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# **GS1 US Discusses Sunrise 2027 Ambitions for 2D Barcodes**

**The initiative by the standards**

# **organization could bring traditional 1D barcodes into the 2D world of data matrix and QR-codes.**

After five decades of barcode use at the point of sale, the technology may be evolving with the introduction of 2D barcodes (QR codes and data matrix codes) for product purchasing.

The Sunrise 2027 initiative from standards ground GS1 and its industry members could mean that the printed 2D barcode, if adopted across products, can be used for purchasing but also can provide a host of other data that could have value to consumers and other constituents of the product's supply chain.

Jonathan Gregory, GS1 US' global standards director and Amy Reiter, GS1 US' senior director of community engagement presented the details of the initiative this week at RFID Journal LIVE! 2024.

## **How it Could Work**

Imagine, for instance, a 2D barcode printed on the packaging of a food item, that connected users with the story of their product, when and where it was made, what its ingredients are, and when it will expire. A QR code can link an individual with a smart phone to content, as well as to websites where they can gain yet more information.

For UHF RFID technology that is being applied to goods, it means the opportunity to link the encoded RFID chip, on a product, with the product's 2D barcode data. In that way, a QR code scan could potentially draw from data gathered by both forms of technology.

In fact, the use of 2D barcodes may drive further RFID

adoption in areas such as perishable foods that are not yet widely tagged with RFID, Reiter speculated.

## **Industry Driving a Change in Barcodes**

The GS1's Sunrise 2027 initiative is an industry set program at which the 2D barcodes can be accepted for point of sale or point of care in 2027. With a single scan on a smartphone, consumers can get information like nutritional details, allergens, sustainability and sourcing data, as well as any other web engagement activities.

That same barcode can be scanned at point of sale for price lookup at a stores. At a hospital, it could be scanned at the patient bedside for medication administration. There are potential applications for the 2D barcode throughout the supply chain processes related to inventory management and recall response as well.

The initiative delivers synergies between 2D barcodes and RFID, said Gregory.

## **Consumer Demands for Data**

The change in barcoding is necessary in light of a shift in company demands to trace items with unique identification. Legislation such as the Digital Product Passport (DPP) requirements in the EU could provide further incentive to enhance what kind of data a barcode can store.

Gregory noted the irony that with this initiative, barcodes could end up powering the growth of RFID, counter to it being billed as an alternative or replacement for barcodes.

The initiative follows another standards change related to data stored on UHF RFID tags, known as TDS 2.0, aimed at storing information that will be of value to companies in food industries. The change enables tags to be encoded with more than just the standard EPC code, but data such as a product's expiration data.

With a QR code, the product could then benefit from two data carriers.

## **The Time is Right for Change**

The UPC barcode that is in use today was launched 50 years ago to get people through checkout lines faster, said Reiter. It still works well at moving products through the point of sale, but initiative aims at employing QR codes that can provide greater content, and still be scanned as a standard barcode tag with the existing barcodes scanners used in stores.

Reiter predicted RFID and barcodes will work together in the future, as she sees the data from the QR code and the RFID tag storing data related to sustainability, traceability, safety (related to recalls) and consumer engagement.

“We are working with the industry to move toward that reality,” said Reiter. The group intends to pilot the 2D barcoding with retailers and brands.

Some challenges are still being addressed, including how to encode an RFID tag with the same ID as the QR code. For instance, some products come with embedded RFID tags that may not be encoded at the same time that the QR code is printed.

“We will be working with the industry on how to go about designing a failure proof encoding system,” Gregory said.

## **Key Takeaways:**

- GS1 is pursuing a transition in barcode technology with Sunrise 2027 that will introduce 2D barcodes on products as identifier, and PoS scanning source.
- When linked to an RFID tag on a product, the QR code can provide content to a consumer or other smartphone user, related to the product’s history including, potentially, its RFID tag data.



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