



CAMBRIDGE  
DESIGN  
PARTNERSHIP

# Maximizing the Value of Smart Packaging

Insights drawn from our  
Smart Packaging Playbook

By Chris Houghton  
Partner

CAMBRIDGE DESIGN PARTNERSHIP

Get in touch if you'd like to learn more:  
[smart.packaging@cambridge-design.com](mailto:smart.packaging@cambridge-design.com)



# What is 'Smart Packaging'?

'Smart packaging' is technologically enhanced packaging that can solve problems and deliver new benefits for consumers, patients, and commercial stakeholders, along the entire value chain.

'Active', 'intelligent', and 'connected' packaging are other names you might encounter. Consider these as sub-categories, with smart packaging being the umbrella term. Put simply, 'active' interacts with what's inside the pack, influencing the product conditions; 'intelligent' typically communicates what's going on in the pack or outside environment but without intervening; and 'connected' links to a digital experience via an on-pack digital trigger, such as a quick response (QR) code or near-field communication (NFC).

Return on investment (ROI) is a major consideration for any company, and lots of spend in this space is limited to short pilot runs that test and learn in this new frontier. We've been amassing examples that demonstrate smart packaging benefits, from recruiting, engaging, or retaining consumers and helping patients with medication, to providing cost-saving efficiencies in the supply chain that are often invisible to the end user.

Another imperative when introducing new technologies is tackling sustainability. Sometimes, smart packaging can be harmful, given it often adds extra complexity. Other times, sustainability is helped by smart technologies to prolong shelf life, provide supply chain transparency, or sort materials in waste streams. We're committed to finding win-wins – where smarter is more sustainable.



“Smart packaging is technologically enhanced packaging which can solve problems and deliver new benefits.”





## STEP 1:

# Identify the right opportunity at the right scale

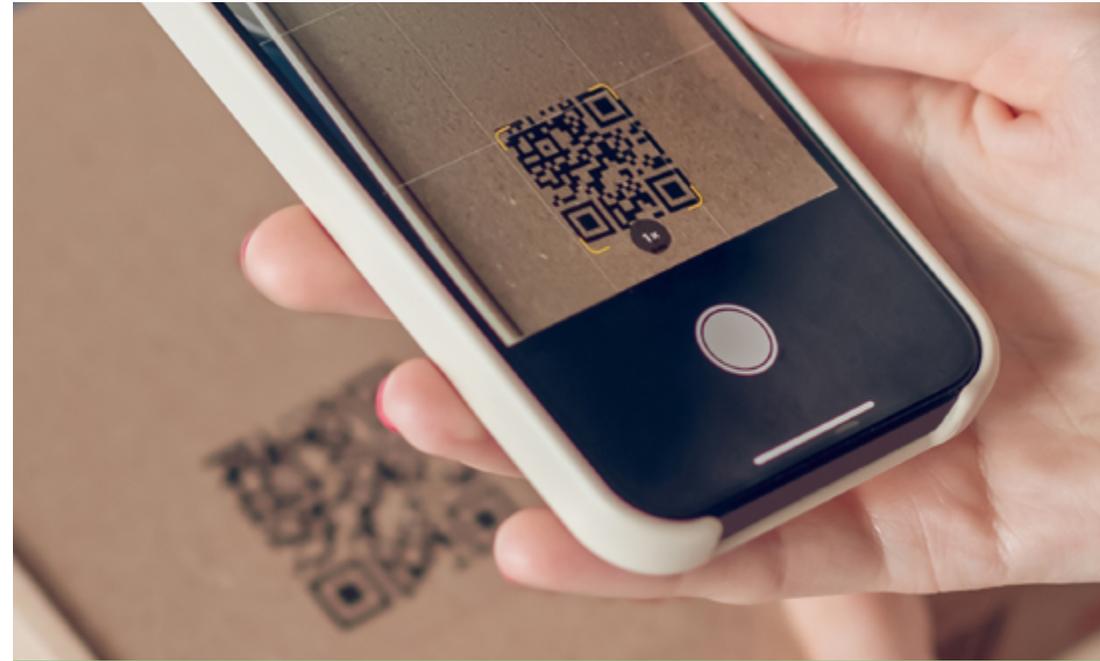
Just because you can, doesn't mean you should.

Smart packaging opens access to a whole set of potential benefits. Companies need to intentionally 'choose' some opportunities – and 'pause' or 'pass' on others – if they want to avoid being overwhelmed or over-investing. Here lies the challenge: identifying the precise problem or opportunity to pursue – something that's big enough to provide value but simple enough to achieve. Only then can you examine how smart packaging options could help. Start with the problem, not the solution, from a technology-agnostic viewpoint.

## How do you get there?

As part of our Smart Packaging Playbook, we've built a framework of benefits that can be delivered through smart packaging – reverse-engineering hundreds of examples, and distilling problems they solve. The framework classifies the advantages for consumers and patients in terms of functional, social, and emotional benefits as well as for different commercial stakeholders, such as brand owners, supply chain, and corporate teams.

