

2026

Packaging Trends





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Introduction

To say that the packaging industry is in a state of flux would be an understatement. Global regulations, evolving consumer expectations, and rapid technology shifts are converging to shake up the status quo, including how packaging is designed, produced, and delivered. The choices made in the next few years will define not only competitive advantage, but also the industry's contribution to a more sustainable, digital, and efficient future.

This eBook explores three interconnected forces impacting packaging in 2026:

- **Sustainability:** As legislation accelerates and reporting becomes financially material, sustainability has moved from aspiration to obligation.
- **Smart Packaging & the Digital Product Passport (DPP):** Packaging is becoming a digital information carrier that promotes transparency, traceability, and trust.
- **Agentic AI:** Artificial intelligence is advancing from simple automation to intelligent systems that change how packaging teams create, manage, and deliver work.

Each chapter combines market analysis, expert insight, and Esko's perspective on what these trends mean in practice—for brands, converters, and the people who work with packaging every day.

Our goal is not simply to forecast what's coming, but to help you prepare, adapt, and thrive in the changing landscape.

Foreword

Packaging has always evolved in response to the needs of society. But the pace of change we are experiencing today is unlike anything before. And, as I often tell customers, this pace is only going to accelerate. The invention and adoption of technologies such as artificial intelligence, coupled with tightening sustainability regulations and new forms of digital packaging intelligence, are reshaping our sector in fundamental ways.

Sustainability will continue to remain one of the strongest drivers of change in our industry. The role of smart packaging in 2026 and well into the future will enable product passports, providing traceability and consumer engagement opportunities. What makes smart packaging exciting is how brands will use it to continue to connect with consumers. And then there is perhaps the most hyped of the trends: AI. It will take time before companies fully understand where AI delivers value and where it does not. But its potential is undeniable.

Ultimately, whether we are talking about sustainability, smart packaging, or AI, the principle of competitiveness in packaging remains constant: it's all about creating value for your customer. If new substrates, new technologies, or new processes help you get to market faster while delivering that value, then those are worthwhile uses of our time.

This eBook brings together insights from industry experts and technology leaders to explore these trends in depth. My hope is that the perspectives you'll read here will not only inform your strategies but inspire you to embrace the challenges our industry faces.



Jan De Roeck

Marketing Director, Esko



CHAPTER 1

Self-Optimizing Packaging Workflows

Defining the Trend

For years, automation in packaging followed a predictable pattern: rule-based systems built around pre-defined templates, workflows, and extensive human input. Whether placing nutrition panels, resizing ingredient lists, or routing approvals, people dictated every step, with machines carrying out repeatable instructions. Early large language models (LLMs) offered some progress, but they were largely reactive— “sentence completers” that responded to prompts without the ability to be creative.

Agentic AI marks a clear departure. Instead of waiting for input, agentic systems act autonomously using its learnings from the codified domain knowledge and analyzing data patterns. They have the capacity to reflect on a goal, take proactive steps, and execute a plan.

David Crow, Director of Packaging Intelligence for Esko’s Packaging Lifecycle Management Platform, likens this to a travel agent, stating,



“The key paradigm with agentic AI is the concept of agency—the ability to reflect on the goal given, take proactive steps, and execute a plan towards that goal. I often use the travel agent analogy because the traveler presents a goal, the agent then uses tools, proposes options, and acts on feedback to complete the task.”

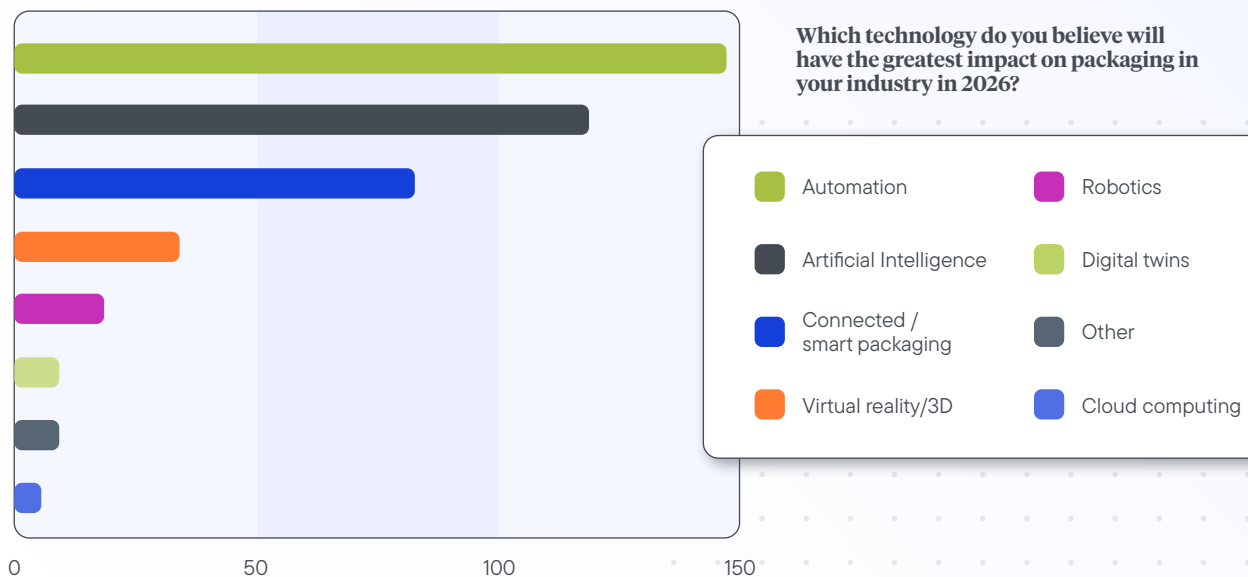
Applied to packaging workflows, AI agents assess requirements, gather data, test possibilities, and move work forward with minimal handholding. They provide higher precision and speed in identifying data anomalies and patterns.

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Srinivas Kuppa, Esko's Chief Product Officer, explains the evolution this way: predictive AI focuses on data analysis for specific tasks (like barcode analysis), while multimodal generative AI offers broader, more interpretive capabilities using natural language and vision.

That shift is reflected in industry sentiment too. In Esko's 2026 Packaging Trends Survey, 119 respondents identified artificial intelligence as one of the technologies with the greatest impact on packaging by 2026, second only to automation.



Today, agentic AI connects these steps into an adaptive, end-to-end workflow that not only executes tasks but learns from them.

“Creating individual automation steps and then tying them together almost like the pearls of a necklace into an intelligent end-to-end workflow is very agentic. It significantly reduces human labor, lowers complexity, and captures the tribal knowledge that was previously stuck with people.” Kuppa said.



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However, agentic AI varies in autonomy. Weak agents still wait for human initiation while strong agents can launch processes independently as seen in financial trading systems.

