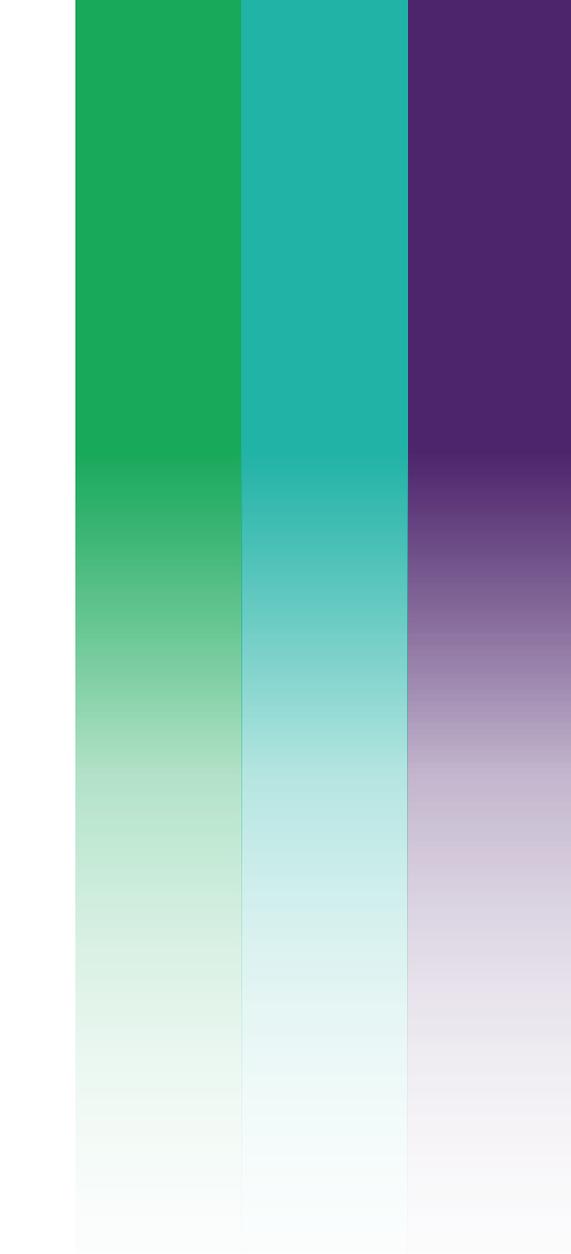


20p reward for recycling with Ocado Retail, Polytag and Bower





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Bower and Ocado Retail.**

Polytag works with brands and retailers, providing them with unique tools that incentivise recycling, deliver insightful data and create new marketing opportunities.

Bower is an award-winning consumer recycling app that's free to use. After making a significant impact in the Nordics with currently +570K users, they expanded to the UK last year with a crucial mission: aiding consumers in recycling correctly and helping consumer brands enhance their recycling rates.

For further information please visit
www.polytag.io and
www.getbower.com

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From the top

By collaborating with the world's largest dedicated online grocery retailer, Polytag and Bower have unlocked fresh perspectives on how to harness cutting-edge technology.

Polytag - in partnership with the Bower recycling app - offered Ocado Retail customers a 20p reward for recycling 20,000 milk containers, and delivered an innovative marketing channel for the online retailer to tell its sustainability story to a wider audience using GS1 Digital Link QR code technology.

In addition, invisible tags applied to the milk labels enabled Ocado Retail to access unprecedented insights into packaging lifecycles - tracing packaging live, at barcode level, within recycling centres across the UK, thanks to Polytag's patented Invisible Tag reader hardware. The initiative granted Ocado Retail access to groundbreaking data that not only enabled it to monitor the recycling rates of its products and revolutionise engagement with individual consumers.

This report highlights Polytag and Bower's collaboration with Ocado Retail, and marks another significant step in their collective journey to digitalise packaging, deliver new ways to communicate with customers and incentivise recycling.

