



From QR codes to connected experiences: The new era of Food & Beverage packaging

UNLOCKING VALUE AND TRANSPARENCY
WITH SMART, CONNECTED PACKAGING

Introduction

From QR codes that unlock interactive digital experiences to smart packaging features like spoilage-detecting caps and NFC-enabled tags that recommend personalized recipes, food and beverage packaging is rapidly transforming beyond its conventional role of storage and transport.

What was once a passive container, packaging is now emerging as a powerful digital touchpoint - delivering richer product insights, reducing food waste, enabling transparency, and fostering brand loyalty in a price-sensitive market. The question is: how much of this innovation truly delivers meaningful value to both brands and consumers?

What's viable now and why it matters

The industry has hit a tipping point: multiple smart packaging technologies are now feasible at scale because the data behind them can be managed and connected via cloud platforms – such as [Loftware's](#) centralized labeling and packaging solutions. Loftware enables this transformation by integrating labeling with core business systems, ensuring real-time data flows to every label.

[Smart packaging](#) unlocks possibilities and ensures labeling and packaging is dynamic, real-time and data driven. This is achieved by using tools such as QR codes, data matrix, and serialized packaging. Use of these enables [food and beverage](#) companies the traceability, regulatory compliance, and consumer engagement needed all through a single cloud-based platform.

QR codes built on [GS1 Digital Link](#) standards are leading the charge. These codes turn a simple square into a portal for everything from ingredients and allergens to sustainability credentials and recycling instructions. The beauty is that the content of these portals can be updated after the product leaves the factory, provided the data is managed in the cloud.

RFID tags are also gaining traction, particularly in chilled and high-value categories. They give food producers real-time visibility of stock, reduce waste, and improve traceability.

For brands, smart packaging creates a direct, ownable connection with the consumer, powering digital storytelling, ingredient/allergen clarity, sustainability disclosures, and promotions that

can be refreshed dynamically. For the food and beverage industry, it means better track and trace, faster and more targeted recalls, improved inventory accuracy and less waste.

When smart packaging is driven by an integrated and cloud-based labeling platform - pulling dynamic data from business systems such as ERP, MES, WMS and PLM - it ensures that every product is labeled correctly, tracked, and compliant across the supply chain. That is a big win for both cost control and consumer trust.

Real-world innovations

According to Future Market Insights the smart packaging market is growing rapidly (expected to expand from \$26.3B in 2025 to \$40.8B by 2035) as industries adopt intelligent and interactive solutions to strengthen safety, traceability, and consumer trust. What was once a niche innovation is now becoming mainstream, as regulatory pressure combines with consumer demand for greater transparency and reassurance.

Retailers are already taking steps forward. Several supermarket chains have introduced QR codes that pull allergen, ingredient, and sustainability information directly from the cloud, ensuring that shoppers have access to the most accurate, real-time data at the point of purchase. This marks a shift from static, printed labels to packaging that is dynamic, responsive, and adaptable.

Beyond QR codes, brands are beginning to trial dynamic labeling, where information can be refreshed after packaging has been printed. These innovations are only possible when labeling platforms like [Loftware's](#) are integrated with ERP, MES, and WMS systems, allowing live data to flow seamlessly to the package.

In chilled and high-value categories, smart temperature-sensitive labels are being evaluated to monitor freshness across the supply chain, giving retailers the ability to proactively manage stock, reduce waste, and guarantee quality.



Return on investment (ROI) and challenges

One of the biggest misconceptions about smart packaging is that it demands a huge upfront investment. In reality, cloud-based labeling platforms have significantly lowered the barrier to entry. The real challenge is not printing a code on a pack — it's ensuring the data behind it is accurate, connected, and accessible.

If labeling systems are fragmented, smart packaging quickly becomes complex. Software's cloud-based platform lowers the barrier to entry by centralizing data and streamlining integration with important SAP, Oracle, and other enterprise systems. The challenge is not printing a code — it is ensuring the data behind it is accurate, connected, and accessible — that every scan delivers reliable, relevant information at scale.

ROI is tangible across several fronts. Fewer recalls and faster response times reduce losses when issues arise. Dynamic labeling provides the agility needed to keep pace with evolving compliance requirements. And better stock visibility and freshness monitoring cut waste, directly improving margins.

There is also clear ROI from the consumer side. With QR scanning becoming part of everyday behavior — and the retail industry shifting to 2D barcodes by 2027 — adoption is set to accelerate. As a result, smart, connected, and interactive packaging is on track to evolve from a differentiator into a customer expectation.

What's next for smart packaging?

Compliance will continue to push adoption, whether that is around sustainability, food safety, or global traceability regulations. Software is at the forefront of enabling intelligent packaging that adapts in real time — driven by AI, IoT, and cloud connectivity. Think of labeling updates that are based on supply chain disruptions or local regulations.

Being able to dynamically generate labels and packaging content based on live business data is going to be essential as supply chains get more complex and consumers demand more information at their fingertips.

Smart packaging is no longer a nice-to-have. It is becoming the backbone of safe, transparent, and efficient food systems. Businesses that act now will not only stay compliant but also build stronger consumer connections and more resilient supply chains.

Loftware is at the forefront of this shift by advocating for modern supply chains that operate in open, interconnected ecosystems — not in isolated silos. By driving cloud-enabled collaboration and standardization, Loftware helps businesses adapt faster, operate more efficiently, and respond to supply chain disruptions with greater agility. Loftware offers all-in-one centralized cloud-based labeling solutions that redefine how food and beverage companies create, manage, and print labels across the entire supply chain. With Loftware's modern labeling and connected packaging solutions, organizations can extend labeling and artwork to suppliers, draw data from sources of truth, control stage gate processes, reduce IT maintenance, enable data-driven labeling, ensure compliance, increase consumer engagement, and drive continuous improvement across the enterprise.

No matter what the challenge — digital transformation, time to market, or brand authenticity — Loftware can help you make your mark. We understand how global supply chains work and know that each item you produce and ship is an expression of your company's brand. This is the vision of an organization that is powered by the full scope and breadth of Loftware solutions — where a fully activated supply chain and connected packaging deployment can transform your global operations. We can help you improve accuracy, traceability, and compliance while improving the quality, speed, and efficiency of your labeling.

Loftware is the global leader in product identification and connected packaging. Our cloud-based solutions power real-time collaboration, ensure compliance, improve authenticity, and deliver supply chain traceability from product development to consumer engagement. We provide scalable, data-driven labeling and packaging technologies that help companies boost speed to market, enhance efficiency, and connect physical products to digital experiences. Trusted by global brands and backed by over 40 years of innovation, Loftware supports customers across industries with offices in the US, UK, Slovenia, China, and Singapore.

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