THE IMPACT OF GENERATIVE AI ON PACKAGING

Produced by Smithers in association with Easyfairs

SMITHERS

PACKAGING INNOVATIONS

EMPACK

11 & 12 February 2026 | NEC

Contents

About Smithers

Smithers is a global market leader in producing packaging industry reports with over 80 years' technical and scientific experience supporting companies around the world. Smithers publishes 40+ market reports per year in packaging, paper, print and sustainability, as well as security print, nonwovens and tires.

Our market research brings together a global network of industry experts to explore cutting-edge packaging market trends, combined with in-depth industry analysis and five-year market forecasts.

Drawing on proprietary databases, primary research, and our deep technical expertise, the result is credible, actionable insights. Smithers Market Intelligence enables our clients to confidently make successful business decisions. To find out more, visit **smithers.com/services/market-reports**.

Introduction

The global packaging market is valued at $1.2 trillion in 2025, according to the latest research by Smithers, and AI will have an increasingly important role in the growth of the industry over the coming years.

Generative AI (GenAI) is set to transform the industry over the next decade by driving innovation, efficiency, and sustainability across the entire value chain. Many of these innovations will be showcased at Packaging Innovations & Empack 2026, the UK's largest packaging and processing event, taking place on 11 & 12 February at the NEC Birmingham.

In partnership with Smithers, the show brings together over 450 leading suppliers, 7,400 professionals and more than 80 expert speakers ready to share insights, demonstrate new technology and explore the trends driving our industry forward. You'll find everything from smart automation and AI to cutting-edge materials, machinery and sustainable solutions. More details and free tickets are at **packagingbirmingham.com**.

In this exclusive white paper, official research partner Smithers explores how GenAI will impact the packaging industry in the years ahead. You can find full, in-depth insight and analysis in the packaging market reports available exclusively to Smithers clients. Please visit smithers.com to **find out more**.

Generative AI: What is all the hype?

AI took a huge leap forward in 2016 with AlphaGo, but it wasn't until 2022 that AI really captured the public's imagination with the emergence of ChatGPT.

In simple terms, Generative AI uses machine learning, volumes of data and a language interface to make new content based on pattern recognition.

The big leap forward is that – unlike with previous deep learning models – the latest GenAI applications can process extremely large and varied sets of unstructured data and can perform more than one task. Companies are only just beginning to explore the potential – everything from personalised customer responses and identifying market trends using unstructured data sources, through to generating fast designs and saving time on physical tests.

There will be many challenges along the road. Privacy concerns have led to the EU AI Act – the world's first comprehensive AI law – which aims to foster responsible development and deployment of AI in the EU. Meanwhile the computational power required to train GenAI models is creating a significant bottleneck, both in terms of energy and financial cost.

GenAI will have a huge impact across all industries, including packaging. Its potential will enable packaging companies to unlock business value and achieve competitive advantage.

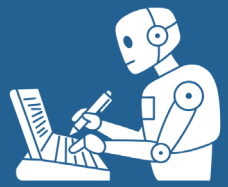
> **"We leverage AI across all dimensions of our business to predict outcomes and increasingly to prescribe actions through automation."**
>
> **Vittorio Cretella, Procter & Gamble**

What is Generative AI?

Generative AI (GenAI) is a specific type of AI focused on generating new content, such as text, images, or music. These systems are trained on large datasets and use machine learning algorithms to generate new content that is similar to the training data. This can be useful in a variety of applications, such as creating art, videos, music, or generating text for chatbots.

How does GenAI work?

GenAI training models work by learning from a large dataset of examples and using that knowledge to generate new data that is similar to the examples. For example, a generative model trained on a dataset of images of faces might learn the general structure and appearance of faces, then use that knowledge to generate new, previously unseen faces that look realistic and plausible.



What can GenAI be used for?

Generative models are used in many applications, including image generation, natural language processing, and music generation. They are particularly useful for tasks where it is difficult or expensive to generate new data manually, for example creating new designs for products.

Speed to market

Dynamic design is required to get customised products to market faster.

Speed to market is increasing, driven by rising demand for more personalisation and promotional products, as well as shorter runs, regional/smaller brands, more channels to market, consumer convenience and the ability to quickly follow trends from the social media world. This is putting huge pressure on brands, retailers and suppliers across the packaging value chain – including graphic and packaging designers.

Today, GenAI can struggle with basic packaging terms (in contrast it is excellent at replicating cartoons or celebrities as there is a lot of available data). Improvements in performance will lead to AI becoming a powerful tool for getting customised products to market faster. There is much development work going into design, prepress, and workflow tools. Human creativity will still be needed, not least to reduce the risk of plagiarism. Brands and designers will have many more additional inputs to work with, including deeper and richer consumer research, live data on product performance and insights on regional or micro preferences.

Pringles limited edition packaging with NCAA players

Source: Kellogg Company

> **“In 2025 GenAI is being explored to simplify and reduce the cost of artwork generation. By 2030, it will be built into creative processes, administration and all areas of production, logistics and distribution of packaging.” [1]**

[1] The Future of Digital Print for Packaging to 2030, Smithers

The role of AI in packaging development

As in most aspects of business, packaging companies are adopting AI to improve efficiency and precision throughout the supply chain.