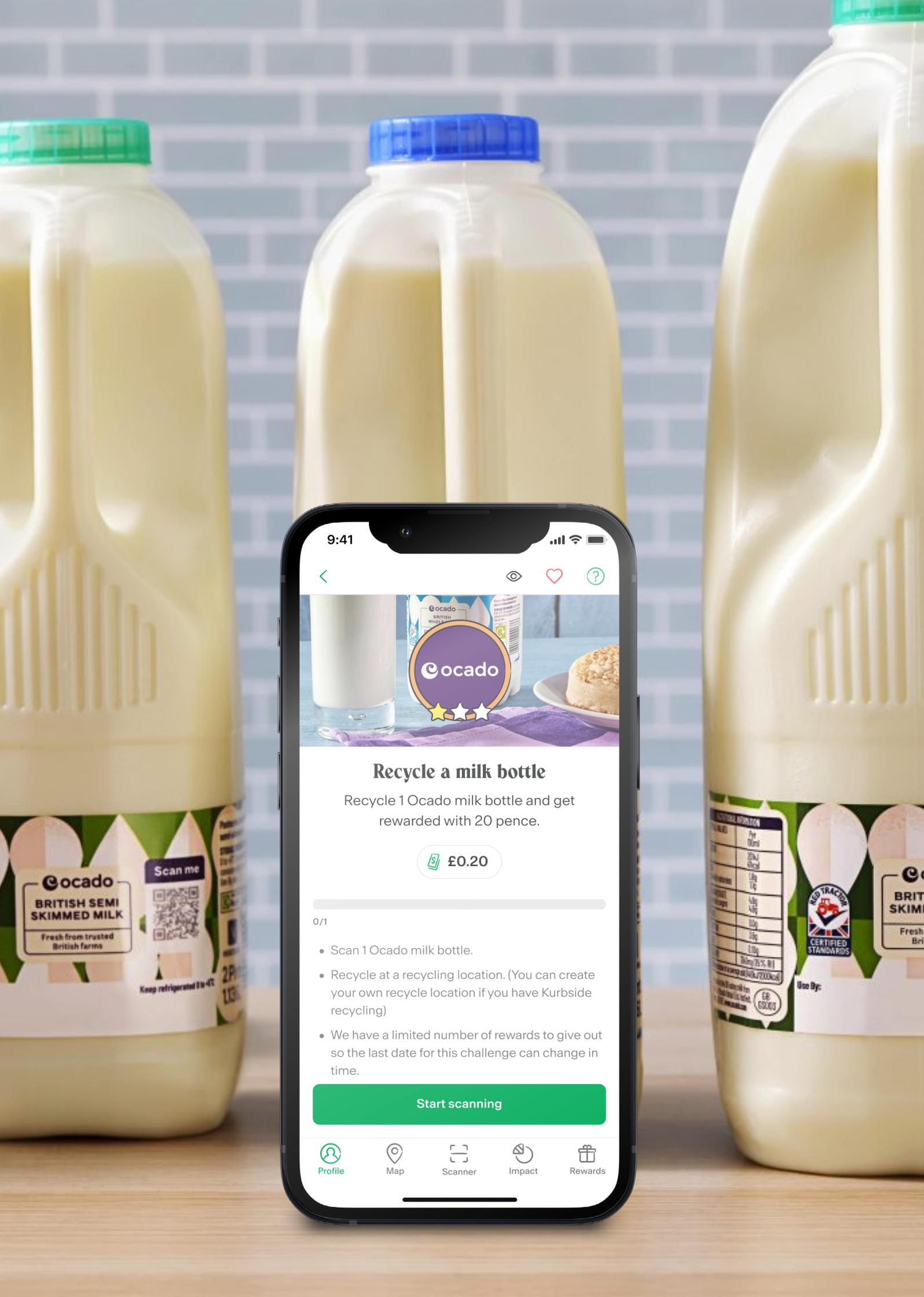
Alice Rackley
CEO and Co-founder
Polytag

Suwar Mert
CEO and Founder
Bower

Laura Fernandez
Senior Packaging Sustainability Manager
Ocado Retail



In times of change, industry disruptions are needed in order to present new solutions. True industry collaborations are needed to reach packaging circularity.



9:41 📶 🔋

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Recycle a milk bottle

Recycle 1 Ocado milk bottle and get rewarded with 20 pence.

 £0.20

0/1

- Scan 1 Ocado milk bottle.
- Recycle at a recycling location. (You can create your own recycle location if you have Kurbside recycling)
- We have a limited number of rewards to give out so the last date for this challenge can change in time.

[Start scanning](#)

[Profile](#) [Map](#) [Scanner](#) [Impact](#) [Rewards](#)



What is Polytag?

Polytag is a pioneer of unique-every-time QR code technology, and is working with businesses in a wide range of sectors to deliver new marketing opportunities and packaging lifecycle analysis tools. It is also providing solutions to enable a cost-effective, convenient Digital Deposit Return Scheme in the UK.

The company has developed unique processes to apply unique-every-time QR codes to packaging to improve traceability and to provide direct-to-consumer marketing opportunities.

