

FUTURE OF PACKAGING

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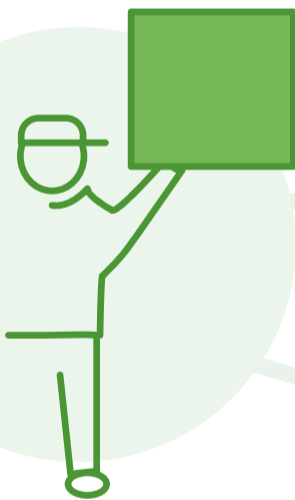
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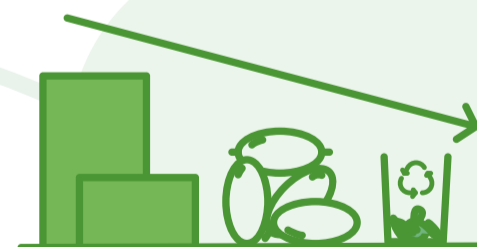
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SUSTAINABILITY

FUTURE OF PACKAGING

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CONTRIBUTORS

DAVID BENADY

Specialist writer on marketing and advertising, he contributes to national newspapers and business publications.

MAGDA IBRAHIM

Award-winning consumer and business journalist, her articles appear in *The Times*, *The Independent* and *Daily Mirror*.

JOEL CLARK

Freelance writer and editor, he covers workplace issues, technology, regulation and risk management.

JIM McCLELLAND

Sustainable futurist, his specialisms include built environment, corporate social responsibility and ecosystem services.

NICK EASEN

Award-winning freelance journalist, he produces for *BBC World News*, and writes on business, science and technology.

SHARON THIRUCHELVAM

Writer specialising in culture and innovation, she contributes to *The Independent*, *i-D*, *VICE* and *Forbes*.

ADAM FORREST

Award-winning freelance journalist, he writes for *The Guardian*, *VICE*, *Forbes* and *BBC News Magazine*.

HEIDI VELLA

Freelance journalist specialising in technology and energy innovation, she contributes to a wide range of publications.

Raconteur reports

Publishing manager
Elaine Zhao

Head of production
Justyna O'Connell

Production editor
Benjamin Chiou

Digital content executive
Elise Ngobi

Managing editor
Peter Archer

Design
Samuele Motta
Grant Chapman
Kellie Jerrard

Head of design
Tim Whitlock

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What next after Blue Planet?

As oceans drown in plastic and the developed world launches a clean-up campaign, the tide of pollution is still rising

JIM McCLELLAND

Ocean plastic is not a new problem, however it took David Attenborough and *Blue Planet II* to turn the tide of public opinion.

Prime-time endorsement of the core sustainability message was a global game-changer, says Oliver Staple, director at EY. "There has been a clear shift in the level of consumer awareness of the need to reduce packaging waste, particularly plastics, and there is now a really compelling case for change," he says.

Manifest in more than just passive expectation, this awakening is fuelling activist and campaigning customer agendas, says David Honcoop, managing director of Clarity Environmental. "Consumers have become increasingly hostile towards wasteful, misleading and hard-to-use packaging, and the packaging sector is under pressure to take action," says Mr Honcoop.

Retailers inevitably find themselves at the sharp end of this popular uprising, facing demand for strong signals and statement initiatives, such as packaging-free aisles.

Loading the dice by playing with the relative purchase cost might seem an obvious way for stores to incentivise positive buying behaviours. However, anyone expecting a common price signal in favour of unpackaged goods will be disappointed, according to consumer campaigner, author and blogger at *The Complaining Cow*, Helen Dewdney.

"It is hard to understand the lack of consistency in loose and packaging prices," she says. "How is it one retailer can make loose apples cheaper, but another cannot? The sector is sending shoppers very mixed messages at the checkout."

But when it comes to packaging, it would be wrong to assume industry, retail and brands have all the answers, either.

The story of packaging is not a simple one. Mr Honcoop says: "This demand for change provides an opportunity. It is, however, a complex issue and, as businesses join the race to 'green' their packaging, it is important for consumers and industry to understand that one size does not fit all."

For startups and smaller businesses looking to innovate and disrupt, marrying sustainability principles with commercial packaging realities is not always an easy match.