As the technologies develop there are more applications in digital print and packaging and the take-up will be significant in selling and identifying markets, in creating and managing artwork, in workflow, in job administration, and in stock management, warehousing and logistics.

The pace of development is huge, with Sequoia predicting the widescale use of images by 2025 and video by 2030 (see page 9).

Real time data of products moving through the supply chain, up to and including interaction with consumers, will provide a level of insight that goes far beyond traditional Net Promoter Scores. Companies will be able to gather insight on the profitability of each product. The combination of text and images – such as photos of products damaged in transit – will provide insights that can be fed back into manufacturing on the fly.

CREATING

In the creative stage the use of GenAI will have significant effects on producing artwork, particularly versioned and personalised material. With the correct prompts, bespoke graphics can be generated on demand at the right size, allowing e-commerce packaging to be customised.

PROCESSING

AI will be important in job processing as well as production. Management information systems will use agentic systems to learn and automate repetitive tasks, optimising packaging design and production workflow processes, resulting in better planning and scheduling.

PROTOTYPING

Virtual prototyping will enable brands to explore radical designs rather than create a version based on an existing product. AI agents will adjust packaging designs based on customer feedback or market trends, and digital print will help brands stay ahead of the competition.

Source: The Future of Digital Print for Packaging to 2030, Smithers

Generative AI progression to 2030

	PRE-2020	2020	2022	2023	2025	2030?
TEXT	Spam detection Translation Basic Q&A	Basic copy First drafts	Longer form Second drafts	Vertical fine tuning improves (scientific papers, etc)	Final drafts better than the human average	Final drafts better than professional writers
CODE	1-line auto complete	Multi-line generation	Longer form Better accuracy	More languages More verticals	Text to product (draft)	Text to product (final), better than full-time developers
IMAGES			Art Logos Photography	Mock-ups (product design, architecture)	Final drafts (product design, architecture)	Better than professional artists, designers and photographers
VIDEO/ 3D/ GAMING			First attempts at 3d/video models	Basic/first draft videos and 3D files	Second drafts	AI Roblox Video games and movies are personalised dreams

Source: Sequoia

Supply chain efficiencies

Smarter systems will enable better stock management, improve efficiency and reduce waste. There will be ongoing developments in packaging lines that are more adaptable to different packaging requirements.

DRIVERS

- The packaging market is driven by the consumption of products and shifting consumer demands. Overall impact is an increase in the number of SKUs and decrease in run lengths. The move towards **greater levels of customisation** will demand packaging lines to operate with a series of smaller runs of varying sizes and filling demands.
- The **rapidly growing e-commerce market** is a major adopter of automation. AI is being used on packaging production lines to design and create **custom-sized packaging** for individual delivery lots. [1]
- The customisation trend is one of the key drivers for innovation in automated systems. An increased use of robots and cobots on packaging lines, supported by AI, is one of the leading solutions to increasing line flexibility without reducing its speed or efficiency. AI will provide better **forecasting and monitoring risks** to mitigate disruptions.

DEVELOPMENTS

- A core area for development is **“right sizing” the packaging**, particularly for e-commerce, but also to package more in the same item and at lower cost. Robotic lines will be required to do more than one task.
- Growth in **micro fulfilment centres** which means that consumers can get products in 24 hours. Companies will use live data to respond to immediate market demands, such as special promotions, storms/weather, etc.
- Ever more sophisticated packaging lines will be capable of **rapid reconfiguration** to handle packages of all sizes with minimal downtime. Automated handling systems will need to function as effectively with round or complex designs as they do square or rectangular shapes. [2]

[1,2] *The Future of Secondary and Protective Packaging to 2030, Smithers*

> **“There is great potential to significantly increase efficiency and sustainability as AI optimises processes, from material selection to end-of-life processing. The development of smarter, self-learning systems could improve the adaptability of production and contribute to realising a fully circular economy.” [1]**

[1] The Future of Global Flexible Packaging to 2030, Smithers

Future outlook

GenAI will significantly lower the barriers for creativity in packaging design.

There will be explosive growth in personalised and virtual content, and versatile packaging formats generated through GenAI. Brands will move faster and launch new products based on a better interpretation and understanding of consumers' needs. GenAI will help to formalise packaging design based on consumer preference. It reduces the time of experimental trials and improves the success rate. This will have an impact on printing for packaging, and there will be further integration with digital printing, digital finishing and automatic forming machines.

The entire packaging supply chain will be disrupted as companies take advantage of the wealth of data to optimise and improve performance. While active and intelligent packaging is not a new concept, combined with GenAI it could help with supply chain management and customer communication. Many packaging companies are exploring potential partnerships and alliances to take advantage of GenAI at scale. These partnerships and alliances will be just as disruptive to the packaging industry as the technology itself.

Sources

Smithers Market Reports provide credible, actionable insights, with market data based on primary and secondary research. Our team of industry experts will help solve your strategic and business challenges with incisive market intelligence.

The Future of Digital Print for Packaging to 2030

The Future of Secondary and Protective Packaging to 2030

The Future of Global Flexible Packaging to 2030

The Impact of Generative AI on Packaging is produced by Smithers in partnership with Packaging Innovations & Empack 2026

Find out more at:
smithers.com/services/market-reports
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