FUTURE OF PACKAGING

Circular Economy in Action

NatureFlex™ – the Facts

32%
of all plastic packaging leaks into ecosystems.

This means that by 2050, there could be more plastics than fish in the sea.
[Source: Ellen MacArthur Foundation]

1/3
of all food produced globally is wasted every year.
[Source: Food and Agricultural Organisation of the UN]

Food waste is responsible for **7%** CO_2 **of greenhouse gas emissions** and **20%** of **landfill.**
[Source: Food and Agricultural Organisation of the UN]

NatureFlex™ provides barrier, heat resistance and conversion friendly properties to **extend shelf life and reduce food waste.**

NatureFlex™ helps reduce greenhouse gas emissions by diverting organic waste from landfill.

NatureFlex™ can be disposed of on the compost heap, along with organic waste **to enhance soil quality.**

NatureFlex™ is compatible with other bioplastic materials for compostable laminates

NatureFlex™ is made from **renewable wood pulp.**

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SUSTAINABILITY

Resolving the riddle of sustainability

With green and clean credentials, sustainable packaging is ready to make the leap from niche to mainstream

JIM McCLELLAND

Sustainability in packaging remains a bit of a riddle. Sustainable packaging is not in short supply and neither is there a lack of demand, yet it is not mainstream. It is manifest in many different materials, suited to a range of applications and popular with a broad demographic, but still not considered commercial.

The conundrum seems to be that while the industry can clearly make sustainable packaging, the market somehow cannot make packaging sustainable. So what is the stumbling block?

For Debbie Hitchen, director at global sustainability consultancy Anthesis Group, the problem is sometimes the "s" word' itself. "The definition of 'sustainability' can be challenging and has potential to create conflicts," she says. "For example, for one supply chain or client, sustainability might refer to circular-economy or carbon-emissions targets, whereas for another, chemical compliance or product standards."

Despite popularity among millennials, with Nielsen's global study revealing almost three out of four prepared to pay more, one thing sustainability is not is a fad. All the more reason then that traditional commercial disciplines are adopted and business benefits delivered, if strategies are to scale, argues Gilles van Nieuwenhuyzen, head of Stora Enso's packaging division.

"Saving the environment is not a trend, but a global consensus," he says. "However, for fully renewable packaging to replace fossil-based alternatives, it needs be as much about functionality and cost-efficiency as sustainability.

"It's about finding that push-and-pull balance between brand owners and consumers that will be the tipping point for making renewable materials-based packages the industry standard."

That said certain packaging forms appear stubbornly resistant to sustainable change. One such hard-to-fix element, identified by Marks and Spencer packaging technologist Kevin Vyse, is plastic film. "While it is lightweight, which helps reduce carbon emissions, and plays an important role in reducing food waste by keeping food fresher for longer, it is currently difficult to recycle," he says.

In response, M&S has committed through its sustainability strategy Plan A 2025 to assess the feasibility of making all its plastic packaging from one polymer group, which would help maximise use of recycled content.

Rawpixel/Shutterstock

M&S is also striving to tackle complexity by making its packaging as easy as possible for customers to recycle. This represents a prime industry opportunity, says Dr Richard Peagam, associate director at Anthesis Group. "Simplification is a key area where quick wins could be made across all packaging, for example through removal of sleeves from plastic drinks bottles to make recyclability easier or considering material choices for cap lids and closures," he says.

It is not all about waste, however. Cutting carbon is key for corporates and brands, with indirect impacts on logistics as important as direct energy usage or footprints for production, explains Mr Vyse. "When we design our packaging at M&S, we look at the whole life cycle of the product, including its carbon emissions," he says. "For example, by reducing packaging across our snacking range, we've saved 72 tonnes a year, which equates to 152 fewer lorries on the road in 2017."

The rise of e-commerce is making figures for distribution even more crucial, with failure to size-optimise packaging producing alarming results, adds Mr van Nieuwenhuyzen. "It doesn't matter that packaging is sustainable when a majority of its content is air or even worse EPS-based fillers," he says. "A recent calculation in Sweden showed lorries transporting e-business goods carry more than 100 million litres of air in just one year."

The temptation when looking for a tipping-point gamechanger is to pin hopes on some transformative tech or miracle material. In the race towards more sustainable packaging, bioplastics are the longer-odds horse with the most backers.

According to market data from European Bioplastics, global production capacity is forecast to grow by 50 per cent, from around 4.2 million tonnes in 2016 to 6.1 million tonnes in 2021.

To put those figures in perspective, however, despite rising demand, bioplastics currently represent only about 1 per cent of some 300 million tonnes of plastic produced annually. Low oil prices have made it harder for suppliers to compete and concerns persist around use of agricultural land for non-food crops.

In the waste and resource hierarchy, of course, reusable solutions score even better than renewable or recyclable. Relatively slow take-up is therefore a source of frustration for pioneers such as Ross Thornley, founder and creator of Mug for Life, for whom legislation offers the best bet.

"For nearly a decade we have been actively championing the adoption of reusable coffee cups, but the infrastructure is still too complex and fragmented," he says. "Without regulatory changes, such as happened with plastic bags, it will remain in silos with the percentage of society who are both well informed and personally compelled to seek a better solution."

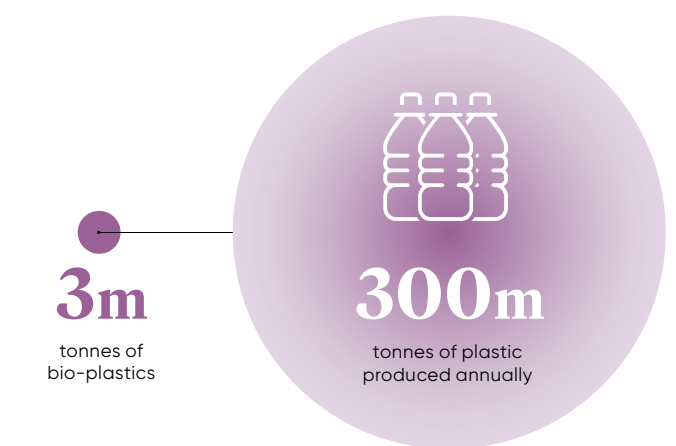
In the meantime, Mug for Life has made giant leaps forward through partnership with a key global supply chain player, getting stocked in 27 universities, plus success with bespoke versions for clients ranging from the Church of England to BT.

Ultimately, though, Mr Thornley sees mainstreaming as less about materials and more about mindsets, from supply chain decision-making to consumer naivety and disconnect. "Gaining behavioural change is a complex dynamic," he says. "While a few see the value in adopting a more sustainable approach, habit and, honestly, convenience are still preventing a mass shift."

For the future of packaging, it is just possible the answer to the sustainability riddle is in fact not procurement or process, but people, both professionally and personally – it's you and me.

BIO-PLASTICS

BIO-PLASTICS CURRENTLY REPRESENT ONLY 1 PER CENT OF SOME 300 MILLION TONNES OF PLASTIC PRODUCED ANNUALLY



European Bio-plastics 2017

COMMERCIAL FEATURE

New technology provides a personal touch to food and drink packaging

Innovative advances in material science and an increasingly sustainable approach to labelling are set to transform the packaging of food and drink

Packaging in the food and drink category is becoming more sustainable and increasingly interactive as brands crave better engagement with consumers. Innovative new approaches to labelling are enabling a more personalised experience for customers, driven by a greater interdependence between physical and digital content, increasing the options for brand differentiation.

At the forefront of this technology is Avery Dennison, founded in 1935 by pioneering inventor R. Stanton Avery, who kickstarted the pressure-sensitive industry when he created self-adhesive labels, a precursor to the labelling still universally used today. This culture for innovation has driven Avery Dennison through eight decades of growth to its position today with more than 25,000 employees and sales of over $6 billion.

True to the disruptive nature of its founder, the company has continued to pioneer changes in packaging with one of the largest research and development teams in the industry, providing customers with new category opportunities through a combination of material science and advanced process technology capabilities that enable patented technology, intelligent labels, and sustainable products and services.

"Innovation is at the heart of Avery Dennison with material science a core part of our DNA," says Georges Gravanis, the company's president for label and graphic materials. "Our founder pioneered the pressure-sensitive materials industry, and we have continued to create and drive change ever since.

"Labelling and packaging within food and drink is multi-faceted and can be quite complex, but for our team, who focus on combining our unique insights with our research and development strengths, the challenges of today and the opportunities of the future are very exciting. We are seeing technology combine with material breakthroughs to create real alternatives for labelling and packaging of the future."

GEORGES GRAVANIS
PRESIDENT, LABEL AND GRAPHIC MATERIALS, AVERY DENNISON

FRESHER FOOD, LESS WASTE

Radio-frequency identification (RFID) tags, which contain chips that store unique item data about the products they are attached to, are helping to reduce food waste by improving efficiency in food delivery and stock management. Through their unique identities and ability to store extensive information, the technology is providing a welcome alternative to traditional barcodes in industries such as retail where food waste is extremely costly.

Preliminary analysis of a recent three-month trial of RFID tags by a leading food retailer in the UK points to a potential reduction in food waste of 20 per cent and food stock management costs of 50 per cent. The pilot programme has also shown improvement of inventory accuracy up to 99 per cent for food distribution across the supply chain.

As well as creating RFID solutions that drive significant benefits through the supply chain, Avery Dennison has committed to achieving ambitious sustainability goals by 2025. Its proprietary SmartFace technology uses paper substrate to enable recyclability and an entire category of products, its Clear Intent™ portfolio, is dedicated to sustainability.

"It is core to our values, but also key to the future of our business as the demand for sustainable practices and products is increasing," says Mr Gravanis. "Our Clear Intent portfolio is focused on responsible sourcing, reduced materials usage and recyclability. It contains hundreds of facestocks, adhesives and other solutions made with fewer inputs, certified, renewable materials and performance-enhancing innovations.

"We understand that consumers within the food and drinks category expect the brands they purchase from are good corporate citizens. Increasingly, that means they expect full transparency in the products they are buying, not only of the food and drink itself, but also the packaging.

