

CSCMP hottopics

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The Next Dimension of Information: Two-Dimensional Barcodes Supercharge Product Transparency

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Industry is moving forward with a plan to migrate from the linear Universal Product Code (U.P.C.) barcode, used for over 50 years to identify products and facilitate price lookup at retail, to a 'new dimension' with more powerful technology that does much more.

Retailers and brands, in collaboration with GSI US, recently set a timeline for transitioning to two-dimensional (2D) barcodes, which will significantly upgrade supply-chain efficiencies and open a world of possibilities for transforming the consumer experience. Since a 2D barcode (such as a QR Code or GSI DataMatrix) can carry exponentially more data than the linear UPC, it can be used to support interactive brand promotion, advanced analytics, improved supply chain visibility, and greater customer engagement strategies. With that, brands and retailers will be empowered to meet consumers' growing appetite for information and engagement in a digital world, while also informing their own operational processes for continuous improvement that keeps pace with an incredibly dynamic and unpredictable market.

Dubbed "Sunrise 2027 – A New Dimension in Barcodes," the plan lays out a pathway to implementation where all retailers will be able to accept 2D barcodes at the point-of-sale (POS) within the next five years. GSI US, as a neutral global standards body, is coordinating the effort to ensure that recommendations and guidance include the needs of all stakeholders, helping produce a fully interoperable solution that will work for all parties in the value chain.

As the transition is underway, now is the time for industry to prepare for the migration to 2D barcodes.

CONSUMERS WANT TO ENGAGE

Now more than ever, consumers are seeking more detailed information about the products they buy, for a variety of reasons. Some are specifically concerned about ingredients or materials, others about sustainability or fair trade. They are taking an active interest and aligning with products that meet their individual needs and brands that connect with their personal values. There is widespread agreement that the pandemic magnified consumers' awareness and commitment to personal and social responsibility, a shift that is expected to stick.

At the same time, people have become increasingly comfortable with digital technology, using their mobile phones to perform all kinds of tasks, from banking to texting to – of course – shopping. It has become a primary means of acquiring information.

The convergence of these two consumer trends is a perfect setup for the transition to data-rich 2D barcodes. By scanning the next generation barcodes with their phones, consumers will be able to access an abundance of product information, even linking to unique landing pages on the Internet for deeper engagement.

SUPPLY CHAIN BENEFITS ARE GAME-CHANGING WITH 2D

Trading partners know it's time to meet consumers where they are – leveraging digital technology to enhance interaction with increasingly connected, digitally-savvy shoppers. Moreover, they see high value in harnessing the ability to update product information in real time (accessible to the consumer via the 2D barcode scan), so they can adapt as market conditions change – something that happens at lightning speed these days.

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The increased data capacity of 2D barcodes allows for new functionality far beyond the U.P.C.'s original purpose. It can be used to enable improved inventory management, enhanced recall readiness, clear disclosure of sustainability and ethical sourcing practices, and better product authentication. The ability to analyze the data will allow for many uses cases including discounting, confirming expiration dates, checking lot codes so recalled products don't leave the store, and connecting to loyalty programs. These added, enhanced capabilities will go a long way toward addressing some of the issues that are currently challenging global supply chains.

STAKEHOLDER REQUIREMENTS

Suppliers are driving this evolution as they add 2D barcodes to their products. As they include more dynamic data, they will need suitable barcode printers and the ability to create, store, and share robust data elements that will be associated with products, such as batch/lot number and serial number, in addition to the Global Trade Item Number® (GTIN®) embedded in 2D barcodes.

On the other end, retailers need to ensure they have updated infrastructure and are able to scan, read, and ingest the enriched data carried by 2D barcodes at POS. As with any endeavor linking technology systems and digital data sets between organizations, testing is a crucial step toward implementation so any issues can be worked out before going live.

TESTING TO ASSESS RETAILER READINESS

GSI US offers a new [Barcode Capabilities Test Kit](#) to help retailers evaluate their capability to scan and process 2D barcodes at POS, as well as to support stocking and receiving functions in warehouses and distribution centers as goods move through the supply chain. The Test Kit is part of a phased migration plan that will guide brands through labeling transition considerations while further ensuring reliability of 2D barcode scanning. It serves as a roadmap to Sunrise 2027 and provides guidance on steps retailers need to take to meet the 2027 sunrise date.

The Test Kit was piloted by GSI US with three national retailers and their solution providers to assess their readiness. Results showed a clear need to update POS systems to process 2D barcodes, interpret new data, and maintain efficient checkout. Numerous challenges to scanning, processing and storing data were found, even though the retailers had image scanners installed. The pilot showed that hardware and software infrastructure need modernizing for retail POS systems to process 2D barcodes without slowing down the checkout process.

SYNCHRONICITY

In preparation for 2027, GSI US will continue to work with industry globally to create requirements, conduct testing, analyze results and provide recommendations to optimize 2D barcode placement, read priority and scanning performance in both the dual (U.P.C. + 2D) and single (2D) marking scenarios.

Resources are available to guide retailers' and trading partners' path to readiness for Sunrise 2027, including a [GSI US Advanced Data Carriers at Point-of-Sale Getting Started Guide](#) and implementation support for [GSI Digital Link](#) – the standard that Web enables barcodes by connecting the physical product to the web while providing consumers with instantly updated and brand-authorized content online via a single smartphone scan.

For more information about Sunrise 2027 and the GSI US Barcode Capabilities Test Kit, visit www.gsius.org/sunrise2027.