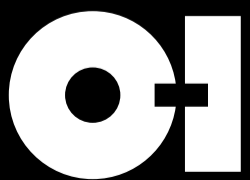
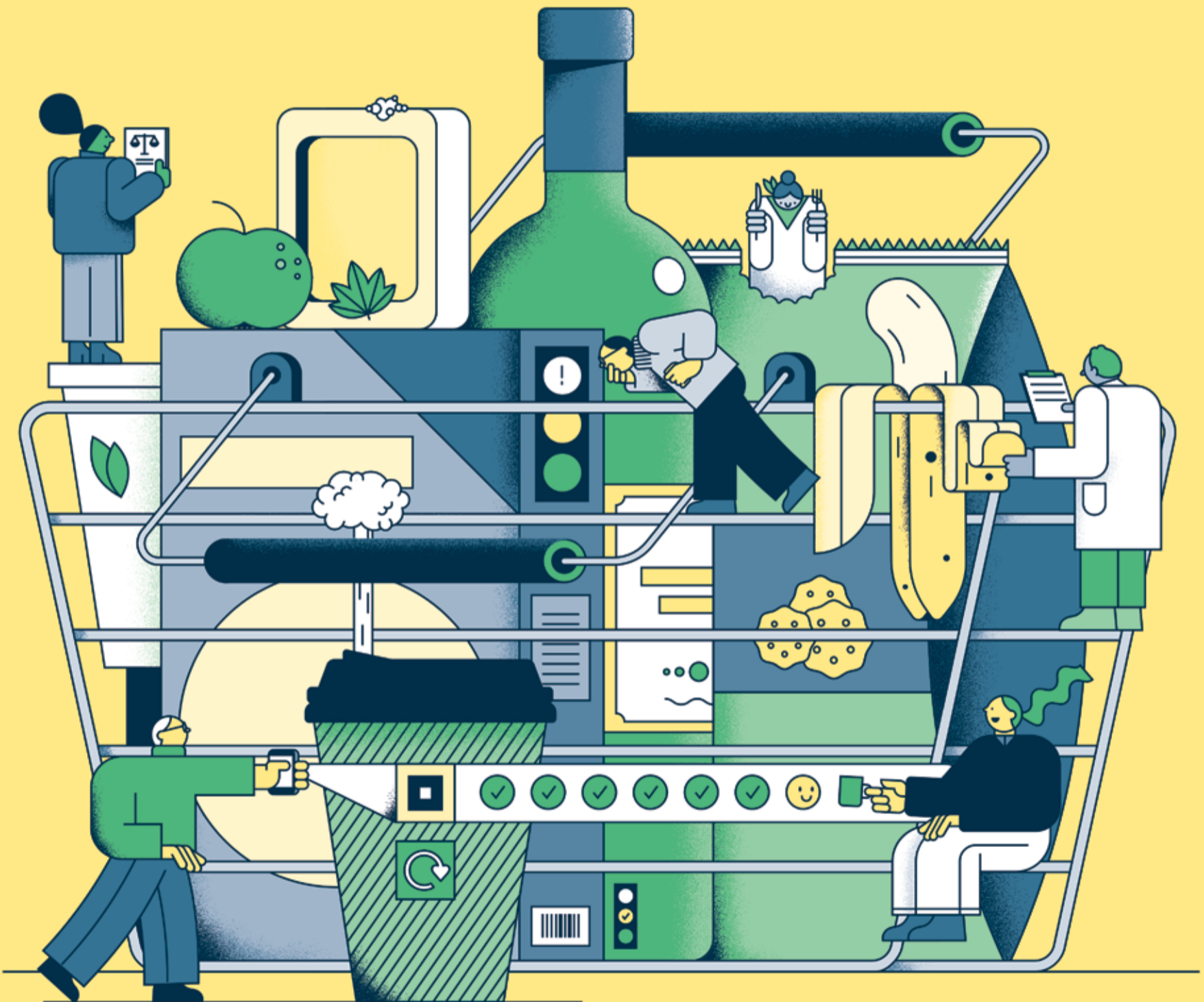


FUTURE OF PACKAGING

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**UNLEASH YOUR BRAND STORY
WITH INNOVATIVE, SUSTAINABLE
GLASS PACKAGING**



Demand for Sustainable Packaging is Growing



Consumers Seek Sustainable Choices

Studies show that now more and more people are both looking for sustainable packaging and, more importantly, refusing to buy products in packaging that's harmful to the environment. In fact, an independent survey found that:

67% of consumers still consider themselves environmentally aware (despite the disruption of the pandemic)

57% are less likely to buy products in packaging that is harmful to the environment

83% of the consumers among younger generations show a willingness to pay more for sustainable packaging

Want to see more? Scan the QR code to read the 2021 Buying Green Report, which details changing consumer attitudes and the growing demand for eco-friendly packaging.



Why Choose Metal for Your Sustainable Packaging?

Our brand-elevating innovations not only improve the sustainability of your packaging, but also offer a premium look and feel. And, with a growing range of products, we're making an impact on more industries than ever before. Our metal packaging provides sustainability on all levels.

- Metal is infinitely recyclable, and because of well-established recycling channels, metal packaging has one of the highest recycling rates, with a global average of 60-70%
- Metal packaging helps promote your brand via differentiation and premiumization — stand out on the shelf
- Metal packaging has a more premium consumer perception compared to other substrates

- Metal packaging provides a superior 360° promotional billboard with attention-grabbing advanced graphics for optimal brand awareness, giving space to communicate the sustainability credentials of your package to your consumers
- Metal packaging provides robust product protection
 - Durable material offering resilient protection
 - Strongest UV and oxygen barrier
 - Retains the nutritional value of food contents, and by extending shelf life also reduces food waste

An Eco-friendly Approach to Eco-friendly Packaging

The sustainability credentials of a packaging product cannot only be captured by a cradle-to-grave life cycle assessment. To define the full environmental impact, we also have to consider the importance of full circularity, the direct and indirect environmental effects of debris, and the shelf life of packaging in relation to food waste. Our white paper, Building on Life Cycle Assessments, looks at measuring packaging sustainability holistically. Scan the QR code to read our white paper.



We Contain What Matters

At Trivium Packaging, we're dedicated to producing quality and sustainable metal packaging solutions. We are bursting with fresh ideas and the determination to push the boundaries of what's possible. But we are also proud to inherit a rich legacy of substantial knowledge and experience in metal packaging. A formidable combination of passion, teamwork, and excellence is what makes us unique, allowing us to produce more than 100 million metal cans a day — and it's why our customers have come to trust us.

Our commitment to sustainability is found in everything we do — from our manufacturing process to our company values and our supply chain engagement. To learn more about our sustainability journey, scan the QR code for our 2020 Sustainability Report.



To find out more about our products, read sustainability reports and white papers, or to contact a sales rep, go to triviumpackaging.com/sustainability



TriviumPackaging.com



FUTURE OF PACKAGING

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COMMUNICATION

Show and tell

The packaging industry has tended to rely on its clients to spread the word about sustainability, but this task is too crucial to be delegated any longer

Jim McClelland

When it comes to telling the sustainability story, the packaging industry has historically kept out of the limelight, leaving its consumer-facing customers, such as retailers and brands, to write the script and deliver the lines about issues such as waste, recycling and circularity.

But now, under mounting pressure from NGOs and other campaign groups to reduce waste, the sector is having to take centre stage and address its audience directly.

In March 2021, for instance, industry body the Alliance for Beverage Cartons and the Environment (ACE) published a document entitled *The Beverage Carton Roadmap to 2030 and Beyond*. Among other things, this pledges that alliance members will “deliver the most sustainable packaging for resilient food-supply systems, which is renewable, climate-positive and circular”.

The industry is engaging on several fronts, says the ACE's director-general, Annick Carpentier. It has committed to “taking action on all parts of the value chain, from sustainable sourcing to climate impact and recycling. Increasing the collection and recycling of beverage cartons to reach rates of 90% and at least 70% respectively, plus achieving decarbonisation in line with the 1.5°C-aligned science-based targets, are examples of key goals.”

While collective action and communication, co-ordinated by organisations such as the ACE, is key to tackling global problems such as the climate emergency, many players in the packaging sector have been taking the initiative individually.

Several companies have “already cut down their packaging use and ramped up the content of recycled materials in their products”. So says Nick Brown, head of sustainability at multinational bottling firm Coca-Cola Europacific Partners (CEPE), who adds: “We recently announced the transition to 100% recycled plastic in our on-the-go bottles. We recognise that it's down to us to communicate this to our customers and other stakeholders.”

CEPE is working on a whole range of innovations. They include projects with startup CuRe Technology on a system to recycle polyester waste; with Loop Industries to increase its supply of 100% recycled PET; and with Paboco to develop a bottle made out of paper. These initiatives all feed into Coca-Cola's “World without



Chris Jongkind via Getty

waste' environmental programme, which has a goal of collecting and recycling a bottle or can for each one sold by 2030. This initiative is promoted using on-pack messaging.

Whether acting in concert or alone, all players in the industry need to accept responsibility for their part in the environmental crisis and do their fair share of work in solving it. That's the view of Marco Ten Bruggencate, commercial vice-president of packaging and speciality plastics for EMEA at chemicals giant Dow.

“Incremental adjustments are not enough. We need major innovation and investment to make a meaningful impact on the crisis,” he argues. “Our stakeholders have high expectations of us to drive the transformational changes required. Only those

companies that make the necessary leaps will survive.”

Dow has set itself some tough targets in this respect. They include making its packaging 100% reusable or recyclable by 2025; removing 1 million tonnes of plastic from the waste stream by 2030; and making the whole business carbon-neutral by 2050.

Again, technological innovation is happening in tandem with public engagement. While Dow is breaking new ground with Shell to electrify steam-cracker furnaces and reduce CO₂ emissions in the manufacture of plastic, it's also producing *Plastics Unwrapped*, a podcast series created to explore a number of sustainability themes and, with the help of expert guests, explain some of the more complex technical issues.

PACKAGING SUSTAINABILITY MATTERS TO THE PUBLIC

Percentage of consumers

67% find recyclability of packaging important

64% find it important that the products they buy are in packaging that contains recycled content

find it important that the products they buy are in packaging that contains recycled content

54% say the sustainability of the packaging is a factor in their product selection process

say the sustainability of the packaging is a factor in their product selection process

Trivium Packaging, 2020

Much of this activity is indicative of the cultural change happening in the industry and the wider business world when it comes to sustainability. But change is also needed on the other side of the counter, according to Gladys Naylor, head of sustainable development at Mondi Group, a producer of paper and other packaging materials.

“Reusability requires a behavioural shift on the part of consumers, as convenience and lightweighting must often be sacrificed to achieve durability,” she argues. “It will be important to consider trade-offs carefully as we transform our business models.”

Jenny Wassenaar, vice-president for sustainability at Trivium Packaging, believes that the industry needs to develop more effective education campaigns to improve public awareness of the issues it's trying to address. “We know, for instance, that a gap exists between the actual recyclability of materials and consumer perceptions of how recyclable they are,” she says. “Promoting sustainable packaging starts with objectively communicating to consumers the difference in the recyclability and recycling rates of materials.”

In its annual *Global Buying Green Report*, Trivium Packaging shares research into consumers' views on sustainability and how these influence their buying habits. Just over two-thirds (67%) of respondents to the survey it conducted this year identified themselves as environmentally aware. The same percentage said that they considered the recyclability of packaging to be important, while 64% said that it was important to them that their purchases came in packaging that contained some recycled material.

Packaging remains a growth industry. According to a forecast published by Statistics Market Research Consulting in November 2020, the market's global value is set to rocket from just under \$930bn (£670bn) in 2019 to more than \$1.65tn by 2027.

The onus is on all players in the industry to truly earn their share of the considerable financial rewards on offer, says Robert de Jong, CEO of Coda Group, a producer of compostable biopolymers.

“Every manufacturer must present innovations to brands and retailers,” he argues. “We need to take charge of the challenges facing the packaging industry. This can't wait for legislation. We all face a seismic shift in sustainability – and those that don't adapt will fall behind.”



TECHNOLOGY

Internet of tins: the rise of connected packaging

The QR code's unlikely comeback has given the market for smart packaging a boost. But does this technology offer brands more than a mere customer-engagement gimmick?

Abby Young-Powell

It began tentatively in 2016, when brands such as Kraft and Malibu enabled shoppers to scan packets of cheese and bottles of rum with their smartphones to access free online content including recipes, coupons and games offering prizes. But it's taken the Covid pandemic – which has prompted the unexpected resurgence of the QR code – for connected packaging to take off in a big way.

Technological advances have made the process of accessing online content – via QR codes, near-field communication (NFC) tags or even augmented-reality filters – more straightforward for users. As consumers try out the technology in greater numbers, it's encouraging brands to offer richer material with which to engage them, build customer loyalty and obtain useful marketing data.

Such factors have led packaging consultancy Experience is Everything to forecast that the global market for connected packaging will be worth \$20bn by 2025.

Research published by McKinsey in April 2020 suggests that consumers are seeking more personalised interactions with the brands that they choose to buy. Such a finding is no surprise to Ian Kelly, who leads Reckitt's work on connected

packaging and has been helping to introduce QR codes on several of the company's household brands, starting with Air Wick. He believes that its customers want to understand more about the products they purchase and are eager for more dynamic engagement experiences.

"An always-on, mobile-friendly content approach is where they want their products to be," Kelly says. The Covid lockdowns have accelerated the digital transformation that was already occurring in the UK before the pandemic struck the country. For instance, many people have become accustomed to scanning QR codes when using the NHS Covid-19 contact-tracing app as a condition of entry to a range of public venues.

The pandemic has also put a premium on trustworthiness. For instance, a consumer survey by retail software provider Brightpearl in February found that 24% of respondents had been "let down" by an online order since the start of the pandemic, leading many to have a "crisis of confidence" in the retailers responsible.