"How the material is made is important, but more important is the impact it has on the overall recyclability of the package and its end of life. We have a number of solutions that have been invented to make recycling easier and various compostable solutions, and we are committed to increasing innovation in this area."

Another sustainable way of reducing waste is coming through reclosure technology, which packaged-goods companies and packaging designers are adopting to keep food fresh for longer. Oxygen barrier films combined with pressure-sensitive reclosure adhesives prevent oxygen and moisture from entering food packaging by enabling easy opening and repeated resealability.

> We understand that consumers within the food and drinks category expect the brands they purchase from are good corporate citizens

Adhesives can not only be used to keep products fresher and more sustainable, but also to make them look more attractive. Shelf appeal has always been important in food and drink, and ever-growing consumer choice has driven a need for labels and packaging that stand out from the crowd. Avery Dennison combines new material facestocks with advanced adhesives that ensure products maintain their aesthetic appeal even when sat in an ice bucket for hours.

GETTING PERSONAL

Material science is converging with the wider retail trend of personalisation to transform approaches to food and drink packaging. When asked for their top customer engagement priorities by Boston Retail Partners, seven in ten retailers cited personalisation, which can include digital printing and integrated technology.

Last year, Avery Dennison launched a smart cloud-based solution called Janela™ that connects products to the internet of things through unique, serialised labels. By capturing real-time data, Janela provides insights that help brands and retailers personalise the consumer experience and sell products more intelligently.

"With the internet of everything fast becoming a reality and consumer demand increasing for enhanced digital experiences, technology must be pushed to meet industry demand," says Francisco Melo, vice president and general manager of global RFID at Avery Dennison. "Our intelligent labelling solutions have truly become an integral part of connecting everyday things to the digital world to increase speed in the supply chain, improve processes and enhance consumer experience."

By enabling personalisation, technologies such as Janela enable brands to be much more focused in their targeting of individual consumers. Materials used in digital printing have different compositions than in traditional printing and as the technologies advance so does the need for material science.

Through intelligent labels such as near-field communication (NFC) and quick response (QR) codes, brands and retailers can interact and engage with consumers on a one-on-one basis. This direct line of communication can then be used as a marketing channel to offer unique styling recommendations and reviews and rewards based on an individual's shopping habits. Intelligent labels can also be used to create unique in-store experiences, blurring the line between the physical and the digital world.

Whether it is RFID labels, reclosure technology or personalisation, Avery Dennison continues to drive innovation in the packaging industry more than 80 years after its founder set the foundations for its growth. And at the heart of this development pipeline is a clear focus on ensuring sustainability and labelling come hand in hand.

For more information please visit www.labels.averydennison.com/thefutureofpackaging

INTELLIGENT LABELLING AT AVERY DENNISON

80+ years
25k employees
$6bn+ in sales

Innovation is at the heart of Avery Dennison with material science a core part of our DNA

Pioneering changes in packaging with a 300+ dedicated R&D team

The Avery Dennison Clear Intent™ portfolio is dedicated to sustainability

20% potential reduction in food waste with use of RFID tags

50% potential reduction in food stock management costs with use of RFID tags

> Our intelligent labelling solutions have truly become an integral part of connecting everyday things to the digital world to increase speed in the supply chain, improve processes and enhance consumer experience*

Francisco Melo, vice president and general manager of global RFID at Avery Dennison

*Based on preliminary analysis of a recent three-month trial of RFID tags by a leading food retailers in the UK

E-COMMERCE

E-tailers must wrap up a better package

The exponential growth in e-commerce has seen an unsustainable increase in wasteful packaging, posing an immediate problem

OLIVIA GAGAN

Amazon made its UK entrance in 1998, selling books online from a single office in Slough. Nineteen years later, the company is now the country's largest e-tailer, a shopping behemoth which has expanded its original inventory to offer everything from vegetables to drones.

The exponential growth of Amazon over the past two decades can perhaps be attributed to what founder Jeff Bezos calls the company's three "big ideas" of low prices, fast delivery and vast selection. But with the ability to have more or less anything you can think of rushed to your front door comes an unprecedented number of parcels and packaging.

Business-to-consumer parcels such as Amazon's account for 42 per cent of all postal deliveries in the UK, with this figure expected to rise. According to commerce consultants Pitney Bowes, if parcel volumes continue to increase at 2016 rates, the UK could be sending 3.9 billion parcels a year by 2021.

Amazon and the tens of thousands of other e-tailers doing business in the UK therefore face a number of challenges when it comes to coping with this growth. Firstly, there is the sheer amount of cardboard and plastic waste created by sending items by post. Shoppers are increasingly aware of the environmental impact of using these materials and do not wish to contribute to the problem.

There is also the issue of making parcels fit for purpose. A phrase has been coined for customers' packaging irritations – "wrap rage". Many of us have ordered an item online which could have easily slipped through a letterbox, only for it to be delivered as an oversized parcel. Isabel Rocher, former Amazon EU head of packaging supplies and now head of e-commerce solutions at parcel firm DS Smith, says many e-commerce packages are 50 per cent air. Other well-known bugbears include boxes which cascade with foam upon opening, and impenetrable hard plastic packaging requiring a knife and a steely nerve to prise open.

konzeptm/Shutterstock

Many e-commerce packages are 50 per cent air or filled to the brim with polystyrene chips

Stephen Mills, managing director of packaging consultancy TPG, says online packaging innovation has failed to keep pace with the spiralling volume of parcels being sent out. "E-tailers cannot ship goods at present levels – it's not sustainable," he says. For the e-commerce industry, "oversized packaging, the amount of material and related carbon dioxide are the biggest issues".

> E-tailers that make intelligent, economical packaging their focus could find themselves well ahead of their competitors

However, a desire to send items on time is trumping investment in better, more sustainable parcelling methods. "Just keeping pace is the priority," says Mr Mills.

Amazon does not release figures about its materials consumption, but it is not hard to imagine the levels of cardboard and filler materials – bubble wrap, polystyrene and so forth – required to wrap the millions of items it sends out in the UK each year. Mr Mills also points out that the packaging industry itself is dominated by big corrugated cardboard suppliers that are often unwilling to sell or develop alternatives.

Standardised box sizes are a key problem, both Mr Mills and Ms Rocher note. "Attempts are made to optimise box sizes and infill, but invariably fixed sizes will always lead to over-packed or oversized parcels," says Mr Mills.

To counteract this, Amazon has invested in new technologies such as Box on Demand, a machine which creates a snug delivery box to fit the exact dimensions of each product. Such investments have been limited – as of May 2016, Amazon used around four such machines in Europe – and the technology has not yet been fully rolled out across Amazon's giant global fulfilment centres.

Amazon also runs programmes to teach suppliers how to make efficient, "frustration-free" internet packaging, which is easy to recycle and easy to open. At a May 2017 conference in Washington DC, Mr Bezos claimed Amazon had saved 55,000 tonnes of waste in the past year as a result of such efforts. However, the scheme appears to largely rely on suppliers changing the packaging of the products Amazon sells, rather than Amazon honing its own parcel offering.

One potential evolution in the development of e-tail parcels is omnichannel packaging. Ms Rocher says the goal of this concept is for packaging that works anywhere; to have a robust design solution that delivers on shelf, online and during general distribution. This creates a more streamlined supply chain. Omnichannel packaging is no mean feat, as the journey of a product sold in store is very different to one picked from an online warehouse. The typical e-commerce supply chain has more than 50 touchpoints or moments when the product is handled.

"This is far more than the handful found in traditional retail, so the packaging needs to be designed to meet many more situations," says Ms Rocher.

Mr Mills says that looking further ahead, the ultimate goal is zero packaging. The industry's big question is whether consumers will want packaging at all. "Increasingly they don't; our waste handling systems are at capacity and consumers are pushing back on what they see as unnecessary content," he says.

As consumers become more aware than ever of the implications of poor packaging, e-tailers that make intelligent, economical packaging their focus could find themselves well ahead of their competitors.

Chris Ratcliffe/Bloomberg via Getty Images

Inside Amazon's Hemel Hempstead fulfilment centre

COMMERCIAL FEATURE

Why now is the time to enhance your packaging

Consumers are faced with a multitude of marketing messages, yet the opportunity for products to stand out on the shelf remains a guaranteed touchpoint, so packaging must work harder

Marketers are faced with a growing diversity of advertising channels as well as coming under greater pressure to justify their budgets. As a result, senior management are asking them to show that investments in Facebook or Twitter activity, TV commercials or influencer marketing campaigns are producing a measurable return.

As these opportunities and demands increase, there is one place any marketer can be certain the target audience will interact with the product – that's the shelf. However, as just one of many choices faced by the consumer, it is essential that brands stand out on-shelf, attracting the eye as well as identifying the product and its brand values so it is the one chosen. This is putting a greater focus on the look and feel of a product's packaging.

"Research shows that investment in eye-catching, attractive packaging can be easily justified by the resulting increase in sales," says Richard Burhouse, commercial director of API Group, a leading manufacturer and distributor of foils, laminates and holographic materials that provide exceptional brand enhancement for consumer goods and printed media worldwide. Its packaging solutions help companies in industry sectors as varied as premium drinks, confectionery and perfumery to stand out on the shelf. Mr Burhouse points to the example of budget range chains such as Aldi and Lidl that have seen significant increases in sales as a result of giving their packaging a more premium look through the addition of foils and enhanced packaging technology.

Focus groups have long been used to explore consumers' attitudes towards packaging. However, Mr Burhouse and his team were keen to undertake a more scientific analysis and so they sponsored a research project with Package Insight, a high-tech startup based at Clemson University in South Carolina in the United States that analyses and develops consumer-driven packaging. The aim was to discover whether adding metallic foils and laminates to premium chocolate packaging can attract the attention of consumers and lead to an increase in sales.

"We wanted to undertake a quantitative study to see what happens," says Mr Burhouse. "This technology tracks the movement of the shopper's retina. It's subconscious and therefore more objective than the information that you'd get from the traditional focus group."

The CUshop Customer Experience Laboratory at Clemson University recreates a representative shopping environment. Here 70 "shoppers" wore calibrated, state-of-the-art eye-tracking glasses while selecting purchases from a list. These included chocolates. On the shelf were chocolates that came in laminated cartons or packaging with embellishments such as stamped foil. As they shopped, their eye movements were recorded, providing insights into why they chose one chocolate product over another.