Health drinks company WOW, for instance, has commenced a project



Josh Spies/Unsplash

sourcing ocean plastic for its recyclable bottles, but getting the numbers to stack up is difficult, explains founder Oliver Dickinson. "We have challenges of high consultancy fees, misinformation and immature supply chains that make recycling of plastic, whether from oceans or trash, cost and carbon inefficient," he says.

Concerned about Brexit, Mr Dickinson is already finding that alternatives to single-use virgin plastic can be up to 400 per cent more expensive. Most budding entrepreneurs in the market are in need of some assistance, he argues. "The companies most likely to innovate in this field are young, dynamic and not particularly well funded. Therefore, the government needs to step up and support them, ideally through short-term smart initiatives which help fund the cost gap," he says.

While in agreement about the financials, Fabien Marpaux, general manager at Eonic HK, favours a different kind of market intervention. "Alternatives are not cheap. Regulation, for sure, would

create a push where everyone would embrace the change; costs would go down, making it more viable to produce environmentally sustainable packaging," says Mr Marpaux.

For some, the business case depends on a whole basket of benefits that eschew single-issue politics and plastics-bashing.

In 2017, London-based startup Garçon Wines launched full-size flat wine bottles that can be delivered through a letterbox.

With the packaging now manufactured, at significant expense, from 100 per cent recycled PET (polyethylene terephthalate), chief executive and co-founder Santiago Navarro warns against demonising all plastic. "The right plastics used responsibly currently offer more eco-friendly packaging than glass for drinks like wines and spirits," he says.

"Ensuring discarded products do not end up littering our environment, including our seas, is one very important environmental focus. However, we must not ignore the

carbon footprint of heavy, spatially-inefficient packaging."

For Garçon Wines, the flat, plastic design actually addresses sustainability in the round, being 87 per cent lighter and spatially 40 per cent smaller than its traditional glass equivalent.

At the other end of the scale, global brands and high street retailers are also reaching out for help, often to one another, explains packaging technologist at Marks & Spencer, Sarah Leveridge. "To create a successful circular economy, we need to collaborate across industry and continue to innovate," says Ms Leveridge. "No one retailer, packaging manufacturer or recycler can do it alone."

This is especially true when it comes to some of the most difficult challenges, such as recycling black plastic. She adds: "That's why M&S joined forces with Faerch Plast, Sainsbury's, Tesco and Viridor to detect black plastic in household waste and turn it into new black plastic. If the practice is picked up more widely, there is huge potential to divert large volumes away from landfill and stop significant amounts of virgin plastic entering the market."

Looking to leverage collective influence over infrastructure provision, the group is now working with charity WRAP (Waste and Resources Action Programme) to encourage more councils to collect coloured plastic at the kerbside, so making it widely recycled.

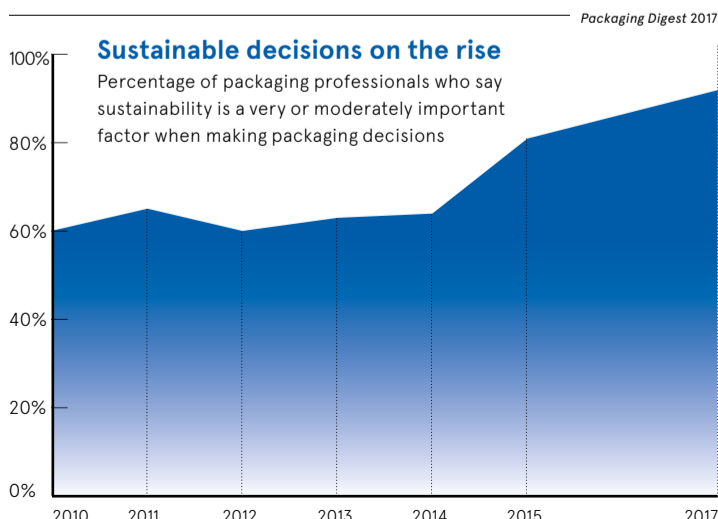
A collaborative ethos also drives the pioneering UK Plastics Pact, which sees WRAP bring together businesses from across the entire value chain, with government and NGOs.

