: Stakeholder perceptions of DDRS design and feasibility	UK	Study commissioned by the Welsh Government, part 1	https://www.gov.wales/sites/default/files/publications/2022-03/evaluation-of-digital-technology-in-a-deposit-return-scheme-phase-1-report.pdf
Digital DRS Feasibility Study – Phase 2: End-to-end system design	UK	Study commissioned by the Welsh Government, part 2	https://www.gov.wales/sites/default/files/publications/2022-08/evaluation-of-digital-technology-in-a-deposit-return-scheme-phase-2-final-report.pdf
Digital DRS Feasibility Study – Phase 2 Report Technical Appendix	UK	Study commissioned by the Welsh Government, Appendix	https://www.gov.wales/sites/default/files/publications/2022-08/evaluation-of-digital-technology-in-a-deposit-return-scheme-phase-2-final-technical-appendix.pdf
GS1 Hungary subsite on DRS	Hungary	Support for GS1 members on the rules of DRS in Hungary	https://www.gs1hu.org/visszavaltasi-rendszer-drs
Hungarian DRS legislation	Hungary	Legislation on the implementation of DRS in Hungary	https://njt.hu/jogszabaly/2023-450-20-22
MOHU	Hungary	Website of the Hungarian DRS Management Organisation	https://mohu.hu/
GTIN allocation rules for DRS in Hungary	Hungary	DRS Guideline by GS1 Hungary	https://cws21live.blob.core.windows.net/content/_optimalizalt_kepek/Kiadvanyok/DRS_kiadvany_v1.3.pdf
Palpa website	Finland	Finnish organisation managing the return system of recyclable beverage packages. Palpa takes care of the collection, recycling and/or reuse of the packages belonging to their systems.	https://www.palpa.fi/english/

Name	Country	Description	Link
Ekopullo website	Finland	Finnish organisation that manages the system that includes refillable glass bottles, transport units for beverage containers, such as plastic trays, dollies, and PAN pallets.	https://www.ekopullo.fi/en/
Depozīta Iepakojuma Operators (DIO) website	Latvia	Guide for different stakeholders on how to join the Latvian DRS system	https://www.depozitpunkts.lv/par-mums-en
Analysis of Plastic Packaging Waste Management in Slovenia	Slovenia	Analysis of Plastic Beverage Bottles Management in Slovenia	https://www.gzs.si/Portals/Panoga-Kmetijska-Zivilska/brosura_pijace_ENG_web.pdf
Dedicated website to DRS at GS1 Poland	Poland	Dedicated website to DRS at GS1 Poland	https://gs1pl.org/handel-i-produkcja/system-kaucyjny-drs/
Photo album for DRS images	Poland	Photo album for DRS images	https://www.flickr.com/photos/199100768@N07/albums/

7 Annex

In the section below, we collected the best practices regarding DRS both from countries with established DRS systems and from countries where the DRS implementation is in progress. The sections below reflect the status of DRS in each country which provided content between June 2023 and March 2024. For the latest update, it is highly recommended to contact the local DRS expert.

7.1 Norway

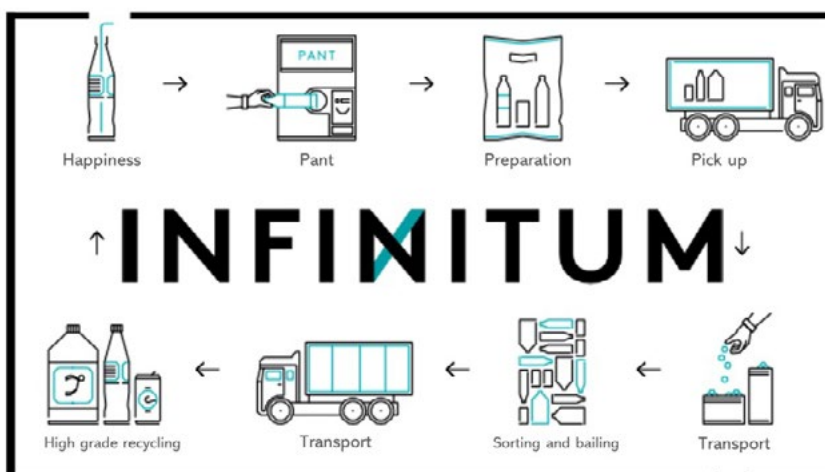
In **Norway**, the main focus is not reusing but recycling. The Norwegian DRS system is managed by [Infinitum](#) which has three facilities in Norway. Since 1999, Infinitum has been a leading foundation in depositing and recycling non-refillable plastic bottles and beverage cans. All bottles and cans with the characteristic Norwegian deposit-label are possible to deposit all over the country. Infinitum also provides [educational and promotional videos](#) on plastic recycling. The return rate for PET and cans is between 90-92%.



It is the regular GTIN and EAN-13 barcode allocated by the brand owner, that is also used for DRS. There is a hologram printed on the label on the consumer unit that tells the consumer that the product is subject to deposit refunds. The consumer can also see the actual rate of deposit refunds. The two examples below say that you as a consumer will get NOK 2 and NOK 3 in deposit refund for these products.

For imported products, there is an extra fee.

The pick-up points in the Norwegian DRS system are also identified by GS1 standards. Every store where beverage products under DRS are sold, is obliged to provide a pick-up point for deposits. There are 15 thousand pick-up points in the country identified by GLNs in a registry. Infinitum uses this data to track what's happening at the locations. The journey is illustrated in the image below.



There are 3400 outlets with Reverse Vending Machines and 11600 outlets without RVMs; when a consumer purchases a beverage online, the cans/bottles can also be returned to receive the deposit back.

GTINs are also used for the return logistics with using AI(01) to identify the packaging type and AI(90) for serialised identification of receipts.

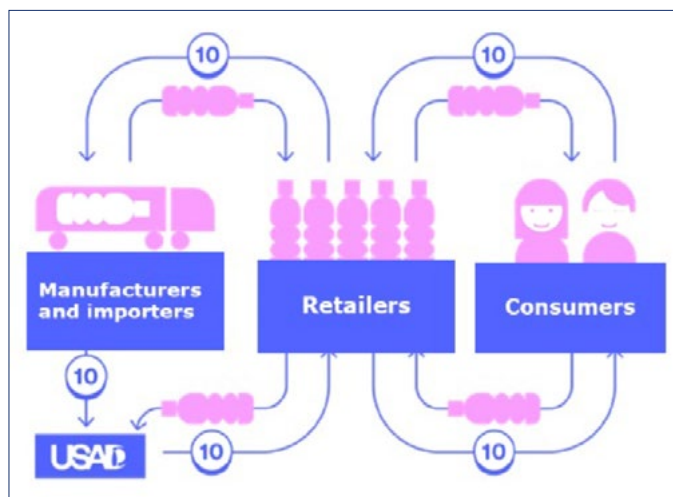


7.2 Lithuania

In **Lithuania**, the system has been in operation since 2016 and it collects more than 600 million disposable beverage packaging annually. The public institution [Užstato Sistemų Administratorius \(USAD\)](#) is a non-profit organisation, that has an underlying objective of managing the deposit system as indicated in the Law on Packaging and Packaging Waste. Founders of USAD are the Lithuanian Association of Breweries, Association of Lithuanian Natural Mineral Water Manufacturers and Association of Lithuanian Trade Enterprises.