"We wanted the most rigorous study possible and, for instance, we moved the products around so that the reaction of the 'shoppers' wouldn't be affected by the position of the product on the shelf," explains Mr Burhouse. "We also used brands that would not be known to those taking part in the tests."

As they moved around the "shop", the exact eye movements of the "shoppers" were then analysed. The results showed that they looked at the packaging with embellishments nearly 50 per cent more times than the packaging without. They also looked at these enhanced packs up to 1.46 times longer than those in the control group. Most significantly, when consumers were asked whether they'd be more inclined to purchase a chocolate offering that was foil stamped, more than two thirds (69 per cent) said they would.

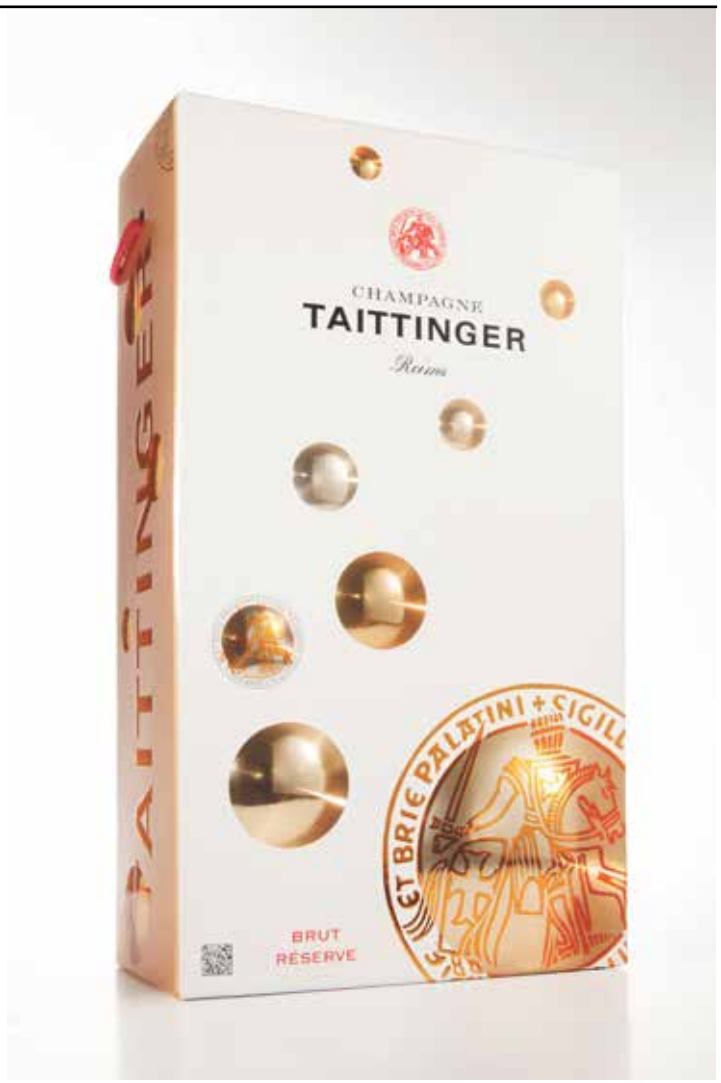
> "Shoppers looked at the packaging with embellishments nearly 50 per cent more times than the packaging without

"We've seen from our conversations with brand owners that they're interested in using technology like this because it's an excellent way of prototyping," says Mr Burhouse. "It works well to test an investment in foil and other packaging enhancements among consumers before a launch. This means that brands can justify investing in more sophisticated packaging."

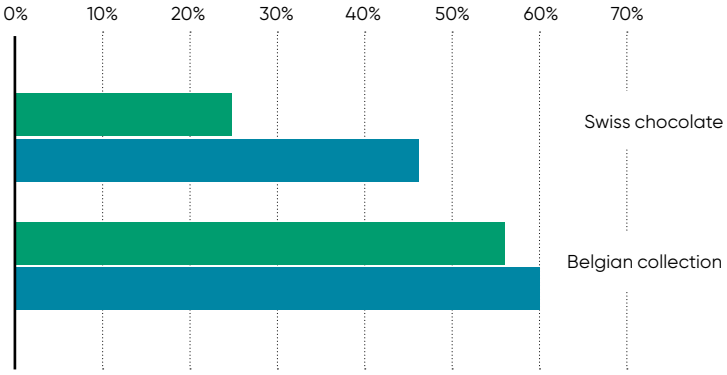
One exciting new innovation comes in the form of holographics. This has two very different benefits. On the one hand, it can make products look more attractive and appealing on the shelf, while on the other it is a useful tool to combat the growing threat of counterfeiting.

"We're finding that more and more brands are coming to us to talk about these opportunities because, thanks to our unique, new delivery system, we're better positioned than anyone else to create holographics which offer aesthetic appeal," says Mr Burhouse. "As the marketing focus turns to the shelf, foil, laminate and holographic technology is increasingly allowing us to create and test a whole new generation of more appealing packaging that truly delivers for brands."

For more information please visit apigroup.com



PURCHASE DECISION: STIMULI COMPARED WITH CONTROL



CASE STUDIES

HOLOGRAPHICS: NEW CREATIVE OPPORTUNITIES

A growing number of brands are using API's holographic products to add extra visual appeal to packaging that goes over and above a simple reflective metallic finish. Its shifting colour and light direction increase the impact of the product on the shelf and attract the interest of consumers. Carefully chosen holographic patterns can communicate brand values and identity, and work alongside the print and other packaging finishes to create real on-shelf impact.

Already used extensively on cartons and labels for premium products, holographic finishes are increasingly being employed in everyday consumer goods packaging. The range of patterns and colours provides new and exciting creative opportunities for packaging design.

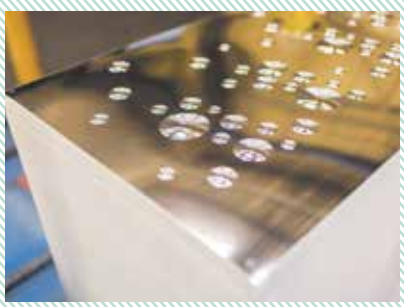
The development process can, though, be challenging and requires close integration of the design, material production and print processes. Because of this, brands appreciate API's expertise and its collaborative approach, as well as the involvement of all supply chain partners from an early stage.

TRANSMET LAMINATE: BRIGHT, ATTRACTIVE AND SUSTAINABLE

Transmet, API's film-free metallic laminate option for paper and paperboard, provides an all-over, print-receptive coating to a base material in a bright metallic finish.

Conscious of the growing importance of sustainability in packaging, brands appreciate the fact that its metallic layer, which is less than 0.1 micron thick, combined with a water-based adhesive means it can either be recycled or composted.

Transmet is suitable for all commonly used printing technologies, and responds well to embossing and foil stamping for an attractive, eye-catching look on the shelf.



RECYCLING

Thinking outside the burger box

Annie Eagle / Alamy Stock Photo

Tackling the number-one problem of packaging waste demands upcycling the way we think about the industry

JIM McCLELLAND

Rather than a problem halved, a problem shared may become something no one wants to own. Everybody's problem becomes nobody's and, being nobody's problem, it tends not to get solved. Packaging waste is in danger of going down this wormhole of blind spots and buck-passing. So whose responsibility is it?

According to Jacob Hayler, executive director of the Environmental Services Association (ESA), all players in the packaging supply chain have important roles to play. "Government needs to set a stronger system of producer responsibility for packaging which boosts recycling," he says. "Retailers need to use their influence over suppliers to encourage packaging to be more recyclable and over consumers to make greener choices.

"Packaging manufacturers need to think innovatively about recyclability, while retaining packaging's vital functionality and role in protecting goods."

Meanwhile, figures for packaging waste continue to make headlines, for the wrong reasons. The 2016 RECOUP survey revealed an average UK household uses nearly 500 plastic bottles a year, but only recycles just over half of them. This means some 5.5 billion plastic bottles went uncollected in 2015, more than 15 million every day.

When it comes to household recycling, in general, the licence allowed local councils in England to create their own policy leads to market fragmentation. According to Chris Waterhouse, chairman of the Packaging Society and managing director of consultancy iDi Pac, the onus is on Westminster to change the game.

"Government needs to engage with industry, local government, recycling and waste to construct a consistent and coherent approach," he says. "A standardised approach will allow investment in the appropriate infrastructure."

Policy-making is proving problematic, however. The national Litter Strategy for England, launched with the aim of reducing the £800-million annual burden on the taxpayer, disappointed many with its lack of ambition.

At the same time, north of the border, recent Scottish plans for a deposit return scheme to incentivise consumer recycling of bottles and cans, though comparatively brave, are also deeply unpopular within the packaging industry.

Moreover, it is not just a matter of what gets recycled and how much, but where it goes and gets used, says Mr Hayler. "Current legislation, in the form of packaging responsibility obligations, has done a great job in raising recycling rates at very low cost," he says. "But there are no real drivers to encourage UK manufacturers to use recycled materials.

"This means much of the recycling we collect ends up being exported overseas. If we want a strong and stable long-term recycling market in the UK, then actions to encourage greater domestic use of materials will be critical. Introduction of differentiated fees under this system would help considerably."

500
plastic bottles are used by the average UK household every year

7.5bn
were recycled by UK households in 2015

5.5bn
were not collected to be recycled

RECOUP 2016

Differentiated fees would see packaging which is recyclable or uses high levels of recycled content attracting lower regulatory compliance costs. The ESA also highlights government's role in stimulating market demand through procurement, directly specifying higher levels of recycled content and demanding its suppliers do the same.

"One of the reasons government leadership is important," says Trewin Restorick, founder and chief executive of environmental charity Hubbub, "is that it forces collaboration between all parts of the supply chain from manufacturers through to the waste industry."

The power of collaboration has been amply demonstrated this year by Hubbub with its Square Mile Challenge, successfully recycling 1.2 million coffee cups from the heart of London.