It is inspiring the New Plastics Economy initiative of the Ellen MacArthur Foundation, too, with leading philanthropists engaged.

So, given the public outpouring, industry innovation, corporate commitments and government goals, as well as bans proposed on drinking straws and tax imposed on carrier bags, are we anywhere near peak global plastic waste?

"Unfortunately not," concludes EY's Mr Staple. "Although we expect plastic waste levels to slow or reduce in parts of the developed world, the overall trend is upwards."

Rising global populations, urbanisation, a culture of convenience and cost-cutting will mean the market remains in transition for some time yet – at least until a *Blue Planet III* engulfs our screens. ♦



Don't waste this opportunity

Questions are being asked about the way we use plastic, what we use it for and how much we need. In the case of plastic packaging, some question whether having no plastic is actually better than any packaging at all. But, as Mondi Group's consumer packaging CEO **Georg Kasperkovitz** says, this is the moment for all of us to embrace

Each morning this summer brings us another dystopian image of a paradise beach strewn with plastic waste. The evening news serves up another story of sea birds with bellies full of plastic.

I make flexible plastic packaging for consumer goods for a living and I value the environment as much as anyone, but I for one am glad this moment is here. Why do I say that?

Simple. Seeing is believing. Believing is caring. And now, finally, everyone sees the problem. Or, actually, they think they see the problem. Sometimes the real problem is the one you don't see; the thing that's not there, such as effective waste collection and recycling.

The fact is proper packaging that's fit for its purpose, and designed for reuse and recycling, is among our most important tools to minimise environmental footprint and mitigate climate change. And such packaging solutions are here and ready for the market.

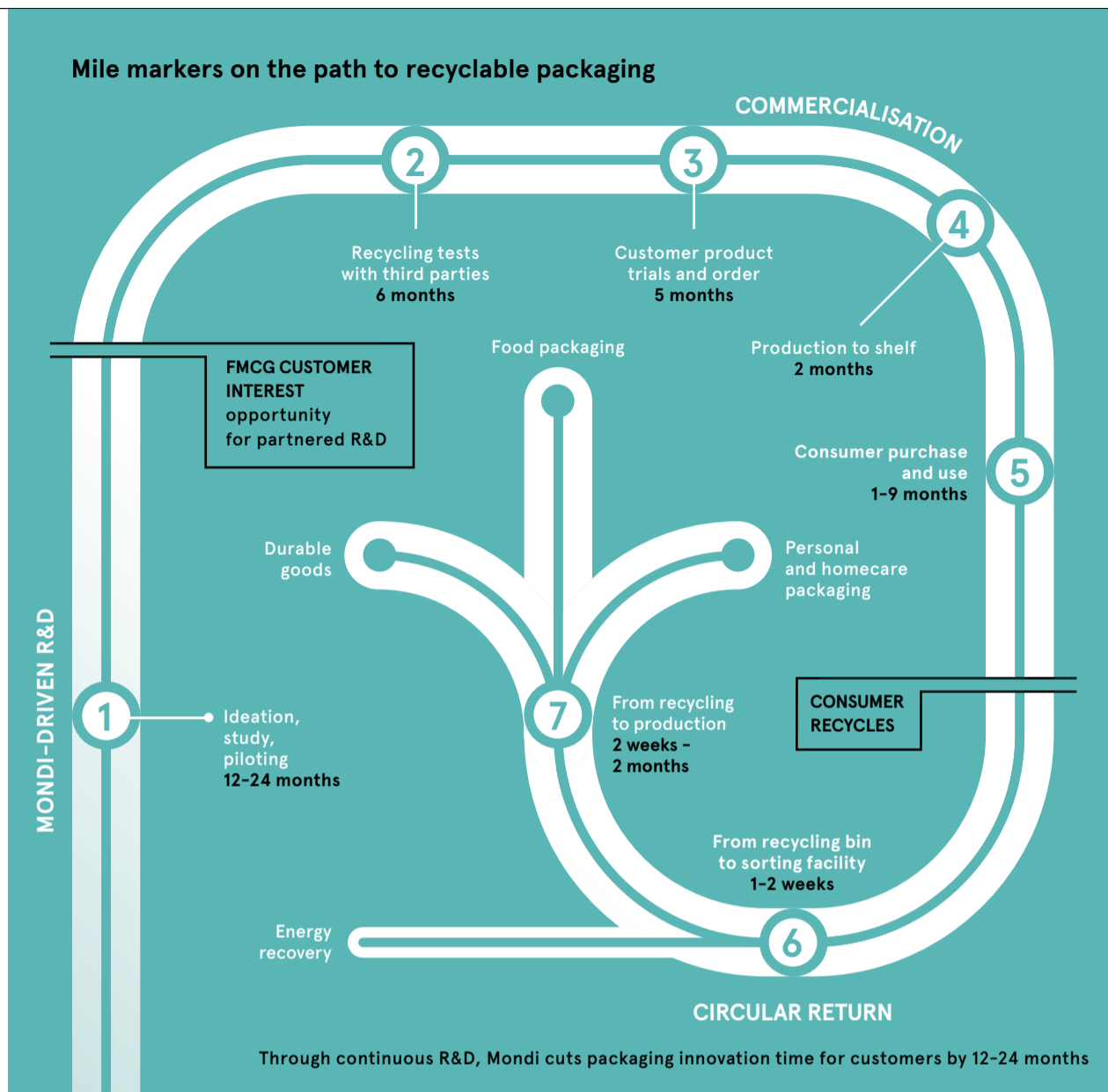
For years Mondi has been making sustainable paper and flexible plastic packaging solutions for forward-thinking, fast-moving consumer goods (FMCG) brands, and in collaboration