PET, metal and glass is in scope for the Lithuanian deposit return scheme. The infrastructure is set up with more than a 1000 RVMs and around 1700 manual collection sites. The headquarters is located in Vilnius. Lithuania's deposit system collects and recycles 92% of sold to market beverage packages (PET, metal, glass) every year. EU recycling targets set for 2025 were already achieved and exceeded in 2017 in Lithuania.

GTIN encoded in EAN-13, UPC-A, EAN-8 or UPC-E barcode is the main ID to identify the product package in deposit return reverse vending machines.



When producers/importers sign the contract with the deposit system administrator in Lithuania, they should list all the GTINs and to fill in deposit packaging information.

When a company imports a product into another country, the first importer company(ies) are responsible for the packaging to be sorted and recycled. The importer/distributor companies can choose to use original GTIN or to allocate their own so called “local” GTIN for product in deposit package. GTINs allocated in Lithuania are used to distinguish between the packages of product intended for domestic market and of packages of products in the neighbouring countries. If the distributor wants to use the original GTIN, they need to pay an extra fee.

Physical inspection of each new package in the system and barcode printing quality check is carried out by the deposit system administrator.

Deposit return reverse vending machines are always located at retailer sites. For small or remote shops there is an option to return collected deposit packaging in bags.

7.3 Denmark

In **Denmark**, voluntary return system on glass bottles started in 1922 and the first deposits were introduced in the 1940s. The system (*Dansk Retursystem*) has been in operation since 2002 and it collects nearly 92% of disposable beverage packaging annually.

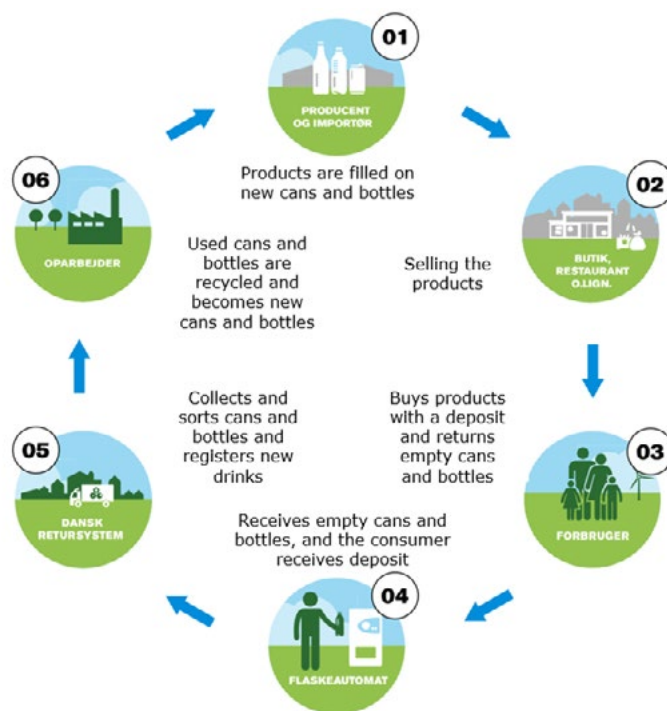
The Ministry of the Environment and Food has decided that a deposit must be charged on bottles and cans containing soft drinks, water, energy drinks, cider, iced tea, juice, smoothies (without milk) and lemonade. There is no deposit on packaging containing wine and beverages containing milk. By 2009 beer, carbonated soft drinks, ready-to-drink products were included in the system.

They differentiate between deposits on single use and refillable bottles. Only single use containers have a visible deposit mark. Deposit marks are split into A, B and C-deposit marks, which represent different amounts in exchange.



GTINs are used on the packaging by the Dansk Retursystem with deposit labels which are directly printed if only sold in Denmark or attached as a sticker in case of other products. To ensure good quality of barcodes and proper size, each company must provide two items to be tested for every registered product.

The amount refunded depends on the type of material used in the bottles and cans, the volume of each bottle or can and whether the bottle or can will be recycled or reused.



Inbound logistics also use GS1 standards in Denmark: RFID & GS1-128 with SSCC or GRAI.



The next step forward is to investigate the possibilities with 2D barcodes. There are no discussions currently around Digital DRS.

7.4 Ireland

Following Directive (EU) 2019/904/EC of the European Parliament (to achieve the separate collection targets for PET plastic bottles) and Directive (EU) 2018/852 (amending Directive 94/62/EC) on packaging and packaging waste), Ireland established the Deposit Return Scheme under the "[Separate Collection \(Deposit Return Scheme\) Regulations 2021](#)" legislation, that came into operation on 20th November 2021.

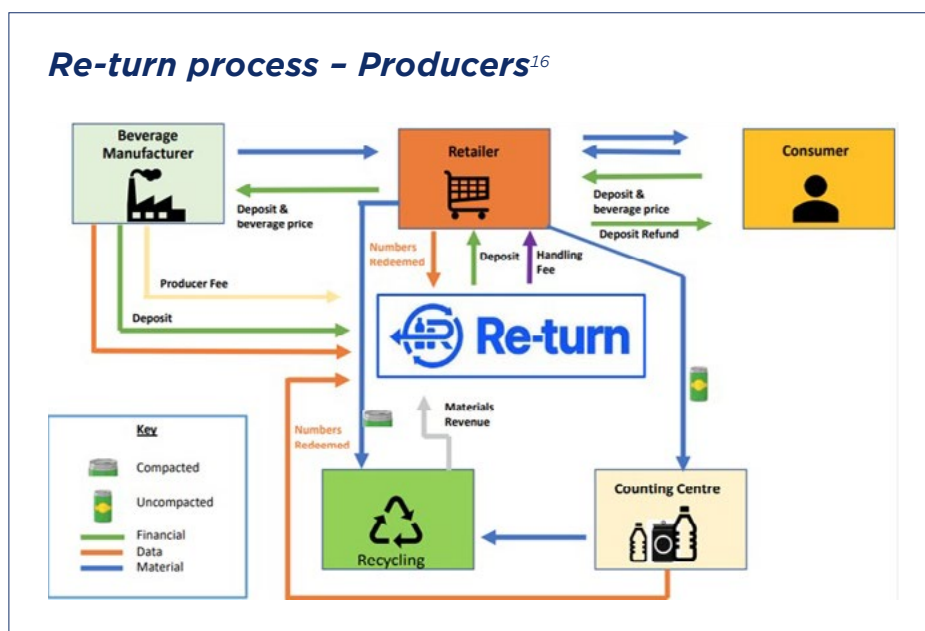
In July 2022, the Irish government appointed “*Re-turn*”, an organisation established to operate the DRS in the country which launched officially in November the same year. The system is currently in testing mode by producers and retailers for the right labelling until 1st January 2024. The go-live date for the system is 1st February 2024 with a transition period being planned until May 2024.