Bringing together major retail brands, including Costa, Marks and Spencer, McDonald's and Starbucks, plus the City of London and Network Rail, the scheme created 117 places for recycling. Given that the UK had been throwing away seven million coffee cups a day, with less than 1 per cent recycled, the benefits of shared endeavour are easy to see and count.

Collaboration has also been key for Keep Britain Tidy in pursuing solutions with the packaging industry to design out problem elements, says chief executive Allison Ogden-Newton. "Keep Britain Tidy led on packaging innovation that removed ring pulls from cans and polystyrene from burger boxes. That kind of 'thinking outside the burger box' is needed across the entire industry if we are to turn the tide on litter and waste."

Looking differently at packaging waste by actually taking a photo of it can bring new meaning to the process of picking up rubbish, thanks to a free smartphone app called Litterati.

The app enables users to identify, collect and geotag the world's litter. It harnesses the power of crowdsourced data to map incidences of pollution worldwide, with keywords identifying commonly found brands and products, from fast food to cigarettes. This data is then used to work with companies and organisations to find more sustainable solutions.

Such smart use of mobile and digital technology helps boost citizen engagement. It also promotes producer accountability, which is key, says Litterati founder and chief executive Jeff Kirschner. "The needle moves when consumers demand change, either with their wallet or their words," he says. "However, as the source, brands wield enormous influence."

Photographic evidence supports proof of liability and allocation of responsibility. San Francisco even used Litterati's data to create a tax on cigarette sales, which helps generate nearly $4 million a year towards cleaning up.

> A collective shift in our approach to used packaging calls for more of a circular-economy mindset, one that truly starts seeing waste as a resource

For Mr Kirschner, though, it is not punitive disincentives, but potential positives that will ultimately drive change. "Sticks are short sighted. I'm all about carrots. Brands have a wonderful opportunity to transform an environmental hazard into an economic engine and become an industry hero," he says.

Such a collective shift in our approach to used packaging calls for more of a circular-economy mindset, one that truly starts seeing waste as a resource. This is not just about improving policy or transforming technology – it's time to upcycle our thinking, too.

PLASTIC PATHWAYS

China imports and recycles almost half the world's exported plastic waste, but the global reliance on the Asian powerhouse will soon come to an end

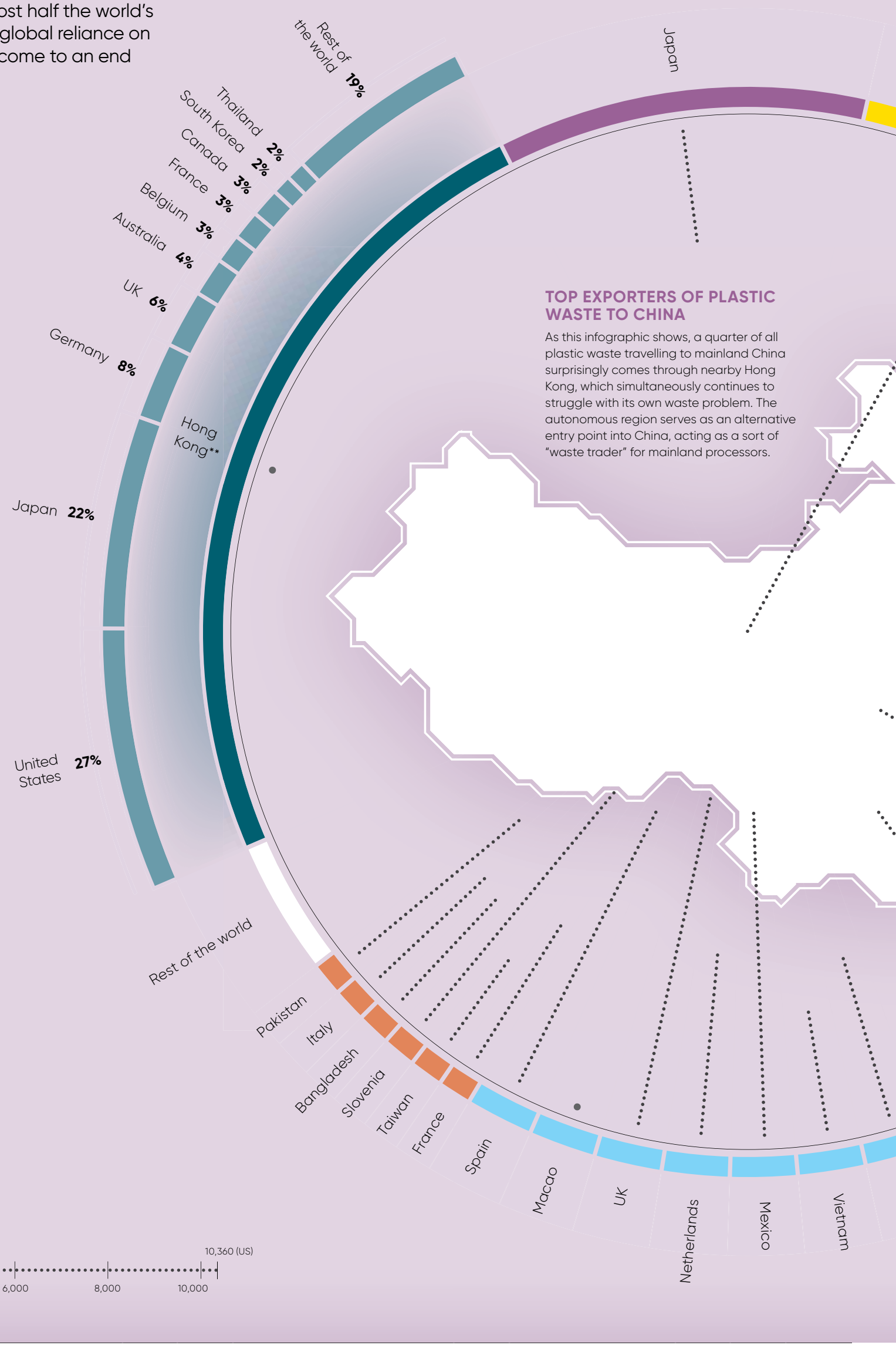
Exporting unwanted recyclables to China will be a thing of the past come 2017, when the government's ban on imported scrap paper and plastics - 24 types of waste, in fact - kicks in.

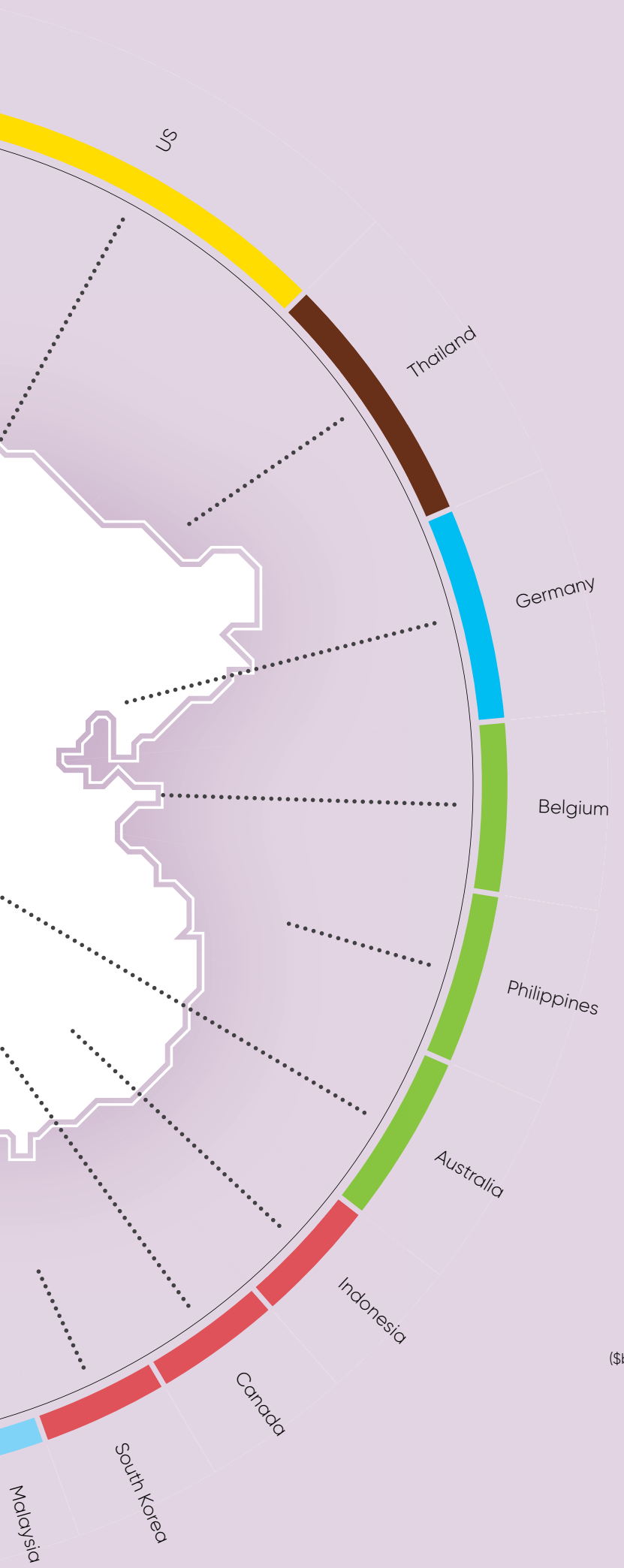
While the measure is a positive step for Beijing's environmental policy through the reduction of leaked hazardous waste from recycling plants, the impact on the country's and global recycling industries will be profound. In plastic waste alone, China imported and treated $3.7 billion-worth of material in 2016, according to the International Trade Centre and Comtrade.

Countries that rely heavily on shipping their plastic waste eastwards, such as Germany and the United States, are now scrambling for alternative markets to process their rubbish or deal with the material domestically.

The US-based Institute of Scrap Recycling Industries (ISRI) quickly responded to China's July announcement to the World Trade Organization, claiming the ban would have a "devastating impact" on the sector. With more than 155,000 American jobs directly supported by recycling export activities, ISRI said the consequences would be "catastrophic".

Although not a complete surprise, since China's Green Fence campaign to curb scrap imports in 2013, the proposal will shake up billions of dollars in trade and could hint at further moves by Beijing to cut down on other categories of waste imports in the future.