"In times of crisis, customers want to go to places that they know and trust," Kelly says. "For brands, connected packaging is a method of both garnering and demonstrating

trust through the scan experience. This is about transparency, enabling consumers to find things out about you."

Kelly believes that brands which don't adopt connected packaging could eventually come to be seen by consumers as overly secretive. "I think we'll get to a point where a product will potentially be treated with suspicion if it lacks smart packaging," he predicts.

Research published in May by the Institute of Customer Service found that environmental sustainability has become the main factor influencing the purchasing choices of 18% of UK consumers. The study predicts that this could increase to 55% in the next five years.

“I think we'll get to a point where a product will potentially be treated with suspicion if it lacks smart packaging

It's no wonder, then, that brands are using smart packaging to demonstrate their ethical credentials to eco-conscious consumers seeking information about the total carbon footprint created by products' supply chains. Napolina, for instance, has worked with specialist software provider Provenance to enable customers to scan a QR code on its tomato tins to track how the food has found its way into their hands from Italy.

Paul Williams is head of ethical trading and human rights at the Princes Group, which owns the Napolina brand. He believes that this facility, showing the environmental "impact and journey of our tinned tomatoes, from farming co-operatives to supermarket shelves", will help to increase trust in the brand among consumers.

Connected packaging is also finding a growing number of applications in medicine, where it can help to improve patient outcomes and even reduce healthcare costs.

The Jones Healthcare Group, a packaging firm serving a range of health and wellness brands from its base in London, Ontario, started offering them NFC-based smart solutions in October 2020. The company's manager of marketing development, Andrew Wong, says that patients on prescribed medication can use the facility to keep track of their consumption.

"Combining this information with medication schedules, we can send reminders to the patients if they forget to take a dose," he says. "The pharmacist can also view a patient's adherence history and proactively work with that individual to improve outcomes."

Given that Google has announced plans to stop supporting third-party tracking cookies on its popular Chrome web browser by 2022 (following similar decisions by Apple and Mozilla on Safari and Firefox respectively), interacting directly with customers via smart packaging tech will soon be the only sure way to obtain insights from them, according to Kelly.

But consumers are becoming more circumspect about sharing information with businesses, according to research by McKinsey. Data acquisition is therefore something that brands need to treat sensitively if they are to retain their customers' confidence.

Napolina is approaching its smart packaging initiative as an exercise in demonstrating transparency to consumers, rather than gathering information from them, according to Williams. "We have not looked at this project on an ROI basis," he stresses. "It's all about building further trust in the brand."

Although the applications of smart packaging have expanded significantly since it made its debut, it seems to have a way to go before it matures as a technology. But some experts believe that it could have a limited shelf life.

Iina-Maija Ikonen is a researcher and lecturer in marketing, business and society at the University of Bath. She believes that there's a

danger that brands will use smart packaging for unsuitable purposes and so risk alienating a proportion of their customers.

"It should always be done so that it fits the brand well," she warns.

But perhaps the biggest weakness with connected packaging is that most consumers simply don't have the time to bother interacting this way, especially in the case of food and drink brands, Ikonen suggests.

"The difficulty is that there's a lot of information on the package that people just don't look at," she explains. "When we buy food, most of us spend just a few minutes on that process. Working with a QR code or NFC chip, even though these are easy to use, is still an extra step for consumers to take."

Despite these caveats, connected packaging – if used judiciously – has the potential to bring brands and consumers closer together. In an era when transparency and trust are at a premium, such engagement will surely benefit both parties. ●

THE SMART PACKAGING MARKET IS GROWING QUICKLY AROUND THE WORLD

Estimated global value



Sustainability is about more than weight – it's time to take a holistic view

Judging a product's sustainable credentials based on a single-issue may lead to regrettable substitutions. Brands and consumers should consider a much larger picture where balance is paramount

You have probably seen headlines touting the earth-friendly attributes of fad food and beverage packaging. They typically claim the packaging, such as boxed wine, is the "more sustainable" option, claiming that since the boxes are lighter to transport they have better sustainability credentials than glass or other materials.

This is not the first time glass has been labeled as 'less sustainable' based on comparative claims about weight. But sustainability is not a one-issue, one-variable, linear measurement or characteristic.

"We need to be sure brands and consumers see through the rhetoric of linear, one-issue claims of sustainability," says Randy Burns, O-I's chief sustainability and corporate affairs officer. "Sustainability is about balance and circularity, not comparisons on single issues."

"When you consider that glass offers so many sustainable attributes that alternatives may never possess, any measurement of balance and circularity places glass at the top of any sustainability scale. That's why we believe glass is the most sustainable packaging available."

Benefits for planet, people and economies

When considering the sustainability of a packaging material, it is imperative to consider its entire lifecycle, as well as the interconnected role it plays in the wider economy and our communities.

Glass's natural properties and recyclability give it high marks on a sustainability scorecard. Made from four all-natural ingredients – sand, soda ash, limestone and recycled glass – glass packaging is infinitely and 100% recyclable. Plus, the material does not harm us, what it is storing, the earth or the oceans.

Recycled glass already plays a central role in glass manufacturing. At O-I, recycled glass is used to make new glass containers and, in the process, uses fewer raw materials and less energy. For every 10% of recycled glass used, emissions are reduced by 5%, while recycling 1,000 tonnes of glass creates just over eight jobs, according to the Container Recycling Institute.

Glass is the ideal material to support a sustainable circular economy, with glass manufacturing usually forming the backbone of local or regional industry. When the right infrastructure is in place, glass can be produced, used, recycled and remade in the same



“We need to be sure brands and consumers see through the rhetoric of linear, one-issue claims of sustainability. Sustainability is about balance and circularity and not comparisons on single issues

Randy Burns, O-I's chief sustainability and corporate affairs officer

But with glass, what you see is what you get. There are no hidden synthetic chemicals. It's no surprise that glass has the distinction of being the only widely-used packaging material considered 'Generally Recognised as Safe' by the US Food and Drug Administration.

Glass adds tangible and intangible value for food and beverage makers; it adds a touch of magic unlike any other packaging material. With nearly limitless sizes and shapes, glass involves the senses of sight, sound and touch. Consider brands that are recognisable anywhere in the world based on the shape of their packaging: those brands are in glass.

Embracing Sustainability

Food and beverage brands choose glass and O-I when looking for sustainable solutions. Take Scottish craft distillers, Jacobite Spirits. The company is committed to sustainability, which is one of the main reasons it decided to choose the O-I Alloa plant based in the Scottish county of Clackmannanshire when it was considering packaging partners for a new line of rum.

In addition to the sustainability credentials of glass, the close proximity of the Jacobite Spirits distillery to O-I's plant helps reduce the carbon footprint of the packaging value chain and supports local jobs, both of which further the sustainability goals of O-I and Jacobite.

"Achieving sustainability is about balancing the interconnected needs of modern society with the needs of our planet, people and our collective prosperity," explains Burns. "You must look at the larger picture to ensure a potential improvement in one area doesn't negatively impact another. Our work with Jacobite is a good illustration of how we strive for this balance."

For more than 100 years, ever since Michael J. Owens invented the automatic bottle making machine, innovation has been the backbone of O-I Glass. Today, the global glass packaging maker is leveraging its innovative spirit to reimagine a more sustainable future. O-I's sustainability goals are ambitious, but ambition is what drives innovation.

"This sustainable future of glass involves not just the use of cleaner gas-oxygen fuels and improved hybrid technology in traditional furnaces, but also O-I's revolutionary MAGMA melting technology," says Burns. "It includes a manufacturing process that has on-off technology to optimise the use of energy and efficiency. One that can be co-located at manufacturing and filling sites, reducing logistics impact and capitalising on the potential to co-use energy, waste heat, water and other resources. It can also produce breakthrough lightweight containers and capitalise on O-I's innovative late-stage customizable digital printing solution."

Building a sustainable ecosystem that creates strength, resiliency and longevity in all the interconnected parts is not an overnight process. Choosing a packaging solution that is earth, ocean, and people friendly, and made by a company striving to find a sustainability balance for itself, the planet, its people, communities and economies is a purposeful step toward that shared goal.

Discover how O-I is transforming glass packaging at O-I.com



WASTE

Tidy sums

The UK government is planning to impose more onerous responsibilities for waste management throughout the packaging industry. Producers are braced for a growth in their cost base

Jim McClelland

When it comes to packaging, the principles of extended producer responsibility (EPR) might seem like common sense to anyone who saw the amount of litter strewn around the UK's public spaces when the lockdown restrictions were relaxed last summer. In short, EPR states that those who make the mess should pay to clean up the mess.

The operative word here is 'make' – it is producers that are in the frame, rather than consumers who don't dispose of used packaging responsibly. EPR is an established policy approach that incentivises the former to take more sustainable decisions by making them liable for the treatment or disposal of post-consumer products. It has been adopted successfully in South Korea, Japan, Canada and several European countries.

EPR is spread throughout the value chain from manufacturers to retailers. They accept varying levels of responsibility for the environmental impact of each product and must then shoulder the associated waste-management costs at the end of its life. The theory is that they will make it easier and more commercially viable for materials to be reused, recycled or recovered if they are picking up the tab.

The UK has had an EPR framework for packaging in place since 1997, but this is so old that it pre-dates Westminster's devolution of

powers to Northern Ireland, Wales and Scotland. Fast-forward to 2021 and the Department for Environment, Food and Rural Affairs (Defra) has just ended its consultation on updating the rules.

Under new proposals, producers will be made liable for the full cost of managing the packaging that's put on the market. Defra estimates that this will total about £2.7bn in the first full year of operation.

Implementing the new regime will be a phased process that is scheduled for completion in 2027. Landmarks along the way will include the introduction of a UK tax on plastic packaging and a deposit return scheme (DRS) for beverage containers in Scotland next year, followed by the potential mandatory takeback of disposable cups (for large sellers) in 2023; and a DRS for the rest of the UK in 2024. Taken together, the whole range of forthcoming measures is expected to result in an overall recycling rate for EPR packaging of 73% by 2030.

The industry is generally supportive of the planned changes, according to Joe Cook, vice-president at Delta Global, a specialist in luxury packaging. "Most producers back these proposals, having accepted for a long time that there will be an increase in responsibility," he says. "But some are, of course, dubious about the increase in cost, which is a worry for smaller players especially. This is why many agree that



Peter Daseley via Getty Images

“We know that a new demographic is willing to pay extra for sustainable packaging and delivery. Brands and retailers are aware of this

the success of EPR will depend on the incentives offered.”

Small packaging manufacturers are particularly concerned about the changes proposed to what are known as the *de minimis* exemptions. Producers that earn less than £2m in revenue and/or are responsible for less than 50 tonnes of packaging a year are currently free from most EPR obligations. One of the options published in Defra's consultation document is to bring these exemption thresholds down to £1m and 25 tonnes.

Taking a more systemic view of the circular economy, it's clear that the investments in new recycling infrastructure will be crucial to keeping the EPR machine's cogs turning.

While the long-term viability of the recycling sector will be boosted by EPR, there are concerns about timing, suggests Julie Vaughan, senior environmental associate at international law firm Herbert Smith Freehills.

She explains: "Fees received from producers under EPR are supposed to grease the wheels, but these are payable only from 2024. For new recycling infrastructure to be delivered, government incentives may be required up front to start project development and meet construction costs."

Another concern is that producers will be expected to assess the recyclability of their packaging and label it accordingly from 2026, Vaughan notes. "They will be required to consider not only whether their packaging can technically be recycled, but also whether the domestic infrastructure for recycling it is in place," she says.

When it comes to who foots the bill for all of this, Defra classifies producers into six categories: brand owners, importers, distributors, online marketplaces, sellers ("businesses that sell any filled packaging to the end user", according to the consultation document) and service providers (businesses that supply reusable packaging for hire).

Mark Sayers, senior consultant at sustainability consultancy Anthesis, predicts that sellers are "likely to carry the biggest burden – more so where they sell their own branded goods. These businesses ought to engage quickly with this debate, prepare for change and start planning to mitigate the impacts."

Cook thinks that consumers may well end up shouldering some of the cost. "We know that a new demographic is willing to pay extra for sustainable packaging and delivery. Brands and retailers are aware of this. Any extra costs incurred via EPR will therefore be offset by increased product prices," he predicts.

Another area of contention could be litter payments, set for implementation in 2024. As it stands, the idea is that producers whose packaging is most littered will pay the most. Cook believes that there's still hope for any business that can demonstrate its efforts to recycle waste by, say, actively encouraging reuse among consumers.

"The government is open to cutting the costs for those that attempt to reduce the prevalence of their packaging, even if it falls into the 'most littered' category," he says.

EPR will set a price, but an evident commitment to sustainability should, in theory, get a discount. ●

OPINION

'An unforgiving and impatient public wants to see action on the plastic waste problem'

The images of the detritus of the western world billowing in illegal dumps in Turkey were a shocking reminder of the distance we still have to travel to tackle the colossal challenge of managing plastic waste.

The news that Turkey has become the latest country to close its doors to the world's plastic waste was another powerful message that we can no longer rely on shipping our refuse overseas and hoping the mechanisms are in place to prevent it from polluting the environment.

The domino effect of the China restrictions on imported plastic waste presents a golden opportunity to build a thriving UK infrastructure that unlocks innovation, creates jobs and ensures that we take ultimate responsibility for managing our own waste.

Even through the Covid-19 pandemic, we have found that the members of the UK Plastics Pact, which WRAP manages, remained determined not to take their eye off their commitments to transform the way the country produces and uses plastic and disposes of the waste. After all, an unforgiving and impatient public still wants to see action on this totemic environmental problem and we know that it's still in the in-trays of politicians and CEOs.