The regulations apply for beverage bottles with a capacity up to 3 litres that are manufactured from PET (polyethylene terephthalate) or aluminium or steel with the exclusion of any dairy or milk-based protein beverage, drinks prescribed specifically for medicinal purposes and containers designed not to contain beverages.

GS1 Ireland presented at a number of Supplier and Retailer briefings organised by Re-Turn prior to (and post) the launch date providing advice on the use of GCPs, the allocation of GTINs, as well as addressing questions around EDI messaging standards in the context of the deposit return scheme.

Every product placed on the market needs to be registered with a GTIN at the management authority (Re-turn) and they get a logo. Re-Turn logos play an important role for returning the bottle to the store directly. When a product is registered, a new GTIN needs to be allocated. The GTIN can be allocated from any GCP. If a producer wants to use the same GTIN for multiple markets (“international barcode”), they need to pay an additional fee.

Funding of Re-turn is based on the producers’ fees and they are charged per unit; the consumer is only charged with the deposit which they can get back after returning the packaging



¹⁶ <https://re-turn.ie/wp-content/uploads/2023/07/IT-Data-Flow-Webinar-29.6.23.pdf>

7.5 Netherlands



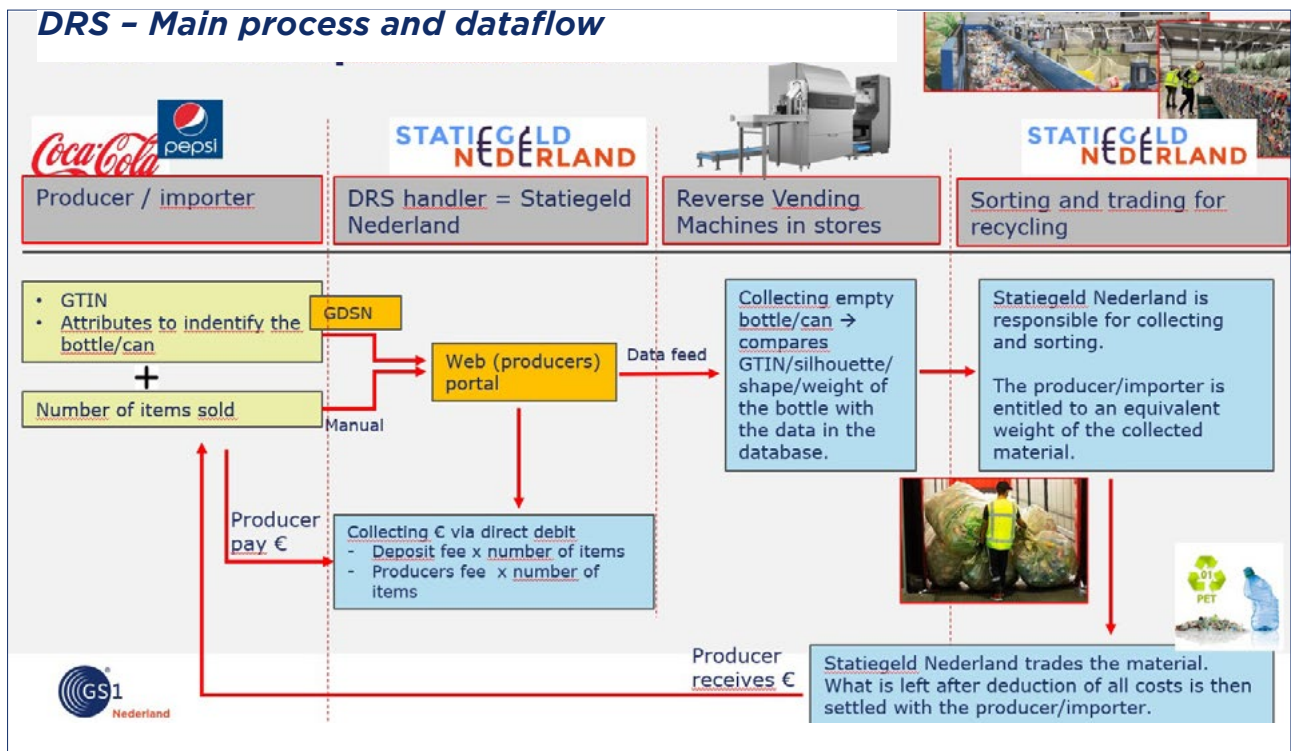
DRS in the **Netherlands** started as a method to minimise the cost of packaging materials by reusing glass bottles 50 years ago. In 1980 the cost of packaging, such as glass, became so low that reuse was no longer cost-effective. Used glass is mainly collected through containers, after which it is melted down into new glass, instead of cleaning and refilling the old bottles. The only exception was beer bottles, which remained subject to refilling.



In 1991 a deposit system was introduced for PET bottles (with capacity larger than 1 litre) with the goal of reducing the amount of packaging materials. Between 1991 and 2006, the bottles were refilled, but since 2006, bottles are recycled.

In 2021, deposit for small PET bottles was introduced followed by the introduction of deposit for cans in 2023. All metal cans and PET bottles in the deposit system are recycled. The responsible Deposit Management Organisation is [Statiegeld Nederland](https://www.statiegeldnederland.nl).

DRS – Main process and dataflow



7.6 Slovakia

Deposit return system in Slovakia started in January 2022 and the current deposit in the amount of 15 cents is valid for PET bottles and ALU cans.

GS1 Slovakia was very active in communication with the Deposit system manager DSM (not for profit organization – [Správca zálohového systému n.o.](#)) from the beginning. As most of the packaging is returned through vending machines without human intervention, the importance of barcode quality is highly relevant. GS1 Slovakia worked within close collaboration with the Slovakian DMO on the technical perspective.



Accepted barcodes are EAN 13, EAN 8, UPC A and UPC E. To distinguish bottles and cans under the new deposit system, all products had to be assigned with new GTINs and logo of deposit scheme. The GTIN can be allocated from any GCPs.

Products in the DRS system must have the Z (deposit) logo. This logo can be either directly printed on the product or attached to it as an add-on sticker. The fee structure is different for local and international GTINs.

As part of cooperation barcode quality manuals were created for suppliers. Suppliers were introduced to an administrative verification process where they could send PDFs of the new packaging with new barcode and dimensions prior to real printing to GS1 Slovakia to ensure seamless transition to the deposit system.