Polytag has also developed a UV Invisible Tag technology designed to work in tandem with the QR codes and read at Material Recycling Facilities. These 'hidden' tags allow businesses to access packaging recycling data in real-time, again helping them to meet their new packaging regulations responsibilities. These tags have recently completed successful trials at Abergele's Gofer Bulking Centre in North Wales.



About the Bower app

Bower is an award-winning consumer recycling app that's free to use. After making a significant impact in the Nordics with currently +570K users, they expanded to the UK last year with a crucial mission: aiding consumers in recycling correctly and helping consumer brands enhance their recycling rates.

With 46% of UK households struggling with recycling confusion and making mistakes in their recycling bins, Bower's assistance is more essential than ever. Inspired by the successful incentives structure of Deposit Return Systems (DRS) in the Nordics, where return rates exceed 90%, Bower rewards consumers for their diligent recycling efforts.

However, unlike urging consumers to adopt a completely new habit, Bower capitalizes on the recycling bins consumers already use and the ubiquity of mobile phones. Consumers can recycle any item with a 1D barcode and earn rewards for doing so. The rewards are given as Bower points, which can be converted into money and withdrawn to bank accounts, donated to charities or to unlock price offs and exclusive discounts on a range of brands.

And it's effective—25% of all Bower users have begun recycling, and 48% are recycling more thanks to Bower.

Furthermore, Bower provides a unique opportunity for brands to establish a direct connection with consumers. It serves as a one-stop platform for engaging, educating, and rewarding consumers for their recycling efforts. Brands can run recycling challenges, offer specific recycling information for their products, provide coupons, enhance their visibility and get access to unique recycling data.

The Bower app not only boosts the speed and efficiency of collecting recyclables within existing bins, but also expands the scope beyond beverage bottles and cans. It encompasses ALL packaging, while actively involving consumer brands in driving this transformative shift.



Ocado Retail

Ocado Retail is a joint venture between Marks & Spencer Group and Ocado Group. It is responsible for Ocado.com and Zoom by Ocado.

The company's unique structure enables it to outperform the market, combining award-winning customer service and unrivalled customer data; world-leading technology and logistics from Ocado Group, and unrivalled product development from M&S.

The Context: Deposit Return Schemes

Currently, legislation for deposit return schemes is set to land in the UK in 2025. Customers will pay a deposit – likely to be 20p – on top of the price of their drinks bottles and will be able to redeem the 20p once their bottle has been recycled properly.

Deposit return schemes have been proven to increase recycling rates and work brilliantly in much of mainland Europe. The problem with this system is that the typical deposit return scheme model was developed in the 1980s and uses reverse vending machines (RVMs).

These machines are carbon-intensive, a great expense both financially and spatially for retailers, and also inconvenient for customers.

In the UK, consumers recycle their packaging directly from their homes, which is picked up by local authorities or their contracted waste provider. The waste stream is often a source of revenue for the collection provider, usually the local council, thanks to high-value materials PET and aluminium.

With the introduction of deposit return schemes via RVMs, these council services will soon be operating at a loss, completely altering the established system that customers have been using in the UK for the past thirty years. Ocado Retail would also be classed as a return point, adding a huge burden to its business.

Drivers would have to take packaging back from customers and give the customers their deposits. This is hugely inefficient and would cause immense disruption to the streamlined processes that Ocado Retail has established.

A digital deposit return scheme would still allow customers to use reverse vending machines but would give them a **choice** to also redeem their deposits from the comfort of their own homes.

20p is seen as the right amount to encourage participation

Ocado Retail, user survey, 2023



Using a unique-every-time Polytag GS1 Digital Link QR code, customers can scan the product once and get their deposit back. The unique everytime QR codes enables the app to issue deposit securely, as they can only be scanned once per item. But something like this hasn't been done on a nationwide scale – until now.

Customers are more likely to say they would scan a QR code to claim a deposit for the convenience of kerbside pick up than go to a machine at a supermarket (71% vs 58%)

Ocado Retail, user survey, 2023



It is a myth to claim that reverse vending machines produce a ‘cleaner feedstock’ because although that is momentarily true, ultimately all collected and baled plastic is processed in just a handful of plastic reprocessing facilities... along with all other collected recycled plastic from other sources

Alice Rackley, CEO & Co-founder, Polytag

DRS: Frequently Asked Questions

When is the deposit activated in a digital deposit return scheme?

Once the code is printed it goes onto a digital log that the Bower recycling app use to ensure the code is genuine. The app then verifies it as redeemed.

Can bad actors just scan products on supermarket shelves?