The pact uniquely brings the levers of government policy, business action and citizen change to work harmoniously to recalibrate the make-use-dispose culture that has been so damaging and to create a circular economy for plastic in which it never becomes waste.

This includes stimulating new business models to reduce plastic packaging; ensuring that plastic packaging can be effectively recycled and made into new packaging and products; supporting the development of a stronger recycling system; and exploring the potential for refill and reuse.

Almost halfway to the 2025 deadline for meeting the pact's four targets, progress so far is rather mixed. Members have been making some advances. For instance, we have reported a reduction in the amount of plastic packaging used, particularly unnecessary and problematic single-use packaging. We're seeing more people recycle than ever before, while some businesses are building solid foundations for developing refill and reuse alternatives

for customers. There have also been some exciting design innovations, helped partly through grant funding, which WRAP is managing.

Nonetheless, significant challenges remain, particularly in the shape of film and flexible packaging, which comprises a quarter of all consumer packaging but is hard to recycle. Yet we have created a powerful and dynamic platform through the pact that's focused on exploring solutions and sharing best practice.

The UK government's policy and fiscal agenda – including changes to the extended producer responsibility rules and the introduction of a tax on plastic packaging – represents huge changes that should, if well designed to complement the existing collection infrastructure, help pact members to achieve their targets. But the roll-out is a way off. We need to reform now, before such important legislative changes.

So what is our wish list to make the plastics economy truly circular? We need to go further to remove unnecessary packaging and foster innovation to bring reuse and refill into the mainstream. More retailers need to put in place front-of-store collection points for all types of plastic bags and wrapping. Businesses beyond food, such as those in the agriculture, construction and automotive industries, must fully embrace the potential of using recycled plastic in their products. Bringing stability to the market for recycled plastic, coupled with the consistent input of material, will result in vital infrastructure investments. And, crucially, we need to support the public to recycle even more.

All of this can be achieved. WRAP and members of the pact are doing it together. Time and action are of the essence as we collaborate to find the solutions and make them work. ●



Helen Bird
Strategic technical manager, plastics, WRAP

Commercial feature



Glass leads the way to decarbonisation

What's old is new. Despite all the investment in complex alternate materials, our best path to sustainable packaging is a simple material we have used for thousands of years

Glass may be one of the oldest packaging materials, used even by the Egyptians and Romans to store products, but it is leading the way in both reuse and recycling. Glass packaging makes up 96% of the European reuse market according to the European Container Glass Federation. It also has one of the highest recycling rates of all container packaging types in the UK at 71% in 2019 according to a report by Valpak and WRAP. In contrast, UK government data shows a 46% rate for plastic. British Glass, the UK trade association for the glass industry, wants the glass collected for recycling to reach 90% by 2030.

"It's so important that consumers get clear environmental information about packaging and that misleading messaging isn't put out there," says Dr Nick Kirk, technical director at British Glass. "They expect to be informed about the proper environmental credentials of packaging materials, as well as the potential environmental impact if they're not recycled or disposed of wisely. But they also like convenience and glass is the most convenient material both to reuse and recycle."

"With glass packaging, there's nothing to separate. We encourage people to put the lid on and dispose of it all as one unit. We've all got fond memories of using our milk bottles and we've seen a new boom in people wanting their milk delivered during the pandemic. Bottles can be reused 20, 30, even 40 times or more. And when it comes to recycling, because glass packaging is always the same composition no matter where in the world it has come from, it can always be recycled at the point of disposal and recovered back into new glass bottles and jars here."

That's not to say there isn't progress still to be made. Over the past 40 years, British Glass estimates CO₂ emissions from glass packaging have reduced by

more than 40%, predominantly through process improvements such as more thermally efficient furnaces, but there is more work to be done. Glass innovators such as Encirc in Northern Ireland have demonstrated they can use biofuels in place of natural gas and achieve carbon-neutral glass packaging, though the limited availability of biofuels means the longer-term solution is electricity and hydrogen from renewable sources.

British Glass works with the government to ensure the UK has supportive policies that encourage recycling and a circular economy. Those policies don't work without targets, however, and British Glass is calling for more ambitious ones including a closed loop recycling (or remelt) target to further drive bottle-to-bottle recycling. Glass will continue to be critical to the UK's decarbonisation agenda and be the sustainable packaging material of choice as consumers and brands demand more.

"Consumers want to do the right thing and glass is so simple, you just put it in the recycling and it will be recycled," says Kirk. "By doing so, we will cut down the amount of raw material we require, making it more sustainable. Meanwhile, with electricity and hydrogen from renewable sources, over time we can convert to those materials and make glassmaking carbon neutral."

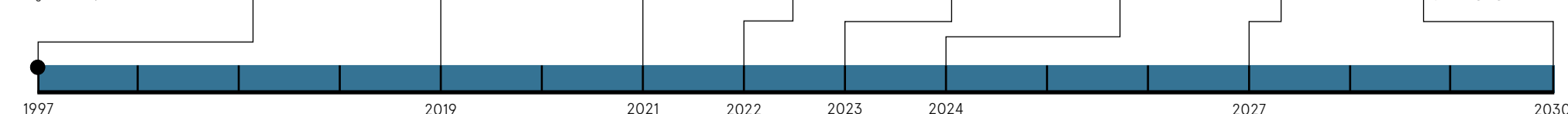
For more information please visit britglass.org.uk



British Glass

The timeline for changes to the EPR in the UK

UK government, 2021



96%

of the European reuse market is made up of glass packaging

71% in 2019

One of the highest recycling rate of any container packaging in the UK



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CIRCULAR ECONOMY

Contain yourself

Supermarkets were finally tackling their plastic waste problem before Covid stymied progress. Are they – and, crucially, shoppers – ready yet to embrace reusable packaging again?

Chris Stokel-Walker

Our supermarkets have a lot to answer for when it comes to the amount of plastic waste they generate. In the UK, the sector used nearly 900,000 tonnes of plastic packaging in 2019, according to research by Greenpeace.

Some consumers, horrified by the findings, took matters into their own hands, leaving plastic wrapping from fruit and veg at the tills in protest. Facing a public backlash about the overpackaging mountain, the industry realised that it had to act. Both retailers and producers started working out how to get smarter with their packaging.

There were trials aplenty. Waitrose started an 11-week pilot in its Oxford supermarket that reduced single-use packaging by 98% and plastic packaging overall by 83%. The Waitrose Unpacked scheme, which installed the kinds of dispensers seen at zero-waste stores across the country, was rolled out to several other stores.

At its store in Ulverston, Cumbria, Aldi moved some products, including rice and pasta, into dispensers

designed for customers to bring their own containers. This was part of a project that could, the company hopes, reduce its plastic consumption by 130 tonnes a year.

Morrisons tested a similar scheme for some frozen fruit, pasta and seeds, offering them for sale at a 10% discount to incentivise customers to choose the greener packaging option. The company's overall goal is to cut its plastic consumption in half by 2025.

And Asda's Middleton supermarket in Greater Manchester became a beacon for eco-conscious shoppers, offering refills on products in a scheme that's set to expand to more stores in the coming months.

It all showed great promise. The world of packaging looked to be moving in the right direction, but then the pandemic shook consumer confidence in food safety. For instance, 55% of Canadian consumers polled for research published in April 2021 said that they had become more worried about the issue since the start of the Covid crisis.

"A lot of the innovation that had been happening before last year went on the back burner," says Simon Geale, executive vice-president, procurement, at Proxima, a consultancy that works with a number of big UK retailers. "Businesses reverted to 'anything will do'."

Particularly during the period of panic buying at the beginning of the pandemic, supermarket chains prioritised getting enough stock on their shelves, rather than thinking about the most sustainable packaging solutions for it. They also struggled with a cardboard shortage in mid-2020, exacerbated by the unprecedented growth in demand for their online delivery services. This affected their ability to safely transport certain products to their stores, never mind to customers.

Eggs that used to be packed in cardboard were stocked in plastic



“A lot of the innovation that had been happening before last year went on the back burner”

boxes, for instance, while bakery items that had been displayed loose before the pandemic struck ended up in plastic packaging at Budgens. And the roll-out of refill stations in some supermarkets was postponed amid concerns about the transmission risk they would present.

Indeed, as public unease about the spread of Covid-19 via contact with surfaces grew, the whole concept of reuse became less popular. Research published in the *International Journal of Consumer Studies* in April 2021 revealed that public support for a ban on all single-use plastics in food packaging plunged from 72% in 2019 to 58% in 2020.

In response to consumer demand, manufacturers reverted to producing overpackaged goods in an effort to make them appear more sanitary. The hermetically sealed package is terrible for the environment, but it's a godsend for those worried about contracting viruses through contact with dispensers.

With the benefit of more than a year's worth of data, we now know that Covid is far more likely to be transmitted aurally. Public health

bodies including the World Health Organization and the US Food and Drug Administration have explained the risks posed by so-called hygiene theatre and exploded the myths that pervaded during the early stages of the pandemic, which had led some retailers and shoppers to resort to unnecessary practices such as double-bagging.

"There were so many grey areas in the information we were given at the start of the pandemic," says Charlotte Bowyer, co-founder of the Zero Waste Company, a shop in Tunbridge Wells, Kent. She felt obliged to stop customers bringing their own containers – a difficult decision when your whole ethos is to reduce waste in as many ways as possible. As a compromise, she offered them recycled paper bags.

Getting customers to return to a frame of mind in which most are happy to reuse containers again is likely to be a challenge, says Jen Ives, managing partner at Coley Porter Bell, a packaging design agency with clients including M&S, Tesco, Müller and Fox's Biscuits.

"This has become a top priority for brands. The conversations we're having with them are about how to build trust and emotional connections with consumers," says Ives, who believes that big brands have a responsibility to communicate clearly and dispel myths that have built up about viral transmission through contact with surfaces.

"If they can understand what the sensory codes are that cue ideas of cleanliness and safety, and tap into those through sounds, smells and visuals, they can start to build a more immersive brand expression," she says. "That would reinforce on

an implicit level the strategy and messaging they have about safety, cleanliness and sustainability."

Bowyer says that the pandemic has caused "massive setbacks" for the zero-waste movement, "especially with the shift to online shopping. You cannot do that without waste, no matter how hard you try."

Her company tested the water by providing a delivery service during the first UK lockdown, but found it hard to stay true to its ethos of limiting waste while also ensuring that items arrived safely at customers' homes. Despite such problems, Bowyer is confident that the Covid crisis has reaffirmed consumers' attitudes towards inefficiency.

"People saw the environmental impact of the world going into lockdown and the aftermath of all the excess packaging and single-use masks," she says. "A lot of them are coming to us and saying: 'We need to make a difference with our waste and plastic output.'"

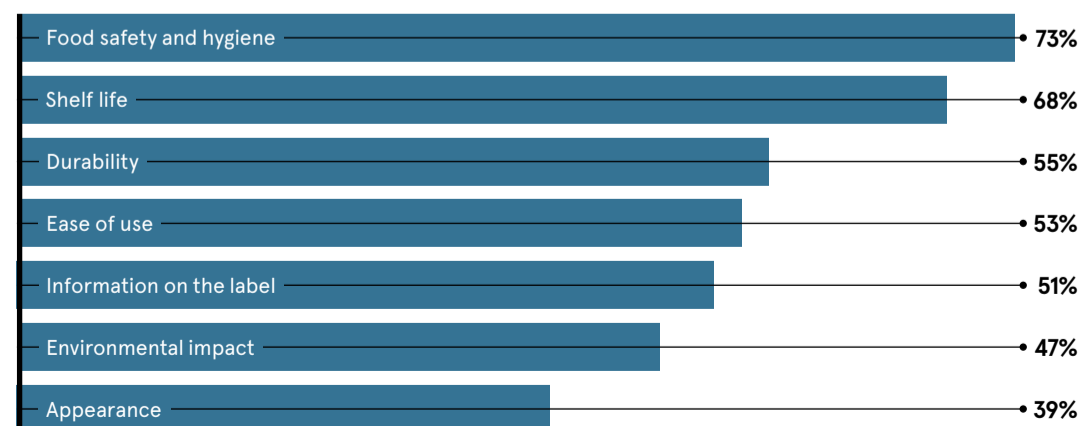
Yet Bowyer believes that zero-waste shopping is not the future. That may seem an unusual thing for her to say, but she readily admits that "zero-waste shopping is hard – and people like convenience".

Instead, she hopes that consumers will occupy a more sustainable middle ground where there is room for more environmentally friendly or compostable packaging, while businesses such as hers will help to propel the conversation in a more eco-friendly direction.