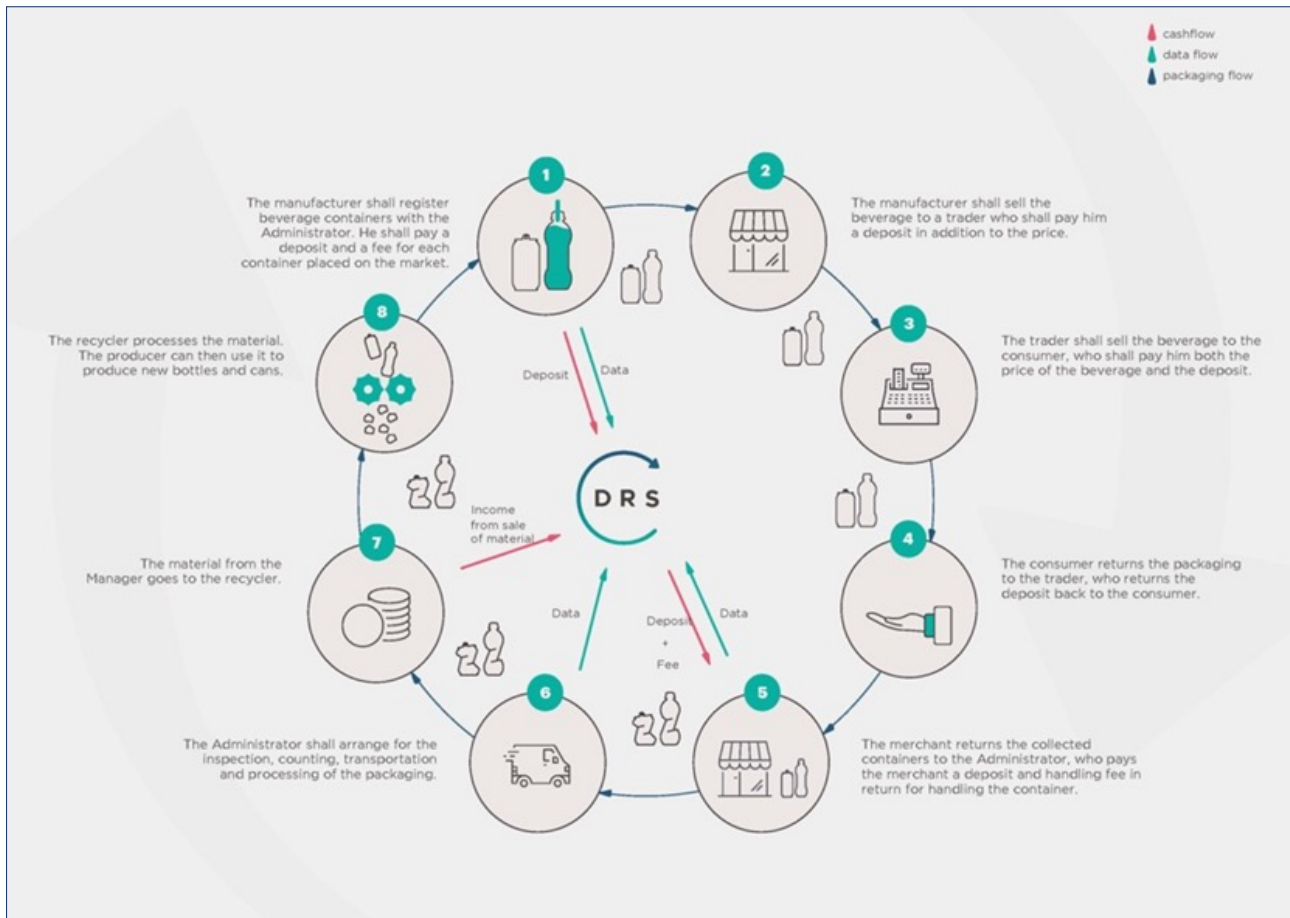
Producers/importers must sign the contract with DSM and supply required product information (name, category, material, volume, dimensions, pictures...). The local DSM takes care of the measurement, pictures, and data capture service during the verification process.

Each supplier must send eight samples of real packaging to the DSM, which sends one example to each producer of vending machines and one example to GS1 Slovakia for verification. Verification is paid service by DSM. According to the results from verification, DSM decides if the product can enter the market or if the producer must make changes in packaging.

Since the start of the system GS1 Slovakia verified nearly 5300 products (until October 2023). Quality of the barcodes increased significantly compared to the survey we did before: 47% of the products fulfil the GS1 criteria, however 10,6% of samples still had serious defects that could result as unreadable by vending machines. The rest of the products has small problems, but they are readable at POS and in vending machines – the most common problem is insufficient height of a barcode.

Deposit must be visible separately on invoices and in EDI messages. GS1 Slovakia, in cooperation with EDI providers and retailers, assigned two GTIN numbers for EDI communication – one for PET and one for ALU packaging.

Each retailer with a shop over 300 sq. metres is obliged to take returned packaging. For small shops it is voluntary. The goal for the first year was to achieve a 60% return rate. By the end of 2022, the goal was achieved.



7.7 Türkiye

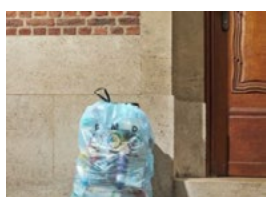
The system will be managed through a centralised structure (Turkish Environment Agency) and operational activities are planned to be regional. The scope of the system, obligations, criteria to be met by the packaging, issues related to authorisation-licensing, financial issues, monitoring and inspection criteria will be determined and published by the Agency.

Information infrastructure is a very important issue in terms of ensuring the sustainability of the deposit management system and ensuring the effectiveness and traceability of the control mechanism of the system. With this information infrastructure, material, data and money flow will be managed through a single platform within a closed system cycle. The Mandatory Deposit Management System will be implemented over the data system, which is a comprehensive software network where data regarding all the processes it covers can be instantly transferred, managed, tracked and necessary reports can be made.

At the start of the system, manufacturers will be asked to assign a new GTIN to their existing products and the recycling logo printed with a special ink will appear on the bottles. The registration process of the manufacturers and the printing houses that will print labels with special inks started as of 01.01.2022, and the system is planned to operate actively in 2023.

7.8 Belgium & Luxembourg

The deposit system for glass has been in place since the 1970s in Belgium and Luxembourg. The main types of glass bottles are marked with a logo and when they are manually returned to the RVMs or to the stores, the bottles are collected by the retailers and sent back to the bottle producer where they are washed and reused. This system does not use GS1 standards now but possibilities for the usage of 2D barcodes will be explored in the future.



Disposable beverage containers are collected in blue bags by the consumers (households). The bags are then collected by the responsible company, [FostPlus](#). Today many types of recyclables are collected in these bags and the system works quite well.

Introducing Digital DRS could be a huge opportunity to make it more efficient, especially for single-use containers. Blue bag recycling rates are high, which also means that there is no urgent need to revolutionise the whole system. GS1 BelgiLux is now looking into a way Digital DRS system could be implemented while reusing the already existing infrastructure and existing user habits. A Digital DRS system would enable better traceability for packaging and would allow for easier system updates (e.g. introducing new types of packaging).

