



Exploring the future of recycling in the UK

How collaboration, trusted data and GS1 powered QR code technology can support the implementation of sustainability agendas



On 16 August 2023, Scotland will become the first of the four UK nations to launch a national Deposit Return Scheme (DRS), initiating one of the most significant shake-ups the recycling system has ever seen.

England, Wales and Northern Ireland are also consulting on the parameters of what such an initiative may look like in their regions and have all committed to launching their own nationwide schemes by 2025.

Each year, UK consumers are estimated to get through 14 billion plastic bottles, nine billion aluminium and steel cans, and 1.5 billion glass bottles. By volume, drinks containers account for 75 per cent of the litter found on UK streets and, although many of these items are fully recyclable, recent recycling rates show there is much more to be done if the Government is to reach their target of recycling 90 per cent of single-use plastic bottles by 2029.

The environmental impact of single-use packaging is becoming a growing concern for businesses, policymakers and consumers alike, so plans to implement deposit return schemes across all four UK nations are a welcome step forward in combating this complex problem.

Retailers, producers and consumers are already grappling with major legislative change and economic upheaval. While there's no doubt that the introduction of DRS can be a positive step forward, the needs of consumers and industry need to be carefully factored into their design. This will be essential for ensuring that the UK's schemes have a meaningful impact on recycling and deliver an approach that works for all.

At GS1 UK, we're in a unique position to provide insight on, and support the delivery of, a robust and efficient DRS in the UK. 90 per cent of affected retailers, producers and wholesalers are already among our members and use our interoperable standards, particularly the Global Trade Item Number (GTIN), to uniquely identify, capture and share data about their products.

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This world-first trial has game-changing implications for recycling in this country. A successful trial, supported by grocery industry giant Ocado, will be a significant step towards the implementation of a DDRS in this country that will provide a much more convenient and environmentally friendly way for households to recover their deposits. Not only that, but brands will also be presented with radical new marketing tools and a wealth of data on how consumers are recycling their products packaging.”

– Alice Rackley, CEO, Polytag

Time to act

With less than a year to go, we're urging all affected parties to take a collaborative, joined-up approach. With that approach, these schemes have the potential to radically boost recycling rates while minimising disruption at a time when that's the last thing consumers, industry or the government needs.

We have a limited window of opportunity to help industry solve this conundrum and only through a shared level of focus and collaboration will any scheme stand a chance of being successful.

That is why we are collaborating with Polytag, a team of committed recycling tech pioneers who work with FMCG brands, retailers, printing solution providers and regional recycling centres to provide 'full-circle' visibility of packaging as it travels through the supply chain.

Together, we have been working to develop and explore an inclusive technology solution that would provide consumers with a simple, accessible and familiar way to participate in a DRS. One that would allow them to return waste and collect their deposits without having to drastically change their current habits.

Simply scan it

This digital approach, otherwise known as a digital deposit return scheme (DDRS), would work by seamlessly integrating a deposit return process with the existing kerbside collection infrastructure that consumers already use as part of council waste collections.

Instead of having to transport used containers to fixed return points or reverse vending machines (RVM), a DDRS would allow consumers to reclaim their deposit via a simple smartphone scan. The only new behaviour they would have to adopt would be scanning a unique barcode on each product, and their recycling bin, before disposing of the products and leaving them out for collection.

Such an approach could drastically reduce costs and carbon emissions by eliminating the need for RVMs to be installed across the country and preventing consumers and operators from having to transport packaging waste by road.

A world-first trial

On 14 November 2022, Polytag and Ocado, launched a pioneering new trial to assess how serialised QR codes powered by the GS1 Digital Link standard could power such a scheme.

The power of Digital Link

Brands can now speak directly to consumers through a single, smarter barcode on their packaging, providing instant access to trusted information and richer personalised experiences.

Using a GS1 powered QR code with our Digital Link standard enables you to connect your product's unique identity to multiple online sources of enriched, real-time content. You retain full control, can tailor your online sources to a specific SKU, and can update or publish new messaging without having to alter the packaging of your products.

GS1 Digital Link extends the power and flexibility of GS1 identifiers by making them part of the web. That means that identifiers such as the Global Trade Item Number (GTIN), are now a gateway to consumer information that strengthens brand loyalty, improved supply chain traceability information, business partner APIs, patient safety information and more.

For the first time ever, on-pack DDRS technology was implemented on product packaging for one of the UK's leading online grocery retailers.

GS1 powered QR codes were printed on over 1.6 million of Ocado's fully recyclable milk cartons to evaluate printing requirements and assess how consumers would engage with and adapt to a DDRS.

The Welsh Government, who piloted a DDRS trial with Polytag in 2021, and numerous trade bodies, have highlighted the importance of serialisation for gathering trusted data on the movement of waste and recycling processes.



In fact, for a DDRS to work, serialised, unique-every-time QR codes on-pack will be essential for enabling full traceability and preventing fraud.

As well as uniquely identifying each product and return point to ensure the correct deposit is returned, to the correct consumers, at the correct time, these QR codes will provide businesses with a much more accurate picture of their supply chains and product lifecycles.

By enabling full traceability for each unit sold, they allow both brands and retailers to understand exactly how much packaging they put into the ecosystem, how it is disposed of, where it ends up and how much is recycled – information that many don't currently know.