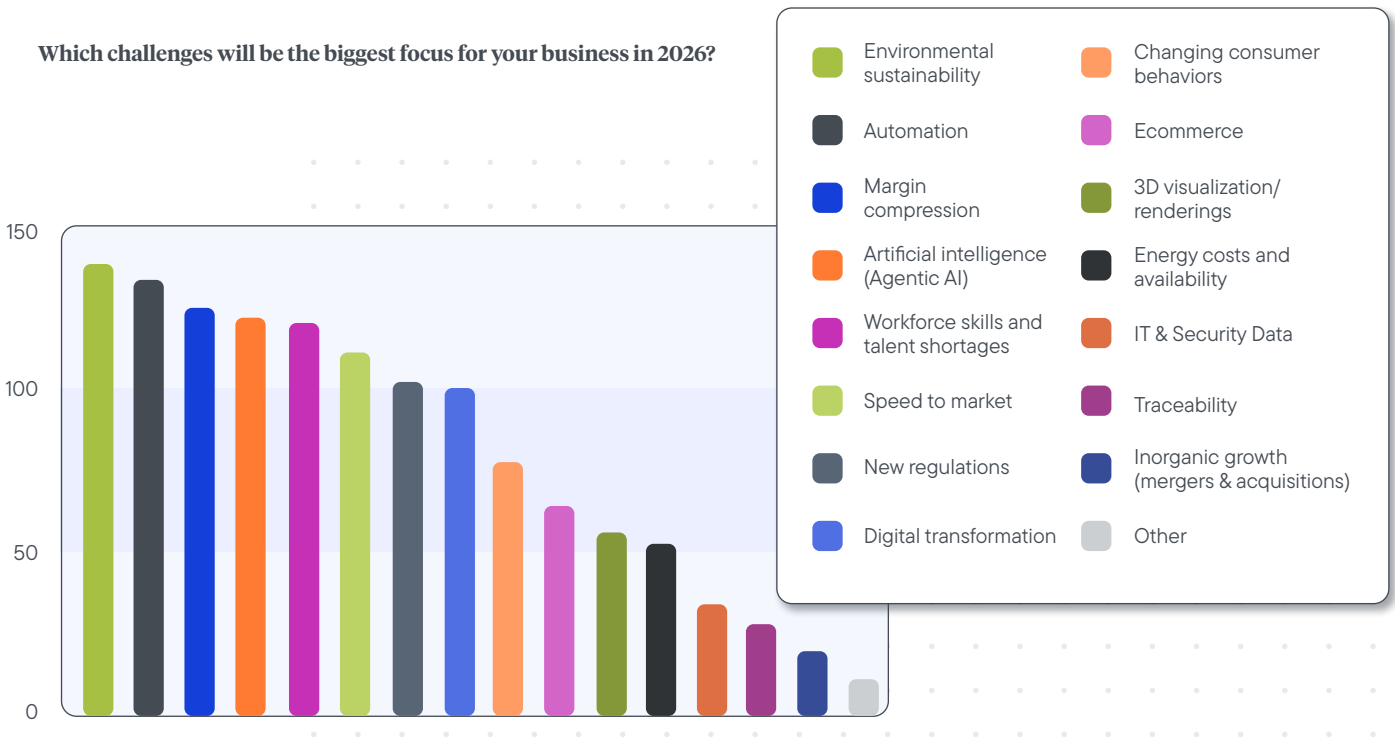
In packaging, the most relevant applications fall in between: workflows that define their own action plans, critique and refine them, and optimize continuously.

In short, Agentic AI represents a shift from machines executing instructions to workflows that actively improve themselves.

Why It Matters Now

AI has been a buzzword for the last several years. But the timing of the agentic AI conversation is no coincidence. According to [KPMG](#), 33% of large enterprises now use agentic AI in production—up from just 11% only months earlier. Adoption is accelerating across industries, and packaging is primed to benefit.

Survey respondents echoed this momentum, though with a note of caution: while adoption is accelerating, 121 identified AI adoption as one of their biggest challenges for 2026, reflecting both the opportunity and uncertainty ahead.





As Jan De Roeck, Marketing Director at Esko, observed, ***“Expectations are extremely high, but willingness to engage is relatively low. That tells me AI is still very immature. It will take a while before people start to understand how they should use—or not use—it.”***

While De Roeck notes that overall willingness to engage remains low, a handful of early movers are already demonstrating what’s possible. Enterprise adoption of AI agents is accelerating faster than anyone predicted. For example, organizations like Intuit and Capital One are already deploying agents into production, signaling that agentic workflows are moving beyond pilot stages.

This has been sparked by three forces in particular:

Technology Maturity

LLMs now feature larger context windows, enabling them to manage more complex and longer-running tasks. Their enhanced reasoning capabilities allow them to plan, critique, and reflect. These are essential tools for self-optimizing workflows.

Additionally, multimodal AI can process images, audio, and video, directly addressing the visual and content-heavy nature of packaging. Open third-party libraries make integration simpler and vendor-agnostic.

David Crow validated this, commenting, ***“The reasoning capabilities are key because they let the system define an action plan, critique its own plan, and reflect upon it. Add multimodal input—images, sound, video— and suddenly you have a system that can interpret and assist with the complexity packaging coordinators face every day.”***

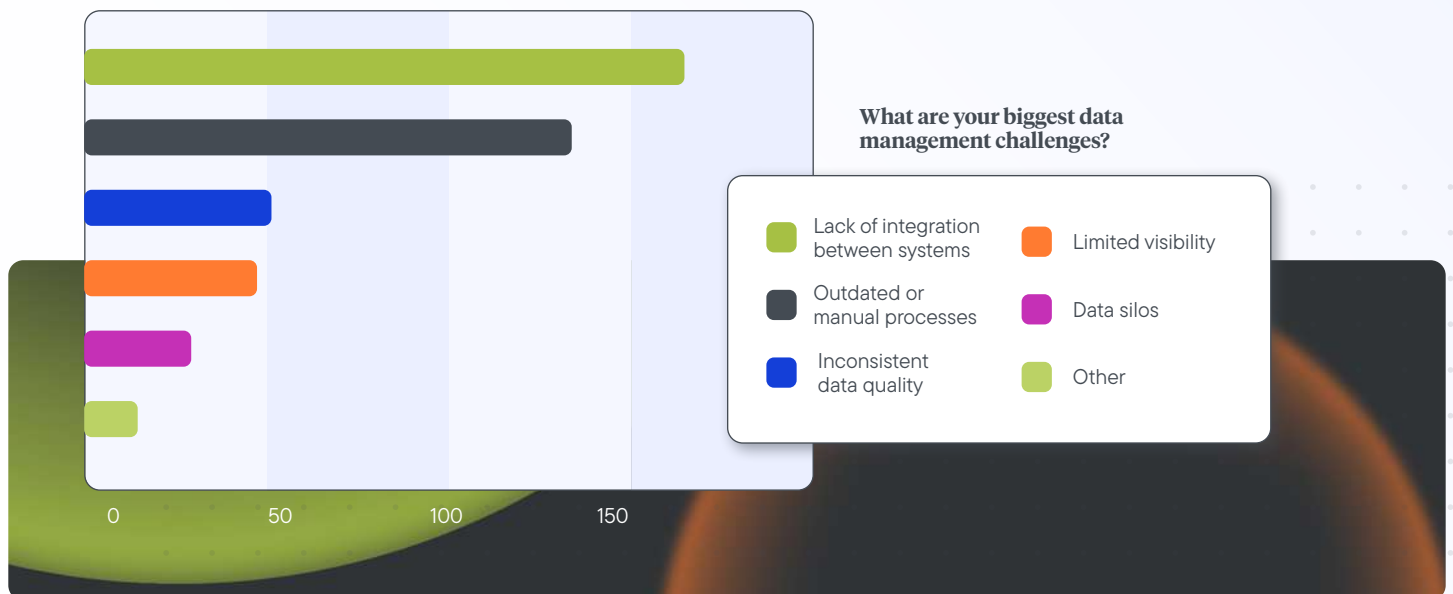


CHAPTER 1

Rising Complexity in Packaging Lifecycles

From product briefs through labeling and supply chain handoffs, packaging involves countless people and steps. Information such as nutrition panels, claims, and legal disclaimers must pass through multiple cross-functional areas, including marketing, legal, regulatory, and product teams. This often introduces delays and the possibility of mistakes.