In theory, the DDRS is a simple solution: development of a dedicated app, the consumer scans the beverage (with a serialised GTIN), scans the bin or bag (with a serialised GLN) then they can get back the deposit through your phone. With GS1 standards and instance level identification, the system would be fully able to track and trace the lifecycle of single-use containers. With the use of serialised GTIN and GLN, additional packaging info could be included in the masterdata.

GS1 BelgiLux is now in touch with the relevant ministries and stakeholders to investigate further if a fully digital solution or a hybrid system is the way to go.

Bird's-eye view

Timeline	<i>Implementation of a solution in Belgium by 2025</i>
Identification keys	<i>If DDRS: serializes GTIN and Serialized GLN</i>
Data to be encoded	<i>If DDRS: GTIN + Serialization</i>
Master data to be encoded	<i>DRS related info (value), possibility of packaging information, ect.</i>
Main challenges	<ul style="list-style-type: none"> • Printing of serialized 2D barcode on curved surface at high speed • Educating consumers + digital divide & network coverage • GDPR • Costs for brands and municipalities • Risk of fraud: placement of code if no (de)activation is in scope
Role of GS1	<ul style="list-style-type: none"> • GS1 Belgilux: should facilitate implementation of DRS; and ensure use of Next Generation of Barcodes with Digital Link • GS1 Belgilux sent an RFI to solution providers from the printing industry • Workshop held to align knowledge on printing possibilities • Ambition to participate in pilot projects

7.9 Germany

In Germany, the system (DPG - Deutsche Pfandsystem GMBH) has been in operation since 2003 and it collects nearly 98% of disposable beverage packaging annually which is a very high percentage of collected plastic packaging.

There is a separation between returnable and non-returnable deposits (see DPG). The returnable deposit is stored in the master data of the product and is thus coded via the GTIN. During the return process, either a physical visual inspection is carried out by the personnel or in the case of reverse vending machines, the weight, shape and other characteristics of a deposit bottle are checked. The combination of these features in conjunction with the GTIN means that the bottle is recognized and accepted as a returnable deposit. If one of the characteristics is missing, the bottle is rejected by the machines.

The German Packaging Act (VerpackG) regulates which packaging requires payment of a deposit. In principle, all one-way beverage packaging with a filling volume of 0.1 to 3 litres requires a deposit of at least 0.25 euro.

The labelling of deposit-required one-way beverage containers is a central element of the DPG system. Beverage producers and importers who decide to participate in the DPG system undertake to mark their deposit-required disposable beverage containers in accordance with the DPG's specifications. This labelling essentially consists of the so-called DPG marking with a special DPG colour and an item number (Global Trade Item Number, GTIN) generated exclusively for the German market.



GTIN encoded in a barcode is the main ID to identify the product package. Also, all beverage manufacturers who participate in the system label their one-way beverage packaging, which requires a deposit payment, with the DPG Logo "permanently, clearly legibly and in a clearly visible place".

This indicates quickly and reliably that the respective packaging is a one-way beverage packaging that requires a deposit payment, for which a 0.25 euro deposit will be reimbursed.

The Reverse Vending Machines and Sorting Plants, which are also integrated into the system, read the GTIN as well as the DPG-Label. As a rule, both identifiers are mandatory. If one is missing, the empties will not be accepted. Then generate an electronic data record that contains all essential information about the product. In parallel with the creation of the data record, the packaging is physically destroyed and recycled (where there is no vending machine or the PET bottle cannot be destroyed on site, this is done in a downstream central process).

In addition to the use of the GTIN in the described system, all major retailers from the food sector have developed a recommendation for action together with GS1 Germany, which takes into account the §33 of the Packaging Act valid from January 2023 and marks a universal reusable container for refilling with different foods and foodstuffs for the return cycle. For the container, not the GTIN is used (this is needed to identify the contents), but the GRAI, since the container must be uniquely identified and with an additional serialisation, the deposit status can be tracked throughout the cycle process. The GS1 DataMatrix is used here as the data carrier. This can be reliably read and processed at all points in the circulation process.

7.10 Malta

In November 2022 Malta became the latest country to implement a nationwide deposit return scheme.

A deposit of 0.10 euro is added when buying beverages in single-use containers within the DRS scope. The scheme covers aluminium and steel cans, glass and PET bottles with a capacity between 0.1 and 3 litres. Dairy, juices, wine and alcoholic spirits exceeding 5.0% alcohol by volume are not included in the scheme.

There are three ways the beverage containers can be returned and refunded:

- By returning the used container to an RVM in retail;
- By returning the used container to an RVM in a public recycling hub;
- Where applicable by returning the used container to retailers participating in the scheme as a manual collection location.

Over half of the 320 reverse vending machines (RVMs) are placed in shops and supermarkets. Vouchers that are issued in a particular shop or supermarket can only be redeemed there.

7.11 United Kingdom

The UK government views DRS as a key component of its strategy for moving away from a linear economy towards a more circular one.

At the end of April 2024, the UK governments made a joint statement stating that they will now go live at the same time, in October 2027, making it simple and cohesive for the industry. GS1 have always emphasised that a 'four nations approach' would be the most beneficial and have been influencing the decision makers, for the past two years. Crucially, the high-level scheme labelling rules state that each label will need to have a barcode or a QR code, thus opening the doors, potentially, to QR codes powered by GS1, or a Digital DRS.

There are still doubts about the inclusion of glass in each territory and this, along with other key milestones, will be set out by the DMO's when they are appointed early in 2025. It's important that GS1 UK remain integral to the 'conversation' with DEFRA (the Environment ministry) and intend to play an active role in the DRS industry forum and appointment of the DMO's. GS1 UK will continue to maintain a proactive role with the DMO working group, ensuring GS1 can influence the direction of travel and understand scheme developments, to be able to inform and support our members.

7.12 Hungary

In Hungary, the DRS system is regulated by law. The legislation covers products with mandatory deposit fees and products with voluntary deposit fees. Compulsory returnable products are the packaging of beverage products and include both single-use [DRS] and returnable packaging. DRS covers all beverage products except milk and milk-products, in capacities from 0.1 litre to 0.3 litre, with aluminium glass and plastic material. The Hungarian DRS system does not differ substantially from the basic operating model. The system will be operated by a concession company as the DRS system operator and will enter into force on 1 January 2024, with a six-month transitional period for producers.





Exception:

- packaging of milk and milk-based beverage products;
- a small amount of emitters



It has a capacity between 0.1 and 0.3 liters



plastic, metal and glass



one-way and multi-way

For every beverage product placed on the market after 1st January 2024 has to be issued a new GTIN number and will be marked with a distinctive DRS registered label. This label includes the deposit fee.

The concessionaire shall establish collection points. All retail food stores over 400m² will have an automatic deposit system.

The consumer pays a deposit when buying the product which is under the DRS system. At this stage of the system, when returning the container, the consumer receives the deposit fee via a voucher. In a later stage of development, the deposit can be transferred to their bank account via a mobile app or they can donate it to a charity.