with sustainable materials suppliers and recyclers.

Our paper and flexible plastic packaging solutions regularly win prizes and recognition at trade fairs, but commercial demand for some of our most innovative sustainable packaging was limited before this year. The public's focus on the impact of plastic waste in the oceans is changing that.

The debate around plastic waste is driving the first-ever European strategy for plastics in a circular economy. A global plastics protocol to support the creation of effective recycling markets may soon follow. Now two thirds of the questions we get from FMCG companies – our customers – are about sustainable packaging; they want to know about production capacity and time to market. These are important developments.

Still there seems to be a general view that sustainability will cost consumers or companies more. I don't buy that. Sure, there are extra costs in the beginning, when you're testing renewables to replace fossil fuels, adapting production, and developing collection and recycling systems where there were none. But the more we learn and scale up, and the more demand there is from consumers and companies, the



more prices will fall. Over time, we all benefit from economies of scale.

You cannot solve a problem if you don't see it for what it is. All packaging, indeed manufacturing of any kind, has environmental costs. But, and it is a very big but, having no packaging has environmental and human costs too.

According to the United Nations, world population is set to reach 8.6 billion by 2030. Mega-cities are growing. To feed everyone we need reliable supplies of food.

Food waste makes up about 8 per cent of human-generated greenhouse gas emissions, the United Nations Food and Agriculture Organization estimates. Food packaging supports safe transportation and extends the shelf life of many foods, protecting ten times the resources it uses. The packaging must be fit for its purpose – neither more nor less – and it must be reused and recycled. But 95 per cent of the material value of plastic packaging today is lost after a single use, according to the Ellen MacArthur Foundation.

Single-use plastic shopping bags made from fossil fuels are used for an average of 12 minutes and take 500 to 1,000 years to decompose, according to the Center for Biological Diversity. That's just a waste. So banning single-use plastic bags is a no-brainer. And there is an obvious alternative – paper. For example, a shopping bag made from Mondi's speciality kraft paper carries up to 25 kilos (food retail bags must carry at least 12 kilos), is made of credibly certified fibre and is guaranteed safe for contact with food.

We need to minimise material and energy use, and close the gaps in the circular economy

But there are some jobs for which flexible plastic is better suited: a properly stored cucumber wrapped in flexible plastic lasts around fourteen days after purchase compared to three days for one that isn't wrapped, a Harris poll on consumer food waste revealed. Not such a no-brainer.

What's clear is that we need to minimise material and energy use, and close the gaps in the circular economy. We cannot continue to waste precious resources such as plastic and wood fibre. It's not good for the environment or business.