As Srinivas Kuppa noted, ***“When you start bringing so many people together through a workflow process, the potential for human errors, delays, and the like increases. That’s where Agentic AI steps in to codify human knowledge and make the entire lifecycle more intelligent.”***



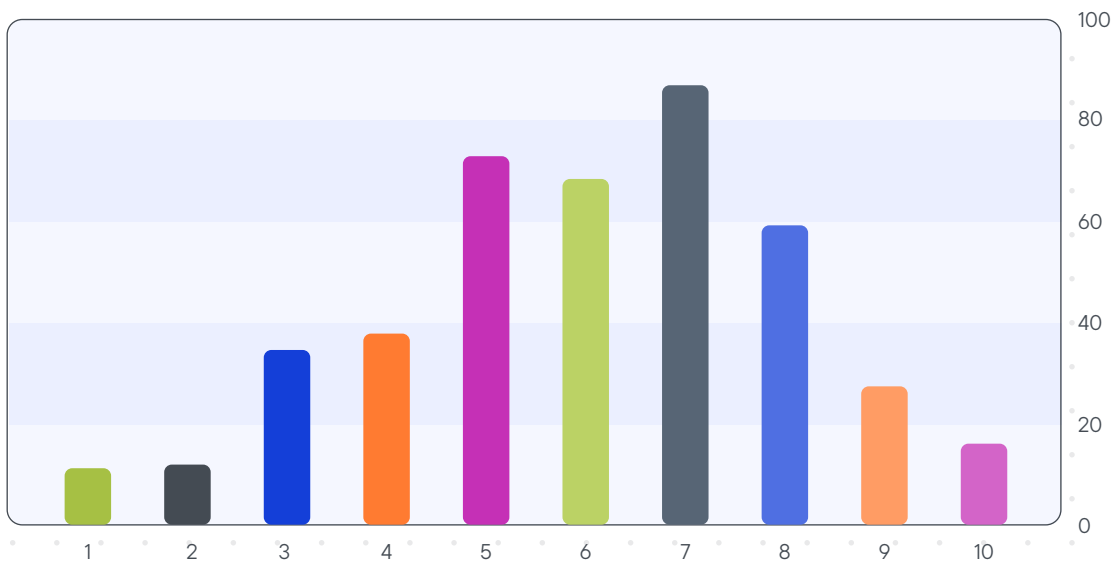
Business Pressures

Packaging teams face constant demands to reduce cycle times, increase throughput, and eliminate unanticipated costs. Agentic AI offers a compelling case: codifying “tribal knowledge” into the system, automating lower-value tasks, and freeing human experts to focus on high-impact work.

Yet many companies are not fully ready to capture these gains. In the survey, respondents rated their average digital maturity at just 6.2 out of 10, with the biggest barriers being lack of integration between systems (161 mentions) and outdated manual processes (130 mentions).

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On a scale from 1 to 10, how would you rate your company's current level of digital maturity in packaging processes?



According to Gitnux's AI in the Packaging Industry Statistics 2025 report, 65% of packaging companies planned to ***"increase AI adoption in their operations in 2025."*** In 2027, autonomous AI-powered packaging robots are ***"projected to handle 50% of packaging tasks."*** This demonstrates that packaging leaders are not just exploring AI but actively preparing to scale it into core operations.

Simply put, agentic AI has matured at precisely the moment packaging workflows need it most.



Examples and Early Movers

While still emerging, real-world applications already illustrate how agentic AI is impacting packaging. Let's look at the following examples.

Coca-Cola + Adobe

Coca-Cola and Adobe's Project Fizzion is a pilot system that rethinks brand guidelines as "intelligent, adaptive assets" instead of static documents. Fizzion learns from designers' behavior inside tools like Illustrator®, Photoshop®, and InDesign® to encode rules, typography, logo use, and layouts into machine-readable identifiers. This enables creative teams to produce content up to 10x faster while maintaining consistency and quality.

Project Fizzion is built so that designers remain in control, using it to streamline the tedious parts of formatting and compliance, and not replacing creative intent. Fizzion shows how agentic AI is able to embed governance within the creative workflow so that scale doesn't come at the cost of brand identity.

Ranpak

Ranpak, a leader in sustainable paper packaging, is also making strides using agentic AI by combining vision systems, automation, and human-centered workflows to improve warehouse operations. Omar Asali, CEO of Ranpak, emphasizes that automation should enhance, not replace, human workers, allowing them to move out of purely manual tasks into more skilled roles.

Ranpak believes retrofitting packing warehouses with automation, such as machines that cut cartons to avoid excess room and optimize packaging sizes, help reduce waste, improve worker safety, and speed operations.

Additionally, Ranpak is investing in robotics partners (like Rabot and Pickle Robot) that automate warehouse operations, aligning productivity gains with sustainability goals.

For Ranpak, the bottom line is that automation paired with human oversight drives far better outcomes than automation alone.

Impact on Esko Users

For Esko users, agentic AI is about productivity augmentation, not job replacement. The impact is seen in changes to the daily roles of packaging team members:

CAD Designers

Designers will be able to offload routine adjustments and compliance checks, freeing more time for creative iterations and ensuring brand consistency. Faster prototyping and fewer manual interventions mean reduced press issues and recalls.

Prepress Operators

Today, operators often juggle incomplete information and repetitive checks. With agentic AI, workflows deliver what Srinivas Kuppa calls a “cognitive payload: the user knows exactly what to review, approve, or act upon, while the smart workflow handles intelligent steps automatically.” This shift reduces confusion, prevents workflow stoppages, and helps operators focus on quality outcomes rather than administrative steps.

Instead of managing every detail of workflow logic, prepress operators will act more like strategic overseers. Agentic AI handles much of the complexity, presenting outputs and exceptions for review. This allows them to concentrate on higher-value problem-solving and continuous improvement.

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Flexo Plate Room Operators

The life of a flexo plate room operator is currently very repetitive. Agentic AI adds value by performing routine coordination tasks such as scheduling runs, monitoring file integrity, finding potential issues before plates are imaged, and even predicting when equipment maintenance will be needed.

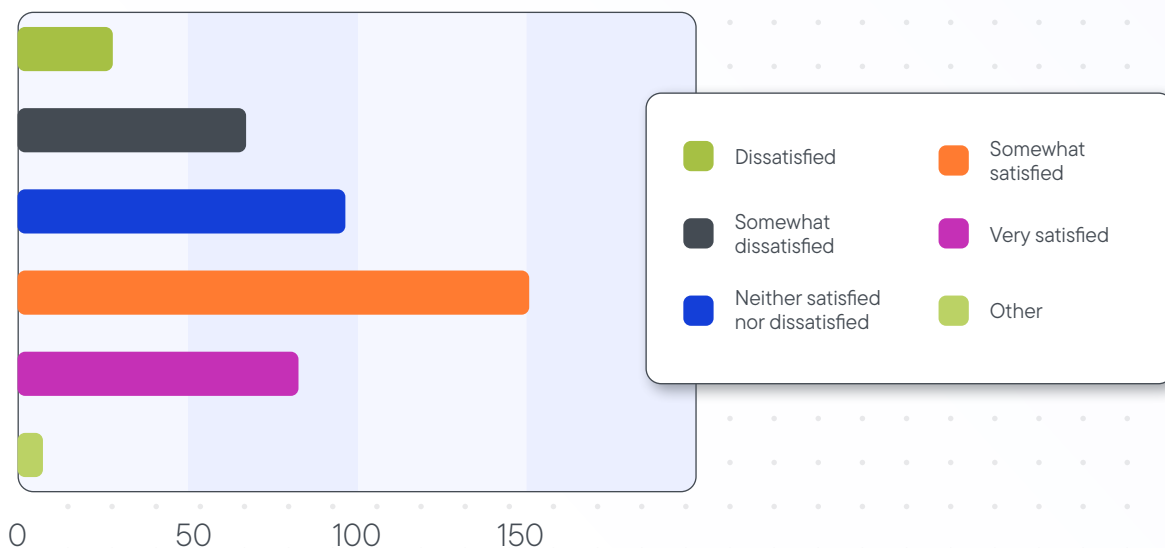
Agentic AI reduces reactivity by alerting operators to potential issues and enabling them to focus on quality checks and process improvements.