GS1 Hungary is currently assisting its member companies with the GTIN allocation via web site, publications, webinars, number issuance (Activate) software and help with bulk data uploading. Data requirements and guidelines for manufacturers to provide information for the DMO are available. There is an informal technical dialogue between GS1 Hungary and the system operator. The GTIN management rules in GS1 and DRS are being investigated. As soon as we have a result, we will be happy to share it with the group.

7.13 Finland

Suomen Palautuspakkaus Oy (Palpa) and Ekopulloyhdistys ry (Ekopullo) are the two organisations that manage the deposit-refund system for the beverage industry and wholesalers in Finland.

Palpa manages the return system of recyclable beverage packages and Ekopullo manages the system that includes refillable glass bottles, transport units for beverage containers, such as plastic trays, dollies, and PAN pallets. Palpa takes care of the collection, recycling and/or reuse of the packages belonging to their systems.

The Finnish bottle return system was created in the 1950's. In the first phase, the system was used only for glass bottles that were washed and refilled. The return system of aluminium cans was created in 1996, and a return system for PET plastic bottles recycled as materials was created in 2008. Today, 98 % of cans, 92 % of PET bottles and 95 % of glass bottles are recycled. In Finland, there are nearly 4,000 reverse vending machines where more than two billion beverage containers are returned every year, which, in relation to Finland's population, corresponds to about one returned package per citizen each day.

The deposit of bottles and cans varies between 0.15 and 0.40 euros depending on the size and material of the container. In addition to these, the system includes plastic baskets that can contain 24 bottles, and their deposit is 2.20 euros.

Circulating deposits



1. The manufacturer or importer of the beverage pays PALPA the deposit for the product delivered for sales;
2. The manufacturer or importer of the beverage delivers the product for sales in a shop which pays the deposit to the manufacturer or importer of the beverage in the price of the product;
3. The consumer pays the deposit when buying the product and receives it back when returning the empty package to a returning point;
4. The return point and the processing plant report the returned packages to PALPA;
5. PALPA pays the deposits to the return points in accordance with the number of reported returned packages.

The deposit is only available for those beverage containers that are connected to Palpa's return system. The deposit is paid for those beverage containers for which a deposit has been paid to the administrator of the return system in Finland.

Flow of products

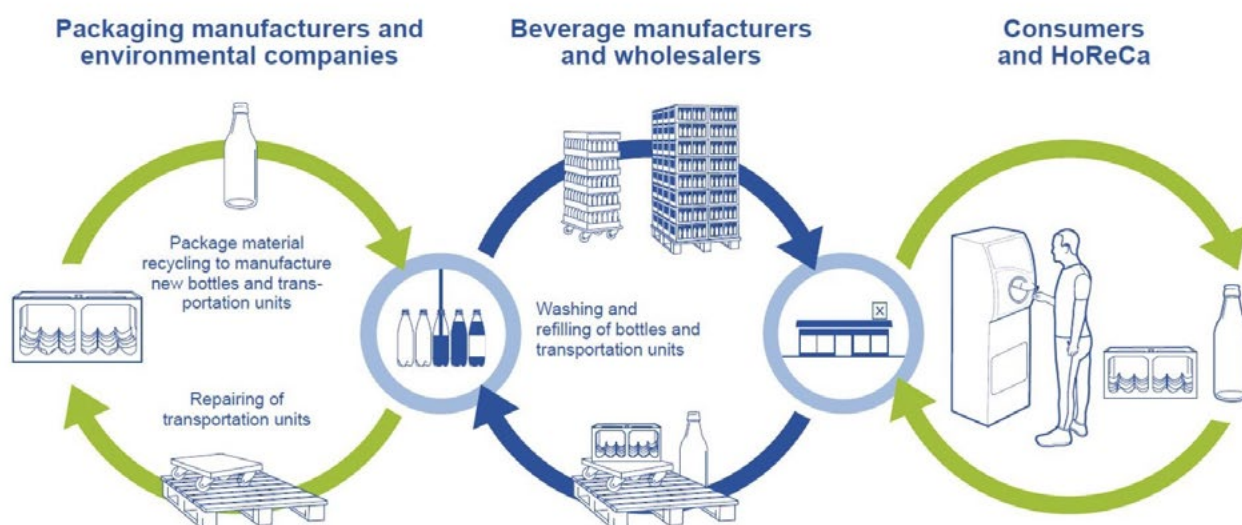


1. The manufacturer or importer of the beverage delivers the product for sales in a shop;
2. The consumer buys the product and returns it empty to the return point;
A reverse vending machine identifies a deposit bottle or can by comparing its GTIN (encoded in an EAN barcode) and shape to the information in the machine's register;
3. The driver picks up the returned empty packages from the return point;
4. The driver delivers the packages to the processing plant;
5. The material is delivered from the processing plant to the reprocessor;
6. Most of the recycling materials received from beverage packages return to use as new beverage packages and other products.

All stores, kiosks and service stations that sell containers with deposits to consumers are also obliged to accept the returns. Beverage containers connected to the return system can be returned either with or without a reverse vending machine but most of the returns are made through reverse vending machines. There are reverse vending machines from three manufacturers used in Finland (Tomra, RVM Systems & Scanding).



Bottles and transportation units – reuse, repair and recycle



Ekopullo administrates a system of refillable beverage packages subject to a deposit that includes various primary, secondary, and tertiary packages (transport units).

Returned glass bottles are washed and inspected before re-use. Each bottle is reused an average of 33 times, after which the material is utilised as recycled glass. Metal corks removed from the glass bottles are forwarded to metal recycling and paper labels are utilised in energy production. Damaged glass bottles are removed from use based on automated inspection and sent to recycling to produce new glass bottles.

Consumers can return the refillable glass bottles in Ekopullo's system to any reverse vending machine (RVM) in Finland. The plastic crates for refillable bottles can be returned to stores that sell Ekopullo's refillable bottles.

7.14 Slovenia

The packaging waste in Slovenia is managed by operators of municipal waste collection operating throughout Slovenia, a network of collection points based on the door-to-door system. Six collective systems are established, managed by the packaging waste management companies. The Deposit Return Scheme for glass has been in place since 1995 managed by the Chamber of Commerce of Slovenia.



In cooperation with the Ministry of the Environment, Chamber of Commerce, Chamber of Agricultural and Food, traders and other stakeholders, at the time of preparing this document the coordination is taking place in the field of introducing a deposit scheme for returnable packaging for plastic and metal, in addition to the system for glass, which is already in use and for a long time.

Glass bottles are currently recognized by their shape and weight in the RVM. The price of the deposit for bottles varies between 0.08 euro and 0.35 euro (0.3 to 1 l for beer, mineral water). Plastic crates for beer and mineral water can also be returned, the price of which varies around 2 euros.

The **GTIN** is used for the retailers to identify the main characteristics of the packaging (not the product), and generating the receipt the consumer can use when collecting the deposit for the empty bottle.



