

Next Generation Barcodes at Retail Point-of-Sale

Transition to the Next Generation of Barcodes

January 2026

Dear Solution Providers,

For more than 50 years, linear barcodes, used on over one billion products, have enabled seamless digital information flow across the supply chain thanks to GS1 standards. Today, the industry is taking a major step forward: implementing the **next generation of barcodes**, which can carry far more than just the product identifier (GTIN).

These new barcodes can include additional data and create connections beyond the simple “beep” at checkout. These new barcodes are being used in manufacturing, warehousing, logistics and healthcare. They connect businesspeople to the information they need for inventory management, traceability programmes, sustainability initiatives, consumer engagement actions and more. When combined with a **GS1 Digital Link**, they become even more powerful: just like a simple URL, they connect to all types of B2B and B2C information, enabling richer experiences for businesses and consumers.

The industry worldwide has set the ambition that **by the end of 2027, all retail points of sale around the world will be able to read these barcodes**.

What is the Next Generation of Barcodes?

The next generation of barcodes represents a major evolution from the traditional linear barcode. Unlike the first-generation barcode, which only carries a single identifier (GTIN), these new barcodes can store multiple pieces of information in one symbol. This includes product identification plus dynamic data such as expiration dates, batch or lot numbers, weight, price, and even web links for digital content.

There are two GS1-approved formats for these next generation barcodes:

- **GS1 DataMatrix:** A compact, two-dimensional symbol already widely used for variable-weight products and in healthcare. It uses GS1 Element String syntax to encode structured data.
- **QR Code Powered by GS1:** A standard QR code that contains a GS1 Digital Link URI. This makes it scannable at retail checkout and by consumers using smartphones. The GS1 Digital Link acts like a URL, connecting the product to a wide range of business and consumer information, such as traceability details, recycling instructions, or promotional content.

For more information about the next generation barcode, please visit our GS1 Belgilux webpage : [Next Generation Barcodes | GS1 Belgium & Luxembourg](#)

In short, next generation barcodes transform the barcode from a simple identifier into a gateway to rich, actionable data, supporting transparency, efficiency, and digital interaction across the entire supply chain.

Why This Transition Matters

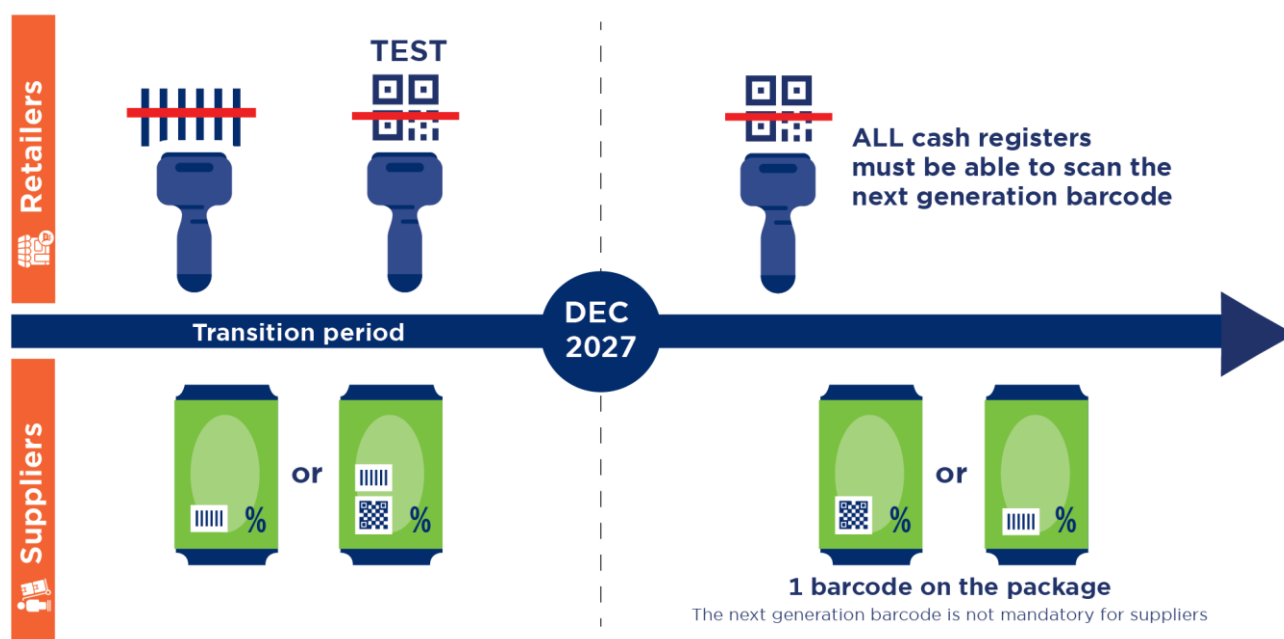
The move to next-generation barcodes is not just a technical upgrade, it's a strategic transformation for the entire retail ecosystem. Traditional barcodes only carry a single identifier, limiting their ability to support modern business needs. Next generation barcodes unlock a new level of efficiency and transparency by enabling richer data exchange at every point in the supply chain.