The benefit is clear across all roles: less manual copy-pasting and more focus on brand consistency, quality, and speed to market. Jan De Roeck explained, ***“AI will be the tool used by both experts and non-experts to deliver high quality results. With the shortage of skilled people, embedding tribal knowledge into software will free-up more time to focus on things that really matter in order to meet customer demand for quality and effectiveness.”***



This aligns with survey feedback: while 82 respondents said they are very satisfied with their data management, more than 247 were only somewhat satisfied or neutral — leaving clear room for agentic AI to deliver value.

How satisfied are you with how your company manages data?





Looking Forward

The next 2–3 years will see agentic AI progress from short, assistive tasks to long-running processes lasting weeks or months. These could involve monitoring regulatory updates, generating compliance reports, or coordinating multi-stage packaging launches.

These developments aren't theoretical. They're already in progress. Packaging Digest, for example, highlights advances like predictive maintenance, vision-based quality control, supply-chain optimization, and smart or personalized packaging.

As Jan De Roeck quipped, ***“Fasten your seat belt, because the speed is only going to accelerate. The invention of AI will in turn increase the speed of innovation. There’s no escaping from that.”***



Yet, adoption will follow a maturity curve. Technology alone cannot enable full autonomy; organizations must also adapt processes, governance, and change management practices. As Crow said, ***“AI is not magic. These are probability-based tools, not deterministic systems. Outcomes will vary.”***

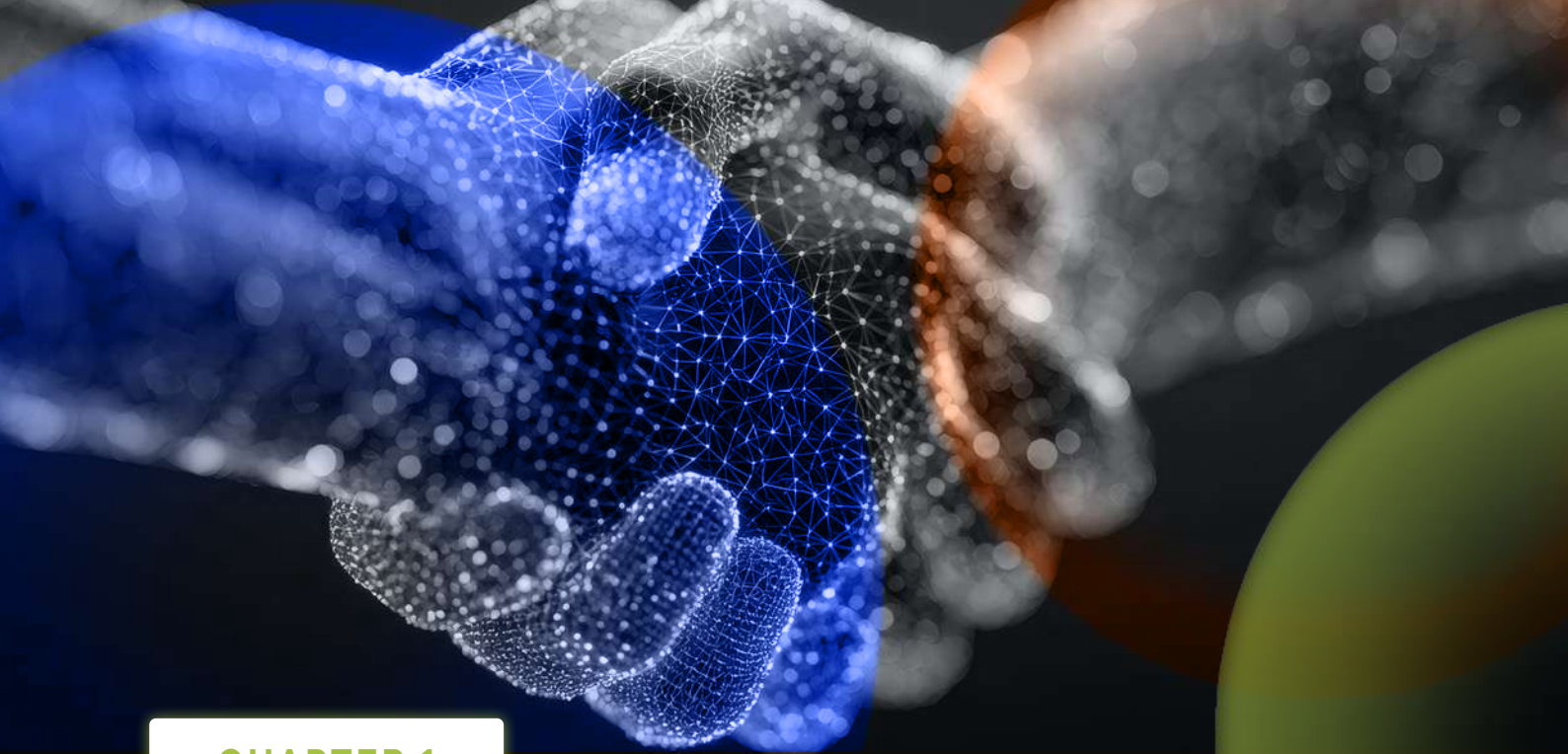


Key developments to expect:

- Better oversight mechanisms produce optimized outputs in executional tasks where precision is critical.
- Greater productivity gains, allowing teams to do more with the same resources.
- Multi-agent systems: specialized agents working together, much like human experts do today. For example, a “studio manager” agent might consult a “color retouching” agent, escalating to humans for higher-level approvals.
- End-to-end codification of packaging knowledge, embedding expertise across every stage of the lifecycle, from creative briefs to print runs.

For professionals, success with agentic AI requires cultivating three mindsets:

- Embracing change: Not fearing the technology but seeing it as a way to enhance productivity.
- Creativity: Actively brainstorming ways to integrate these tools into workflows to eliminate boring or tedious tasks.
- Critical thinking: Maintaining a critical mindset to effectively spot and correct mistakes made by the AI, ensuring the right direction for the output.



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Esko is already embedding these principles in its roadmap. We are building core agentic AI capabilities that will span multiple solutions, ensuring consistent productivity gains across roles and customer types. Importantly, Esko is also addressing concerns about data security, intellectual property, and explainability, ensuring guardrails and trustworthiness as adoption scales.

As Kuppa explained, ***“Our roadmap goes beyond agentic AI—it’s about codifying knowledge across the packaging lifecycle. That means semantic models, GPT-based tools, and ultimately agents driving end-to-end workflows. But adoption at scale will take time, not just for technology reasons but because of organizational maturity and risk tolerance,”***

The Time is Now

Agentic AI represents a pivotal step forward. Automating tasks is one thing, but optimizing entire workflows is quite another. Unlike previous AI generations, agentic systems actively plan, reflect, and learn, making packaging processes more adaptive and resilient.

Agentic AI is not the future of packaging—it’s already here. The next three years will determine how quickly companies embrace it, and how far it reshapes the way packaging is imagined, created, and delivered.

CHAPTER 2

Smart Packaging and the Digital Shift

Defining the Trend

Packaging has always been more than a wrapper. In the past, it served as protection. It then evolved into a printed surface to catch the consumer's eye. Now, it is evolving again into an active digital interface. Instead of stopping at the point of sale, packs are now starting to carry persistent digital identities that link to live data. This shift is what's broadly known as smart packaging.

Esko's 2026 Packaging Trends survey reinforces that this is no longer a distant idea: 20% of industry professionals ranked smart packaging among the top technologies set to impact packaging by 2026—behind only automation and artificial intelligence.

At its core, smart packaging uses embedded identifiers or sensing technologies to connect each physical pack to digital information. The technologies themselves are not futuristic anymore and are being quietly adopted across categories and regions.

- 2D barcodes and QR codes (often built on GS1 Digital Link) can direct different users like regulators, retailers, and consumers to dynamic web-based product data. As the link lives in the cloud, the content can be updated without changing the printed code.
- Digital watermarks, as tested in the [HolyGrail 2.0](#) project, allow mixed post-consumer packaging waste to be automatically sorted with far greater accuracy.
- NFC and RFID tags support authentication, item-level tracking, and reuse logistics, particularly in high-value goods, pharma, and food safety.
- AR layers and embedded sensors can trigger interactive consumer experiences and monitor freshness, temperature, or shock during transport.