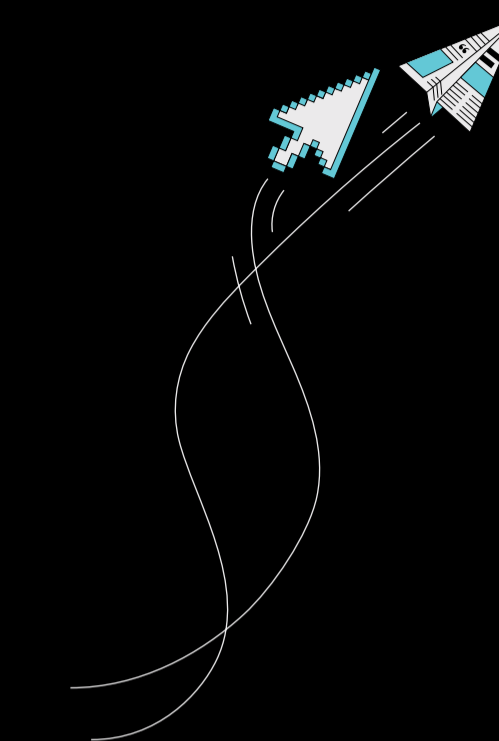
Ives wholeheartedly agrees with her. "Coming out of this pandemic, we are all still feeling our way," she says. "But there is definitely a responsibility – and an opportunity – for brands here." ●

SHOPPERS DEEM SUSTAINABILITY ONE OF THE LEAST IMPORTANT FACTORS IN FOOD PACKAGING

Percentage of UK respondents who said the following factors were very important to them



McKinsey & Co., 2020



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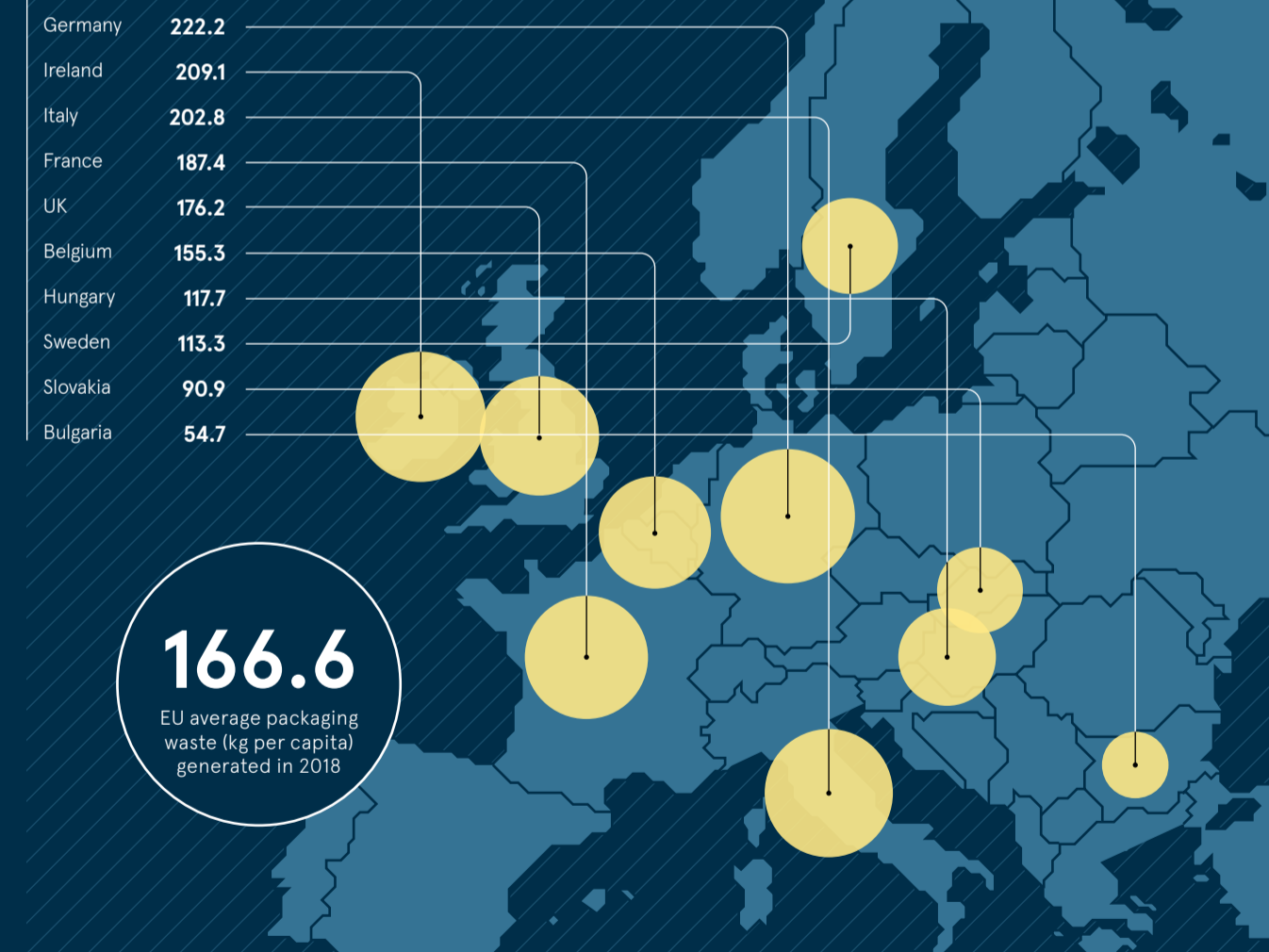
THE PARADOX OF PACKAGING

Half a century ago, very little of the packaging we see today existed. But, as consumers grew more affluent, they demanded a wider range of products and the convenience that came with having them packaged up. Packaging has become ubiquitous, helping to ensure that goods reach customers in perfect condition. But its visibility has prompted a backlash. How much of it is produced, how does the UK measure up, what is being done with the waste and how are public perceptions of it changing?

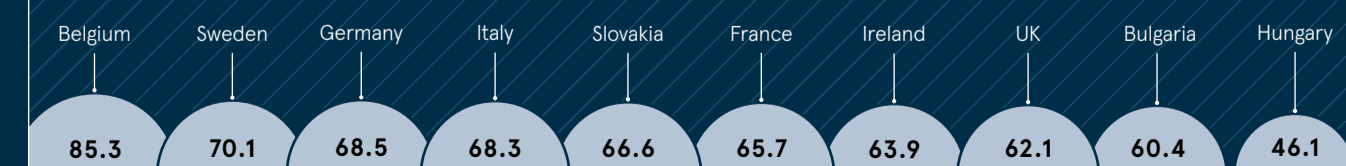
THE UK PRODUCES MORE PLASTIC WASTE PER CAPITA THAN THE EU AVERAGE

Packaging waste in selected countries in 2018 Eurostat, 2020

Packaging waste (kg per capita)

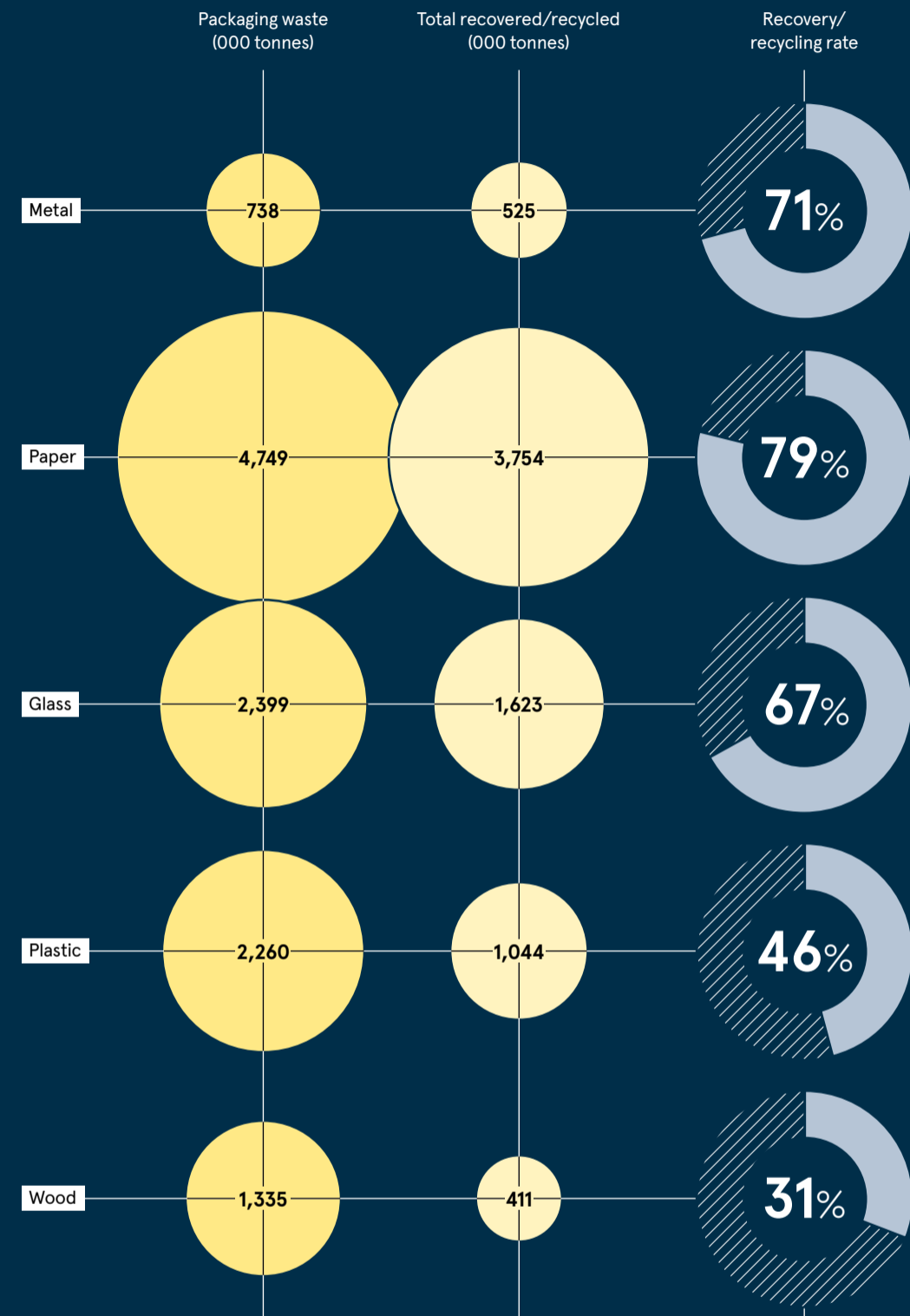


Recycling rates of packaging waste (%)



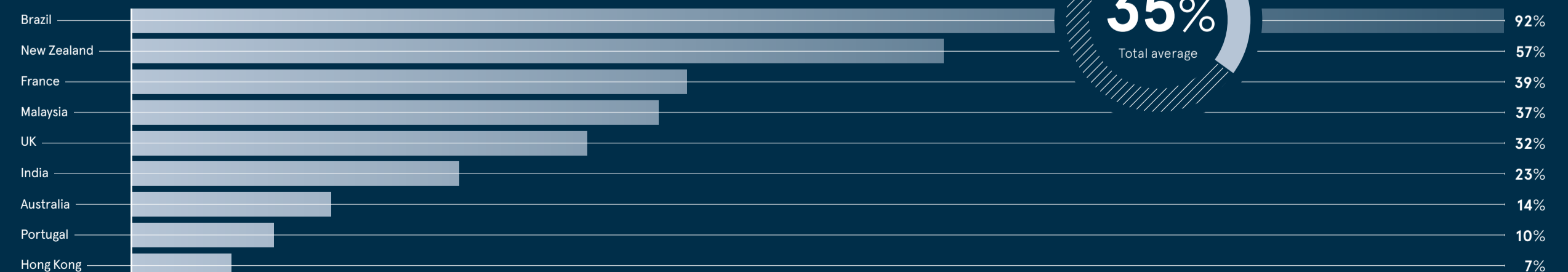
THE UK RECYCLES OR RECOVERS 60% OF ITS PACKAGING WASTE ON AVERAGE

Estimates of packaging waste and recycling/recovery, split by material, in 2017 Defra, 2020



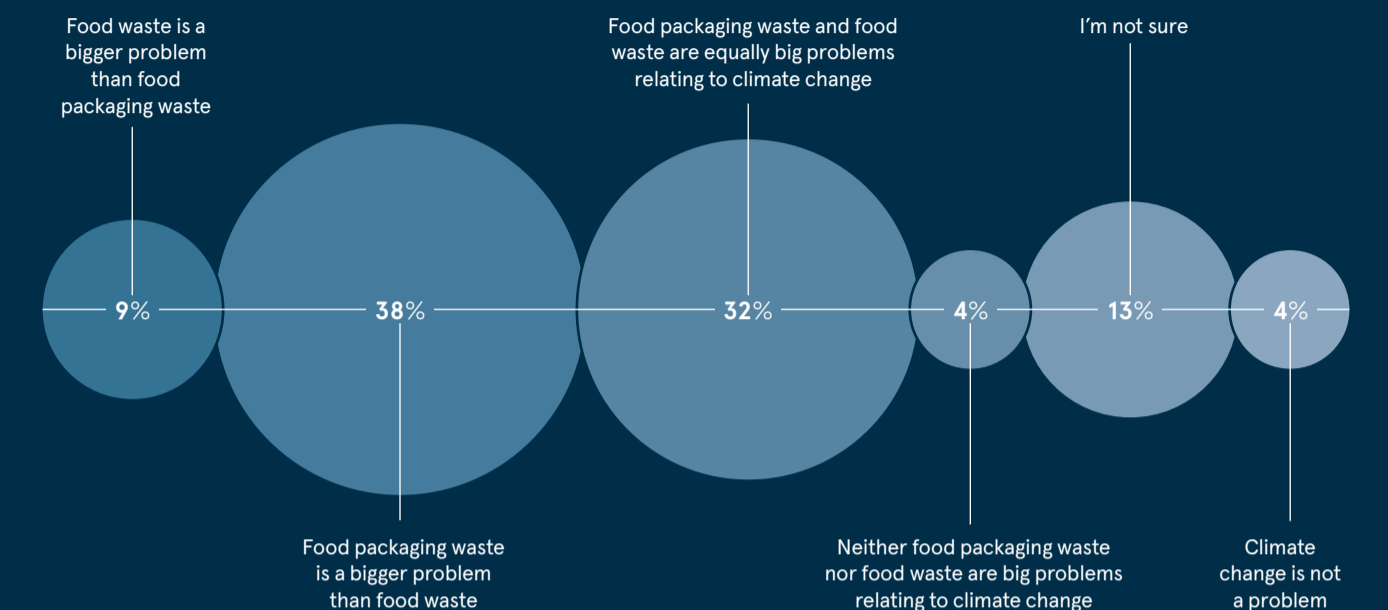
THE UK RANKS LOWER THAN SEVERAL OTHER COUNTRIES ON PACKAGING RECYCLABILITY

Analysis of the recyclable content of the packaging for 11 global household products, including KitKat, Whiskas and Dove body wash, by percentage of total weight Consumers International, 2021



