

The second barcode revolution

They can be found on Mars rovers and ocean floors, in operating rooms and particle accelerators, on weaponry and church vestments, on children's toys and giant earth-moving equipment," writes Paul McEnroe, who led the team at IBM that first created barcode tech – from the design of the lines to the handheld scanner – in his book *The Barcode*.

And, of course, they're on practically every product in the supermarket, too. The barcode – or Universal Product Code – is simply everywhere. As McEnroe puts it: "so pervasive, its use so common, that it's difficult to measure".

But half a century since a barcode was first scanned on a 10-pack of Wrigley's Juicy Fruit at Marsh Supermarket in Ohio (the 50th anniversary of the first UPC beep was in June), one of grocery's most significant technologies is beginning to show its age.

Plans are now underway for the grocery sector to ditch the UPC completely. In its place, the not altogether unfamiliar, new-ish (30-year-old) kid on the block: the

QR (quick response) code. So, has the barcode had its day? What extra benefits will the QR code bring? And why is the ever sensible and sober barcode administrative body GS1 claiming the swap will be "the most significant transformation the sector has seen in decades", which will "shape the future of retail for years to come"?

The standard barcode seen in supermarkets is, simply put, a machine readable 'Global Trade Item Number' (GTIN) – a globally unique number, granted by GS1, and used to identify a specific SKU. Referred to as a one-dimensional barcode (its lines of varying thickness are arranged in a line) today's standard barcode is very much that, GS1 says.

In short, though its capacity for data has been incredibly useful, it's increasingly limited versus the 4,000-plus alphanumeric characters that can be contained in a two-dimensional QR code.

QR codes might typically be thought of as URLs that can be read by a smartphone camera. But those issued and administered by GS1 contain much more. The URL link is still there, but so is a product's GTIN and, if required, its batch number, serial number, expiration date, packaging date, net weight and country of origin.

Simply put, the GS1 QR code "can carry more information" explains Iain Walker, GS1 director of industry engagement, but still "goes beep at the till".

Scan for the story

So-called 'connected experiences' for consumers – most commonly powered by on-pack or in-marketing QR codes – have been around for some time, with fmcg among the most mature adopters across all sectors. Some 96% of fmcg brands already use these connected

experiences in the UK, according to a May survey by marketing agency SharpEnd, and 71% report they are of rising importance.

The majority (92%) plan to increase investment in the next 12 months, to drive sales, first party data and loyalty, they say.

And while 'scan to enter a competition' type codes are common, increasingly QR codes are being used to go one step further, used to share brand stories, recipe ideas or launch augmented reality experiences.

"Unlike generic scan-to-win QR codes, QR codes powered by GS1 digital link empowers brands to tell more of a story," says Jake Norman, managing director of OAL, which provides automation and labelling system services to food manufacturers.

Given the codes are unique to each product batch too, consumers could, for example, "find out more about the farm and grower where your strawberries are picked", he adds. "We know at a pack level the exact time and raw materials that have been used to make each product – so consumers could know the exact time the strawberries were picked."

In that way a shopper scanning a QR code, says Walker, isn't taken to "just a dead web link but →

“A switch to QR codes will be the most significant transformation the sector has seen in decades... shaping the future of retail”

George Nott

The standard supermarket barcode is nearing the end of its useful life. In its place, a new generation of QR codes have the potential to transform retail. Are you ready?

technology 2d barcodes

DOMAIN NAME



BATCH



ENTRY DATE



<http://id.bringoutthebranston.co.uk> /01/ 05060336506022 /10/ ABCD /21/ 123?17= 241225

GLOBAL TRADE ITEM NUMBER (GTIN)



SERIAL NUMBER



It's about much more than a 'beep at the till'

● “Almost anything that you would want to know about a product can be coded into the QR code in a standardised way, so that no matter who or what reads it, it will be understood,” says GS1 of its new standardised QR code.

● Like any other QR code, QR codes powered by GS1 include an address for a web page that will open when scanned with a smartphone. However, the brand owner can also link to multiple web pages or databases and change the link without changing the code.

● Crucially, the GS1 QR codes also include a machine-readable Global Trade Item Number, just as a 1D barcode so it “still goes beep at the till”.

● The code can also include additional information, including batch number, serial number, expiry date, packaging date and more, with set ‘syntax’ so they can be read and understood by supplier and retailer systems.

information on the actual product [they’re] buying”.

Mowi Salmon – the world’s largest producer of Atlantic salmon – for example, has introduced on-pack, GS1-powered QR codes that can be scanned to show, for each individual cut of fish, where and when the roe was hatched, how that particular salmon was processed when it was harvested, as well as the facility it was processed in and how long it was there.

It means the consumer can “fully understand the care that has gone into their food, and the journey along which it has come” the company says.

Total recall

At present, when a product recall is launched, retailers are sent point of sale recall notifications, which detail the reason for the recall, product details, likely affected batch numbers, an image of the potentially dangerous product and “clear direction on what consumers should do”, says the Food Standards Agency.

Retailers in turn must issue this notification to stores and “inform consumers of the recall” based on the material provided. It usually takes the form of a print-out put somewhere near the door of the store.

The effectiveness of the process has long been questioned, given 62% of shoppers had not seen, heard or read any information regarding a food recall in the previous year despite incidents occurring on a weekly basis, according to FSA research. Even when they do, they must then scour packs for batch numbers and expiry dates.

The QR code – and crucially the batch and serial number data held within it – “enables faster identification of affected products” during recalls, Walker says.