CHAPTER 2

Several brands have started piloting such tech-enabled packs.

Coca-Cola, for instance, has brought back its famous 'Share a Coke' campaign with a twist—on-pack QR codes that give consumers the ability to customize their Coke packaging.

Quite a few companies, including Nestlé and Diageo have implemented Accessible QR codes using Zappar technology to improve accessibility for visually impaired customers. These QR codes relay essential product information such as allergens and usage instructions via apps compatible with screen readers.

Henkel, Korozo, and R-Cycle have collaborated on a Digital Product Passport pilot for flexible packaging to transmit recyclability data through the value chain. And HolyGrail 2.0 as mentioned above proved that watermarked packs can be sorted at industrial speeds, showing how packaging can carry value long after it leaves the shelf.

As Jan De Roeck, Marketing Director at Esko, notes, ***“smart packaging creates a natural bridge between product specification and packaging specification, tying together ingredients, materials, and labeling in one data layer.”***

In short, smart packaging gives each pack a digital life beyond the warehouse. It can carry traceability data, surface product information, and trigger real-time interactions for regulators, retailers, and consumers.

Crucially, this information sharing can also be context sensitive. The data revealed can differ by geolocation, the role or credentials of the person scanning, or the device used. This is what makes packaging not just connected, but truly “smart.”



Why 2026 is the Inflection Point

Smart packaging has been on the horizon for years. What makes 2026 different is that the enabling technology has matured and regulation is now forcing its adoption. The industry has reached a point where both tracks are converging.



The Tech is Ready to Scale

Until recently, connected packaging was held back by fragmented standards and unproven economics. Those barriers are disappearing fast.

One example is how retailers are aligning on GS1's [Sunrise 2027](#) to accept 2D barcodes at the point of sale. This means that brands need to have 2D-enabled packs and supporting systems ready by late 2026. A single GS1 Digital Link symbol can now route different sets of users to live product data without changing the on-pack code.

But this digital shift isn't limited to what's printed on a pack. The same connectivity that links a product to the cloud is also reshaping how those packs are made.



IoT in Packaging Production

While smart packaging connects individual packs to the cloud, a parallel transformation is happening upstream: production equipment itself is becoming connected. This is part of the broader Internet of Things (IoT) movement, where “things” can be either physical packages or the machines that make them, both generating valuable data streams.

Connected flexo plate making devices like Esko CDI and XPS, for example, already collect productivity and maintenance data in the form of uptime and error logs. These insights don’t change what’s on the pack, but they do improve converter efficiency, uptime, and service response.



As Mariam Khalfey, Global Product Manager – IoT/Equipment Services at Esko, points out, the value of this connectivity is immediate: ***“the low-hanging fruit with IoT is around efficiency gains and increasing uptime and throughput for our customers.”***

Prepress and operations teams will increasingly become the data capture backbone of this transformation. Khalfey envisions a near future where ***“connected flexo hardware allows one to monitor, in real time, what is happening on CDI and XPS systems.”*** She expects tradeshops and converters to begin with uptime and throughput dashboards (a fast ROI path) and later incorporate print quality KPIs once definitions are standardized across customers.



These dashboards will serve multiple personas across a converter’s organization—from senior management tracking uptime and waste, to production managers monitoring device health and predictive maintenance alerts, to operators who rely on live job status to minimize downtime.

Over time, this data-driven approach to production can support predictive maintenance, quality tracking, and waste reduction. These benefits complement but are distinct from the consumer- and regulator-facing use cases of smart packaging.

CHAPTER 2

Regulation Will Make It Non-Negotiable

If technology makes smart packaging feasible, regulation is what makes it unavoidable.

The Ecodesign for Sustainable Products Regulation (ESPR) entered into force in July 2024, creating the framework for Digital Product Passports (DPPs). The ESPR represents a structural shift toward greater sustainability, transparency, and circularity in how products are designed and documented across the EU.

The DPP will require brands to disclose structured, shareable product data such as material composition, recyclability, and carbon footprint via delegated acts. Geert De Proost, Director of Market Intelligence & Product Partnerships at Esko, even predicts that the DPP will be “the biggest digital transformation driver for the entire packaging supply chain. Brands, converters, premedia, or any other stakeholders are all facing the biggest operational and data management changes in order to comply.”

Additionally, the new Packaging and Packaging Waste Regulation (PPWR), adopted as Regulation (EU) 2025/40, entered into force in February 2025 and applies from August 2026. Some of its provisions are phased to 2030 or later, especially regarding stricter eco-design, reuse, and waste reduction requirements.

The PPWR harmonizes EU packaging design, reuse, and information rules, dovetailing with the DPP’s data model, which will mature and expand throughout the latter part of the decade.

Together, the ESPR and PPWR form a two-part regulatory spine: the ESPR sets sustainability requirements for all products and creates the DPP to carry product data, while the PPWR sets packaging-specific design, labeling, and waste reduction rules.

For brand teams, the 2026 deadline is the first operational checkpoint where compliance measures must start being implemented, making it a near-term regulatory milestone, and not a distant target.

The scale of the data transformation is far larger than most teams expect.

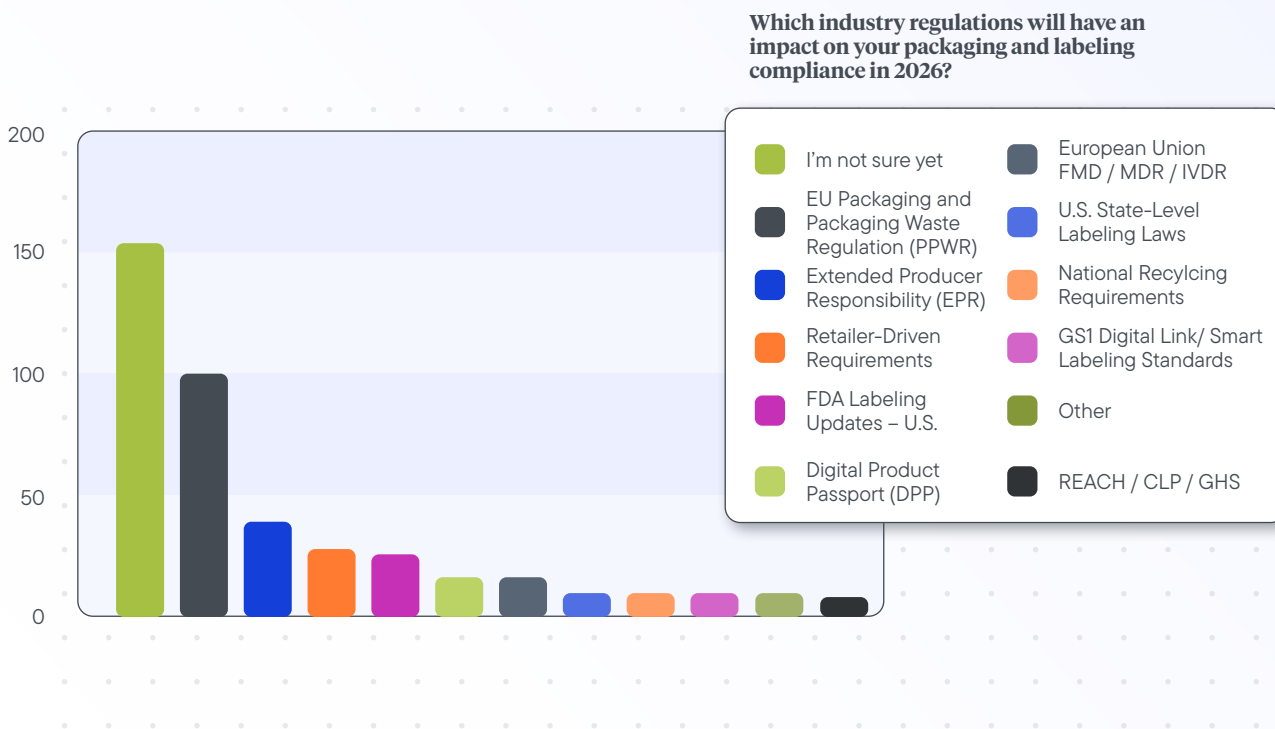


CHAPTER 2



And even well-prepared organizations are still defining ownership and data models.

