Preparing for GS1 Sunrise 2027:

A Practical Guide to QR Codes and Product Traceability

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Executive Summary

The way products are identified, tracked and verified throughout the supply chain is changing. By the end of 2027, retailers, manufacturers and supply chain partners worldwide are expected to be capable of scanning and processing 2D barcodes, including QR codes, at the point of sale as part of the GS1 Sunrise 2027 initiative. This transition represents the most significant change to product identification since the introduction of the traditional barcode more than 50 years ago. [1]

For manufacturers, the opportunities are significant. Enhanced consumer engagement, greater traceability, improved product data management and stronger recall capabilities are all made possible by QR technology. However, the transition also introduces new challenges around data accuracy, code quality, verification and compliance. [1], [2]

This whitepaper explores what GS1 Sunrise 2027 means for manufacturers, the risks of failing to prepare, and how scanning and verification technologies can help businesses make a successful transition.

Understanding GS1 Sunrise 2027

For decades, linear barcodes have provided a reliable method of product identification. Their limitation, however, is that they contain only a relatively small amount of information, typically identifying the product SKU and little else. [1]

The GS1 Sunrise 2027 initiative is driving the adoption of 2D barcodes, including QR codes, which can hold significantly more information while occupying a relatively small space on packaging.

These codes can carry:

- Product identification data
- Batch and lot information
- Expiry dates
- Traceability information
- Manufacturing data
- Product authentication details
- Consumer-facing information

They can also be scanned by consumers using smartphones, providing direct access to digital product information and enhanced transparency. [1]

By the end of 2027, organisations across the retail and supply chain ecosystem are expected to be capable of reading and processing these next-generation codes. [1]

Why Manufacturers Need to Act Now

Although the end of 2027 may appear distant, implementing effective QR code management requires much more than simply printing a new symbol on packaging.

Manufacturers must ensure that:

- Codes are printed correctly.
- Data contained within the code is accurate.
- Codes remain readable throughout the production process.
- Product information matches packaging and labelling.
- Systems can capture and retain traceability records.
- Production lines can detect and remove incorrectly coded products. [2], [3]

As QR codes become increasingly important to product identification and compliance, the consequences of errors will become more significant.

A damaged, unreadable or incorrectly generated code could affect supply chain visibility, customer confidence and regulatory compliance. [1], [2]

The Growing Importance of Product Traceability

Traceability has become a critical requirement across many sectors, particularly food, beverage and consumer goods manufacturing.

Retailers, regulators and consumers increasingly expect manufacturers to provide complete visibility throughout the supply chain. QR codes offer a practical way to connect products with extensive digital records and production data. [2]

Benefits of enhanced traceability include:

- **Faster Product Recalls**
  When a product issue occurs, accurate traceability data helps manufacturers identify affected batches quickly and precisely. This can reduce recall costs and limit disruption. [3], [2]
- **Improved Quality Assurance**
  By linking production data directly to individual products or batches, manufacturers gain greater visibility into process performance and potential quality concerns. [2]
- **Enhanced Consumer Trust**
  Modern consumers increasingly expect transparency regarding ingredients, sourcing, sustainability and product authenticity. QR codes provide a direct route to this information. [1]
- **Better Audit Performance**
  Detailed electronic records and audit trails can simplify customer audits and support regulatory requirements. [2]

The Hidden Risk: Incorrect Labelling and Coding

While QR codes offer significant benefits, they also increase the importance of data accuracy.

Mis-labelling remains one of the leading causes of product recalls. According to WMH's industry observations, recalls continue to increase, with errors involving ingredients, batch codes, date codes and labelling carrying substantial financial and reputational consequences. [3]

The impact of a coding or labelling error extends far beyond the direct cost of a recall and can include:

- Retailer chargebacks
- Product disposal costs
- Lost production time
- Regulatory investigations
- Brand damage
- Loss of consumer confidence
- Environmental waste associated with recalled products [3], [1]

As QR codes begin carrying more critical information, manufacturers will need greater confidence that every code leaving the factory is both accurate and readable. [1], [2]

Why Verification Matters

Historically, many production lines have focused simply on printing barcodes and assuming they can be read.

Under GS1 Sunrise 2027, that approach may no longer be sufficient.

Manufacturers must ensure that:

- The correct code is present.
- The encoded information is accurate.
- The code meets readability standards.
- The code matches the associated product.
- The correct packaging, lid or label is applied.
- Production records are retained for future auditing. [2]

Verification transforms a QR code from a printed symbol into a trusted source of information throughout the supply chain.