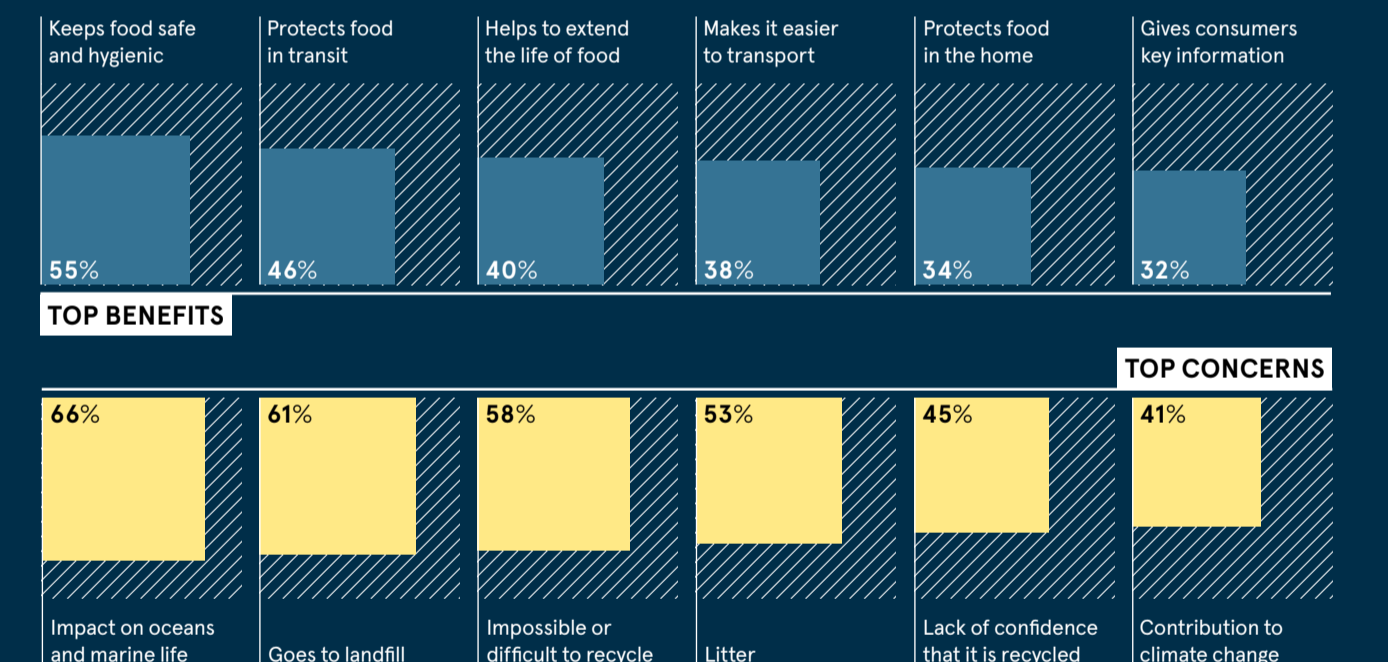
ONLY 9% OF UK CONSUMERS CORRECTLY BELIEVE THAT FOOD WASTE IS A BIGGER PROBLEM THAN FOOD PACKAGING WASTE IN THE FIGHT AGAINST CLIMATE CHANGE

Percentage of UK adults Industry Council for Packaging and the Environment and WRAP, 2019



CONSUMERS UNDERSTAND THE BENEFITS OF PACKAGING, BUT ARE CONCERNED ABOUT ITS ENVIRONMENTAL IMPACT

Percentage of UK adults citing benefits and concerns relating to food packaging Industry Council for Packaging and the Environment and WRAP, 2019





Claude Beaulieu via Shutterstock

MARKETING

Logo no-go

The upcoming constraints on advertising for unhealthy foods have reignited the debate about plain packaging. Should the government extend the restrictions it has imposed on the tobacco industry?

Jessica Bateman

The marketing of potentially harmful products has long been a contentious issue. In 2015, Westminster passed legislation obliging tobacco companies to use plain packaging with graphic health warnings on cigarettes sold from May 2017. This sparked discussion about whether such measures should also apply to other demonstrably unhealthy goods.

In June this year, the government announced limits on the advertising of foods high in sugar, fat and salt, including a ban on TV adverts before the 9pm watershed. These will be enforced at the end of 2022. The move has renewed public interest in whether such products should also come in plain packaging.

There's no doubt that the nation's unhealthy eating (and drinking) habits represent a serious burden for the NHS. A House of Commons briefing paper published in January estimated that 28% of adults in England are obese – up from 15% in 1993. Weight problems often start in childhood: 9.9% of children aged four and five in England are obese and a further 13% are overweight.

Some experts believe that marketing is partly to blame for this. In 2017, Wolfram Schultz, a professor of neuroscience at the University of Cambridge, took aim at the fast-food industry while accepting a prestigious research prize called the Brain Award for his work on the neural mechanisms affecting our behaviour in relation to rewards.

"The colourful wrapping of high-energy foods of course makes you buy more of that stuff," he said. "We should not advertise, propagate or encourage the unnecessary ingestion of calories."

Markus Joutsela, a lecturer specialising in packaging design at Aalto University School of Arts, Design and Architecture in Finland, agrees that the colours, logos and images on packaging are designed to engage the emotions. They can help to override that logical part of your brain when you're in the supermarket and know that you should buy fruit but are feeling tempted by chocolate. Such stimuli are also particularly appealing to young children, whose capacity for analytical decision-making is limited.

"Our studies tell us that consumers perceive a range of values from packaging, including functional, environmental, aesthetic and emotional," Joutsela says, adding that plain packaging "would definitely discourage people from trying harmful products. But the findings of research into the influence of packaging, and my understanding of how packaging design works in practice, lead me to believe that there would also be problems."

Joutsela explains that his main concern stems from the fact that packaging serves as the space to communicate important information about the product, helping consumers to understand exactly what's on offer.

"There's the possibility of confusion if you want a certain product but aren't entirely sure which one you're buying," he says. "From the consumer's perspective, packaging is often read as a sign of the product's qualities, such as whether it contains certain flavours. A lot of this would be lost."

One branding expert who's fiercely sceptical about the merits of plain

packaging is David Haigh, the founder and CEO of consultancy Brand Finance. His company has surveyed consumers about the subject and published reports discussing the potential effects if plain packaging were to be extended from tobacco to unhealthy foods.

"Consumers do understand that there are products that are bad for you," he argues. "But they like to have freedom of choice over which ones they want to use. They don't particularly like plain packaging, as they feel that it confuses this decision-making progress."

Haigh adds that plain packaging would also have a limiting effect on the ability of food producers to develop healthier alternatives.

"If you're no longer able to do the branding and marketing, you can't innovate effectively, because you cannot create a new product unless you have a visual method of promoting it," he says. "All of the chief marketing officers we've spoken to are aware that most industries need regulation – it's just a matter of degree. You have to remember that these are legal products that people often enjoy consuming in moderation."

Deborah Arnott, chief executive of the charity Action on Smoking and Health, disagrees that the public would consider the move excessive. Having compiled its own research into the issue, her organisation started campaigning for the plain packaging of tobacco products in 2010. When it comes to important public health matters, she says, "consumers actually support government intervention. They understand that many behaviour changes are quite difficult."

Arnott notes that one of the adverse side effects of plain packaging that the pro-smoking lobby had warned about – that it would lead to a growth in counterfeiting and black-market imports from countries without such rules – has not occurred to a significant degree.

Research published by Public Health England and the Office for

“ Plain packaging would definitely discourage people from trying harmful products. But there would also be problems

National Statistics in 2019 revealed that the number of smokers in England fell by nearly 175,000 in the 12 months after the plain packaging rules took effect in May 2017. The most likely quitters were those aged 18 to 24. From that same point, the rate of decline in UK cigarette sales steepened from an average of 12 million units a month to 20 million, according to a 2020 study by the University of Bath's Tobacco Control Research Group.

Arnott acknowledges that it's hard to gauge the exact influence that plain packaging exerted on these trends, because other anti-smoking measures were introduced at the same time.

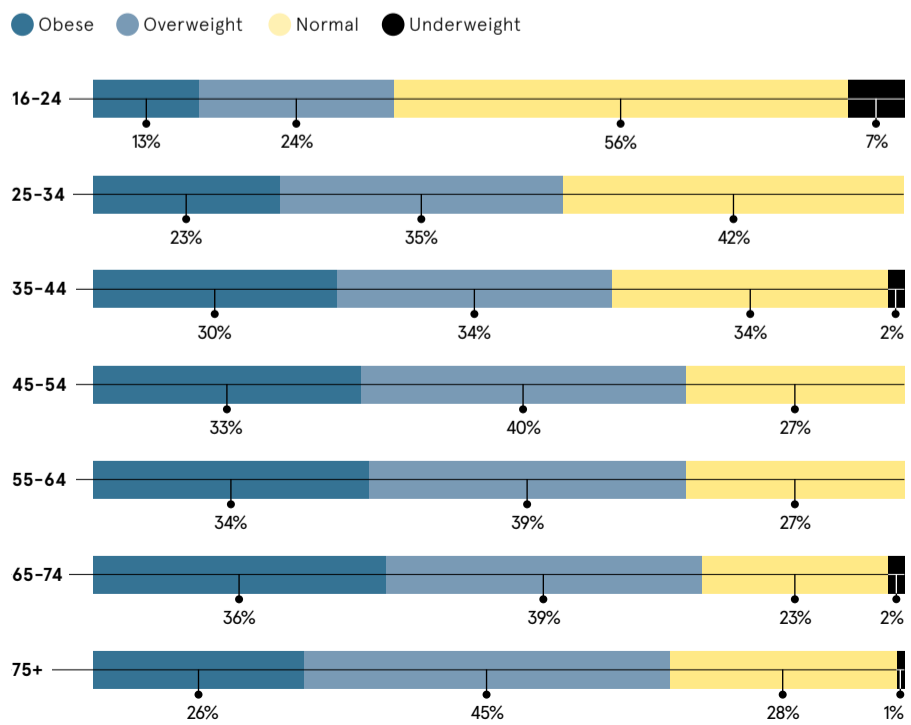
"If it had been imposed by itself, plain packaging would not have been as effective," she says. "It was the combination of graphic health warnings with the lack of branding that was most important."

This is one of the reasons why Arnott is cautious about taking data about plain packaging's effect on smoking and extrapolating it to the consumption of unhealthy foods. To use an inappropriate metaphor, making close comparisons between the two would be a case of apples and oranges.

As she points out: "Tobacco is the only consumer product that's actually deadly if used as intended." ●

NEARLY TWO-THIRDS OF ADULTS IN ENGLAND ARE OVERWEIGHT OR OBESE

Percentages of the population, by age group, who are NHS Digital, 2019



OPINION

‘Retailers which demonstrate that care and thought has gone into the packaging, rather than opting for the easiest and cheapest solution, will win out’

The revolution has started. The pandemic has undoubtedly accelerated the UK's shift to online shopping. Ecommerce accounted for 27.9% of the nation's total retail sales in 2020, according to the Office for National Statistics. In 2019, its share stood at only 19.2%. The numbers indicate a clear desire among consumers for constant availability and speed of service – in which packaging plays an integral role.

As consumers increasingly shop online, their expectations of the service provided by all retailers, not only the biggest players, have risen. Any ecommerce business is no longer competing with the best experience in its category; it is competing with the best experience a consumer has ever had. Brands need to stand out by giving shoppers an experience that extends beyond the product.

When it comes to packaging for online shopping, and subscriptions in particular, an enjoyable unboxing experience can help to improve consumer engagement, which in turn can result in increased brand loyalty. Apple is at the forefront of providing a delightful, memorable unboxing experience. Other players, including FMCG companies, are working to emulate that magic.

Retailers which demonstrate that care and thought has gone into the packaging, rather than opting for the easiest and cheapest solution, will win out. An experience that acknowledges the customer, guides them through the unpacking process with structured boxes and adds samples or offers will receive positive feedback from buyers. Beauty Pie, Birchbox and Harrods are a few of the retailers that use eye-catching packaging to evoke these surprise-and-delight moments.

During the conventional retail experience, consumers will typically handle a product, which will inform their purchasing decision. But online consumers will first experience a new physical product and its packaging only once it has arrived in their homes. The brand connection through visual representation is made in a different

way, compared with what happens when the consumer picks the same product up off the shelf in a shop. When delivered, the product needs to meet the expectations the consumer has formed when viewing it online, perhaps in a photograph on an retailer's website or a video on a social media platform.

Take Amazon, for example: its market share has increased over the past few years, with sales rocketing particularly during the pandemic. But how does this, in turn, affect people's buying decisions? In a recent survey conducted by Packaging Innovations, we found that 70% of consumers were forming opinions about brands based on the packaging alone. Of the retailers we questioned, 91% said that eco-friendly and sustainable ecommerce packaging was important to their brands.

Packaging is power. Although Amazon has at times been targeted for using unnecessary amounts of packaging, this does not seem to have affected its sales. Does this mean that consumers are simply interested in convenience?

Over the past few years, big ecommerce players such as Asos, Pretty Little Thing and Wayfair have increased their sales. During the same period, we have seen the fall of Topshop, Debenhams and Toys "R" Us. The retail landscape is changing rapidly. Brands must stay ahead of the game in order to survive – and that starts with packaging. ●



Alessandra Leonard
Senior marketing manager,
Packaging Innovations

What your packaging label says about your sustainability

The packaging industry has long known it needs to improve its sustainability credentials. A new label solution from Avery Dennison is helping it do just that

Packaging is everywhere: on the supermarket shelf, in your shopping basket, in your recycling and in the bin. As such, the need for a sustainable solution is easy to understand.