In fact, in Esko's 2026 Packaging Trends Survey, when asked which regulations will most impact their packaging compliance by 2026, survey respondents pointed to the PPWR and DPP most often. However, the largest single group (36% of respondents) admitted they aren't sure yet, underscoring just how unprepared the industry still is.



Converters and brands will need to centralize specifications that have never been managed in one place before: from substrates, inks, and adhesives to production conditions like curing times.

De Proost warns that ***“none of this data management is part of the DNA of a converter today. Most don't collect or structure data at all, and when they do, it's often scattered in Excel sheets and emails.”*** This is why brands will increasingly expect converters to operate like data companies, not just print suppliers.

CHAPTER 2

Moving toward DPP means building an entirely new layer of structured systems and processes from the ground up. The accuracy and trustworthiness of this data will determine recyclability, recycled content, origin, chemical safety, and even the fees payable under PPWR and Extended Producer Responsibility (EPR) schemes.

Teams that move early will gain a rare edge.

Impact on Packaging Teams

Smart packaging and its associated regulations will trigger a cultural and operational reset in the day-to-day work of packaging teams in 2026.

As De Roeck notes, ***“A package is usually a combination of the primary container, which could be in various materials, mostly with one or multiple labels, combined with secondary and tertiary packaging. A real collection of assets—bottles, labels, boxes, and wraps—yet most brands don’t centrally manage this information, and data is typically scattered across many disconnected platforms. The biggest learning from this chapter of the eBook is that the Smart Packaging trend will force brands to consolidate and curate all packaging data.”***



CHAPTER 2



Brand-side packaging teams will become the orchestrators of product data. They will need to build and own the core data model: sourcing accurate specifications from suppliers, storing them, mapping them to GS1 identifiers, and maintaining them as living records.

They will also need to create governance frameworks:

- Who approves updates?
- Who owns the master record?
- How will these changes be audited?

This level of discipline will be unfamiliar but essential.

The payoff will be significant. Once packaging content becomes digital-first, brands can update it without triggering reprints. As this [study commissioned by Amazon](#) shows, 30–35% of packaging is updated annually. This is a churn cost that can be substantially reduced by DPP-enabled digital content.

Converters will have to overhaul their information systems to participate in this ecosystem. To remain viable partners to brands, converters will need to adopt specification and data management platforms, collaborative workflow systems, and integration with DPP-compliant third-party clouds while also embedding privacy and data security controls.

How Packaging Teams Can Prepare

Start with Data

Begin building a DPP-compliant data model now. Track packaging materials, origins, recyclability, and chain-of-custody details, and link each attribute to a unique digital ID. Audit where this data currently lives (in PLM, ERP, supplier PDFs, or spreadsheets) and start consolidating.

As De Roeck previously explained, most brands don't centrally manage packaging information and specifications often sit fragmented across suppliers, premedia agencies, or converters.

CHAPTER 2

Smart packaging collapses this divide. To make DPPs work, packaging teams will need to merge these two streams into a single, governed data model that links every product's composition to the packaging it comes in.

De Proost adds that while this shift is daunting, it also creates an opportunity. Converters that get their data in order won't just meet compliance requirements, but also gain a business edge by better understanding their own operations and using that data to drive continuous improvement.

Upgrade Production Capabilities

Invest in converting and printing lines capable of handling high-resolution variable 2D codes and, where relevant, serialized QR and RFID/NFC inlays. Ensure your workflow systems can manage variable data at scale and link correctly to packaging artwork and identifiers.

Build the Right Partnerships

Work with tech providers or platforms offering DPP-ready solutions for automated data capture, digital labeling, and secure passport data sharing. Integration between your systems and theirs will be critical.

Train your team

Educate packaging, regulatory, procurement, and supplier teams on DPP requirements and how the data ecosystem will function. Cross-functional understanding is essential, considering the DPP will cut across departmental boundaries that were previously isolated.

Smart packaging and DPP are fast becoming the baseline for entering the EU and other advanced markets.

As De Proost notes, ***“the road to implementation is an investment for the long term in a phased approach.”*** He outlines a maturity curve that teams can use to plan their transformation:

Roadmap to maturity and implementation	
Short term (1-2 years)	Digital spec management, real-time production dashboards.
Medium term (3-5 years)	IoT integration, sustainability data automation, AI quality inspection.
Long term (5+ years)	Fully integrated digital twin, blockchain-enabled traceability.



CHAPTER 2

Looking Forward

The regulatory landscape will not stand still.

The requirements for DPPs are expected to evolve as the EU moves from the initial framework to real-world implementation. The ESPR will also continue expanding through delegated acts, with packaging anticipated to follow sectors such as batteries and electronics once early lessons are incorporated.

Given this pace of change, packaging teams will need to build flexibility into their systems from the outset. Continuous monitoring of regulatory developments and adaptable digital infrastructure—such as modular ERP, PIM, and data management systems—will be essential to keep pace with new data attributes and reporting obligations as they emerge.

Future-ready teams should:

- Continuously monitor delegated acts under ESPR and revisions to PPWR.
- Design modular data systems (ERP, PIM, WebCenter) so new attributes can be added without disruption.
- Pilot DPP-ready workflows on small product lines to uncover gaps early.
- Establish formal data governance: assign owners, define approval protocols, and set audit trails.

Ultimately, smart packaging will stop being a discrete innovation project and become the operating system of packaging—the layer where compliance, sustainability, and consumer connection converge.

CHAPTER 3

End-to-End Sustainability Intelligence

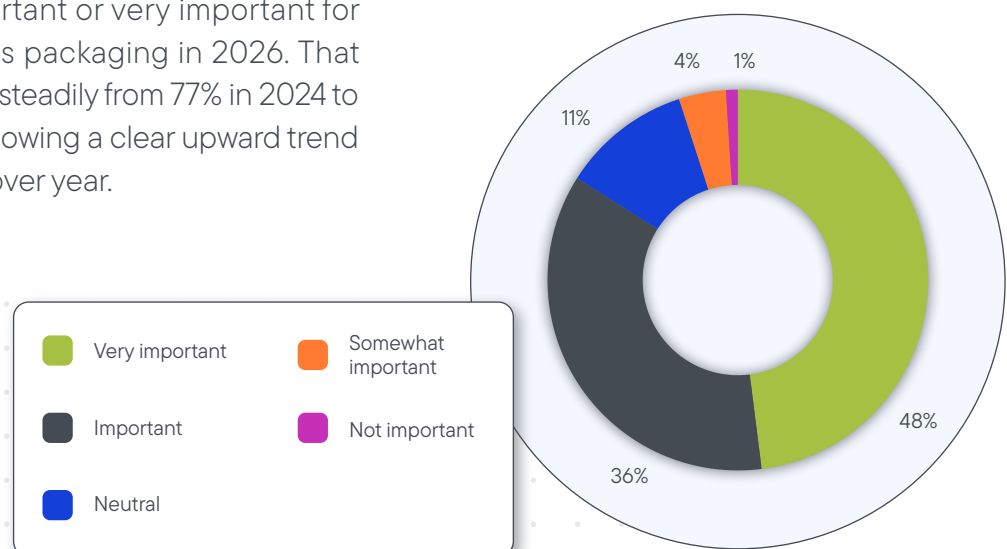
Defining the Trend

Sustainability has long been a headline in the packaging industry. In 2026, it will mean something different from just a few years ago. Where once a recycling logo and a bold commitment were enough, today's consumers and regulatory bodies demand proof—measurable, auditable data integrated directly into packaging design and production.