According to an analysis in Slovenia, 77% of containers of the beverages sold in the country are made of plastic. 66% of these containers are transparent and 34% use coloured plastic. For recycling purposes green and other colours PET are in scope and used as a PET mix with the exclusion of blue and natural or colourless PET. The share of either manually or automatically collected PET bottles in 2020 was around 63%. This number includes the bottles of milk and milk products which will not be covered by the new DRS scheme.

In Slovenia, a good infrastructure has been established for the separate collection of municipal waste. The shortcoming of the existing collection system is the poor quality of separately collected bottles. In order to achieve the objectives of the SUP, the existing collection system should be upgraded, which means to separately collect more and better-quality waste beverage bottles that will meet the conditions for acceptance into recycling processes.

It is noted that the procedures are moving slowly due to disagreements between stakeholders and conflicts of interest. The Chamber of Agricultural and Food cooperates and coordinates various associations and sections. One of the associations is the Beverage Industry Association. GS1 Slovenia is active in the discussions around DRS with local governmental departments and policy makers to show how GS1 standards can be used to support sustainability.

The Beverage Industry Association in Slovenia is very interested in DRS, because with the introduction of the system, they will have the opportunity to reduce the purchase costs of packaging by using recycled PET packaging.

Decision about the system should be made in the middle/end of 2024 (Ministry of the Environment).

7.15 Austria

The deposit regulation in Austria was issued on 25th of September 2023 and will come into force on 1st of January 2025.

PET and aluminium are important recyclables: currently in Austria, about 70% of all single-use PET bottles are collected after use and returned to the recycling cycle. Starting in 2025, a collection rate of 80% should be achieved; by 2027, the collection target of 90% should have been reached.

This solution should help Austria to move forward in terms of sustainability. From January 2025, Austria will have a deposit system for disposable drink packaging. Anyone who buys drinks in PET bottles or aluminium cans will need to pay a 25 cent deposit. If the consumer returns the empty containers, the deposit will be refunded.

Background is to ensure that a higher percentage of packaging is recycled or will be recycled in future and is no longer „littered“, i.e. carelessly dropped or thrown away.

The so-called „central office“ – EWP Recycling Pfand Österreich GmbH – has already been set up and is the central body that takes care of all organisational and structural agendas of the single-use deposit system. This organisation is also responsible for all tasks in connection with the one-way deposit, such as material, cash and data flows (including registration). All new packaging subject to the Deposit Regulation must be registered on the EWP web portal (the „EWP Portal“) before being placed on the market and thus submitted to the EWP for approval.

Apart from establishing the logistics that ensure the collection of all PET bottles and beverage cans throughout Austria, processing for all producers and collectors will be built up and the reverse vending machines prepared for participation in the deposit system by 2025. Which products will have a deposit on them?

From 1 January 2025, all sealed PET bottles and metal cans with a filling quantity of 0,1 to 3 litres will be subject to a deposit. These are identified by the deposit logo. Therefore all affected products need to be assigned new GTINs to be registered for the automated take-back machines.



Which products are exempt from the deposit system?

The deposit system does not relate to animal milk products, coffee cups and coffee refreshment beverages in a can with a milk proportion in excess of 51 percent.

How to recognise single-use deposit products?

All drinks containers subject to the single-use deposit are visibly identified with the deposit logo.

How much is the deposit?

A deposit of 25 cents is levied on each container at point of sale.

Where can single-use deposit containers be returned?

Single-use deposit containers are collected at all sales outlets at which they are sold. This excludes drinks vending machines and post & parcel deliverers. Joint collection points can also be set up in busy areas (e.g. shopping centres or shopping streets). Collection is processed either manually or via reverse vending machines.

In the case of manual collection, the operators only have to collect the drinks containers in the usual sales volume and filling volume.

Example: A bakery sells only beverages of brand X in 0,5 litres PET bottles. Therefore, 0,5 litre PET bottles are collected, but also those of brands Y and Z. Thus, aluminium cans or PET bottles in other sizes are not collected.

What needs to be the condition of the bottle, or can the deposit be reimbursed?



The prerequisite for reimbursement of the deposit is that the container is empty, not crushed and that the label is fully present on the container and legible. This is the only way to identify whether the container is a bottle or can that is managed in the deposit cycle.

If the container is rejected, the deposit cannot be reimbursed. Please dispose of the container in the nearest yellow bin or yellow bag. Retailers are preparing for the changeover. Stores have to be converted, reverse vending machines installed and systems adapted.

- Reimbursement of expenses for take-back in retail (handling fee): The handling fee is standardised to cover the costs of all activities up to the provision/storage at the take-back point and distinguishes between manual and automated take-back.

Aside from the one-way deposit, there is another serious change regarding drinks packaging that should not fail being mentioned in this context: From January 2024, mandatory reusable quotas for food retailers regarding beverage packaging will be gradually introduced on the basis of the „AWG amendment to the circular economy package” enacted at the end of 2021 (which also adopted the deposit system). These quotas will then also apply to those retailers who previously did not have any reusable containers on their shelves, such as discount stores. In addition to beer and mineral water, fruit juices and other beverages will also be available in reusable bottles in future.

7.16 Latvia

Since 1st February 2022, Latvia has joined the list of countries where a deposit system has been introduced for certain types of beverage packaging. Currently the deposit system is used by 94% of Latvian households.

The deposit system in Latvia is managed by SIA Depozīta Iepakojuma Operators (DIO), which brings together major local and Baltic drinks manufacturers and retailers. DIO operates based on the zero-profit principle. All funds earned are reinvested in the operation and development of the system.



Glass, plastic (PET) and metal (cans) packages can be transferred to the deposit system. Within the framework of the deposit system, when purchasing beverages in marked packaging, the buyer pays a deposit, which is later repaid when handing over the empty packaging at the specialised reception points. The Deposit fee is set in the amount of 10 euro cents (EUR 0.10) per deposit packaging unit, regardless of the material and dimensions of the packaging.

Manufacturers/importers of beverages who place products in Latvian market are subject to the deposit packaging system. They must sign the deposit packaging management agreement with DIO and supply the required information (EAN code, product name, beverage type, packaging type, packaging colour, volume, weight, code type). The packaging must be marked with EAN-13, UPC-A or EAN-8, UPC-E barcode and deposit emblem for one way deposit packaging or the deposit emblem for refillable deposit packaging.