No, the Bower recycling app can enable geofences in supermarkets that stop the app from working. Fraudulent and unusual activity can also be flagged and shut down.

How are you sure it’s put in the recycling bin?

The Bower app logs the geolocation of home recycling bins. Polytag can also compare the QR code scans against UV scans at recycling centres and using a mass balance approach.

Does QR code application affect label production speeds?

Not at all, this technology has been built to slot easily into production lines without affecting speeds thanks to innovative retrofitted hardware, which complements existing plate printing processes. You can watch some videos of this kit in action on the Polytag [YouTube Channel](#).

What stops scanning at home and then bringing it to a Reverse Vending Machine (RVM)?

RVMs can read the unique-every-time QR code and prevent a second deposit from being redeemed.

Making a **positive environment** impact is a stronger motivator to participate in the scheme than financial reward (50% vs 36%)

Ocado Retail, user survey, 2023



Download the Bower app to see it for yourself



The Trial

The integration between the Polytag unique QR codes and the Bower app opened up new possibilities.

As barcodes are not unique, users can only gain points from one 1D barcode scan per day. With the Polytag unique-every-time QR codes Bower can offer several redemptions per day of the same product type.

Customers registered their home recycling bins with their geolocation and a photo of the bins verified by the team at Bower. Customers could only receive their reward when they were near the registered bin or at a public disposal point already on the app.

A Deposit Return Scheme that is enabled by digital technology requires unique-every-time QR codes to ensure each item of

packaging has its own identity and can have one redemption per item of packaging .

Bower, Polytag and Ocado Retail wanted to prove that the technology for a Digital Deposit Return Scheme is ready now. High-speed digital printing of QR codes is a success, and customers are now able to be rewarded for recycling.

Although a deposit was not paid, customers in the UK scanned the unique-every-time QR code and received the 20p reward in their wallets. They then withdrew the money to their bank accounts or donated it. The 20p reward was only valid for the first 20,000 codes scanned.

This trial was the first of its kind and proved to be a fantastic success, with 20,000 20p

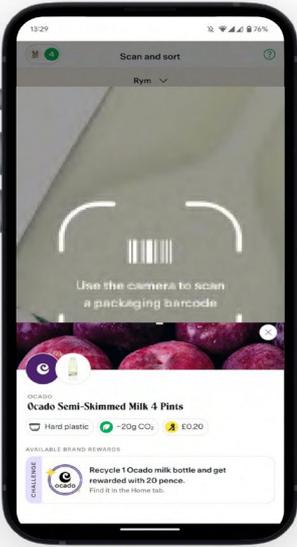
rewards redeemed in just 56 days, at a rate of over 350 redemptions each day. On average, customers recycled 7.5 bottles each. This was a deployment across England and parts of Wales, with rewards for recycling initiatives given across an entire range of products.

The response from consumers has been overwhelmingly positive, with widespread enthusiasm for the concept, rapid adoption of the technology, and users recycling an average of 7.5 bottles each.

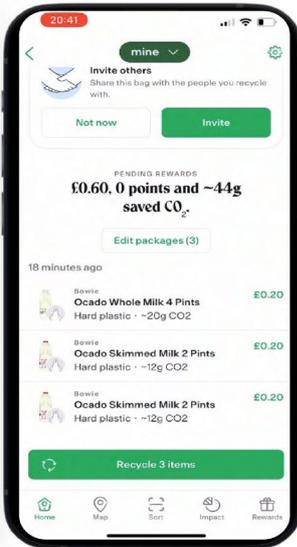
This demonstrates that leveraging existing kerbside recycling infrastructure and people's accessibility to mobile phones provides a scalable and readily deployable solution to significantly increase recycling rates.



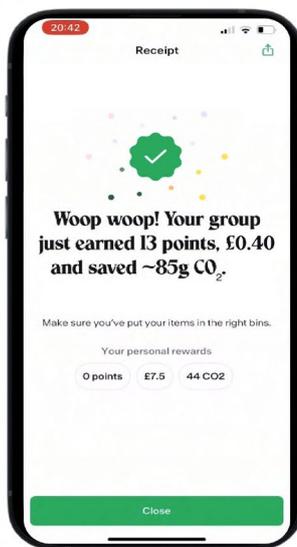
Information



Start scanning



Digital recycling bag



Recycling receipt

Our Methodology

Applying unique-every-time QR codes

Unique-every-time GS1-compliant Digital Link QR codes were applied to labels during the label production process at Interket UK. Codes were printed onto the web of labels, digitally finishing eight labels concurrently.

