The Global Language of Business

2D barcodes case study

Lusiaves and BRAINR Unlock efficiency and Set a New Logistics Benchmark with GS1 DataMatrix

By implementing 2D GS1 DataMatrix codes on variable-weight labels and integrating the BRAINR solution into its operations, Lusiaves automated critical internal logistics processes, reduced execution time, and improved data traceability and reliability across its entire value chain

Challenge

As one of the largest poultry producers in Europe, Lusiaves manages thousands of variable-weight products every day for its own operations, export markets, and private label production. While the company already used 2D codes internally, the main challenge was to fully leverage the GS1 DataMatrix standard and ensure seamless integration with both internal and external systems, in line with modern retail distribution requirements.

Solution

With technological support from BRAINR, Lusiaves developed a pilot project involving the implementation of GS1 DataMatrix 2D barcodes with structured data encoded through GS1 Application Identifiers (AIs). This data includes GTIN, batch or lot number, packaging and expiry dates, net and gross weight, SSCC, country of origin and country of slaughter, and specific customer purchase order references. The project covered the application of these codes across all product categories, from fresh and frozen products to packaging materials such as labels and trays. In parallel, the solution was integrated with ERP, WMS, and MES systems through the BRAINR Shop Floor application, enabling instant reading and automatic transaction validation.

Benefits

Higher operational efficiency. Fewer errors and read failures. Full integration with internal systems.

Driving Logistics Efficiency through GS1 DataMatrix Standards

The adoption of GS1 DataMatrix had a direct impact on logistics efficiency at Lusiaves by automating key shop floor and internal logistics processes. Encoding multiple data elements in a single symbol allows fast and reliable scanning, significantly reducing the time required for picking, receiving, shipping, and internal product movements. Today, these operations are performed in approximately one-third of the time previously required.

The use of 2D barcodes also improved data accuracy and end-to-end traceability, which are critical when managing variable-weight products. Unique product identification, combined with integration into ERP, WMS, and MES systems through BRAINR, ensures that data is captured automatically and shared across production, logistics, quality, and IT teams, supporting faster and better-informed decision-making.

GS1 DataMatrix also helps reduce scanning errors and operational disruptions. Because of its compact size, the code can be printed more than once on the same label, increasing redundancy and maintaining readability even if one symbol is damaged. This reduces waste, rework, and process interruptions, making logistics operations more robust and reliable.

The case study demonstrates that the transition to 2D barcodes delivers sustainable value when based on GS1 standards. The use of GS1 Application Identifiers supports interoperability across the supply chain, compliance with retail requirements, and scalability for future automation.

Adapting to GS1 DataMatrix with BRAINR Technology

Lusiaves' transition to GS1 DataMatrix was supported by BRAINR technology, ensuring seamless integration between 2D barcodes and existing production and logistics systems. By embedding structured GS1 data into DataMatrix symbols, Lusiaves streamlined key activities such as picking, receiving, and internal movements, reducing execution time and improving reliability on the shop floor.

Through the BRAINR Shop Floor application, DataMatrix codes are read and processed in real time. All captured data is automatically validated and transferred to ERP, WMS, and MES systems. This ensures data consistency, removes the need for manual entry, and provides real-time visibility across production, logistics, quality, and IT teams.

The combined use of GS1 DataMatrix and BRAINR created a scalable logistics environment designed for future growth. The solution supports variable-weight products, reduces scanning errors through redundancy, and fully complies with GS1 standards, allowing Lusiaves to expand the use of 2D barcodes across its supply chain with confidence.

Shaping the Future of Logistics with GS1 as a Strategic Partner

For Lusiaves, working with GS1 as a strategic partner goes beyond the introduction of 2D barcodes. GS1 standards provide a stable and widely recognised framework that supports a long-term transformation strategy, ensuring operational consistency as the business scales and new automation capabilities are introduced across production and distribution.

Looking ahead, GS1 continues to guide Lusiaves toward more connected, data-driven, and automated supply chains. By aligning with GS1 standards and best practices, Lusiaves can integrate new technologies, strengthen interoperability with partners, and progressively shift from manual verification to system- and machine-driven processes.

"At Lusiaves, a strong focus on logistics efficiency and traceability has always been key to our success. The adoption of GS1 DataMatrix allowed us to standardise how we identify and manage variable-weight products across the entire value chain. By integrating these standards with BRAINR, we moved from fragmented scanning and manual validation to a fully automated, system-driven logistics flow. The result is faster execution, fewer errors, and reliable data t

hat can be shared confidently with customers, partners, and retailers. We are extremely satisfied with the results achieved and see this implementation as a solid foundation for the continued evolution of our logistics operations."