Trade Map, International Trade Centre/UN Comtrade 2017

TOP IMPORTERS OF PLASTIC WASTE

COUNTRIES	QUANTITY IMPORTED IN 2016 (M TONNES)	PERCENTAGE OF GLOBAL IMPORTS	AVERAGE DISTANCE OF SUPPLYING COUNTRIES (KM)
China	7.35	48%	4,749
Hong Kong	2.88	19%	4,957
Germany	0.55	4%	7,932
United States	0.42	3%	693
Netherlands	0.4	3%	3,720
Belgium	0.31	2%	518
Malaysia	0.29	2%	8,858
Austria	0.24	2%	536
Italy	0.18	1%	1,070
Taiwan	0.18	1%	6,251
Canada	0.17	1%	1,592
Portugal	0.17	1%	1,493
India	0.17	1%	8,539
Turkey	0.16	1%	2,056
Sweden	0.14	1%	653
France	0.12	1%	731
UK	0.12	1%	787
Indonesia	0.12	1%	11,084
Poland	0.11	1%	837
Czech Republic	0.1	1%	842
Rest of the world	1.09	5%	N/A
WORLD	15.27	100%	4,749

TOP EXPORTERS OF PLASTIC WASTE

COUNTRIES	QUANTITY EXPORTED IN 2016 (M TONNES)	PERCENTAGE OF GLOBAL EXPORTS	AVERAGE DISTANCE OF IMPORTING COUNTRIES (KM)
Hong Kong	2.82	19%	0
United States	1.94	13%	10,360
Japan	1.53	10%	2,279
Germany	1.45	10%	5,150
UK	0.81	5%	6,904
France	0.48	3%	3,196
Belgium	0.44	3%	4,731
Mexico	0.43	3%	6,686
Netherlands	0.36	2%	3,708
Spain	0.32	2%	6,263
Thailand	0.31	2%	3,004
Italy	0.23	2%	2,946
Canada	0.22	1%	5,834
South Korea	0.21	1%	1,692
Indonesia	0.2	1%	4,565
Poland	0.19	1%	3,784
Australia	0.18	1%	7,277
Slovenia	0.18	1%	6,128
Vietnam	0.17	1%	2,474
Malaysia	0.16	1%	3,369
Rest of the world	2.33	18%	N/A
WORLD	14.94	100%	N/A

CHINESE IMPORTS OF PLASTIC WASTE

China started to curb waste imports from 2013

PACKAGING FOR SOCIAL GOOD

Packaging a social conscience

At a time of growing social and environmental awareness, companies are increasingly using smart packaging to drive change for good, benefiting their customers and the community

ALISON COLEMAN

HEALTHCARE

The NHS faces mounting pressure to treat more patients with stretched financial resources, yet one of the biggest areas of waste is patients' failure to take their medicines properly. The cost is estimated at more than £500 million a year, money that could be put to good use elsewhere within the service. It's a problem the pharmaceutical industry is addressing through the use of smart packaging.

Phuturemed is an advanced packaging solution that uses low-power electronic ink technology able to monitor the conditions of the medicine contained within it. One of its uses is to monitor the adherence of a patient to their medication. When used in a standard blister pill box, information can be sent to a smart device whenever a pill is popped out of its casing, creating a record of the patient's consumption.

"Primarily, this creates a log that the patient doesn't have to think about, but can be viewed by their doctor, thereby enhancing the customer journey through convenience," says Andrew Welch, managing director of brand consultancy Landor London.

"The producer of the medicine can track the medicine in real time and establish a personal link to their consumer through an individual product. This has huge potential to enhance customer experience on an individual basis and could be the beginning of a customer-centric pharma packaging revolution."

Product design firm Cambridge Consultants has also developed smart medical packaging that guides patients through the process of administering their own medicine. AudioPack improves on basic instruction leaflets with informative audio messages, triggered by touch-sensitive paper packaging.

For someone who has just been diagnosed with diabetes, for example, AudioPack will provide sound-bite instructions to support the patient through the process of injecting themselves with medication, potentially for the first time.

Jaquie Finn, head of digital health at Cambridge Consultants, says: "Being able to unobtrusively gather information from the patient throughout their medication regime, understand motivational aspects bespoke to that patient and then nudge behaviour toward positive outcomes is the Holy Grail when trying to tackle medication non-compliance."

BEAUTY

A beauty boom, with the global cosmetics market forecast to be worth $390.07 billion by 2020, has been accompanied by a worrying increase in counterfeiting. But cosmetics brands, which already use smart packaging to enhance brand and customer loyalty, are deploying the technology to protect their image and their customers.

Nowhere is this issue proving more challenging than in the flourishing far-eastern cosmetics markets of Japan and Korea. "A beauty trend we are seeing from this region is a complex and regimented beauty routine, with a specific product for each and every skin complaint," says Andrew Welch of Landor London. "South Korea in particular has been pioneering in this sense, bringing their lengthy ten-step beauty routines to the West in recent years to much acclaim."

China is one of the biggest markets for Korean cosmetic brands, but it also one of the largest sources of fake cosmetics, distributed across multiple channels, including online marketplaces. Now Korean brands are fighting back using smart packaging.

HiddenTag is a mobile app-based solution that helps the customer to distinguish fake products from the real thing using unique data embedded in a smart hologram sticker. The HiddenTag mobile app reads the sticker data and connects to a server to identify whether or not the product is genuine.

Leading Korean cosmetic brands, such as Claires and CLIO Cosmetics, have incorporated HiddenTag technology in their packaging to protect and enhance their brand credibility as well as ensure the safety of their customers from not only fake, but also potentially harmful compounds.

FOOD

How often do people throw food away because they have forgotten when they opened it? Take ham for example, an estimated 1.9 million slices are thrown away every day in the UK, according to sustainable waste management charity WRAP.

Smart packaging firm Insignia Technologies has developed a label designed to reduce the likelihood of consumers throwing out food unnecessarily while it is still fresh and safe to eat.

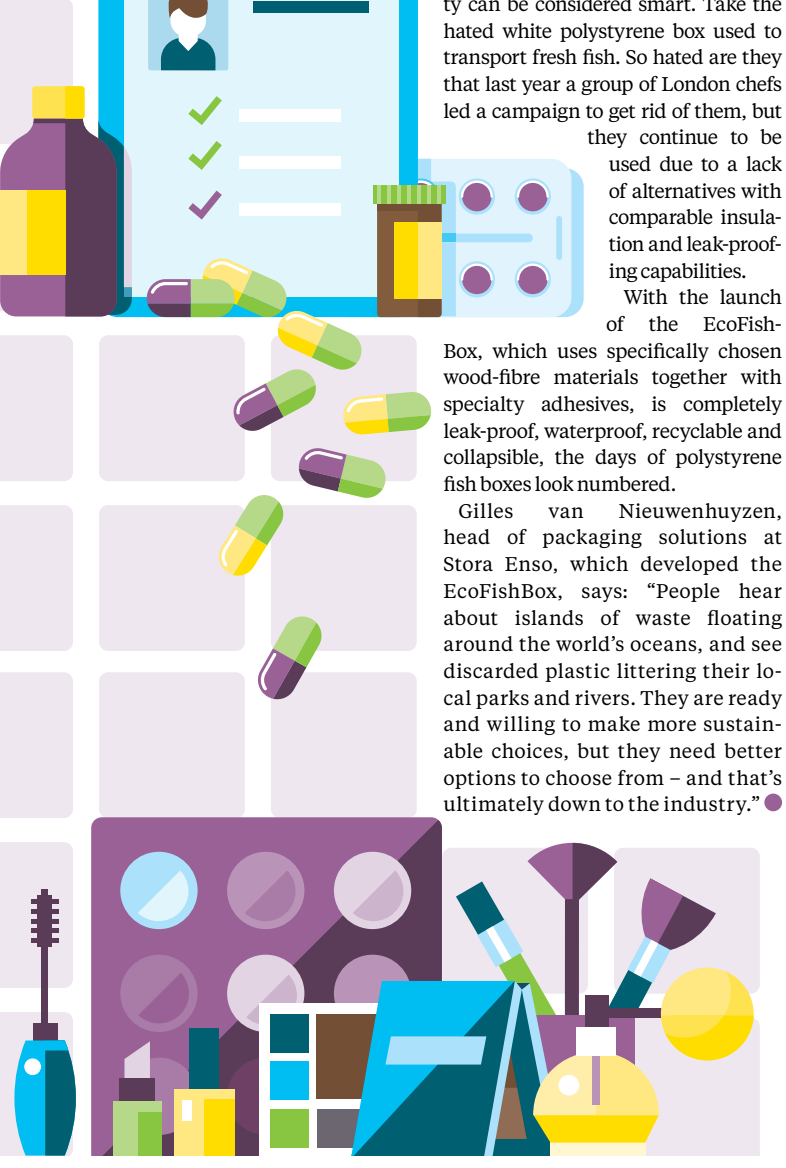
> People need better options to choose from – and that's ultimately down to the industry

After Opening is a time and temperature-monitoring label that uses a colour-changing smart plastic to track when food is at its freshest. When a pack is opened the atmosphere around the labelling changes and a centre dot on the label gradually changes colour from yellow to purple as the food becomes less fresh. This gives a clear indication of how long the pack has been opened, enabling people to reduce unnecessary food waste and save money.

Packaging that doesn't directly involve technology, but does some social "thinking" on behalf of the community can be considered smart. Take the hated white polystyrene box used to transport fresh fish. So hated are they that last year a group of London chefs led a campaign to get rid of them, but they continue to be used due to a lack of alternatives with comparable insulation and leak-proofing capabilities.

With the launch of the EcoFishBox, which uses specifically chosen wood-fibre materials together with specialty adhesives, is completely leak-proof, waterproof, recyclable and collapsible, the days of polystyrene fish boxes look numbered.

Gilles van Nieuwenhuyzen, head of packaging solutions at Stora Enso, which developed the EcoFishBox, says: "People hear about islands of waste floating around the world's oceans, and see discarded plastic littering their local parks and rivers. They are ready and willing to make more sustainable choices, but they need better options to choose from – and that's ultimately down to the industry."