The labels are plate printed and then finished digitally with thermal inkjet heads at standard industry speeds. This method differs from Polytag's work with Co-op, where QR codes were applied to labels on the bottling line.

Xact, one of Polytag's printing partners, worked to ensure there was little to no disruption or downtime to the printing line. The kit used to print the unique-every-time QR codes is retrofitted to the finishing station, and can easily be switched on and off.

GS1 Digital Link

Polytag's codes meet GS1 standards, and use the GS1 compression tool to create QR codes that can be printed at high speed. Using GS1's Digital Link QR codes opens up a world of opportunity for the digital label, allowing interaction with tills, stock control software, consumer apps and customer facing landing pages.



Landing pages

Ocado Retail created dynamic landing pages, accessible to customers by scanning the unique-every-time QR code.

The landing page content changed depending on the product, enabled by the Polytag dashboard. When a 2 Pint Whole milk bottle was scanned it revealed a different landing page image to a 2 Pint Semi Skimmed milk bottle. This hyper-relevant content supported a stronger than

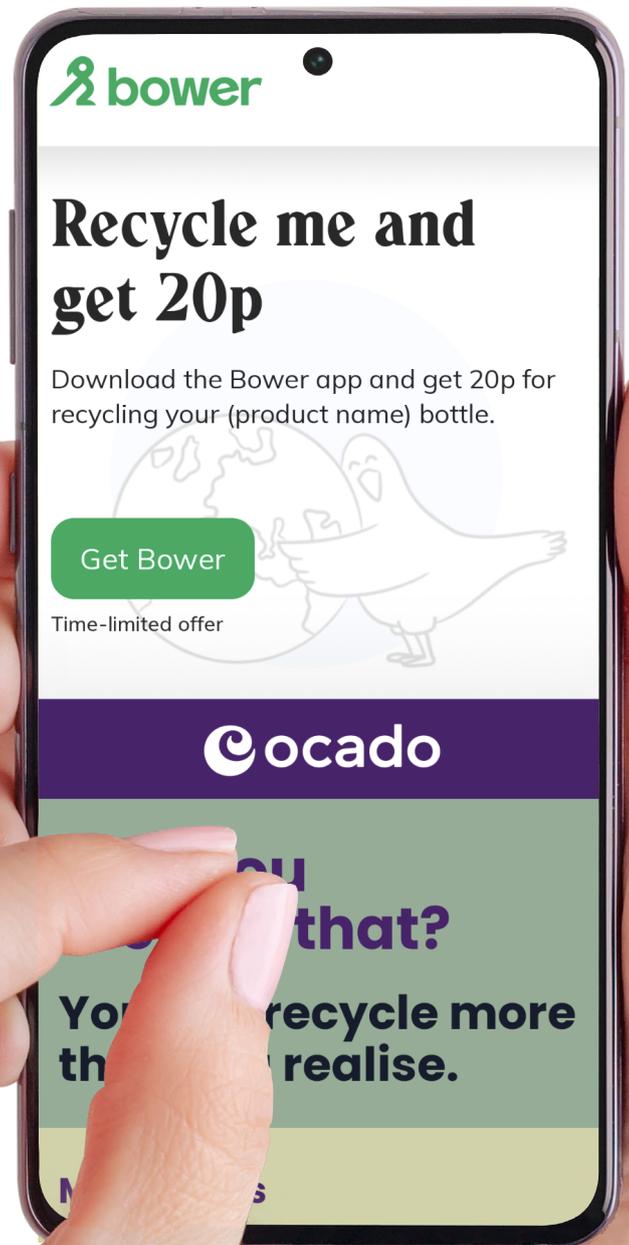
average dwell time of over 32 seconds.

The landing page also prompted customers to download the Bower app, with a large call to action header. Below this was content developed by the Ocado Retail sustainability team on reducing food waste and recycling properly, which was easily updated week by week. Engagement with the QR code increased heavily during the campaign.

Bower app to reward customers

Customers downloaded the Bower recycling app and after a quick registration process customers started scanning the QR codes placed at the Ocado Retail bottles.

Customers were taken through the Bower user journey from scanning to finding the nearby recycling bin, completing the recycling and receive their 20p reward. Moreover customers gained a digital badge for their Ocado Retail recycling, got prompt with newsletters and in app messages to keep on the good work. There were no limits to how many bottles they could recycle, which led to a high return rate. Moreover customers could now start scanning all of their other packaging with 1D barcodes on and continue to be rewarded for their recycling, which they are still doing today.