With these barcodes, retailers and brand owners can embed critical information directly into the product label, such as expiration dates, batch numbers, and traceability details. This capability supports compliance with evolving regulations, enhances food safety, and enables sustainability initiatives like waste reduction and recycling. It also improves operational efficiency by reducing manual interventions, optimizing inventory management, and enabling dynamic pricing for promotional or variable-weight products.

For consumers, next generation barcodes create a direct link to digital content—nutritional information, origin details, certifications, and recycling instructions—accessible through a simple smartphone scan. This strengthens trust and engagement while meeting growing expectations for transparency.

In short, this transition is about future-proofing retail operations, improving resilience, and delivering value to both businesses and consumers. It positions the industry to leverage data-driven processes and digital experiences in ways that were not possible with traditional barcodes.

Implementation Timeline



The transition to next generation barcodes will happen gradually to ensure smooth adoption across the industry. From now until the end of 2027, packaging can feature both the traditional linear barcode and a next

generation barcode side by side. This coexistence period allows retailers and brand owners to upgrade systems and processes without disrupting operations.

Starting in 2028, only one barcode will remain on the packaging, either the traditional linear barcode or a next generation barcode. While using next generation barcodes on packaging is not mandatory for brands, they are strongly encouraged because they unlock advanced capabilities such as traceability, dynamic data capture, and consumer engagement.

This phased approach gives solution providers and retailers time to prepare their scanning hardware, POS systems, and data workflows to fully leverage the benefits of next generation barcodes.

Impact for Solution Providers

The transition to next-generation barcodes requires solution providers to ensure their software and hardware are fully prepared. Your scanning solutions must be capable of reading both GS1 DataMatrix and QR Codes that include a GS1 Digital Link. This means using imaging-based scanners rather than traditional laser scanners, as imaging technology is essential for decoding two-dimensional symbols and extracting structured data.

Beyond hardware, your POS systems and software must be able to process additional data elements embedded in these barcodes, such as expiration dates, batch numbers, and variable weight or price information. This capability will enable retailers to unlock advanced use cases like automated stock rotation, dynamic pricing, and improved traceability.

If you have already invested in GS1 DataMatrix capability, you are ahead of the curve. The next step is to add GS1 Digital Link functionality and implement logic to manage co-located barcodes (when both a linear and a next-generation barcode appear on the same product). These upgrades typically involve scanner software updates and POS configuration changes, rather than a complete system overhaul.

In short, solution providers play a critical role in making this transition successful. By preparing your technology now, you will help retailers meet the 2027 readiness goal and deliver the benefits of next generation barcodes to consumers and the entire supply chain.

The transition is already happening with suppliers implementing next generation barcode on their packaging. Solution providers that accelerate in this transition will have a major competitive advantage.

Resources and Support

GS1 is committed to helping solution providers and retailers successfully navigate this transition. To support you, we provide comprehensive guidelines, tools, and practical resources that outline every step of the implementation process.

The **Global Guideline** is your primary reference: 🖱️ <https://ref.gs1.org/guidelines/2d-in-retail>

This document explains:

- How to implement next generation barcodes in retail environments
- Recommended scanning modes and configuration options for different use cases
- Best practices to avoid issues such as double scanning when linear and next generation barcodes coexist
- Technical considerations for hardware and software upgrades

Retailers worldwide are actively transitioning to next-generation barcodes, and GS1 Member Organizations across the globe are supporting them every step of the way. If you or your retail clients need tailored guidance, GS1 Belgium & Luxembourg is here to help. Our mission is to ensure your solutions are fully prepared so that retailers can adopt next-generation barcodes seamlessly and with confidence..

Conclusion and Call to Action

This transition is a strategic milestone for the industry and an opportunity to strengthen collaboration between retailers and their technology partners. This migration cannot happen without you. Your role is crucial. We count on your commitment to **actively support your retail clients in this evolution** by ensuring your solutions are ready for next generation barcodes and advising them on best practices.

How?

- Review the guidelines and confirm your solutions comply with GS1 standards
- Take the necessary steps to prepare your systems and scanners
- Inform and assist your retail clients throughout their projects

If you have any questions or need support, **GS1 Belgium & Luxembourg is here to help**. Contact us to schedule a technical discussion or receive personalized guidance.

Together, we can make this transition a success and deliver richer, more reliable, and future-ready identification for businesses and consumers.

We thank you in advance for your support

Warm regards,

GS1 Belgium & Luxembourg