However, finding and implementing such a solution has not always been simple despite no shortage of consumer demand. Surveys have repeatedly shown that shoppers consider the recyclability of packaging important. They have petitioned for it to be more widely available, and they even say they are prepared to pay more to get it.

This demand means packaging manufacturers are seeing a huge surge of interest in sustainable solutions from businesses, not only from the more niche eco-lifestyle ranges and product lines, but also among mainstream brands.

As evidenced by the likes of L'Oréal switching to refillable packs and Nivea using bio-based plastic jars, take-up is growing outside food and drink, notes Mariya Nedelcheva, a product manager at Avery Dennison:

"The market for sustainable packaging is dynamic and developing very quickly: there is a lot of demand," she says. "And while it might not be heavily regulated at present, new guidelines are emerging and existing ones are evolving fast. However, a dynamic market coupled with new guidelines point to a lack of clarity in the industry."

While there is a call to cut, or even eliminate, single-use plastic from packaging solutions, there is also a fast-growth trend for brands wanting to measure and reduce their CO2 footprint. Using recycled plastics and ensuring they undergo recycling at end-of-use are often the best options.

Eco-design can help brands resolve these mixed messages, explains Nedelcheva. "Eco-design principles can minimise the amount of material in production, but also maximise its recyclability at end-of-use. Linking design thinking to life-cycle analysis can therefore really help measure and reduce the total environmental impact."

“ Eco-design principles can minimise the amount of material in production



Avery Dennison runs an in-house EcoDesign programme to embed the principles into every product, from compostable labels to its range of materials made with recycled content. With the launch of the next generation of its CleanFlake technology, it is also boosting the yield of rPET plastic that is available and can be turned into new products.

Originally launched as a beverage label in 2013, CleanFlake technology solves a critical problem in PET plastic recycling by ensuring label adhesive stays with the label and not on the package. This minimises contamination and helps produce purer quality PET for recycling, meaning more can go on to become new packaging, rather than being downcycled, sent to landfill or incinerated.

This circularity is achieved without compromising on usability, with CleanFlake materials performing just like any other self-adhesive label and offering the same aesthetic. This makes them suitable for a wide range of product segments, including beauty, food and home and personal care. By improving recyclability for many kinds of PET containers, including clamshells and trays, CleanFlake broadens the range of sources of higher-quality PET available, meaning the industry is less reliant on bottles.

CleanFlake is also useful to brands from an Extended Producer Responsibility perspective, says Nedelcheva: "Companies using PET packaging no longer have to choose between true recyclability and

outstanding performance when it comes to their labels. We have closed the gap."

CleanFlake label constructions come with an rPET3 liner as standard. Made in part from post-consumer PET plastic waste, the liner can be recycled through Avery Dennison's AD Circular scheme.

This pan-European, cross-industry initiative offers the ability to collect and recycle release liners from any manufacturer, regardless of origin, via a web-based app. Avery Dennison handles all the paperwork, compliance and regulatory concerns. AD Circular provides useful data in the form of analytics and certificates, showing volumes of liner waste recycled, as well as the total CO2 emissions avoided as a result.

As an example of collaboration across the value chain, AD Circular illustrates how Avery Dennison helps brands advance and evidence sustainability, concludes Nedelcheva.

"Nobody can go it alone when it comes to circularity. Regulators, recyclers, brands and manufacturers are all part of an ecosystem and need to collaborate to better serve the planet in a more nature-driven future. Working together on sustainability is a must."

For more information visit, label.averydennison.com



SUSTAINABILITY

Just the ticket: eco-ratings for food and drink

A nascent labelling scheme has attracted big-name backing, but how effective will it be in reducing the industry's carbon footprint? And can it change consumers' behaviour significantly on its own?

Sam Haddad

Since 2013, it's been easy for shoppers to know the fat, sugar and salt content of the foods and drinks they're buying, thanks to the so-called traffic-light system of nutritional labelling on the packaging. But assessing a product's environmental footprint is far trickier. You'd need to trawl through the provider's website, decipher abstract data and hope that the information provided isn't a load of greenwash.

But that could be about to change, courtesy of an environmental labelling system that's set to be piloted by Foundation Earth, an independent not-for-profit organisation. The scheme is backed by notable retailers and brands, including Sainsbury's, Co-op Food, Nestlé and Greencore.

Using a method developed by the University of Oxford and Mondra, an environmental information platform, products will be rated according to their farming, processing, packaging and transport footprints. Their impacts will be weighted 49% to carbon emissions and 17% each to biodiversity loss, water consumption and pollution. Their scores will be expressed using traffic-light colour code and an overall grade running from A+ down to G, in a similar style to the energy rating labels used on white goods.

Foundation Earth is aiming to implement the system fully next year if the pilot goes to plan.

More than half of consumers surveyed by Mintel in 16 countries in July agreed that there's still time to save the planet from a calamitous temperature increase – and that their own actions can make a difference. Almost half of the respondents wanted products to include environmental impact labelling.

Morten Toft Bech is the founder of vegan food producer Meatless Farm, another partner in Foundation Earth's planned labelling scheme. He believes that the public response to the initiative will be overwhelmingly positive.

"Consumers want transparency and there needs to be a shift in how we approach sustainability. That

will come only with support from brands, governments and consumers," Toft Bech says. "It's never been more important to review our environmental impact and reflect on it. We must lead food towards a more sustainable future."

A few brands have already started trialling their own environmental labelling systems. They include the plant-based milk brand Oatly and Tenzing Natural Energy, which this year became the first UK drinks company to introduce carbon labelling on its cans. Working with climate impact researchers at Carbon Cloud, Tenzing put its supply chain under the microscope to calculate the total carbon footprint of the business.

This exercise was "almost shocking in its detail", recalls Emily Gander, head of communications and sustainability at the company, which is a certified B Corporation. "It extended to the degree of asking: 'How big is the boat we're using to transport



Tenzing Natural Energy is one of a small number of brands to have included eco-ratings on its packaging

those ingredients from one country to another?" Having identified our footprint, we wanted to be entirely transparent with our community about it."

One of the biggest potential benefits of eco-labelling is that it encourages brands to reduce their impact in this way. Tenzing has switched production from the Netherlands to the UK, preventing the emission of 28.5 tonnes of CO₂ a year.

"It definitely isn't the cheapest way to do things, but it is the most sustainable," says Gander, who thinks eco-labelling will stimulate a genuine shift in consumer behaviour. This would in turn encourage bigger brands to make positive changes, she adds, even though it is harder

for multinational corporations like Coca-Cola and PepsiCo to "shift their old processes and mindsets to prioritise planet over profit".

For eco-labelling to be truly beneficial, the measuring system needs to be rigorous and standardised. Compared with the nutritional scoring system, which has "procedures that have been perfected for more than 100 years and could be tested by someone at home", this is not easy to achieve. So says Dr Luca Panzone, a senior lecturer in consumer behaviour at Newcastle University's School of Natural and Environmental Sciences.

When it comes to assessing a product's carbon footprint, "we aren't even close to standardisation. It's extremely complicated – everyone has their own method," he observes. "A person in Newcastle might approach it differently from someone in Aberdeen, say, and obtain totally different numbers."

This is why the well-supported scheme proposed by Foundation Earth looks like a step in the right direction, although its progress is unlikely to be smooth, according to Toft Bech.

He acknowledges that "creating a system that is fairly standardised, clear and informative is a big challenge. There may be some confusion at the start, as manufacturers get to grips with the processes and consumers get used to the labelling. There'll be an education job to do."

Tesco trialled carbon labelling as long ago as 2008 but dropped the programme in 2012. At the time, the company blamed its decision on the fact that it took several months' work to calculate each product's footprint accurately – and on the failure of any other big retailer to follow its lead.

Panzone suggests that it's possible that eco-labelling could have an

impact on competition that would prove undesirable for the big players – initially, at least. If a supermarket's own brand of milk, for example, turns out to have a lower eco-rating than that of another milk brand it stocks, that could cause it to lose sales. If consumers change their shopping habits accordingly, that's precisely how such a system could be effective in compelling retailers to improve the environmental performance of their goods.

"The carbon footprint of an item is not written in stone like its calorific content, so this could stimulate a push to reduce products' carbon emissions," Panzone says.

He adds that eco-labelling should go hand in hand with other changes in both supermarkets and online stores to incentivise greener purchasing behaviour.

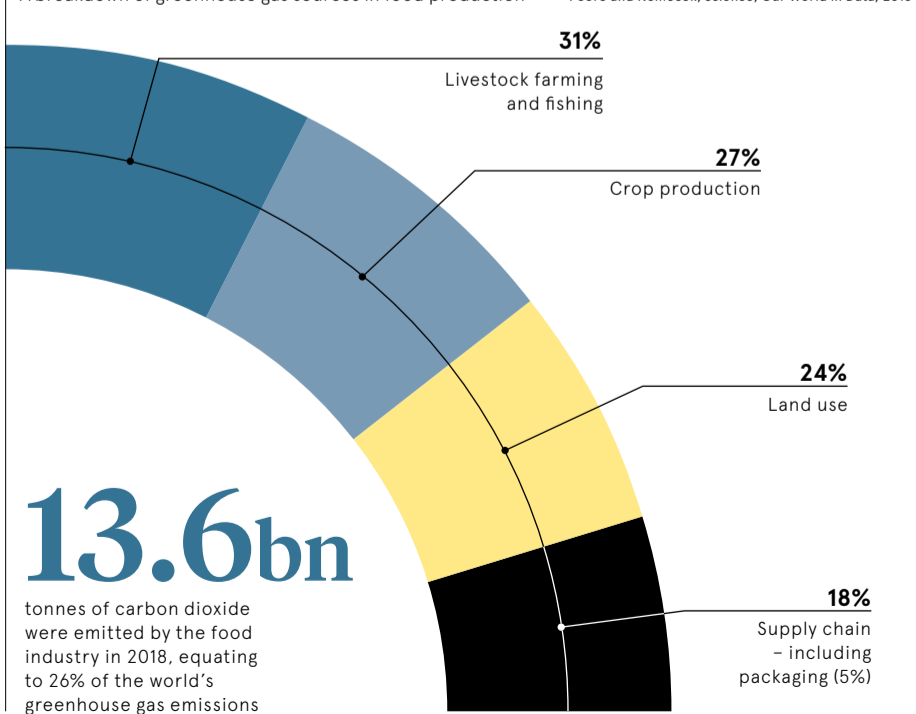
"The problem with environmental messaging on products is that it reaches only those consumers who care," Panzone explains. "But, if you change the layout of a store, you can reduce your carbon footprint a lot faster without people even realising. You can do this by moving less environmentally friendly products away from eye level on the shelves, for instance. Online, you can pre-sort items to drive people's attention towards lower-carbon options."

The government could also help the situation by introducing a tax on items according to the size of their carbon footprints, he argues. "There is still so much dissociation between consumption and environmental impact, as people are not directly affected by their purchase of, say, a £1 plastic toy from China."

With such a tax, consumers would still have choice, but at least the government would have a source of money to help fix the environmental problems perpetuated by the most carbon-intensive consumables. ●

THE FOOD INDUSTRY'S CARBON FOOTPRINT COMES FROM A RANGE OF SOURCES

A breakdown of greenhouse gas sources in food production Poore and Nemecek, Science, Our World in Data, 2018



13.6bn tonnes of carbon dioxide were emitted by the food industry in 2018, equating to 26% of the world's greenhouse gas emissions

Commercial feature



Finding the answer to the black plastic problem

Plastic plays a key role in reducing food waste but issues with recycling black plastics have held back its circularity. Thanks to 'jazz' plastics, the material is now playing a new tune

Plastics often get bad press for their sustainability credentials, but they are an incredibly important packaging material for tackling one of the biggest causes of climate change: food waste. Each year, £14bn worth of food is thrown away in the UK, according to sustainability not-for-profit WRAP, much of which occurs through the supply chain because it is deemed past a suitable state for consumers.

The Food and Agriculture Organization of the United Nations has estimated that if food waste were a country, it would be the highest emitter of greenhouse gases after only the United States and China. Yet two thirds of UK adults do not see the link between food waste and climate change, research by WRAP found earlier this year.

Many people also hold anti-plastic sentiments due, in part, to high-profile campaigns against plastic pollution. Yet the reality is more nuanced. Plastics is hugely damaging to wildlife in oceans, yet much of it ends up in the sea there having fallen off ships or having been tipped on to coastlines while being transported to other countries for sorting and recycling, or for creating energy from waste, due to a lack of investment in UK infrastructure. Meanwhile, plastic continues to be the best packaging material for prolonging the shelf

life of products, therefore reducing food waste.

"Most plastics are technically recyclable, the issues are around collection and sorting," says Justin Kempson, sales and innovation director at UK packaging designer and manufacturer Charpak. "I'm very against our perfectly recyclable plastic being shipped halfway around the world for someone else to sort and then back to the UK. If we didn't send it abroad in the first place, we could stop a lot of it ending up in the ocean."

"We hope the revenue from the UK plastic tax being introduced in April 2022 and Extended Producer Responsibility from 2024 will be used to invest in infrastructure, including reprocessing facilities. But it has got to be a collaborative partnership. Waste contractors, processors, converters, retailers and – most importantly – consumers, have got to be taken on this journey to improve collection and recycling rates."

One major issue that has held back plastics recycling is black plastic, which due to its colouring coming from the use of carbon black pigments cannot be detected by the infrared technology widely used in plastics recycling. Although additives can be added to help solve the issue, they are seen as too expensive to be a viable solution. As a result, black

plastic packaging typically ends up as residue and is disposed of in landfill, incinerated or shipped abroad, increasing carbon emissions and plastic pollution. Achieving sustainability requires a more circular, rather than linear, economy.

