

Beyond the Barcode: How GS1 Digital Link Transforms Retail



Introduction

Retailers are under increasing pressure to enhance customer experiences, optimize supply chain operations, and meet evolving compliance requirements. While traditional barcodes have addressed these challenges in the past, today's retail landscape demands a more intelligent and dynamic approach to product identification and tracking.

GS1 Digital Link is a transformative step forward, extending barcode functionality to provide real-time product information, traceability, and authentication services. This guide explains what GS1 Digital Link is, how it works, and the essential AIDC capabilities retailers need for successful implementation.

What is GS1 Digital Link?

GS1 Digital Link enhances the traditional barcode by embedding a product's unique digital identity within a 2D barcode or QR code. Unlike static barcodes that store limited product data, GS1 Digital Link connects retailers, consumers, and supply chain partners to more comprehensive, real-time, and dynamic product information.

Key Benefits for Retailers

Enhanced Product Transparency

Retailers can provide customers with up-to-date ingredient lists, sustainability certifications, expiration dates, and origin details—improving trust and regulatory compliance.

Improved Customer Engagement

Customers can scan product labels to access user manuals, promotional offers, and loyalty programs for an enhanced shopping experience.

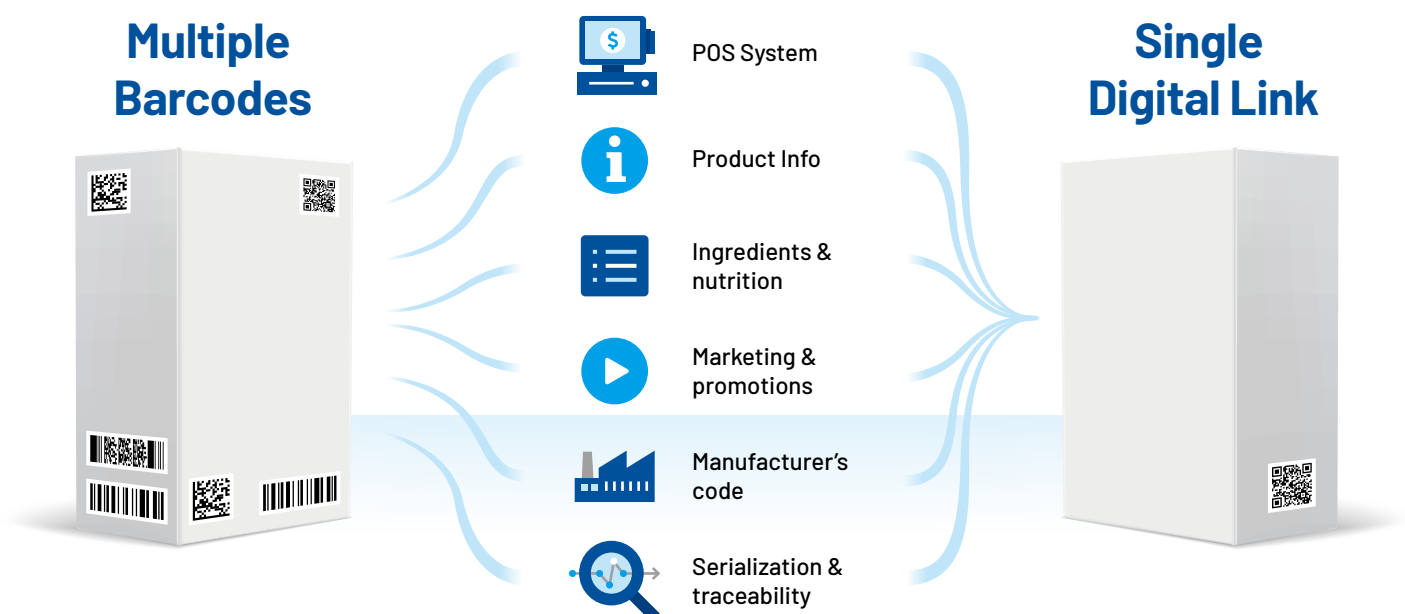
Streamlined Operations

Digital Link reduces labeling complexity, supports multi-channel retail strategies, and ensures readiness for evolving global compliance requirements.