For consumers, information, augmentation and entertainment are all popular. Bringing some of this into a healthcare context can improve onboarding, ease of use, and medication adherence. Then, on the commercial side, having digital traceability can provide efficiencies to adapt to stock and distribution needs, data to influence supply chain management, and other advantages that ladder up to cost savings.



“With smart packaging, like most innovation, ‘context is king’, so we start with a consumer job-to-be-done or business problem to solve – staying technology-agnostic until it’s well defined.”

## Framework of benefits

This framework compartmentalizes the different types of benefits that can be gained from smart packaging.



Our complete **Smart Packaging Playbook** unpacks each of these broad themes into specific benefits.

For the consumer, wins can be functional, emotional, or social.



### Functional

Practical wins, like saving time and money



### Emotional

Elevating how the person feels and providing reassurance



### Social

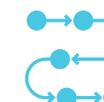
Providing connections, that can deliver communal support and belonging

For commercial stakeholders, they are:



### Brand

Equity and engagement that equals competitive advantage



### Supply chain

Efficiencies across production, supply, storage, logistics and so on



### Corporate

Improvements in various KPIs, including sales, cost savings, and brand awareness



## STEP 2:

# Learn from the best

Take learnings from one sector and apply them in another.

To naysayers, smart packaging is a red herring – a solution to a non-problem – used as a sales gimmick that attracts publicity and little else. But the pandemic accelerated the adoption of QR codes and, when you take a deeper look into the topic, you'll see smart packaging has R&D substance as well as marketing-led style – and it's here to stay.

We gather best-of-their-kind examples of smart packaging from the worlds of consumer, healthcare, and industrial. We've over 100 examples and counting. These case studies perfectly demonstrate the sort of meaningful benefits we've been talking about, as well as highlight those that flopped – learning from successes and failures. Not only that, but they demonstrate latent opportunities to take learnings from one sector or category and apply them in another for a competitive edge.

Among those successful applications in the consumer sector is Aptamil's track and connect baby formula. This smart packaging digitally reassures that the product is authentic and unharmed through the journey, tackling growing problems of counterfeiting and malicious tampering.

Over in healthcare, CVS Pharmacy's 'Spoken Rx' technology uses radio frequency identification (RFID) to make prescription information accessible to people who are blind or partially sighted. Spoken Rx reads aloud the text of special labels on medicine packaging when people scan the labels with their smartphone using CVS Pharmacy's app.

And in the industrial sector, a compelling case study from DS Smith features surface-coating technology used to create packaging with 'anti-viral and bacterial safe-handling zones' to impede the spread of germs like MRSA and E. coli. Elsewhere in this sector, we find Living Packets' e-commerce packaging designed to be re-used 1,000 times with in-built GPS for real-time tracking, and sensors to detect shocks, humidity, tampering, and log delivery – a closed loop system that's smarter and more sustainable. Win, win.



## STEP 3:

# Select the right technology

Sometimes, no tech is the smart play. Other times, technology is the answer.

You don't use a sledgehammer to crack a nut. It's tempting to jump right into the sea of exciting technologies that smart packaging offers. Whether our clients use high or low tech isn't our main concern – our focus is on helping define the best solution to their problem.

Sometimes, no tech is the smart play. There are many instances when adjusting the packaging's structure, the materials it's made of, or the graphic design can address the problem. For example, when premium cycle brand Vanmoof's bikes kept getting damaged in transit, they had lots of choices available to tackle this problem. Did they add technological sensors, or visual damage alerts through smart inks? No, they changed the graphic design on the packaging to make it look like there was a TV inside. This ingenious change altered people's perception of the value and fragility of the contents. The result: the rate of damaged goods reduced by over 70 percent, saving thousands of complaints, returns, and money. Happy consumer, happy client.

Other times, technology is a critical enabler, enhancing results in ways traditional 2D and 3D changes just can't compete with, such as digital clouds collecting data and providing key insights or automated actions 24/7.

Premium cycle brand Vanmoof changed the graphic on their packaging, reducing the rate of damaged goods by over 70%.



[vanmoof.com/blog/en/tv-bike-box](https://vanmoof.com/blog/en/tv-bike-box)



Beyond the packaging, it often requires a wider technology ecosystem to join the dots, including the likes of readers and smartphones, which exchange data often logged on digital clouds. Some of these technologies are more mature and prepared for deployment than others.

Most on-pack digital triggers have been established for years, for example, RFID, NFC, and QR codes. It's the technologies around the ecosystem that have been developing rapidly in recent years and increasing the potential of smart packaging – extended reality, blockchain, Metaverse, the emerging internet of packaging (IoP), and so on.