At Mondi we focus on reducing material and energy consumption. In ten years we've reduced the weight of corrugated boxes by 9 per cent and paper bags by 13 per cent, compared with an industry average of 4 per cent, while increasing strength and functionality. Flexible plastic, which is the kind we make, uses at least 70 per cent less material than rigid plastic.

We collect and reuse paper and plastic trimmed from our production. Last year we recycled or reused 76 per cent of our own waste and burnt another 5 per cent to produce energy. We've reduced waste to landfill by 43 per cent

in ten years. At our paper mill in Swiecie, Poland, we reduced waste to landfill to 1 per cent. We're proud of these achievements and we're working towards our goal of zero waste to landfill. It's in everyone's interest, including ours.

The circular economy is all about zero waste. The challenge with circular, though, is that everyone needs to do their bit. Regulators and governments need to set ambitious targets and support recycling. Consumers need to demand sustainable packaging. Companies need to manufacture recyclable packaging sustainably, using renewables and recycled materials. Consumers need to recycle.

The good news is that companies such as Mondi are already on this journey in partnership with customers, suppliers and recyclers. Our partnerships with the World Wide Fund for Nature (WWF), the Ellen MacArthur Foundation and CEFLEX, a collaborative initiative of European companies representing the entire value chain of flexible packaging, are an important key to turning circular thinking into action.

The public's attention is a gift. It doesn't always come on time, but in this case I think it has – so long as we all take this opportunity and play our part. Let's not allow this moment to go to waste.

For more information please visit mondigroup.com



Georg Kasperkovitz
CEO, Mondi Consumer Packaging

8%

of human-generated greenhouse gas emissions are caused by food waste

10x

more resources protected by packaging compared to the resources it uses

70% less

material and potential waste used in flexible plastics compared to rigid plastics



Time for a revolution in waste reduction

Inaction is not an option as government and the packaging industry strive to cut waste and introduce a circular economy

ADAM FORREST

When it comes to packaging, everyone agrees on the need for change. Consumers, green campaigners, government bodies, supermarkets and retailers all want a shift in the way we make and recycle packaging materials, especially plastic.

UK producers of packaging are well aware of public angst about plastic pollution. Many have signed up to the UK Plastics Pact, a voluntary pledge to create “a circular system where we keep plastic in the economy and out of natural environment”. Targets to be met by 2025 include recycling or composting 70 per cent of plastic packaging and achieving 30 per cent recycled content in all new plastic packaging.

The transformation required is huge, big enough for the packaging industry to accept government will play a crucial role in supporting the transition. So what can political leaders do to enable the big switch to more sustainable forms of packaging? What lessons can be learnt from regulatory action taken around the world?

Some governments have drafted legislation to get rid of the most unnecessary materials. France has introduced a ban on plastic plates, cups and cutlery, with the new rules coming into effect in 2020. India has pledged to bring in a blanket ban on all single-use plastic items by 2022. Taiwan has announced plans to do the same by 2030.

In the UK, meanwhile, the Department for Environment, Food and Rural Affairs is pondering legislation to remove plastic straws, cotton buds and other single-use plastics from sale. Ministers are also considering a deposit return scheme to reward people for returning plastic bottles and other drinks containers.

There is a role for government to underpin voluntary schemes with regulation



The most important intervention may be something more complex and subtle: reform of the Packaging Waste Recovery Note scheme. At the moment those responsible for the UK’s packaging are obliged to meet some of the costs involved in running the country’s recycling system, but many environmentalists believe they should be paying a lot more.

“Producers in the UK are getting away with paying very little for compliance at the moment, contributing very little to the collection and sorting system in comparison with many countries in Europe,” says Dominic Hogg, chairman of the research group Eunomia.