“By linking QR codes to inventory management systems, retailers can quickly locate and remove recalled products from shelves, minimising potential harm to consumers and improving efficiency,” he explains. “Point of sale systems can be updated to recognise batch numbers and block sale of affected products.”

That means “if a recall is required, only the bad batch or bad pack must be removed, not every pack with the same date code”, says Norman.

“For stores, they’ll know exactly how many bad packs have been bought and who by, if linked to loyalty information,” he adds. “The store will know how many bad packs are still on the shelf, making it quicker and easier to manage recalls as well as preventing unnecessary food waste.”

Consumers could also be alerted by their supermarket that they have bought an affected product, or else see the recall notice if they scan the product at home. All of which has the potential to streamline what can currently be a hit-and-miss process.

Labels could also be simplified. Packaging today is laden with product information: barcode, ingredients list, allergy information, recycling symbols, sustainability icons and warnings. Often all repeated in multiple languages. Less and less remains for design and branding. While the inclusion of some of that information is required in regulation, much of it could be replaced by the QR code.

“Their ability to capture and enable access to practically limitless amounts of product information will certainly free up space on pack,” Walker says. “How brands decide to use this space will be up to them.”

The QR code could become one of the most prominent features on front of pack, he believes. “It’s down to the brands,” he says. “It requires a mindset shift of how we think about this information.

“People think, rightly, of a 1D barcode as a thing that executes a transaction at a point of sale. So they wouldn’t think ‘I’ll put it on front of pack’. But [if they think] ‘this is a way to connect with consumers as well as everything else’, it could be made more prominent.”

A survey conducted by GlobalData found that over half (56%) of UK consumers claimed that they would find it useful if the point of origin and sustainability information could be accessed via a QR code on the packaging. According to a GS1 survey earlier this year, 79% of consumers say they are more likely to purchase products with a smartphone scannable QR code that provides additional product information.

“In the long term, brands should use digital channels to communicate product information on-pack, ↗

How five grocery frontrunners are unlocking the potential in QR



Ocado

Last year, the online supermarket launched the first national trial of a digital deposit return scheme using financial rewards. Consumers scan QR codes on own-brand two and four-pint milk bottles, dispose the packaging in a registered recycling bin, then claim 20p back. Ocado's shopper survey found 80% were likely or very likely to scan a QR code for a DRS.



Nutura Organic

Counterfeit baby formula is a growing problem in the APAC region, where Australian brand Nutura has a substantial export market. QR codes are laser-printed on packs on the production line, which consumers can scan to “instantly access the digital product licence plate, allowing them to be certain that the product they have purchased is genuine and safe”.



Tesco

In June, the supermarket confirmed it was piloting GS1's new code. “We know our customers want the opportunity to access detailed product information instantly via their smartphone and we are also always looking for solutions for reducing waste and tracking products more effectively throughout our supply chain,” said Matt Rhind, Tesco supply chain & development director.



Woolworths

The Australian supermarket is applying GS1's 2D codes to fresh meat and poultry products, embedding information including batch, supplier and use by date. In-store teams identify if a product is approaching its expiry date and proactively mark it down “more efficiently than ever before”, a move that is reducing food waste in the category by up to 40%, it says.



Branston

The 102-year-old brand is an early adopter of GS1's QR code technology, a move that's in keeping with its “mission of pairing tradition with innovation. It was among the first to feature it on products sold in major UK mults. A consumer's smartphone scan gives them “instant access to recipe ideas, ingredients and allergens, sustainability and recycling information”.

“As shoppers often use smartphones to browse information before their purchase,” says Ramsey Baghdadi, consumer analyst at GlobalData. “QR codes on packaging are increasingly preferred by consumers for product information and offer opportunities to ensure consumer-brand trust by learning detailed facts about production and locality.”

In transition

The transition from one to two-dimensional codes is already well underway.

GS1 has determined that all retailers will need to ensure their point-of-sale systems can read both 1D and 2D barcodes within the next three years, a project known as Sunrise 2027.

Retailers are mostly ready, with no scanning hardware update required and minimal PoS software changes. Nearly all are ready to roll. “It's not a ‘crikey’ for them,” Walker says, “it's already happening.”

For suppliers, though, the change can be a little more complex. “The ability to shift over to 2D and put a GTIN in is a piece of cake,” Walker says. “It's really straightforward. It's the same capability as before.”

“The challenge is putting more data in – that starts to be a requirement for people further down the chain.”

For some manufacturers, their printers may not be

“It's not a crikey for them, it's already happening”

integrated with other systems to provide batch numbers, or there might not be “an obvious way” to include a QR code on pack, says Norman.

“The pack may be too small to accommodate,” he adds. For clear plastic pots and lids, if the QR was printed on the top or bottom, it wouldn't contrast with the pack contents so it wouldn't scan. Currently the 1D barcode is part of the artwork on the side of the pot, but you can't print on a curved surface. It's an area we're working on closely,” he explains.

None of the challenges are insurmountable, Norman insists. For a period, products will carry both the 1D and 2D barcodes, before the former is phased out completely. And when this switch does happen, “the opportunities are genuinely profound” Walker says.

He cites further potential use cases in inventory management, deposit return schemes and supply chain transparency.

Eventually, of course, even the 2D code will likely ‘disappear’ too. Yes, for now, QR codes are still “oddly compelling”, McEnroe writes. But “a truly successful technology becomes invisible... even if you encounter it dozens of times each day”.

So for now, all eyes might be on the QR code. But soon even “this new generation of barcode technology will fade into the background... as is its destiny.”