This shift reflects how far the conversation has matured. In 2024 and 2025, many of the world's biggest brands admitted they would miss their net-zero targets. The reasons varied, but most pointed to Scope 3 emissions—the indirect impacts across their value chains—as the hardest to control. Packaging is not immune. And while packaging represents 5-10% of a product's overall footprint, it is the most visible signal of sustainability to consumers. That visibility has brought packaging from a peripheral issue into a frontline test of credibility.

In Esko's 2026 Packaging Trends Survey, 84% of respondents said sustainability would be important or very important for their company's packaging in 2026. That figure has risen steadily from 77% in 2024 to 80% in 2025, showing a clear upward trend in priority year over year.

How important will environmental sustainability be to your company for packaging in 2026?



CHAPTER 3

The industry's answer has been to move from vague claims towards carbon intelligence. Life cycle assessment (LCA) has become the universal measurement, calculating the impact of raw materials, production, transport, and end-of-life. As Dominic Harris, Co-founder of [CarbonQuota](#), notes: ***"You can only reduce what you measure, therefore measurement is everything in the packaging industry."*** The difference today is that advances in automation and data science have made this measurement faster, cheaper, and available at the design stage.

The conversation has also broadened. Sustainability is no longer just about the recyclability of materials. It is about responsibility, measurability, and visibility across the entire packaging lifecycle—from source to shelf to consumer and back again. Companies now talk not only about their footprint—the impact of their own operations—but also their handprint: how the tools and solutions they provide help others reduce their environmental impact.



Why It Matters Now

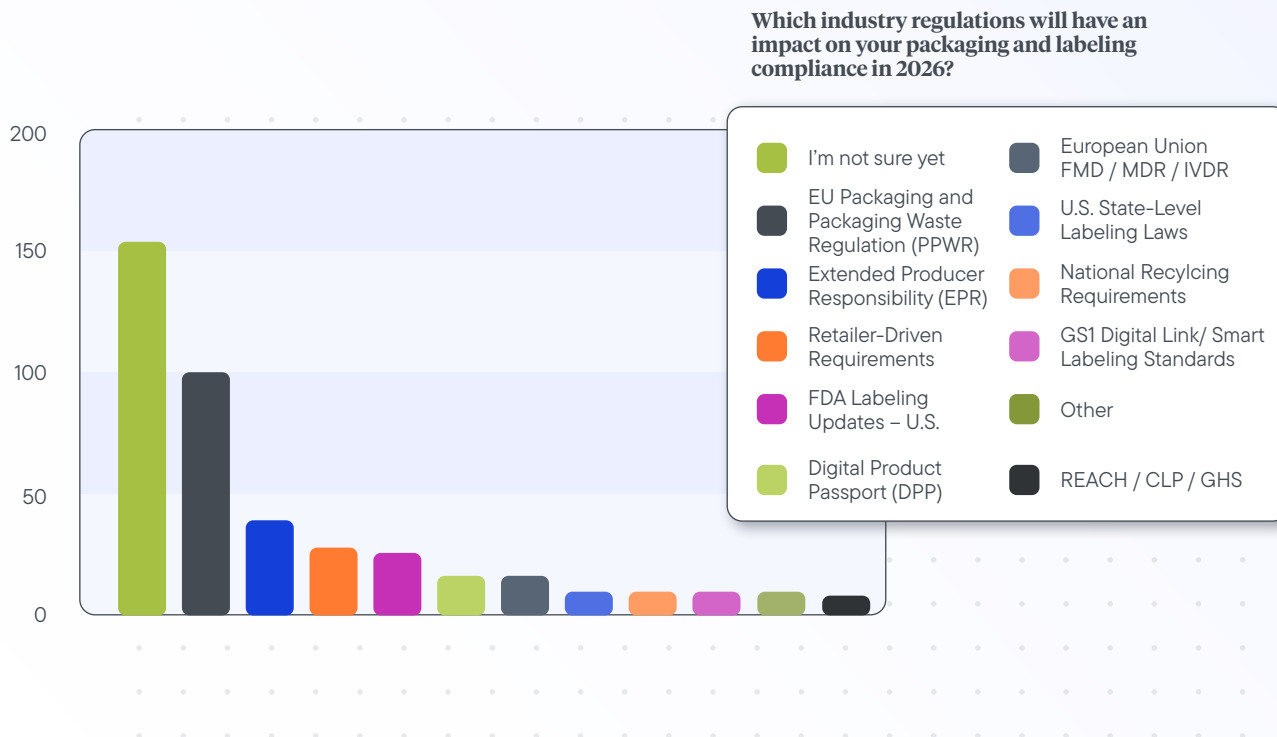
Regulation as a Catalyst

The regulatory environment has undergone significant changes. For example, in Europe, the [Packaging and Packaging Waste Regulation](#) (PPWR) is introducing mandatory recycled content and eco-design standards. [Extended Producer Responsibility](#) (EPR) fees are creating new financial pressures: choose a higher-impact substrate, and you pay more.

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The loudest message from the survey isn't about any single regulation — it's uncertainty. Of 429 respondents, over 150 admitted they don't know what will shape compliance in 2026, with PPWR and EPR emerging as the most cited among those who did take a position.



“The overriding driver is legislation—and the complexity of legislation per country or even per region is forcing companies to get data,” explained Geert De Proost, Director of Market Intelligence & Product Partnerships at Esko. That complexity has made sustainability officers indispensable. It has also shifted their reporting lines. “Sustainability officers increasingly report into procurement now, because there are millions of dollars involved,” he added.



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Momentum is also building in North America. For example, New York's proposed [Packaging Reduction and Recycling Infrastructure Act](#) is designed to reduce plastic packaging over the next decade by 30%. This is not pocket change. The projected savings are staggering: \$1.3 billion, including \$568 million for local governments and \$696 million for private waste firms. With packaging expected to make up 3.8 million tons of the state's waste in 2025, the political and financial ramifications cannot be ignored. As Paulina Vélez, Global Sustainability and EHS Senior Manager at Esko, observed: ***"Regulations drive innovation."*** They do so by pushing companies to rethink production methods, adopt new technologies, and explore alternative raw materials to stay compliant and competitive.

Broadly speaking, sustainability regulations fall into two categories:

1. Disclosure-Based Regulations, which focus on transparency, requiring companies to report on sustainability-related risks, governance, metrics, and impacts. For example, the [CSRD \(EU\)](#) and the [SEC Climate Rule \(US\)](#) ask for detailed reporting on Scope 1–3 emissions, climate risks, governance structures, and double materiality.
2. Performance-Based Regulations, on the other hand, go beyond reporting. They require companies to meet specific thresholds or targets, often tied to product design, sourcing, or operations. Examples include the [EU Green Deal](#), [ESPR](#), [PPWR](#), and [EPR](#). Key requirements include meeting targets for recycled content percentages, emissions reductions, energy efficiency standards, and circularity metrics.

However, regulations also create new challenges. As Christian Knobloch, Co-founder and CEO of [Recyda](#), noted, ***"Regulations like PPWR and EPR aren't just compliance hurdles—they're becoming the real market transformers. They're pushing companies to think about recyclability and data at the very beginning of packaging design."***





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Consumers as Enforcers

Stricter regulatory schemes are being bolstered by growing consumer pressure. The Wall Street Journal reports that 37% of North American shoppers, and 42% of Europeans, have already refused to buy a product because of unsustainable packaging. Additionally, eight in ten say brands use too much packaging. Susie Stitzel, Director of Product Management at Esko, further emphasized this point, stating, ***“For many products, packaging may only account for about 10% of the total carbon footprint, but the packaging is by far the most visible to consumers.”***



This visibility explains why brands are scrambling to respond. Sustainability Magazine reports that many packaging pledges have failed to deliver measurable results. The Science Based Targets initiative (SBTi) has recently delisted more than 200 major companies for falling behind on climate commitments. For packaging leaders, this is both a warning and an opportunity: voluntary, good-faith sustainability promises are no longer enough—credible, data-backed action is now the expectation.