COMMERCIAL FEATURE

Millennials transform packaging landscape

The growing influence of millennials is urging brands to rethink their approach to packaging with a greater emphasis on smart solutions, personalisation and sustainability

QUADPACK

As the first people to have never known a world before the internet existed, millennials are a unique generation. Identified by market research firms as digitally native, narcissistic and individualistic, the factors that influence their consumption habits are transforming the packaging landscape.

A desire to "experience" the things they buy distinguishes millennials from the status-craving spenders of older generations. Interacting with products on an emotional level gives them more satisfaction than owning a premium brand. And a higher regard for the state of the planet means a company's social responsibility is impacting purchasing decisions at an unprecedented level.

These evolving demographics are changing the way brands produce and market for consumers, driving new packaging innovations that serve lifestyles dominated by smartphones, social media and a need to express environmental awareness.

"The millennials are changing the world and generation Z are set to follow the same path," says Tim Eaves, chief executive and co-founder of Quadpack, a leader in cosmetics packaging. "Their social networks are their lifeblood and it's important to understand the intuitive gestures that are second nature to them. They lean towards sustainable concepts like refillable packaging, recycled materials and reduced packaging content, and see through greenwashing.

"Packaging that draws on these habits will be a natural fit. Fixed processes will be uprooted and packagers must learn to be flexible, act fast and offer more options than ever, while acting in an environmentally and socially responsible manner."

Beauty brands are racing to implement smart packaging solutions that satisfy the selfie habits of millennials, meaning smaller sizes and leak-proof protection for portability, as well as integrated applicators and convenient two or three-in-one packs. Meanwhile, products that incorporate an interesting gesture, a skincare ritual, a fun shape or eye-popping aesthetics increase consumer engagement.

The desire for self-expression is also propelling demand for personalisation in beauty packaging. Retail stores increasingly offer personalised skincare formulas that are mixed in front of customers following on-the-spot skincare tests. In online stores, consumers can customise products with texts and select unique designs, while modular packaging concepts enable customers to build their own colour palettes.

> We are ready and prepared for what is sure to be an exciting future

Quadpack is working to address this new world of packaging with a flexible business model that meets the individual needs of each segment of the beauty industry. "We work on different approaches to personalisation," says Mr Eaves, "developing ways to print packs individually and offering modular systems, such as eye colour compacts that can be stacked in the same way as LEGO bricks."

The company has an in-house design team which tracks trends and identifies smart solutions that anticipate demand, aided by its skincare, make-up and fragrance specialists. Its manufacturing division gives the designers the capability to experiment with concepts in plastic materials at Quadpack Plastics, its injection moulding plant, with new decoration techniques at Quadpack Impressions, its decoration facility, and with wood designs at Technotraf Wood Packaging, which Quadpack acquired in 2013. It also works with manufacturing partners to enhance its product portfolio.

As wood, when managed correctly, is the only endlessly renewable material, Quadpack is a passionate advocate for its use in beauty packaging. In 2001, Technotraf was the first company to use wood for a perfume cap. Its PEFC and FSC-certified factory uses wood from sustainably managed forests, and all manufacturing waste is reused for animal bedding, biofuel and chipboard.

TIM EAVES
CHIEF EXECUTIVE
QUADPACK INDUSTRIES

Meanwhile, Quadpack is trialling rail transportation as a low-carbon alternative to air freight. And last year it formed the Quadpack Foundation, a charitable arm dedicated to supporting social, educational and environmental programmes with an emphasis on integrating young people from underprivileged backgrounds.

"With a robust plan for business growth, an in-house 'design factory', our hybrid manufacturing-sourcing setup, our sector-focused approach and our corporate social responsibility programme, we are ready and prepared for what is sure to be an exciting future," says Mr Eaves. "Businesses are not separate from the world and each one should play an active part in helping to make it a great place to live, work and play."

For more information please visit www.quadpack.com

OPINION COLUMN

“Do the rules of acceptable behaviour change from when we’re at home to when we’re on the go?”

PAUL VANSTON
Chief executive
INCPEN - Industry Council for Research on Packaging and the Environment

What does my council accept for recycling? When do I have spare time to make sure I recycle right? Who do I talk to when I’m not sure? Where is my local recycling centre for things I can’t recycle at the kerbside? How does packaging help me in my everyday life?

Why should I care about recycling and litter when so many others don’t? Yes, why?

We ask these sorts of questions routinely to manage the recycling and waste that comes out of our homes. As we look up and down our own street, we get to know who recycles and who doesn’t. Who cares about our local environment and who is careless or, indeed, couldn’t care less. We get irked when the personal efforts we make are undermined by the poor behaviour of others. “If we have to conform, then I’ll be darned if that lot across the road shouldn’t.”

So when we see the symptoms of those behaviours – things that are recyclable going to landfill, the neighbour’s front garden overflowing with old mattresses and black bags of waste being needlessly flytipped – we ask “Whose job is it to make amends?” No doubt we form clear answers.

Many businesses feel the same way. There are plenty doing the right thing to support recycling locally and globally. For example, when drinks companies make packaging that’s 100 per cent recyclable, but only half of all drinks bottles actually get put in the recycling bin, as is the case in the UK, whose job is it to make amends? The company? The local council? The purchaser? Maybe it depends. If the bottle can be physically recycled and the council accepts it for recycling, then surely it’s down to the purchaser to put it in the right bin. Right? Many would agree.

But there’s an extra question we can ask. Do the rules of acceptable behaviour change from when we’re at home to when we’re on the go? If they do, whose job is it to make amends in those circumstances?

Take that same 100 per cent recyclable drinks bottle, but let’s say we take the last gulp when we’re out and about, and there isn’t a recycling bin anywhere near for the bottle to go in. Is it then OK to put that 100 per cent recyclable bottle into a general waste bin? How many of us would put immediate convenience as a higher priority than taking items home for recycling? We want to recycle it, but we’re frustrated we can’t or at least not at that moment in time.

So again we ask “Whose job is it to make amends?” when we feel systems, in this case a recycling bin, aren’t available at the place and time we need them. Similarly, when the High Street bin is overflowing and we carefully place our used item next to the bin, but it gets blown away seconds later, whose job is it to amend that?

Well, it’s everyone’s job to manage their own part of the system and we should all work harmoniously together, but that may be an annoying answer. We rightly want specifics as to who is going to do what, by when and how.

Much effort is going into packaging innovation. But when it comes to securing the best environmental outcomes on the go, it won’t be enough to rely on clever packaging innovations if the infrastructure people need isn’t available at the place and time it’s needed.

Improving “on the go” requires a joint effort that goes far wider than those who make products and packaging. It needs to involve councils, those who manage public places and we the people. If all that happens, we may be celebrating that we’ve made amends rather than asking “Whose job is it?”

CHINA

China says ‘no’ to recyc

A ban by China on importing global waste for recycling has sent the packaging industry into a spin

NICK EASEN

There are few missives that really matter in the global packaging industry, but one recently sent a shockwave through the whole sector. It was penned by Chinese officials and addressed to the World Trade Organization, paraphrased it said, “We don’t want your foreign garbage anymore.”

Come the end of 2017, imports of mixed paper, scrap plastics, including PVC, PET, polyethylene and polystyrene, basically a lot of packaging material, will be banned from entering China. Industry bodies have called the measure “devastating”.

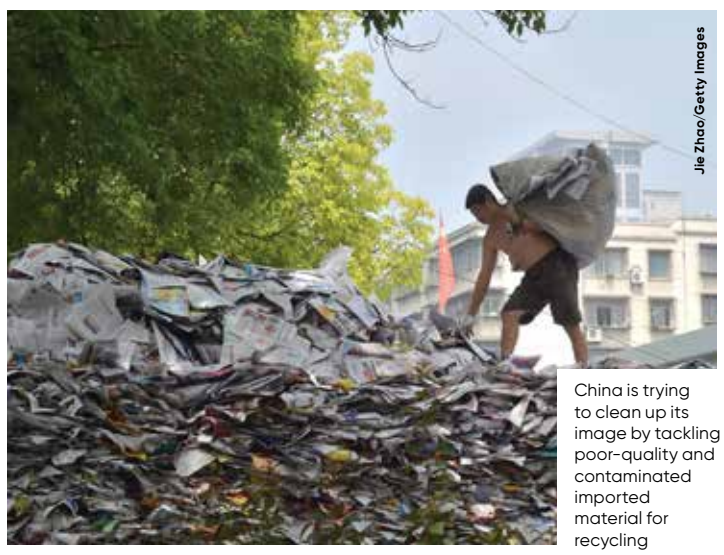
“The flow of international scrap to China amounts to tens of billions of US dollars. An abrupt change will affect the economy globally,” says Arnaud Brunet, director general of the Bureau of International Recycling in Brussels.

It’s difficult to see where 29 million tonnes of paper and seven million tonnes of plastic a year will end up if it’s not on China’s eastern seaboard. A week after those Christmas presents are unwrapped and the packaging discarded the world over, the global recycling industry will certainly get a fright.

“The material should be seen as a resource, not waste, and China is the main end-destination simply because it’s also the largest manufacturer globally,” explains Jakob Rindegren, recycling policy adviser at the Environmental Services Association. “Since the UK imports more goods from China than it exports, filling returning vessels with recyclable material makes sense.”

Since the 1980s, China’s voracious manufacturing industry has been fed on a diet of recycled materials. Recyclable stuff has been one of the largest exported goods to China. It has made economic sense for the Chinese to import spent packaging than cut down trees or dig oil wells.

For instance, it can take around 20 trees to make a tonne of newspaper, while a recycled plastic bottle saves enough energy to power a 60-watt light bulb for three hours.



Jie Zhao/Getty Images

China is trying to clean up its image by tackling poor-quality and contaminated imported material for recycling

> “A week after those Christmas presents are unwrapped and the packaging discarded the world over, the global recycling industry will certainly get a fright

Yet this outright ban is a lot to do with China cracking down on facilities at home that do not meet tightening environmental standards. There’s also a legitimate concern from Beijing officials over the country’s poor environment and public health.