Charpak has devised a solution, called Satchmo, for dealing with this issue in a better, cheaper way. It has embraced what it terms 'jazz' plastics, which refers to mixed colours. Currently, coloured plastics are made by taking clear plastic and adding a coloured masterbatch. If these go into the recycling stream, they are lost. Instead, Satchmo reuses the colours. Less coloured masterbatch means lower costs, while reserving clear plastic for clear products.

As part of its mission to minimise the environmental impact of plastic packaging through collaboration, Charpak developed Satchmo

in partnership with its key supply chain partners. The solution is manufactured from a minimum 86% rPET (recycled polyethylene terephthalate) material. Containing the important A/B/A layer for recycled plastics to ensure food grade use and recyclability, Satchmo is designed for the circular economy, reusing and replacing black plastic packaging with coloured jazz plastic to help reduce packaging waste.

"The core of our Satchmo solution contains every colour under the sun, but the outer skin covers up what's on the inside," says Kempson. "The technology we have designed involves a clever use of colour pigmentation, covering the internal colours with an outer layer. With this innovation, we create a true tray-to-tray recycling system for colours. Every colour we release to the market is fully detectable, so we do not add to the unrecycled pile. Satchmo reduces packaging waste and will help enable the new plastics circular economy."

"Our partners in the waste industry estimate around 8,000 tonnes of coloured bottles, pots, tubs and trays are currently collected in the UK. Upcoming legislation on consistency of collection – mandating councils to collect every bit of plastic – will increase that even further.

350K kg

the amount of waste from recyclable trays in Tesco alone that has been prevented by Charpak's Satchmo packaging

ensure packaging can be repurposed and reused, and ensuring clear plastic packaging remains clear."

Satchmo is super-cleaned, hygienic, reusable, recyclable, returnable and can be reprocessed and re-manufactured for new packaging for multiple sectors, reducing waste, landfill and energy from waste. Multiple colour solutions are available, all of which have successfully passed recycling and recovery trials for re-manufacture into new packaging.

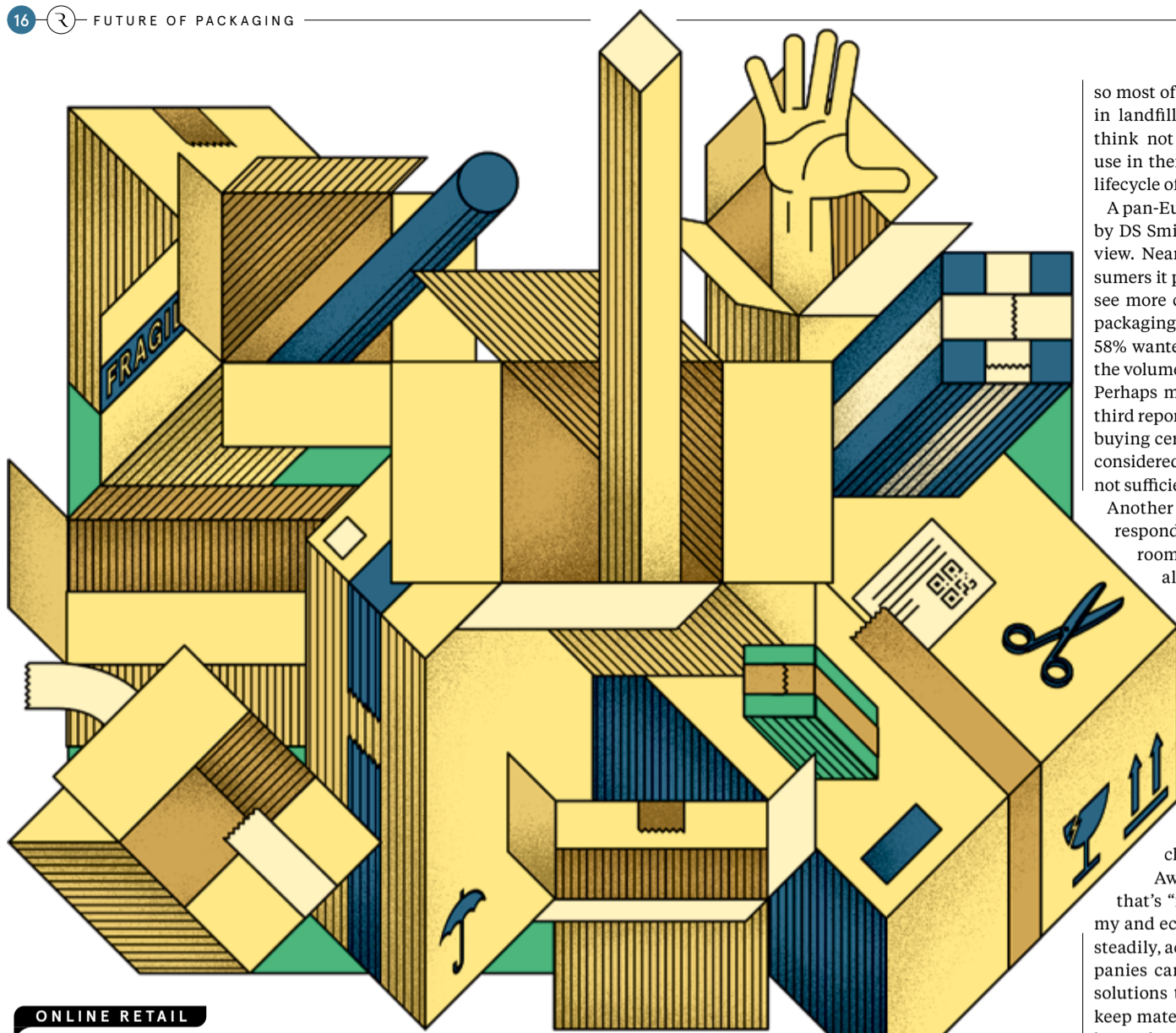
In the past year, Charpak has implemented its Satchmo products across the UK including on the shelves of supermarket giant Tesco. This has facilitated the prevention of more than 350,000kg of household-collected recyclable trays being used in Tesco food packages.

"Innovations like jazz plastic packaging and tray-to-tray recycling are important developments in support of our ambition to create a closed loop circular economy for packaging materials," says Denise Mathieson, UK technical packaging manager at Tesco. "We are working with partners like Charpak to reach this ambition, removing and reducing single use packaging wherever possible, introducing reusable alternatives and working to ensure everything that's left is recyclable as part of a closed loop."

For more information, visit charpak.uk



Most plastics are technically recyclable, the issues are around collection and sorting



ONLINE RETAIL

Box cleverer: how to cut waste in ecommerce

The pandemic-driven boom in online shopping has highlighted the challenge facingetailers and brands in finding packaging solutions that are sustainable and accessible, yet also cost-effective and secure

Oliver Pickup

A meme on social media showing a tearful woman with a caption that reads "I get more Amazon boxes in a week than I can fit in my recycle bin" neatly sums up the problem with packaging in 2021.

The growth of ecommerce since the start of the Covid crisis – online sales in the UK during the first quarter of this year were 54% higher than the total for Q1 2020, according to research by Adobe – has heightened concerns about packaging waste.

On the one hand, online shoppers complain about excessive packaging. On the other, a purchase that arrives damaged, needing to be returned and replaced, will have a far bigger environmental impact.

While shoppers are becoming increasingly eco-conscious and mindful of waste in packaging,etailers must consider several other factors, including cost, security and accessibility (23% of online shoppers in the US

have damaged at least one purchase during the unboxing process, according to packaging company DS Smith). In December 2020, the Chartered Institute of Marketing (CIM) warned that the growth in ecommerce was the main reason why 85% of the UK consumers it polled thought thatetailers were using too much packaging. Amazon was singled out as the worst offender by far, but other big companies attracting criticism included Asos and supermarket chains Tesco, Sainsbury's and Asda.

"We know that the lockdowns have changed buying behaviour and there has been a considerable increase in online purchasing, which means more home deliveries," says the CIM's marketing director, Gemma Butler. "Even where companies have improved their packaging practices, the increased volume of purchases will naturally push up the amount of packaging in circulation."

Stressing the need for innovative packaging solutions, Butler calls for

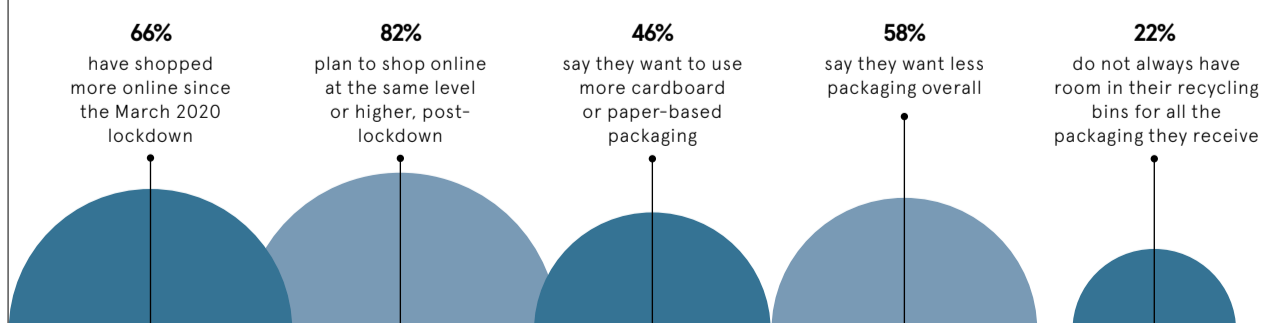
an update of the popular 'reduce, reuse, recycle' maxim.

"Recycling cannot be seen as the answer," she argues. "It should be considered only after reducing and reusing. Our recycling infrastructure cannot support the volume and variety of packaging in circulation,

CONSUMERS ARE DEMANDING ECOMMERCE PACKAGING BECOME MORE SUSTAINABLE

Percentage of European shoppers

DS Smith, 2021



so most of the material still ends up in landfill. Organisations must rethink not only the materials they use in their packaging, but also the lifecycle of that packaging."

A pan-European survey conducted by DS Smith in March supports her view. Nearly half (46%) of the consumers it polled said they wanted to see more cardboard or paper-based packaging, rather than plastic, while 58% wanted an overall reduction in the volume of packaging being used. Perhaps most tellingly, almost one-third reported that they had stopped buying certain brands because they considered that their packaging was not sufficiently sustainable.

Another finding – that 22% of UK respondents do not always have room in their recycling bins for all the packaging they receive – is one that's "disturbing" to DS Smith's director of sales, marketing and innovation, Marc Chiron. "Some boxes are being put to good use – people are reusing them for storage, for instance – but many are not finding their way back into recycling streams," he reports.

Awareness about packaging that's "fit for the circular economy and ecommerce age" is growing steadily, according to Chiron. "Companies can contribute by choosing solutions that eliminate waste and keep materials in use. But this goes beyond material choices, as supply chains need to be optimised to avoid the unnecessary use of transport too. That would be the win-win outcome for business and environment."

Chiron adds that high-quality branding which sets out anetailer's approach to sustainability in packaging has become a key marketing tool. "Storytelling is a trend in retail – it can elevate on-package branding to the next level," he says. "Innovative companies are using packaging that conveys their craftsmanship and passion. This enables a firm to connect with its customers in new ways, eliciting emotional responses and making it easier for them to identify with the business and its products."

Jonathan Dixon, senior VP of sales at Arla Foods UK, notes that it's vital for "brands to get their packaging right". He says that online sales in the grocery sector are 70% higher than they were at the start of the pandemic – and that consumers spend an average of only 15 minutes doing their weekly shop online, compared with 43 minutes in a supermarket.

“Organisations must rethink not only the materials they use in their packaging, but also the lifecycle of that packaging

"For new brands, packaging is their main marketing tool when selling online," Dixon says. "It must therefore stand out to prevent shoppers from scrolling past."

Firms that have created sustainable packaging solutions in recent times include Barilla. The Italian pasta brand adopted 100% paper-based containers in May 2020, taking out the plastic front windows that had made the packs less easy for consumers to recycle. Its move followed that of rival brand Napolina, which in September 2019 had switched the packaging of some lines from plastic to cardboard. Napolina estimates that this change has taken 16 tonnes of plastic out of the waste stream each year in the UK alone. The company has started to extend plastic-free packaging to its core range in a bid to push the total up to 200 tonnes.

Wilkinson Sword recently switched to plastic-free packaging when it relaunched its Hydro shaving razor range. This change has removed 88 tonnes of PET and 35 tonnes of virgin paper from its supply chain a year, achieving significant cost reductions in the process.

Wayne Snyder is VP of retail industry strategy for EMEA at Blue Yonder, a US specialist in supply management software. He believes that technology can help businesses struggling to strike the right balance between packaging cost, security, accessibility and sustainability.

"Retailers cannot look at any of these factors in isolation," Snyder argues. "Each requires a different weight based on its characteristics as well as the business strategy. While this task may seem daunting, new AI technologies will enable an optimised method that factors in these questions to find the right balance."

It's clear, then, that brands looking to thrive in the ecommerce age must make sustainability a priority and think both inside and outside the box when it comes to packaging. ●

Don't bottle it when it comes to recycling

Bottle-to-bottle recycling is essential to the drinks industry's vision for a net zero, circular supply chain, and we all have a role to play in ensuring plastic packaging is no longer treated as waste

Knowing products come from recycled sources provides a warm feeling to many people who want to minimise their impact on our planet. How many, though, recognise that the energy and materials behind recycled packaging themselves come from finite resources?

We might think of it as waste but, as the saying goes, "where there is muck there's brass". The rPET (recycled polyethylene terephthalate) plastic we toss into a recycling bin after finishing a drink is a hotly traded commodity worth \$8.6bn globally, according to Grand View Research.