Additionally, according to McKinsey’s report “Investors want to hear from companies about the value of sustainability”, the majority of S&P 500 companies (95%) now issue sustainability reports. However, few include ESG factors in their core business strategies and reporting frameworks. The challenge is no longer whether companies disclose, but rather how deeply sustainability is embedded into their decision-making.

Smithers’s 5 Key Trends Shaping the Packaging Industry report shows that CPG companies are no longer treating sustainability as a standalone value proposition but as part of a plural strategy—***“sustainability and,”*** not ***“sustainability or.”*** Brands are juggling multiple approaches simultaneously, from recyclability and renewable sourcing to carbon footprint reduction.

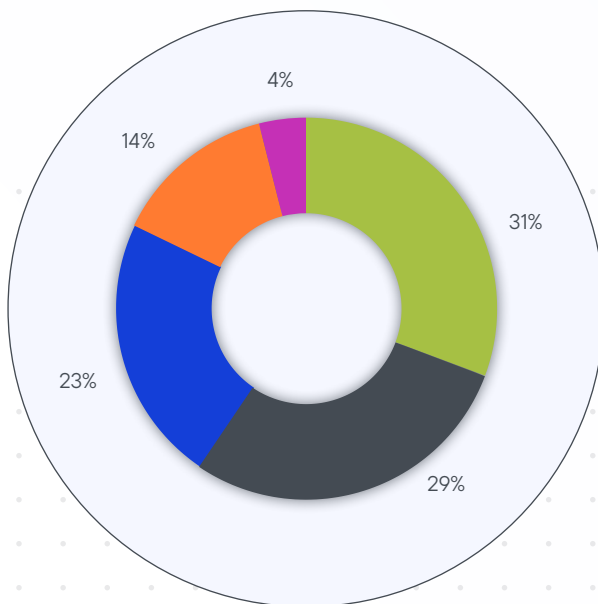


Technology and Early Movers

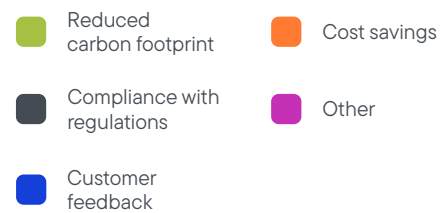
Technology is helping bridge the gap between ambition and action. One of the most powerful developments is the integration of carbon data directly into packaging workflows.

For example, CarbonQuota's science-based footprinting is now embedded in design tools, enabling packaging teams to evaluate CO₂e impacts in real time. Dominic Harris explained, ***"If you make all the wrong design choices, you can almost double the carbon footprint of just the label."*** By recognizing these impacts at the design stage, brands can make smarter trade-offs before production.

Among the 429 survey respondents, companies are already measuring sustainability success in multiple ways: 132 cited reduced carbon footprint, 125 compliance with regulations, 97 customer feedback, and 58 cost savings.



How do you measure the success of your sustainability initiatives in packaging?



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Regulatory intelligence platforms are also reshaping workflows. For example, ***“Recyda acts as the translation layer between regulators and packaging companies,”*** said Christian Knobloch. ***“Regulators are demanding increasingly complex data on topics such as eco-modulated fees and packaging conformity. Meanwhile, producers often manage only limited and fragmented information about their packaging. We help bridge that gap.”***

Recyclability itself is becoming more complex. In its 5 Key Trends report referred to above, Smithers observes the real question is no longer “is it recyclable?” but “is it recyclable at scale?” Practical recyclability depends on variables like inks, adhesives, and contamination, which can undermine otherwise recyclable formats.

Hardware innovation plays a role, too. Flexo technology has proven especially impactful in reducing plastic consumption. According to [Veralto’s 2025 Sustainability Report](#), Esko’s packaging solutions reduce global plastic use by 1.3 million tons every year. It’s a reminder that sustainability isn’t only a software or data story—it is also about smarter production technologies that prevent waste at scale.

The industry’s move toward circularity is also gathering pace. The demand for post-consumer recycled (PCR) content is growing faster than supply. As [Smithers](#) notes, this shortage is forcing brands, converters, and recyclers into new collaborations, making supply chain resilience as important as the environmental benefit.

Impact on Packaging Teams

The focus on sustainability intelligence is reshaping daily work across the packaging value chain.

For designers, decisions about size, substrate, and inks carry enormous weight. With real-time carbon feedback available inside tools like [Cape Pack](#), designers can make better trade-offs without slowing creativity.



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For prepress and production teams, sustainability is embedded in process optimization. Stitzel explained, ***“Quick wins already exist—AI-based planning, expanded gamut printing, and digital print can cut waste today without major investments.”*** Platemaking technology like the XPS Crystal further reduces plastic use. Together, these changes contribute substantial measurable reductions to Scope 3 emissions.



For managers and procurement leaders, sustainability is now a financial discipline. As De Proost emphasized, procurement is taking a lead role ***“because these choices influence costs at a massive scale.”*** Dashboards track emissions and recyclability metrics across projects, while finance teams are increasingly developing “sustainability finance” functions to manage eco-fees alongside design decisions.

Looking Forward

The future appears to be heading towards deeper integration of AI into sustainability intelligence. The potential is enormous: AI can model design trade-offs at scale, optimize transport, and even predict regulatory risks. But experts caution that AI is only as good as the data it is fed. ***“AI will clearly play a large part here,”*** Harris acknowledged, ***“but there’s a cautionary word that AI decision making needs to come from the right data sources to give intelligent answers.”***

The industry will also become more granular. Not only will companies need to know what their packaging is made of, but where and how it was produced. This will drive a move toward simpler, cleaner designs that are easier to recycle, even in markets with less developed infrastructure.

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Finally, collaboration will intensify. Vélez highlighted the importance of embedding sustainability into every part of the business: ***“The reality is that sustainability isn’t optional anymore—it’s become part of how companies compete.”***



From Compliance Burden to Competitive Advantage

For years, sustainability was framed as a compliance burden—something brands had to do to avoid reputational or financial risk. The narrative will be different in 2026. Sustainability intelligence, powered by data and embedded into workflows, will become a source of competitive advantage.

Companies that measure at the design stage can reduce fees, cut costs, and win consumer trust. Converters that adopt the right tools and processes can reduce waste while improving efficiency. Brands that align regulatory compliance with consumer transparency can differentiate themselves in crowded markets.

As Harris reminded us, ***“Measurement is everything.”*** But measurement is only the beginning. What matters now is how companies act on that data—translating sustainability from an external obligation into a driver of trust, resilience, and innovation.



Conclusion

Packaging is a dynamic system that reflects regulatory requirements, consumer expectations, and digital innovation. As we look to 2026, three things become crystal clear:

- Sustainability is now a baseline for competitiveness, not a differentiator.
- Digital Product Passports and connected packaging will redefine how value and data flow through the supply chain.
- Agentic AI will empower people to work smarter, reducing complexity while enhancing creativity and compliance.

For packaging leaders, the challenge is not whether these will shape the industry – they already are. The focus will be on how quickly and effectively organizations can respond. Those that embrace change will gain agility, reduce risk, and generate new opportunities. Those that hesitate risk falling behind.

At Esko, we believe the future of packaging belongs to those who see these trends not as disruptions, but rather as interconnected drivers of progress. We foresee a more sustainable, intelligent, and collaborative packaging ecosystem where people and technology will work in tandem to deliver packaging that meets the needs of businesses, consumers, and the planet.