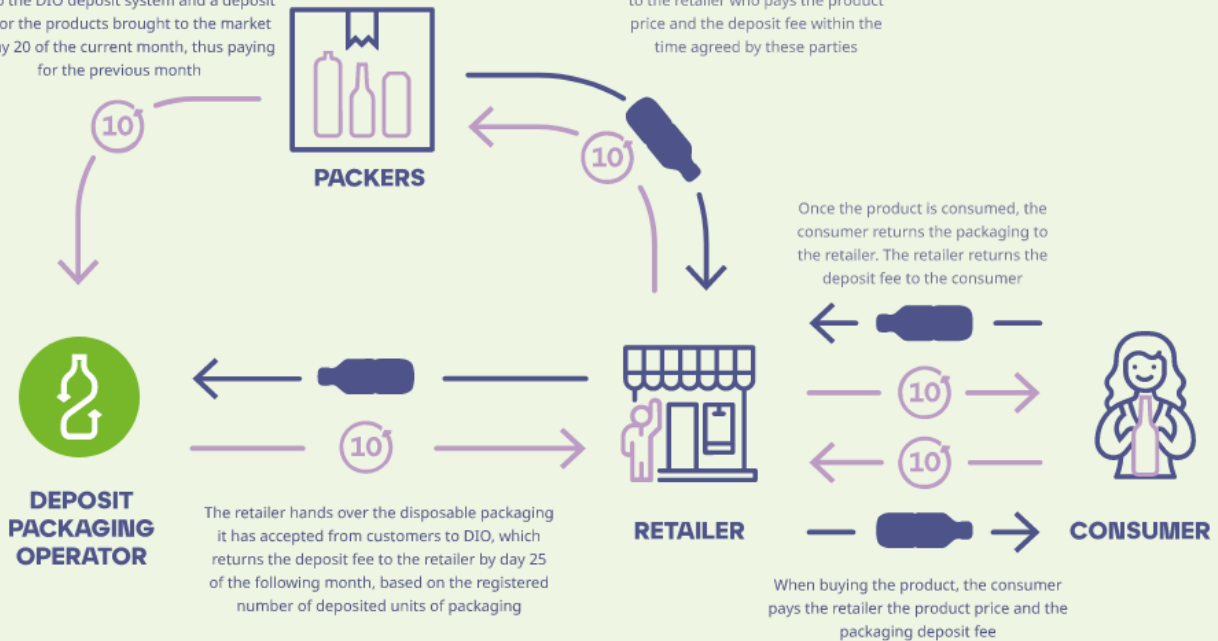
After submitting the application online, the Producer must send to DIO physical prototypes (three units) of each Packaging article to be entered into the Registry, along with the relevant labels/stickers and the cap (on the bottle or with the bottle) empty without the beverage.

The retailer must sign a contract for the installation of an automatic or manual deposit station with the deposit system administrator (DIO), if the area of the sales floor is 60 m² or more.

Circulation of packaging and deposit fees

The deposit packers pay the participation fee to the DIO deposit system and a deposit fee for the products brought to the market by day 20 of the current month, thus paying for the previous month

The deposit packers sell the packaging to the retailer who pays the product price and the deposit fee within the time agreed by these parties



7.17 Poland

The Polish DRS system will be established according to legal requirements. The highlights of the law about DRS:

- Will enter into force in January 2025;
- Single-use plastic bottles up to 3 litres, reusable glass bottles up to 1.5 litres, and metal cans up to 1 litre will be covered;
- The implementation of DRS will be mandatory for stores over 200 sqm;
- Stores with smaller areas will be allowed to join the system on a voluntary basis;
- Every beverage product placed on the market after January 2025 have to be marked with a DRS label includes the deposit fee;
- The deposit in amount of 12 cents (proposal from the law);
- Return of the deposit fee will only be possible in cash;
- There is no set number of system operators (can be more than one). Currently in Poland there are two operators: Zwrotka S.A. and Polka S.A.

In order to properly prepare the Polish market for the upcoming changes, GS1 Poland, in cooperation with stakeholders, is taking active steps to develop optimal solutions that will become a standard in the Polish market. That's why **GS1 Poland set up the DRS working group**. The purpose of the Group is not only to develop a proposal for a solution, but also to exchange experiences, ideas, opinions on an ongoing basis, define barriers and jointly seek solutions to support the implementation of the model. Within the group **GS1 Poland have created 3 sub-groups** (with own leader) for the topics:

- Subgroup 1.: Security
- Subgroup 2.: Handling fees
- Subgroup 3.: IT

The basic principles were:

- The solution should be the simplest and possible to be implemented in the time required by the law.
- The solution assumes the creation of a so-called umbrella organisation composed of representatives of associations representing the main stakeholders.
- All operators shall adhere to the developed principles based on GS1 standards.

GS1 Poland organised two „Round tables for DRS”. Each meeting was attended by more than 50 people: retailers, brand owners, revending machine manufacturers, potential operators, or industry associations.

GS1 Poland presented **the proposal (recommendations)** of the solution developed in the subgroup, specifically:

- The identification of consumer packaging
- The database
- The standard of communication between representative entities
- The umbrella organisation (OP)
- The standard of contracts of representative entities
- The handling fees
- The collection standards - automatic, manual
- The schedule

Discussion about the next steps was also covered.

In addition, GS1 Poland conducted **the first pilot**, the purpose of which was to test the developed model for the DRS based on GS1 standards and to gather experience. The participants in the project were: Maas Loop (RVM manufacturer) and the Żabka Polska (retailer). The project's collaboration helped define key GS1 standards for product and location identification and potential challenges with the incompleteness of the GS1 database in the context of the additional attributes needed to describe packaging.

Process visualisation on the example of MaasLoop and Żabka Polska implementation GS1 Poland produced specific materials for communication such as “GS1 Standards for the DRS in Poland”, videos from “Round tables for DRS”, webinars about the pilot with MaasLoop and Żabka and also a dedicated website about DRS (link is in section 6).



7.18 Sweden

Sweden has had a DRS for refillable glass bottles since 1885. Today this system is mostly used by restaurants and bars.

In 1984 Returpack (Pantamera) started a DRS for metal cans. Ten years later PET bottles were included in the DRS system. Returpack is a private company owned by branch organizations in the drink and food area. Since the beginning the recycling rate has steadily grown to be just under 90% in 2022.

The Swedish Parliament states that anyone who professionally fills plastic bottles or metal cans with ready-to-drink beverages or imports them to Sweden must ensure that the bottles and cans are included in an approved recycling system. Returpack is the only such system in Sweden.

All metal cans and PET bottles ≤ 1L have a 1 KR (~10 cents) deposit. PET bottles above 1L have 2 KR (~20 cents) deposit. This must be marked on the container. Almost all types of beverages are included in the DRS. For the time being dairy products are excluded until 2029, but they can already be included on a voluntary basis.



Before a producer or importer can start to put these containers on the Swedish market, they must be approved by Returpack. In the approval process, Returpack checks the material specifications, barcode readability and marking, including GTIN in a barcode and a deposit label. After approval the container's GTIN is added to the Returpack register. The register is available in all RVM's.

The containers are collected in around 4300 RVM's around Sweden. Most of these are in grocery stores where the consumer can use the deposit earned to pay for their groceries.

After collection the compressed containers are brought to Returpack's only sorting facility (in Norrköping, 160 km SW of Stockholm). Here the material is sorted sold to recycling companies. The plastic recycling company is just next door in Norrköping while the recycled metal is taken to smelters by train.

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