It doesn’t help when documentaries like *Plastic China* earn a place at this year’s Sundance Film Festival, showing the horrors of the domestic recycling industry. The ugly underbelly and images of pollution, as well as grimy, backstreet recyclers, would be enough to compel any authority into action.

Also as China’s economy mushrooms, it has an ambition to grow its own domestic collection and recycling infrastructure. The world’s second-largest economy is keen to recover more of its packaging. At present, it doesn’t need to since there’s a ready supply from overseas.

“Yet an outright ban will also hit many modern, compliant fa-

ling our waste

FRED DUFOUR/AFP/Getty Images

Chinese labourer sorting plastic bottles for recycling at a plant on the outskirts of Beijing

cilities in China," says Mr Rindegren. "We would have preferred a more targeted approach. Instead these bans risk hurting the environment by reducing the demand for recycled materials."

No one is sure yet whether the ban covers all post-consumer plastics and mixed paper, but if it does, it will hit hard. The UK exports roughly one million tonnes of mixed paper to China or one eighth of all collected paper from across the country.

"This is only the beginning of China reconsidering its import policies and it appears to be rolling out a long, well-prepared, coherent change of policy," says Mr Brunet. "The international recycling industry has to adapt and get used to this change of scenario, and find solutions through investment in proven and new sorting technologies."

This is not the first move China has made to clean things up. A programme called Operation Green Fence, which started in 2013, took a tougher line on tackling poor-quality and contaminated imported material for recycling.

This drove UK waste resource companies to invest significant sums to ensure they met the stricter requirements of China's manufacturing sector, with most recyclers now producing much higher-quality material for export. Still the UK's ability to deal with its own packaging waste is limited.

"The UK currently lacks the capacity to recycle all the material likely to be affected by the import restrictions. Building up that capacity will take time. And with the higher cost of energy, labour and land than in Asia, it's not an easy task to compete as a recycler in the UK," says Mr Rindegren.

Come 2018, demand from China will plummet. Prices are likely to go down as paper and plastics from across the world compete for any spare processing capacity.

"It may mean the development of markets in other countries. For example, with paper, growth markets include Mexico, Vietnam, Canada and the Netherlands. We have seen slight upticks on mixed paper exports to India, Thailand, Canada and Vietnam," says Adina Adler, senior director of international affairs at the Institute of Scrap Recycling Industries in the United States.

In the process, costs for Chinese packaging material could go up. This could have knock-on effects on the global packaging industry and manufacturing more widely, given that China exports a lot of goods in cardboard boxes.

"In the worst-case scenario, global recycling could suffer if the material is not finding alternative markets. As less income from the material means less investment in recycling, the less sustainable it is in the long term," says Mr Rindegren.

At present the industry is waiting for more clarity on the ban. The hope is that China's new export restrictions will force the UK government's hand, speeding up plans for a post-Brexit strategy on domestic recycling; otherwise recycling rates could go backwards. Certainly, new legislation could stimulate demand for UK recycled material, through incentives for producers.

Others see this as a wake-up call for industry. "Now's the opportunity for the UK to reconsider how we extract value from these secondary resources," says Dr Costas Velis, lecturer on resource efficiency systems at the University of Leeds. "We should ask ourselves why do we collect these recyclables? If there's value in it, then the price should reflect the benefits delivered to the environment." China thinks there's value in it. Why not the UK? ●

29m

tonnes of paper and seven million tonnes of plastic were exported to China in 2016

International Trade Centre/ UN Comtrade 2017

COMMERCIAL FEATURE

GLOBAL UNDERSTANDING

THE BILLERUDKORSNÄS CONSUMER PANEL ASKED CITIZENS FROM LARGE CITIES ALL OVER THE WORLD ABOUT THEIR VIEW ON THE ROLE OF PACKAGING IN THEIR EVERYDAY LIFE AND AS A CONTRIBUTOR TO A SUSTAINABLE FUTURE

Three in four consumers will pay for packaging sustainability

Consumers want packaging that helps them become more sustainable, even if it costs more – now brands must respond

Product packaging is set to play an evermore important role in creating a more sustainable global economy and consumers are ready to play their part in this movement. They're increasingly keen to choose brands that help them make sustainable choices and packaging is a key factor.

This is one outcome from the BillerudKorsnäs consumer panel on packaging sustainability where consumers from cities all over the world have described their view on the role of packaging in their everyday life and as a contributor to a sustainable future. Some 72 per cent of consumers around the world are willing to pay more for products with packaging that brings sustainable benefits. The research was conducted by BillerudKorsnäs, a leading developer of sustainable packaging for the global consumer goods market. These include world-leading paper and board material, and other new solutions that increase brands' profitability while reducing environmental impact.

"We conducted one of the first consumer panels on packaging sustainability because we wanted to really understand how aware consumers are to packaging sustainability and their aspirations to act, and we were very encouraged by the results," says Jon Haag, director of consumer insights at BillerudKorsnäs.

"What we discovered is that consumers are ready for action. They want packaging that helps them change behaviour and they are ready to pay for it. But they want to see some benefits in return."

This might include avoiding food waste. On average 15 per cent of the contents of a jar of mayonnaise, for example, will be wasted because the packaging isn't well designed.

"Consumers want to avoid wasting food like this," says Mr Haag. "According to our survey, the top two dream results from better packaging are clearly to 'reduce food waste' and 'make it fun and easy to recycle'."

To achieve this BillerudKorsnäs has recently collaborated with engineering company Bosch Packaging Technology to create a new variety of container that is made entirely from mono-material paper, and is therefore easier to recycle because consumers and recycling plants don't have to separate out its different constituent parts. The world's first sealed paper packaging, this new sustainable product is ideal for free-flowing goods such as sugar, flour, pasta, grains or powders.

"It's an exciting example of Bosch's packaging technology and our expertise in packaging papers," says Mr Haag. "The result is that you get a better consumer experience, you save on production costs and you ruin no natural resources."

To answer consumer demand for easier recycling, BillerudKorsnäs is also creating packaging that can be used up or consumed once the product has finished. Already it is enjoying considerable success in the construction sector with its award-winning product D-Sack.

Developed with building materials manufacturer LafargeHolcim, this cement package goes into the concrete mixer, along with its contents, minimising litter and cement waste at the same time as helping to create a cleaner, healthier and safer workplace. The dissolvable paper sack optimises time needed for handling and mixing, and as an added benefit it leaves behind no costly waste-disposal requirements. Similar products to D-Sack are set to enter the consumer market.

"Consumers are more and more aware of the effects of packaging on the environment from litter on the streets to pollution in the oceans," says Mr Haag. "They want to take action and so empowering them to recycle more is already paying off. Increasingly, we'll see this as a brand differentiator. As well as the design and feel of packaging, shoppers will choose products with packaging that is easier to recycle. Collaboration will be key to solving the challenges of the future and we encourage all stakeholders to reach out to find those partnerships."

The BillerudKorsnäs survey reveals regional variations. "We discovered that packaging sustainability is particularly important to Asian consumers," says Mr Haag. "You normally see 5 to 7 per cent of respondents making the effort to add an additional comment to a survey, but we had over 20 per cent globally and 31 per cent in Asia. That's a remarkable level of engagement.

"Making your brand differentiate with sustainability benefits in packaging will have quick impact in Asia today, and will happen shortly in Europe and the US, so brands have to start taking action now."

For more information please visit www.billerudkorsnas.com

SMART PACKAGING

Tech lets brands into your home

Lipsticks, Coke cans, bottles of Irish whiskey and even ketchup containers are joining the digital revolution

DAVID BENADY

Just point your smartphone at products on a supermarket shelf and a wealth of related information, tips and entertaining content appears on your mobile screen.

This is the connected packaging revolution, where bottles, labels, containers, packs and tins become portals into a digital realm.

Many of the world's biggest consumer goods manufacturers believe the way we interact with brands will be transformed by internet-connected packaging.

Brands will come crashing into the home environment in new ways, forging deeper connections with users as they consume products. This may change the way we think about our homes, making them less somewhere we go to switch off and more a permanently "switched on" brand service centre.

To get to that point, brands will need to offer consumers real benefits to make it worth their while pointing their phones at connected packaging.

Drinks giant Pernod Ricard has employed near-field communications (NFC) technology, which is used in contactless card payments, to test connected packaging for both the Malibu and Jameson Irish whiskey brands. In the test with Malibu, users tapped their NFC-enabled Android smartphone on the label and the mobile browser opened offering exclusive content.

Part of the rationale for connected packaging initiatives is for brands to collect more data about their customers and the way they use products at home.

As Pernod Ricard UK's head of digital marketing Sille Opstrup says: "Creating new digital touchpoints gives us greater insight into how drinkers interact with products in their homes; a completely new avenue of inspiration for us. Understanding these interactions better allows us to create more relevant and personal communications."

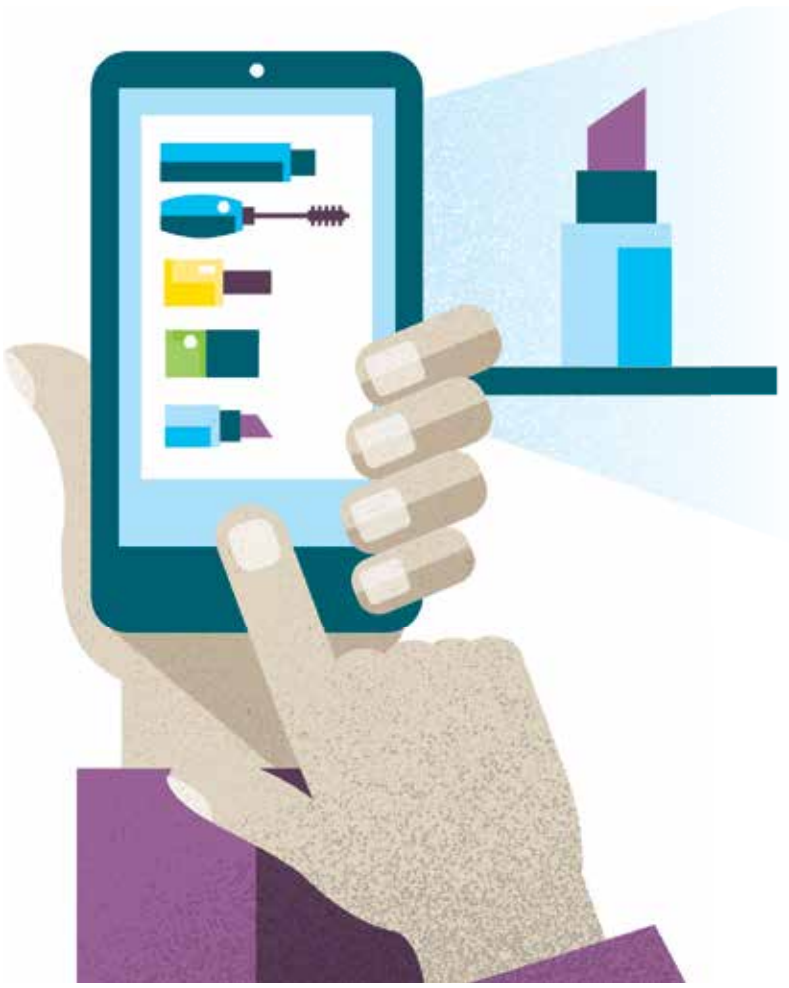
Ms Opstrup says the company cares greatly about data privacy

GLOBAL SMART PACKAGING MARKET

$12.65bn
2016

$19.79bn
2021

Business Wire 2017



and has moved much of its data handling in-house.