— Carlos Caldeira, CEO Lusiaves Group

Benefits Achieved and Next Steps in the Logistics Transformation

The adoption of GS1 DataMatrix, supported by BRAINR technology, delivered clear benefits to Lusiaves' logistics operations. Standardised data capture at source enabled faster picking, receiving, and shipping, improving overall throughput while maintaining accuracy and consistency across production and logistics.

End-to-end traceability and data reliability were also strengthened. Each product unit can be uniquely identified and tracked throughout its lifecycle, with information available to multiple teams. This visibility supports food safety compliance, simplifies audits, and enables faster responses to quality incidents or recalls.

GS1 DataMatrix also reduced operational risk and waste. The compact symbol allows redundancy on labels, reducing read failures caused by damage or printing issues. Combined with real-time validation through BRAINR, this significantly lowered error rates and rework in high-volume, variable-weight environments.

Looking forward, Lusiaves plans to further increase automation across production and warehouse operations. The next phase focuses on greater machine-based data capture, less reliance on manual scanning, and automatic validation at equipment level. GS1 standards provide the structure needed to support this evolution in a controlled and scalable way.

A further priority is deeper data integration across the supply chain. Continued alignment with GS1 standards will strengthen interoperability with customers, retailers, and logistics partners, supporting smoother data exchange, better collaboration, and improved transparency.

Ultimately, the continued collaboration between Lusiaves and BRAINR ensures the organisation is well prepared for future market, regulatory, and technological changes. By combining standardised data, robust technology, and a clear transformation roadmap, Lusiaves is building a logistics model that delivers greater efficiency today while laying the groundwork for the next generation of supply chain innovation.

Data Encoded in GS1 DataMatrix at Lusiaves

At Lusiaves, GS1 DataMatrix is used to encode a comprehensive set of structured data elements that support operational efficiency and regulatory compliance. Each symbol contains product identification data such as the GTIN, enabling consistent identification across production, logistics, and distribution systems.

The DataMatrix also supports traceability and shelf-life management by encoding key information such as batch or lot number, packaging date, and expiry date. This allows products to be tracked accurately from production through shipment and supports efficient responses to audits, quality checks, and recalls.

For variable-weight products, GS1 DataMatrix encodes net and gross weight, quantities, and logistics identifiers such as the SSCC. This supports accurate stock management, handling of logistics units, and full visibility across internal movements and warehouse operations.

In addition, the DataMatrix can include origin and operational data, such as country of origin or country of slaughter, as well as specific customer purchase order references. Consolidating this information into a single GS1-compliant symbol ensures reliable data exchange and provides a scalable foundation for future automation.

"GS1 DataMatrix only creates value when it becomes part of how food is produced and moved, every day. With Lusiaves, BRAINR connected GS1 standards to a single, cloud-native platform that runs production and logistics end to end. One source of truth. Real-time execution. Full traceability by design. This is how food companies grow at scale while keeping control of what matters."

— Paulo Gaspar, CEO, BRAINR

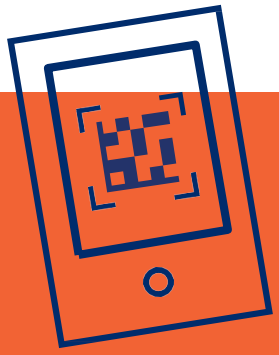
The Future of Lusiaves and BRAINR

Looking ahead, the partnership between Lusiaves and BRAINR will continue to support a shift toward more automated, connected, and data-driven logistics operations. Building on the foundation created with GS1 DataMatrix, the focus will move from manual validation to machine-based data capture and decision-making.

As systems evolve, Lusiaves and BRAINR will expand real-time integration between equipment, shop floor applications, and enterprise systems. This will enable use cases such as automatic process validation, predictive monitoring, and better coordination across sites.

This evolution also changes how logistics operations are managed. Operators will spend less time on manual scanning and verification and more time supervising processes and handling exceptions, supported by intelligent systems.

Together, Lusiaves and BRAINR are creating a logistics model that is more efficient today and better prepared for future demands across production, distribution, and the wider supply chain.



Get started with 2D barcodes by GS1

GS1 is working with industry to support 2D implementations and create guidance for assisting in the design of proof-of-concept demonstration pilots.
At a high level, consider the following elements:

Retailers: create a vision for use cases enabled by 2D barcodes, assess your current technical capabilities (scanners and back-office systems) to understand your roadmap to enable scanning of all barcodes, and collaborate with other stakeholders to ensure alignment on goals and outcomes.
Brands, Manufacturers and Suppliers: bring together your supply chain and marketing executives to collaborate on a combined barcode strategy that achieves both consumer engagement and supply chain goals.
Solution Providers: consider the upgrades needed to your systems to enable multiple barcode scanning/printing and support your end-users in achieving achieve their top use cases enabled by 2D barcodes.

Questions about the 2D future?

Contact your local GS1 Member Organisation to see how GS1 can help you begin your journey toward a new dimension in barcodes!

www.gs1.org/contact

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