Radio Frequency  
Identification  
(RFID)



Near-field  
Communication  
(NFC)



Quick Response  
Codes (QR)



Smart Inks,  
Coatings & Actives



Digital  
Watermarks



Extended Reality  
Systems (XR)



Blockchain



Conductive  
Inks & Printed  
Electronics



The Metaverse



## STEP 4:

# Find the right supplier

Your existing suppliers may not have the smart services your business needs.

Once you know which opportunity to pursue, what benefits and experience you want to deliver and using which technology, you need to have the right suppliers lined up to realize this vision. This is Step 4 – but when you select who to work with and how to pilot or scale up, this consideration runs alongside the mid- and later stages of Step 3 ('Select the right technology').

Often, auditing and approving a new supplier can take weeks and months. It's worth getting a head start with the most likely candidates but stopping short of locking into their technology or signing up to minimum order quantities. It's an advantage if a fitting supplier is already on your roster, but it's always worth having a challenger or two to keep the incumbent on their toes. With these suppliers supporting the innovation process, you can build a business case before any major investments are decided.

In our playbook, we've summarized over 50 suppliers – big and small, generalists and specialists – to avoid turning this into a search for a needle in a haystack (or whoever has the highest search engine listing). This is another time saver for you and your team, accelerating innovation.





“With changing consumer preferences, high costs, complex retailer relationships, aggressive competition, post-Covid working conditions, and ambitious sustainability targets, FMCG companies need innovation and competitive advantage more than ever.”

Discover FMCG at CDP

# What does this mean for your brand and FMCG company?

FMCG brands contend with many pressures. Cost of goods is always high on the list, whether you're facing pricing pressures from private label, stocking squeezes from retailers, strong marketing and innovation from competitors, or margin struggles caused by inflation of raw material and energy costs across the supply chain.

Sustainability is top of mind, too, with challenging targets to meet in 2025 and 2030, along with geographic infrastructure and regulatory variables, not to mention increased public scrutiny.

Brand equity is often more fragile than we like to think, with fickle and experimental consumers trying different brands and products across many channels. Consumers are less predictable than ever. How brand owners miss the traditional four Ps of marketing (product, price, place, promotion) of the past!

Then, there's the Metaverse – and the expectation for all brands to have a digital presence. Are brands prepared for this new experiential frontier and well-positioned to win, or are they overwhelmed, not knowing where best to start?

Smart packaging could help with each of these to varying degrees. It can save you money or gain you revenue in new ways, enable more sustainable behavior, deliver personalized and immersive experiences, provide sorting efficiencies at material recovery facilities, and even future-proof you for regulatory headwinds.

Get in touch to discuss how our complete Smart Packaging Playbook could help you and your company.



“Smart packaging can unlock a myriad of benefits, but it can also bring pitfalls. It often presents a classic ‘should we, shouldn’t we?’ dilemma. Our Smart Packaging Playbook helps clients quickly navigate opportunities and accelerate innovation across consumer, healthcare, and industrial sectors.”

## Chris Houghton

Partner

Chris is an industrial designer who has been trusted by over 100 brands to identify and deliver innovations that drive their success. At Cambridge Design Partnership, he is Head of FMCG, leads our packaging capabilities, and is a board director.

Client experience includes: Absolut, Arla, Boots, Carlsberg, Coca-Cola, Danone, Diageo, Dr. Martens, GSK, Heinz, Heston Blumenthal, Lego, Marks & Spencer, Mars, Merck, Mondelez, Motorola, Nestlé, Novartis, PepsiCo, Procter & Gamble, Pulpex, Reebok, and Unilever.





# Ready to future-proof your packaging?

This short guide gives a taste of our Smart Packaging Playbook. Get in touch to find out more about how we help our clients identify new opportunities, select the right technology, find the right supplier, and learn from the best examples.

Get in touch if you'd like to learn more.

[SMART.PACKAGING@CAMBRIDGE-DESIGN.COM](mailto:SMART.PACKAGING@CAMBRIDGE-DESIGN.COM)





Cambridge Design Partnership is an end-to-end innovation partner, propelling global brands and ambitious start-ups to success.

We build breakthrough products and services – from insight to ideas, prototypes to production – bringing innovation to life. Our teams are multi-disciplinary, uniting scientific rigor, design ingenuity, and engineering excellence for consumer, healthcare, and industrial clients.

People-centered, deeply collaborative, and – above all – expert, we’re uniquely positioned to shape the future for consumers, patients, and industry. Even our ownership model is innovative: We’re 100% owned by our employees, ensuring an open culture and a total commitment to your project’s success.

One partner. No barriers. Extraordinary results.

[www.cambridge-design.com](http://www.cambridge-design.com)

UK OFFICE

Church Street, Toft, Cambridge CB23 2RF  
+44 (0)1223 264428

US OFFICE

801 West Morgan Street, Suite 120, Raleigh, NC 27603  
+1 (919) 901 0909