How Automated QR Code Verification Supports Compliance

Automation plays a critical role in ensuring consistency and accuracy at production speeds.

WMH has developed QR code scanning and verification systems capable of using multiple high-speed cameras to create a complete 360° view of a product. This allows codes to be captured and verified regardless of product orientation. [2], [4]

The systems can:

- Read and decode QR codes at high speed.
- Verify code quality and readability.
- Compare product and packaging information.
- Confirm lid-to-product matching.
- Capture production data.
- Maintain audit records.
- Trigger alarms or automated rejection of defective products.
- Integrate with factory traceability systems. [2]

In practical trials, WMH's technology successfully scanned and identified products at production rates up to 200 products per minute while ensuring coded information matched associated packaging. [4], [3]

Preparing Your Operation for Sunrise 2027

Manufacturers should begin planning now to avoid last-minute implementation challenges.

- **Review Existing Identification Processes**
  Assess current barcode, labelling and traceability procedures. Identify areas where QR code adoption will affect production operations.

- **Evaluate Print Quality Controls**
  Ensure packaging and coding equipment can consistently produce high-quality, readable QR codes.

- **Introduce Verification Systems**
  Implement inspection technology capable of validating both code quality and data accuracy before products leave the facility.

- **Strengthen Traceability Infrastructure**
  Ensure production systems can capture, store and retrieve relevant product information for audit and recall purposes.

- **Engage Supply Chain Partners**
  Work with retailers, packaging suppliers and systems providers to establish a clear roadmap for Sunrise 2027 readiness.

The Business Opportunity Beyond Compliance

While much attention is focused on compliance, Sunrise 2027 also creates opportunities.

Manufacturers that embrace QR technology early may benefit from:

- Improved operational efficiency
- Reduced recall risk
- Better product data management
- Enhanced consumer engagement
- Stronger customer confidence
- Greater supply chain visibility
- Improved brand protection [2], [1]

Rather than viewing the transition as a regulatory obligation, forward-thinking businesses can use it as a catalyst for broader digital transformation and process improvement.

Conclusion

GS1 Sunrise 2027 represents a fundamental shift in product identification and traceability. As QR codes begin replacing traditional barcodes across global supply chains, manufacturers will need to ensure not only that the right code appears on every product, but that the information contained within it is accurate, verifiable and fully traceable. [1], [2]

The organisations that begin preparing now will be best positioned to meet future retailer requirements, reduce operational risk and unlock the wider benefits of enhanced product data and traceability.

Investing in robust QR code scanning and verification systems today can help manufacturers build confidence in their coding processes, protect their brands and ensure they are ready for the next generation of product identification. [2], [3], [4]

References

1. **Western Mechanical Handling UK Ltd (WMH).** *The Next Generation of Barcodes: Preparing for the 2D Revolution*. Published 7 May 2026. Available at: https://www.wmh-uk-ltd.com/qr-codes-are-set-to-replace-bar-codes-on-packaging/ [wmh-uk-ltd.com]
2. **Western Mechanical Handling UK Ltd (WMH).** *QR Code Scanning & Verification*. Available at: https://www.wmh-uk-ltd.com/core-areas-of-expertise/qr-code-scanning-verification-systems/ [wmh-uk-ltd.com]
3. **Western Mechanical Handling UK Ltd (WMH).** *The Cost of Mis-Labelling: How Automation Can Prevent Costly Recalls*. Published 10 June 2025. Available at: https://www.wmh-uk-ltd.com/the-cost-of-mis-labelling/ [wmh-uk-ltd.com]
4. **Western Mechanical Handling UK Ltd (WMH).** *QR Code Scanning Success*. Published 21 March 2023. Available at: https://www.wmh-uk-ltd.com/qr-code-scanning/ [wmh-uk-ltd.com]
5. **GS1.** *GS1 Sunrise 2027 Initiative*. Available at: https://www.gs1.org/standards/2d-barcodes/sunrise-2027 (accessed October 2026).

About WMH

Western Mechanical Handling UK Ltd (WMH) designs and manufactures automation, solutions for the food and pharmaceutical industries. Its QR code scanning and verification systems help businesses improve product integrity, enhance traceability, reduce recall risk and prepare for the transition to GS1 Sunrise 2027. [2]

Talk to WMH About Your GS1 Sunrise 2027 Readiness

Whether you're assessing your current coding processes or planning a complete traceability strategy, WMH can help you prepare for the transition to 2D barcodes and QR code verification.

Contact WMH to discuss QR code scanning, verification and traceability solutions for your production line.

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