Due to the pandemic hitting sales of drinks and rising demand from Asia for recycled plastic, UK food manufacturers, such as Suntory Beverage and Food (SBF GB&I), are having to compete for access to packaging materials. In particular, a lack of food-grade rPET is holding the UK back from achieving a circular economy.

We can all play a part in addressing this shortage by being more responsible in how we buy and recycle goods. Far too much PET is lost from the

supply chain when recyclable bottles go into the mixed plastics recycling stream, emerging as one-time-use bottles, traffic cones or toys. While better than being sent to landfill, it is only a temporary reprieve as they cannot be recycled again.

Bottle-to-bottle recycling is the key to sustainability in the soft drinks industry but it depends on a reliable source of rPET, which is the ideal packaging material because it minimises both transport emissions and waste, while maximising the chances of consumers and waste processors recycling the packaging. To meet its net zero goals, the UK must keep food-grade rPET in the supply chain, not allow it to be downcycled to non-recyclable plastic.

Manufacturers play a critical role not only in the design of products but in encouraging the development of an effective recycling infrastructure. SBF GB&I is one of the UK's largest soft drinks companies to use bottles made from 100% recycled materials that are also 100% bottle-to-bottle recyclable. Through its brands, which include Lucozade, Ribena and Orangina, it is leading the way towards a sustainable future where plastic packaging is no longer treated as waste but rather a valuable resource.

A £1.6m investment to achieve this with a Ribena bottle redesign in 2020 will save 202 tonnes of virgin PET annually, contributing to the 3,149 tonnes SBF GB&I has already saved since 2015. Emissions from virgin plastic production are around 50% greater than recycled plastic. SBF GB&I is now investing £6m to do the same with Lucozade Sport and Lucozade Energy, while downsizing the sleeve on bottles so recycling centres can recognise the clear rPET bottle underneath more easily.

"This is high-quality, food-grade plastic that we can use again and again," says Michelle Norman, director of external affairs and sustainability at SBF GB&I. "You need that wider lens and to look further ahead."

"In redesigning our Ribena bottles for circularity, we took care to examine every link of the supply chain, including visiting the recycling plant to better

Commercial feature



“Food and beverage manufacturers should get first access to food-grade rPET to ensure it's used in the most responsible and appropriate way

the introduction of deposit return schemes. Alongside the British Soft Drinks Association, SBF GB&I is calling for an "all in" scheme across hospitality, grocery and high-street retail that runs in Scotland, England, Wales and Northern Ireland. It believes this is the long-term solution to driving up recycling rates for beverage packaging of all sizes and materials, while also improving the supply of rPET within the UK. SBF GB&I is a founding member of Circularity Scotland, the administrator for Scotland's deposit return scheme, due to launch in July 2022 with an ambition to increase collection rates to 90%.

A single UK-wide deposit return scheme will ensure consistency, minimise consumer confusion and maximise recycling. While this is the quickest route to boost the supply of rPET, SBF GB&I, through parent group SBF Europe, is also working as part of the Carbios consortium to increase access to recycled plastic through groundbreaking enzymatic recycling of mixed PET plastic waste. Last month, the consortium announced the successful production of the world's first food-grade PET plastic bottles produced entirely from enzymatically recycled plastic. It is now developing an industrial plant in France to commercialise the breakthrough.

"We're committed to our 'Grow for Good' vision and our growth as a business is tightly linked to our access to

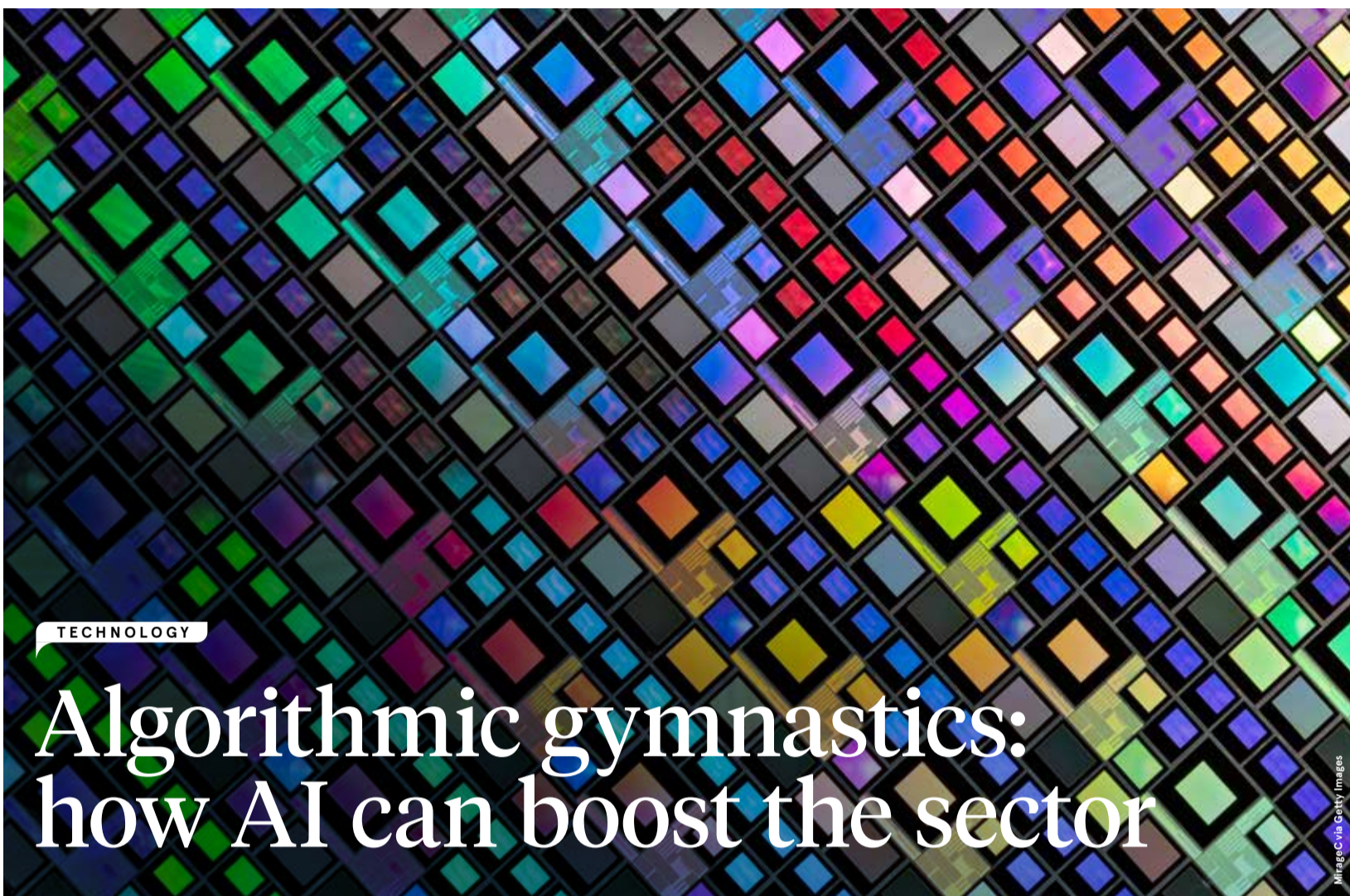
sufficient food-grade rPET in which to package our drinks," says Norman. "We believe food and beverage manufacturers should get first access to food-grade rPET to ensure it's used in the most responsible and appropriate way."

"There are many sources of mixed plastic for recycled goods but few meet the standards we require for food and drink. Ensuring the limited resource is allocated where it is needed requires understanding from the government, waste processing industry and consumers on the role they play in the efficient recycling of rPET back into rPET."

"The future of packaging relies on designing for circularity and we all need to be in this together. Treating plastic as a resource and not waste means moving from a throwaway culture to a giveback culture, and a bottle-to-bottle approach for beverage containers is the game changer. We hope more manufacturers invest in circular supply chains, driving down costs and carbon emissions to grow for good and deliver the right outcomes for our society, people and planet."

For more information, visit suntorybfe.com/gbi

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TECHNOLOGY

Algorithmic gymnastics: how AI can boost the sector

Designers of packaging have lagged their counterparts in many other industries when it comes to adopting artificial intelligence, but some are waking up to its potential benefits

Raconteur staff

Artificial intelligence is seen as central to the digital transformation of society. The technology has applications in fields ranging from online shopping and advertising to self-driving cars and smart thermostats. Its use in packaging design has hitherto been limited, as the sector has struggled to find compelling business cases for risking a big investment in AI. But that is starting to change. Companies are adopting deep learning systems, based on artificial neural networks, to hasten their development of new packaging components and formats.

"Compared with automotive and aerospace, packaging is behind the

curve on AI. A yoghurt pot is so much simpler than a self-driving car, yet it's the simple stuff that's surprisingly difficult." So says Dr Richard Ahlfeld, founder and CEO of software company Monolith AI, referring to the current lack of experimental data (in this case, about the performance of new packaging materials) that AI systems require to train themselves. "You can simulate how to land on Mars quite accurately. But, if you're trying to figure out how your cardboard box works and how much weight you can put into it, you'll have a hard time finding a scientist who can tell you."

Ahlfeld is talking about yoghurt pots because his business has been

working with French engineering company Pack 3.0 to develop a more environmentally sustainable alternative to what's become the standard in pot design. Conventional yoghurt pots are made from a non-recyclable polystyrene constructed using what's known as a form-fill-seal machine. Using AI, digital simulation and 3D imaging, the two firms are defining the conditions for a substitute material that offers the same performance but better recyclability. They will then batch-test new materials to generate data that can help them achieve the optimum final design.

While Ahlfeld suggests that AI-enabled design could be common in the packaging sector within four years, he believes that its widespread use in improving sustainability through the development of, say, bioplastics won't happen until the systems have got enough good-quality data to work with.

"Because this is all new, you can't simply learn from the past and make recommendations. You need to rely on virtual prototyping and experiments to start with," he says.

Delta Global, a provider of luxury packaging to fashion brands such

“Compared with automotive and aerospace, packaging is behind the curve on AI

as Estée Lauder, Net-a-Porter and Tom Ford, is already using AI to analyse consumer trends and forecast production requirements. It's planning to apply the system to packaging design early next year.

"Our technology is working constantly in the background, helping us to get the right products in the right locations in the right quantities. It is looking into when a peak in demand becomes a trend, for example, accounting for factors such as seasonality," says Delta Global's founder and CEO, Robert Lockyer. "We're obtaining insights into all facets of our projects, so we've done things such as bringing our developing and prototyping in-house – and that has only come from our ability to analyse data effectively."

Although AI may still seem an expensive technology at present, the need for more sustainable, cost-effective packaging solutions will make it an increasingly justifiable investment as the prices of traditional materials soar and governments intensify their crackdown on waste. Steep rises in the costs of widely used metals, plastics, paper and pulp have pushed the price of packaging materials up by nearly 40% between early 2020 and mid-2021, according to data from commodity analyst Mintec. And the UK's upcoming £200-per-tonne tax on all plastic packaging containing less than 30% recycled content will affect up to 20,000 producers and importers from next year.

L'Oréal and Aptar, a US provider of drug delivery devices, are among the companies that are working with Monolith AI in their search for sustainable packaging solutions. Ahlfeld claims that AI could help its users to develop new packaging in as little as a quarter of the time it would typically take them. He adds: "Up to 80% of a product's environmental impact is determined at the design phase, so this is all about using AI to figure out where to go, as opposed to optimising performance once you've got there."

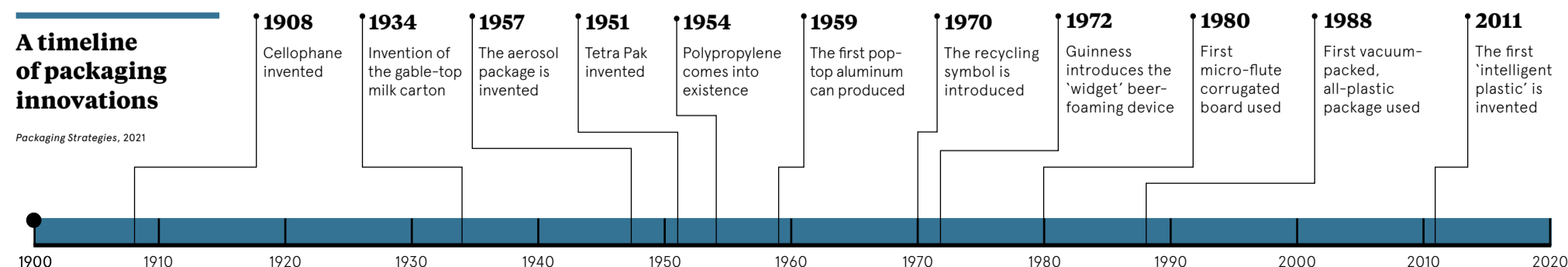
Improved sustainability is not the only benefit that packaging designers can gain from AI. Some companies believe that the technology can help them make their branding more effective.

For instance, Japanese drinks group Asahi has been working with Cogent Labs on AI-powered design technology to give its branding "more objectivity and originality". The company has fed the system with several thousand existing designs that it has found online, each tagged with keywords such as 'summer' and 'refreshing'. The system uses this material to generate its own designs, which are then judged by 300 human designers from outside the company. Their feedback enables it to learn what works and what doesn't.

It's clear, then, that the number of use cases for AI in packaging design is increasing, particularly when it comes to helping the sector become greener. But, as any user of nascent technology will confirm, it's important to know its limitations. Asahi euphemistically told the Nikkei Asia news website in October 2020 ("Asahi steps outside the design box with AI art") that its system had initially come up with "content that wasn't Asahi-ish". It seems that human designers shouldn't worry too much about being replaced by machines just yet. ●

A timeline of packaging innovations

Packaging Strategies, 2021



JAZZ IS THE NEW BLACK

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