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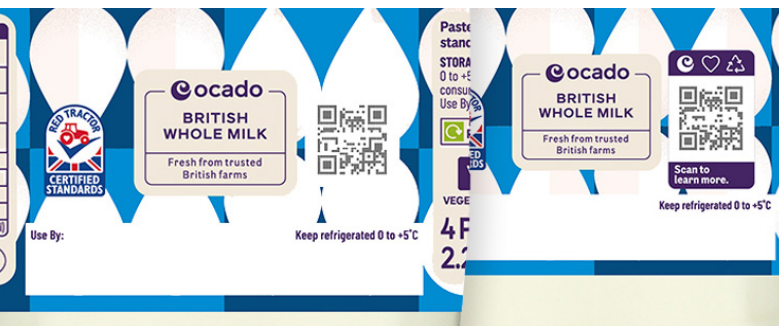
As the world’s largest online supermarket, we champion the use of innovative technology as we strive to become the UK’s most sustainable grocery retailer. Polytag’s digital platform offers plenty of environmental and economic benefits for retailers and customers alike - it’s easy to use and when used at scale, could have a hugely positive impact on the nation’s deposit return scheme. We’re looking forward to seeing how our customers respond to the trial and how many would redeem their deposit at home.”

– Laura Fernandez, senior packaging sustainability manager, Ocado Retail Ltd

Delivering a successful DRS

Each QR code was unique, fully compliant with GS1 standards and encoded with an API link to a fully customisable landing page hosted on the Polytag platform.

Scanning these codes would connect consumers to this page, providing them with instant access to real-time information on the packaging’s attributes, as well as details of the trial and how to take part.



The landing page also provided Ocado with full control over the messaging, wording and design of its dynamic content, as well as detailed analytics to track how consumers interacted with it. This included dwell times, IP addresses, engagement rates, total visits, unique visitors, video playback lengths and more.

Delivering change at scale and speed

This was the first-time serialised codes had been printed using existing plate printing techniques, a method that is very high-speed and highly optimised.

To ensure these codes could be implemented in line with Ocado’s labelling requirements, Polytag collaborated with Interket, Europe’s most established self-adhesive label manufacturer, and Xactpack, the UK’s leading provider of coding, packaging and marking systems.

Polytag and their partners conducted thorough research on ink types, printing speeds, and drying methods to identify the best possible material type and method of printing.

This enabled them to install the required equipment on a tight timeline and ensure that staff received the required training to operate it. Polytag and Ocado then developed new packaging designs to accommodate the QR codes and call-to-action.

This close collaboration enabled the pilot to be launched in full and on time, with the experimental cartons being made available to Ocado customers on 18 November 2022.

There were many stakeholders at all stages of research, development and implementation, including:



Demonstrating the art of the possible

Over time, the trial and the way consumers engage with it will provide invaluable insights into the feasibility of a DRS as well as the processes and data required to power it.

In the short-term, Polytag, Ocado and their partners have now proven that printing serialised, unique, every-time codes powered by GS1 Digital Link is not only feasible, but can be done at scale without impacting speed, efficiency or adding impractical costs and complexities to the manufacturing process.

GS1 UK's research has already proven that there is a growing consumer demand for clear information on how to recycle products and packaging. Consumers also want access to sustainability information they can trust. An increasing number of FMCG brands are now providing this via QR codes, revolutionising the way they connect with their consumers in the process.

Combining this inclusive, tech driven approach with the GS1 Digital Link standard could present a massive opportunity for transforming consumer behaviours, attitudes towards recycling and the way UK businesses deal with waste.

It will enable brands to substantiate their recyclability claims, gain a better understanding of the lifecycle of their products, it's impact and how this can be reduced through recycling.

Alongside consumer-facing QR codes, Polytag also print Ultraviolet 2D data matrixes that enable brands and retailers to acquire data on the exact number of their plastic containers that are sorted and handled at material recovery facilities (MRFs). Polytag aim to add these to Ocado labels in 2023, improving traceability even further.

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We have a limited window of opportunity to help industry solve the DDRS conundrum so are eager to see the results of this pioneering new trial. By serialising QR codes powered by GS1 Digital Link, Ocado, Müller and Polytag will be able to uniquely identify, track and trace all 1.6 million bottles as they move through the supply chain. This will remove the potential for fraud and allow trusted data on the processes behind such a scheme, and how consumers engage with them, to be captured and shared between stakeholders. GS1 Digital link can also play a vital role in helping consumers participate and adapt by instantly connecting them to clear, easy to follow instructions with just a simple smartphone scan.”

As retail evolves GS1 Digital link will be an essential tool for brands in future-proofing the way they connect with their consumers and will act as a key enabler for their sustainability, commercial and marketing agendas.”

– Kerry Morrison, head of retail, GS1 UK



About GS1 UK

Whether online, in store or in a hospital, the common language of GS1 global standards is helping our community of more than 58,000 organisations across Britain to uniquely identify, describe and track anything, creating greater trust in data for everyone.

From product barcodes to patient wristbands, GS1 standards have been transforming the way we work and live for nearly 50 years.

GS1 UK is one of 116 neutral and independent GS1 organisations operating worldwide.

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About Polytag

Polytag are pioneers in the RecTech – recycling technology – arena. Developed by the team behind numerous ingenious sustainability solutions, including Durakerb, Duradrain and TexFuel, Polytag is creating impactful technology solutions that contribute to solving the climate emergency.

Our technology will help the UK to achieve Net Zero by 2050 and meet some of the objectives of the UK Plastics Pact and UN sustainable development goals.

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