API connection to ensure one-time redemptions

This world first full-scale Digital DRS demonstration delivered by Polytag and Bower was enabled by a secure, seamless connection between the technology stacks. Polytag generated and stored over 2.5 million unique serialised codes that were applied to Ocado Retail's full range of six fresh milk products.

An API was leveraged so that when Bower App users scanned a QR code on their Ocado Retail milk bottle, a real-time check was performed to verify that the given unique serialised code

was in the Polytag ledger, and to check whether it had already been scanned, or if it was redeemable.

The performance results of the API were 100% uptime, and above-average response speeds for serialised code checks (code verify), and scans (deposit redemptions). The API was simple to set up, tested thoroughly before the trial launched, and was fully secure as per rest API protocols and OAuth security.

Invisible Tags

As part of Polytag's two-tag solution, the company also has Invisible Tags applied to the packaging to trace it back to recycling centres. Polytag currently has two UV Tag Readers based in Teesside and Abergele Material Recovery Facilities. The Tags are low-cost to apply and count the number of bottles spotted on the plastics conveyor, using smart cameras and an internet connection.

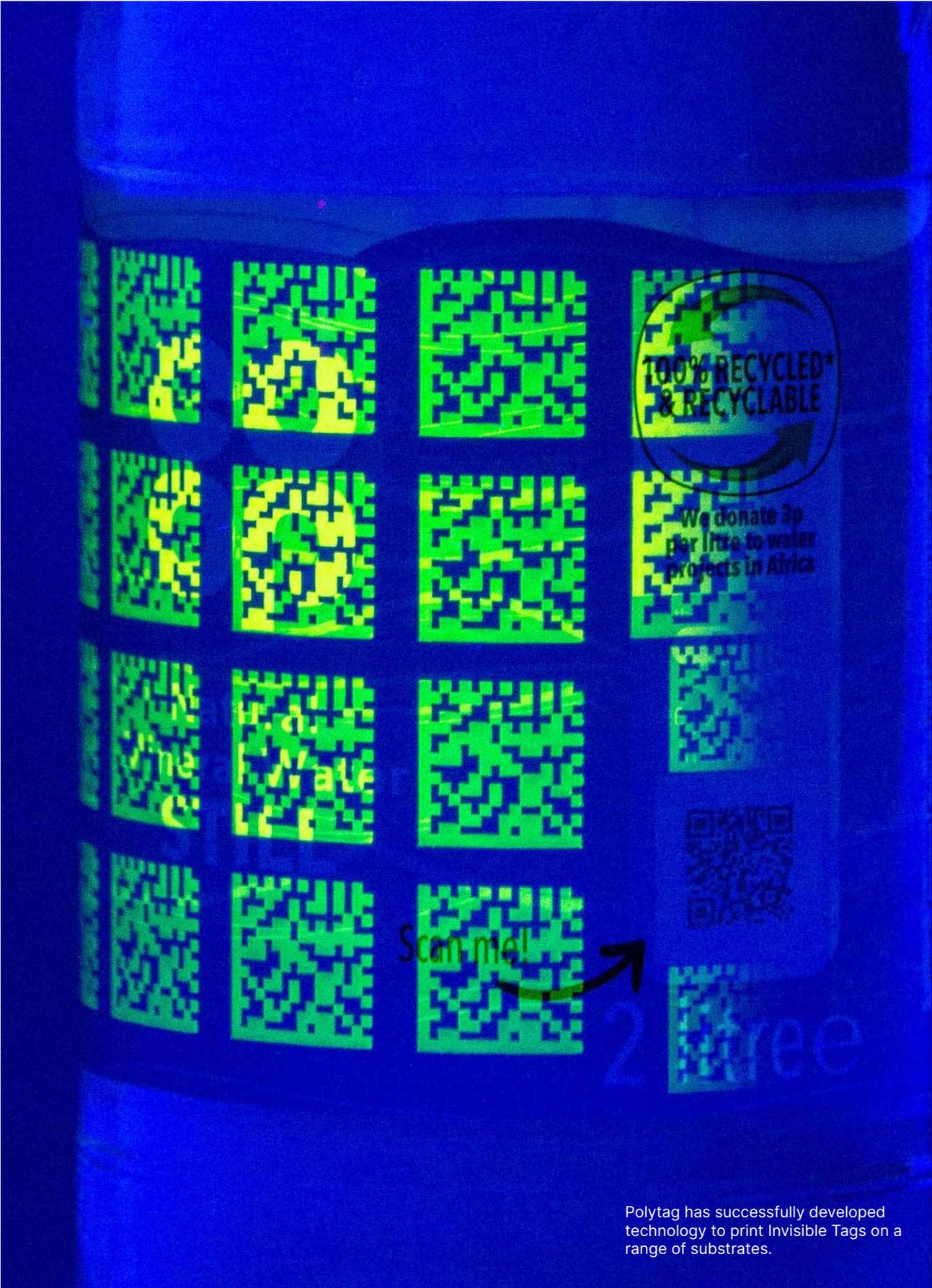
Polytag ran several tests to gain an understanding of the "read rate" and discover how many bottles might be obscured or lost during the recycling process. Work on the Invisible Tags continues to develop at pace, and the company is working on Phase 2 now to