And she adds: "The great thing about homes becoming more switched on is that we are now able to automate tasks we don't like doing to make the everyday easier and free up time to do other things."

There will be widespread applications of the technology, says Niall Murphy, founder and chief executive of Evrythng, a platform which seeks to give every consumer product an individual online identity.

> Uses could involve recipe suggestions, expiry notifications for perishables and subscription models for reordering products

Evrythng works with QR codes printed on packaging such as Coca-Cola cans. Users open a QR reader app on their phones, point them at the code on the pack and are directed to relevant online content.

Mr Murphy gives the example of using connected packaging to reveal the provenance, ingredients and health benefits of food. He accepts there may be consumer concerns about privacy.

"The scary part would be that people are having their consumption of items tracked without their knowledge, but it requires a positive action, they choose to identify themselves," he says. "I have to scan it with my phone, I am choosing to engage, so there are key opportunities for permission to be granted."

The positive aspect, he adds, is that connected packaging will offer possibilities of personalised relationships between brands and consumers.

Visual recognition is another smartphone technology that promises to deliver benefits through connected packaging.

Cosmetics brand Max Factor has worked with augmented reality app Blippar to connect 500 of its products to the internet. Users open the Blippar app on their smartphone, point the phone at one of the products and it reads the packaging to bring up on-screen information about the make-up.

Users can use the app to compare different make-up colours that match their skin tone. They can also order goods from the app, pressing the buy button to go through to the Boots.com e-commerce site.

"Smart brands are actively looking at connected packaging strategies," says Blippar's global head of experience strategy Omaid Hiwaizi. Blippar has also worked with Heinz Ketchup. But he adds that understanding and insight into how consumers want to use the technology must be at the heart of developments.

In the long term, connected packaging will need to move beyond marketing gimmicks and into the field of utility. Uses could involve recipe suggestions, expiry notifications for perishables and subscription models for reordering products, says Cameron Worth, founder of internet of things agency SharpEnd, which worked with Pernod Ricard on its connected packaging.

He adds: "The one thing holding back the industry right now is all the technologies are there, so it is not really a technological issue, it's a creative one – how do you make the most of the connected-packaging opportunity?"

Apple and Google smartphones are gaining the native ability to read QR Codes, NFC tags and to carry out visual recognition. This will give a huge boost to connected packaging. But creating a revolution in the way the public relates to brands won't happen overnight.

Courting luxury shoppers

Leveraging behavioural economics and semiotics to drive success

PRS IN VIVO

The market for beauty, spirits and fashion continues to grow impressively, and change rapidly via the impact of e-commerce and social media. Given these dynamics, PRS IN VIVO recently conducted several studies to improve understanding of the shopping experience across luxury categories.

Behavioural economics and the "luxury mindset": marketers have the tendency to think in terms of shopper profiles such as demographics and psychographics and perhaps retail channels or trip missions. But in our experience, it is more helpful to start with the mindset that people bring to their purchases. Specifically, we can begin with a relatively universal, foundational insight that luxury shopping is less habitual, and far more emotional and experiential, than shopping for packaged goods or grocery products.

Whether splurging on himself or herself, or buying a gift, the prestige shopper is typically less focused on rational considerations, such as features, benefits, price and value, and is more driven by less tangible elements, which often centre on emotion and social context.

Clearly, this luxury mindset presents an opportunity to persuade shoppers via branding, packaging and in-store experience. However, it also requires an understanding of the irrational, often subconscious factors that impact decision-making. These "drivers of influence" are rooted in behavioural economics research and they are particularly powerful in this shopping context.

For example, we've continually observed the power of "scarcity bias". Whether it is Japanese whiskey or French perfume, whenever specific products are presented as "limited editions" demand soars. People are somewhat irrationally drawn towards items that may soon be unavailable.

We've also noted the power of "anchoring" and "framing". In categories that are shopped infrequently, many people don't have a normal price point, a point of reference or anchor firmly in mind. Thus, the manner in which choices are framed can significantly impact their perceptions and selections.

> One important best practice is to root marketing efforts in a true understanding of the physical and digital shopping experience

Semiotics of luxury: the primary semiotic or symbolic cues associated with luxury or prestige products are well established. These design strategies include unique colours, shapes and structures, which often convey elegance; special techniques and finishes, which speak to multiple senses and are tactile or olfactive; and design simplicity, which typically translates to style and sophistication.

These symbolic cues are generally effective in connecting with consumers on an emotional and experiential level. However, these approaches are also ubiquitous. They have become a cost of entry, which makes it quite challenging to apply these cues in a truly differentiated way.

Enormous resources and creative thought have been applied to this challenge. And in fact, many brands have succeeded in creating truly distinctive, recognisable and "ownable" identities such as Tiffany Blue, Grey Goose's unique bottle and MAC's bold appearance.

Yet by focusing on brand identity, marketers often sacrifice shopability. Luxury packaging often errs on the side of visual consistency, which leads to shelves of very similar-looking packs, with minimal claims or copy to differentiate them. This is problematic in more complex categories such as skincare, in which there's a need to convey specific product features, benefits and usage situations. And across all categories, uniformity makes it difficult to drive trade-up. If all of the packs look equally elegant and sophisticated, why should I pay £20 more for this one?

What can luxury brands do to help ensure packaging and retail success? We can't offer simple answers or common formulas. However, one important best practice is to root marketing efforts in a true understanding of the physical and digital shopping experience. And this understanding must be grounded in observation, because there is often a gap between what luxury shoppers say and what they do.

For more information and white papers please visit www.prs-invivo.com and the link Knowledge

Turning used coffee cups into beautiful packaging

How one paper mill in Cumbria is shaping the future

The disposable coffee cup is perceived as one of the great villains of the packaging world. But a world-first recycling initiative is enabling coffee retailers and brands to be part of a beautiful solution.

The pangs of conscience that accompany the morning take-out are set to become a thing of the past, thanks to a forward-thinking paper mill in Cumbria.

A world-first for the packaging world

James Cropper has become the first company to develop a recycling initiative that enables used paper cups to be 'upcycled' on a large scale into high quality papers or moulded fibre packaging.

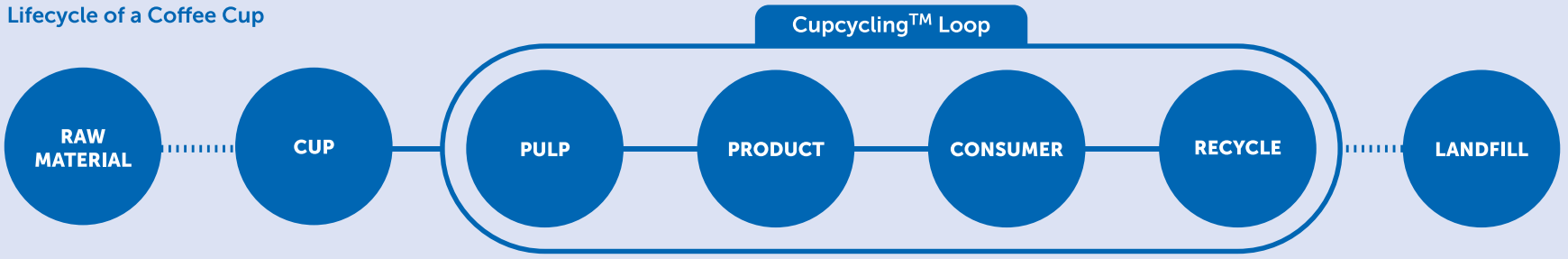
It's called CupCycling™. It is all about collaboration, working with waste management companies and brands who want to help reduce waste, while also creating beautiful packaging.

A sustainable alternative to plastic

James Cropper's CupCycling™ initiative provides high quality recycled fibres that can be used across their range of paper products, from renowned bespoke papers, to a disruptive new moulded fibre packaging product, COLOURFORM™.

COLOURFORM™ is a sustainable alternative to plastic in packaging. Not only is it 100% recyclable and naturally biodegradable, it offers a new era of creative freedom in packaging design and performance.

Lifecycle of a Coffee Cup



Selfridges

Selfridges is the first major high street retailer to pioneer the use of CupCycling™ fibres - with no compromise to the iconic colour and quality of their distinctive yellow shopping bags. As part of the 'Buying Better, Inspiring Change' approach, Selfridges are constantly looking at innovative ways to capture and treat recyclable materials in their business and are proud to be the first retailer to upcycle their cups in this way.

LUSH

High street cosmetics brand LUSH, renowned for their 'naked' approach to packaging products, are one of the first global brands to pioneer the use of COLOURFORM™ in packaging. Their custom box was manufactured using recycled fibres. Its elegantly simple design retains LUSH's natural look and feel and commitment to sustainable packaging, while also being fit to protect, retain and transport the solid bath oils.

www.cupcycling.co.uk
www.colourformpackaging.com

CUP CYCLING
BY JAMES CROPPER