How GS1 Digital Link Works

GS1 Digital Link encodes product data into a 2D barcode or QR code, which can be scanned by mobile devices, POS systems, and enterprise mobile computers. These barcodes contain a structured URL that directs users to a product's digital profile. Retailers can customize the experience for different users, such as consumers, supply chain partners, and regulatory agencies—ensuring relevant and secure access to data.

One data carrier serves multiple functions



Graphic 1. Streamlining Product Access with a Single Digital Link

Retailers can use GS1 Digital Link to:

Optimize Inventory & Supply Chain

Gain real-time visibility into product availability, expiration tracking, and shipment updates.

Simplify Product Labeling

Reduce the need for multiple barcodes by consolidating product information into a single 2D barcode.

Speed up Checkout

Enable frictionless scanning at self-checkouts and mobile POS stations.

Essential AIDC Capabilities for GS1 Digital Link

To maximize the benefits of GS1 Digital Link, it is vital for retailers to invest in AIDC (Automatic Identification and Data Capture) technology that supports seamless integration. The following capabilities are critical:

Table 1: Key Technology Requirements

AIDC Technology	Essential Capabilities
2D-Enabled Reading Systems	<ul style="list-style-type: none">Multiple Barcode Discrimination: Ensures that the correct barcode is read when multiple barcodes are present.GS1 Digital Link Compatibility: Readers must properly decode 2D symbols based on GS1 standards.
Thermal Printers	<ul style="list-style-type: none">High-Quality Printing: Ensures that 2D barcodes and QR codes are crisp, scannable, and compliant with GS1 standards.Efficient Label Printing: Supports on-demand label printing to streamline operations and reduce reliance on pre-printed stock.Durability & Reliability: Handles high-volume, precision printing for retail packaging and labels.
Mobile Computers	<ul style="list-style-type: none">Advanced Scanning Capabilities: Reads 2D barcodes instantly, even in low-light conditions or if damaged.Cloud Connectivity: Syncs with backend systems for real-time product tracking and updates.Rugged & Ergonomic Design: Withstands retail and warehouse environments while ensuring ease of use.

Next Steps for Retailers

Implementing GS1 Digital Link requires strategic planning and the right technology to maximize efficiency and maintain compliance. To get started, retailers can:

Assess Their Barcode & Labeling Needs

Identify gaps in current barcode usage and explore the transition to 2D barcodes.

Upgrade AIDC Infrastructure

Invest in high-quality thermal printers and enterprise mobile computers that support GS1 Digital Link functionality.

Provide Employee Training on Digital Link Use

Ensure staff know how to utilize Digital Link-enabled barcodes for product tracking and customer engagement.

For a complete implementation guide, refer to [GS1's official GS1 Digital Link resource](#) for steps and best practices.

Why TSC Auto ID Group?

TSC Auto ID Group delivers a comprehensive AIDC solution designed to meet the demands of forward-looking retailers adopting GS1 Digital Link. Our expertise in both thermal printing and enterprise mobile computing ensures a seamless transition to 2D barcode technology.

- Industry-Leading Print Quality: Our thermal printers produce high-quality labels that meet GS1 compliance for precise scanning.
- Next-Gen Mobile Computers: Our enterprise mobile computers provide fast, reliable 2D barcode scanning, even under challenging conditions.
- Printer-Mobile Computer Compatibility: TSC Auto ID ensures seamless integration between thermal printers and mobile computers for streamlined retail operations.
- Technical Support and Application Engineering for Successful Implementations: TSC Auto ID offers expert support to help retailers implement and optimize AIDC solutions.
- Future-Proof Solutions: As a leader in AIDC innovation, TSC Auto ID ensures retailers stay ahead in barcode technology and supply chain efficiency.

Are you ready to transform your retail operations? Reach out to TSC Auto ID for expert guidance, and let us help you navigate the future of retail technology.

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