improve the read rate by using different inks, filters and code layouts. Once compared to the sales data by postcode, Ocado Retail will, for the first time, have an insight into the recycling rate of their own brand milk products.

This data will help with EPR and carbon footprinting calculations. When brands are calculating the carbon footprint of packaging they typically take an 'average' recycling rate, or in some cases have to assume incineration.

That is no longer necessary thanks to Polytag invisible tag reading capabilities and brands can finally stop guessing and start knowing where and when packaging is disposed of and recycled.





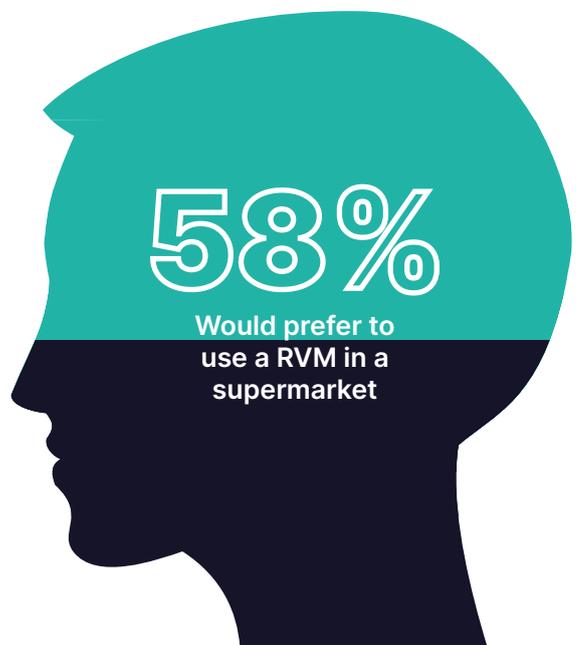
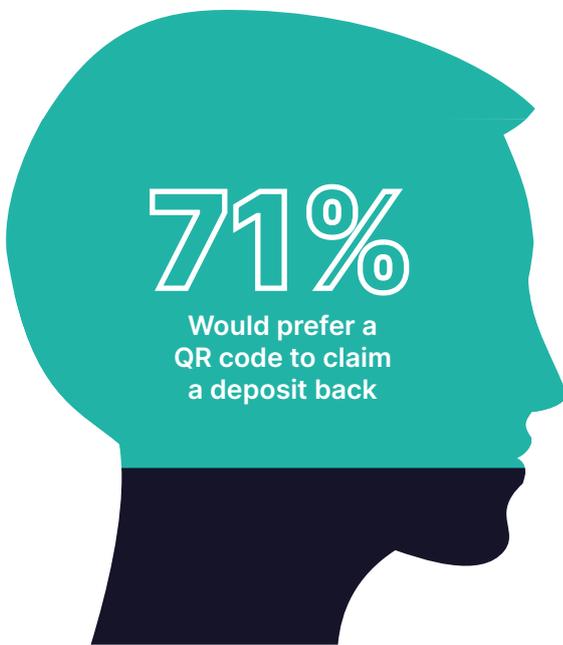
Polytag has successfully developed technology to print Invisible Tags on a range of substrates.

Survey Results

The 20p Ocado Retail trial lasted for 56 days during which over 20,000 rewards were redeemed. After the success of the trial, both Bower and Ocado Retail released surveys to customers directly - the results are clear:

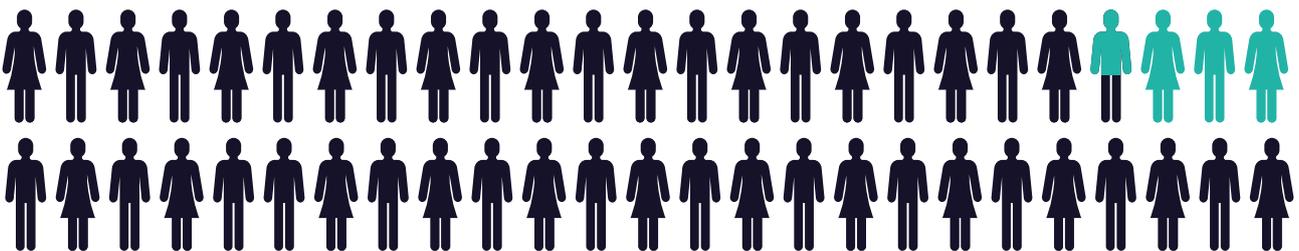
20,000+

REWARDS REDEEMED



93%

of Bower users were positive towards the idea of a Digital Deposit Return Scheme





85%

conversion rate, with more than 8 in 10 customers registering on the Bower app during the trial.

The registration rate for other coupon and reward apps is 60%, and is 33% for app types of apps¹, demonstrating the interest consumers have in claiming rewards for recycling.

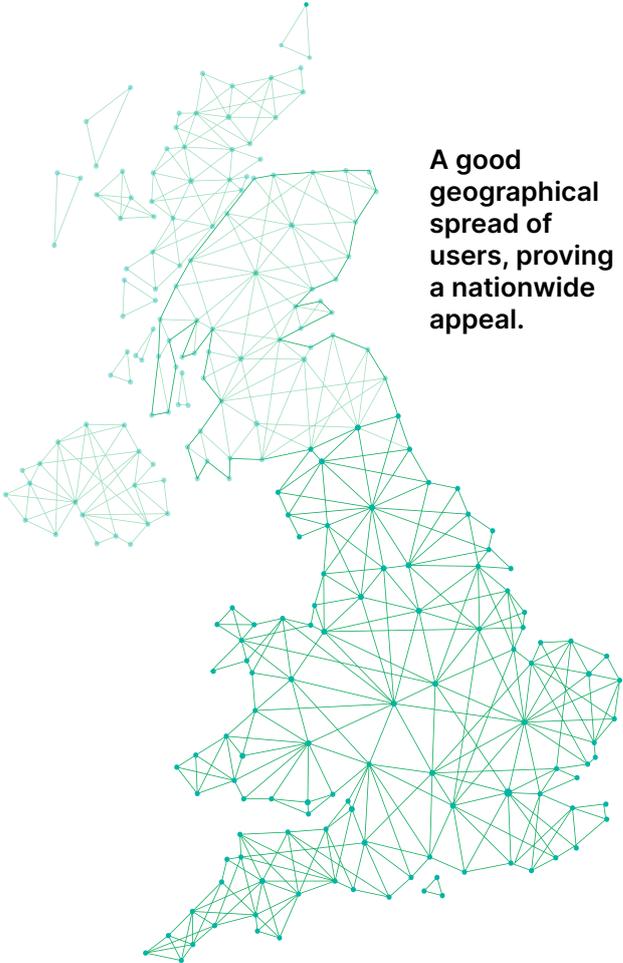


87%

of people who scanned a product also recycled the packaging

7.5 BOTTLES

are recycled by users, on average, proving that there is an appetite to recycle using the app



A good geographical spread of users, proving a nationwide appeal.

¹ <https://www.statista.com/statistics/1021309/global-mobile-shopping-app-user-acquisition-rate-type/>

Conclusion

This unique, world-first trial proved to be a complete success, highlighting the undeniable appetite from customers for retailers to offer recycling initiatives, whilst proving the country is ready for a deposit return scheme that embraces digital technology.

The scalability of Polytag and Bower's offering was key to the project, meeting the demands of thousands of consumers at a rate of over 350 a day.

For Ocado Retail, what set this venture apart was the unparalleled depth of data insights and the opportunity to harness customers desire to recycle more to transform the recycling rates in the UK, enabling the retailer to make informed decisions and adapt to the ever-evolving market landscape.

Perhaps the most encouraging aspect of this nationwide trial is that the success underscored the potential for wider activity and its ability to resonate with a broad consumer base. The results provide both Ocado Retail, Bower and Polytag with a comprehensive understanding of customer preferences and perceptions, further fuelling Ocado Retail's strategic planning.

The combination of customer enthusiasm, scalability, unique data insights, and promising trial results positions Ocado Retail for future success and growth.

Armed with new information, Polytag and Bower are poised to help the online grocery retailer drive its business forward and further solidify it as a leader in the circular economy.



The scalability of Polytag and Bower's joint offering was key to the project, meeting the demands of thousands of consumers at a rate of over 350 a day.





www.polytag.io
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