

From GS1 Standards to Trusted Product Identity

Architecting the Enterprise Foundation Before the First Code Is Printed

A GS1-enabled 2D barcode can support far more than a standards transition. Decisions made **before the first code is printed** determine whether the enterprise can later support freshness, targeted recalls, provenance, trusted product experiences and item-level intelligence.^{1,2}



THE PRODUCT IDENTITY ARCHITECTURE^{1,2}

01 DECIDE	02 STANDARDIZE	03 BIND + PRODUCE	04 CONNECT	05 ACTIVATE
Business outcome	GS1 identity	Production	Enterprise integration	Business applications
Product class, batch or individual item	GTIN, Application Identifiers and Digital Link	Carrier, printing, verification and line controls	Resolver, authoritative data and event history	Freshness, recall, provenance and trusted experiences
TRUST	GOVERNANCE	SECURITY	INTEROPERABILITY	

2027

Retail POS readiness for GS1-compliant 2D barcodes³

Results reported by Woolworths Group Australia for selected processes using dynamic 2D barcode data.

UP TO 40%

Lower food waste in selected processes⁴

UP TO 21%

Productivity improvement in selected processes⁴

Once identity becomes dynamic, the production line becomes part of the information system.

1. GS1 Global, 2D Barcodes at Retail Point of Sale Implementation Guideline, May 2024.
2. GS1 US, Getting Started with 2D Barcodes for Brands, 2025.
3. GS1 US, Sunrise 2027, accessed September 2026.
4. GS1 UK, Woolworths Australia Reducing Waste and Boosting Productivity with 2D Barcodes, April 2024.

From Standards to Production

Aligning Standards, Enterprise Requirements and Production Reality

GS1'S IMPLEMENTATION GUIDANCE

"Start by gathering internal stakeholders and solution providers to determine what equipment currently exists and what, if any, upgrades are required."¹

The target architecture should determine the equipment.

THREE FORMS OF EXPERTISE^{1,2}

GS1 Defines the standards foundation Identifiers, data structures, Digital Link and interoperability	ENTERPRISE / BRAND Defines the business and operating requirements Use cases, products, data, production environment and economics	IDENTITY INFRASTRUCTURE & IMPLEMENTATION Translates requirements into production Carrier, printing, identity, integration, validation and scale
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ONE TARGET ARCHITECTURE

Identity granularity, data ownership, production capability, integration and trust

FROM ARCHITECTURE TO ENTERPRISE SCALE¹

01 ALIGN	02 ARCHITECT	03 VALIDATE	04 DEPLOY	05 SCALE
Business outcome	Identity and system design	Production pilot	Operating model	Enterprise expansion

PILOT THE OPERATING LOOP, NOT ONLY THE SCAN.

Validate identity creation, printing, code quality, exception handling and downstream use under representative production conditions.

CREATE · PRINT · VERIFY · HANDLE · ACT

Align the architecture before committing the infrastructure.

Convene the enterprise, GS1 and implementation partners around a target architecture and a representative production pilot.

Laava helps enterprises translate GS1 standards into production-ready **Trusted Product Identity** infrastructure.

1. GS1 Global, *2D Barcodes at Retail Point of Sale Implementation Guideline*, May 2024.
 2. GS1 South Africa, *Alliance Partner Programme*, accessed September 2026.