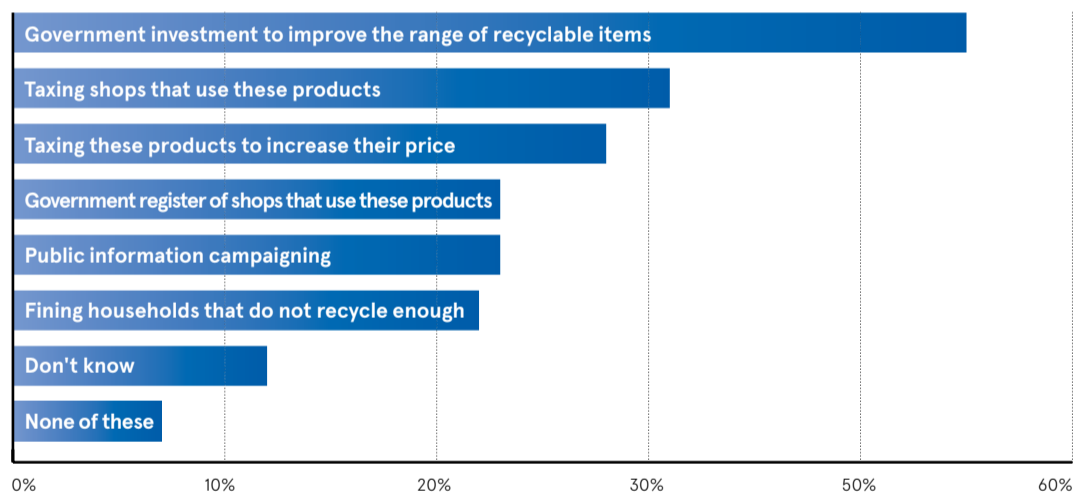
The producers, however, say the nation’s recycling infrastructure is simply not good enough. If they are going to be asked to pay more, they want the funds invested wisely. “We want to make sure the money goes where it needs to go to improve collection and create better sorting and recycling facilities,” says Martin Kersh, executive director of the Foodservice Packaging Association.

The main problem, both environmentalists and packagers agree, is the lack of high-quality, recyclable material in the system. Local authority collection systems vary wildly across the country. And the separation of waste at materials recovery facilities is often not sophisticated enough to give reprocessing companies the chance to deliver enough pure, recyclable plastic pellets for new packaging.

Forming plastic products entirely out of recycled plastic pellets remains difficult to do. The technology used to break down different kinds of polymers is still fairly crude and recycling any piece of plastic usually downgrades its quality.

Potential effective policy actions

Percentage of global consumers who think the following would be effective at reducing unnecessary use of unrecyclable plastic and packaging



Ipsos Mori 2018

It helps explain why getting rid of plastic waste by shipping it off to China has been an all-too-convenient option for many western nations. According to a recent report from Green Alliance, two thirds of the UK’s annual plastic waste has been exported and only 9 per cent recycled domestically.

Earlier this year, however, China imposed a ban on foreign plastic waste. So the UK and others in the West have little choice. We must get better at recycling.

Green Alliance hopes government will step in to jump-start the market for recovered materials, creating new jobs and boosting innovation. The group’s latest report recommends legislation insisting all new packaging has a minimum proportion of recycled content. “There is a role for government to underpin voluntary

schemes with regulation,” says Libby Peake, senior policy adviser at Green Alliance.

Another suggested policy is giving subsidies to reprocessors that create high-quality materials and manufacturers using it to create new packaging with higher levels of recycled content.

California acts as a guiding light when it comes to fine-tuning the recycling infrastructure. The US state assisted the recycling efforts of the plastic reprocessors and producers by funding a market development programme with the unclaimed deposits from a bottle deposit scheme. Between 2007 and 2014 the proportion of California’s plastic exported overseas fell from 90 per cent to 50 per cent.

Some UK producers have warned against a narrow obsession with plastic when considering any of

these policies. Over the last 15 years, the UK’s glass and paper industries have been forced to adjust to “comingled” waste as glass and paper were lumped in with plastic in a bid to increase kerbside collection of plastic. The difficulty in separating out these materials forced up the price of high-quality glass and paper for recycling.

“The current focus is on solving a plastics problem, but we need to be careful not to build a one-size-fits-all solution that does not take account of the existing success of other materials,” says Dave Dalton, chief executive at British Glass.

The status quo is no longer an option. Government will have to act to cut waste. But if the right mechanisms can be found to usher in the circular economy, the packaging industry appears ready and willing to join a revolution in waste reduction. ♦



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12 weeks

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DESIGN

Now is the time for creative design

From materials to marketing, innovative packaging designs are helping to launch impactful new brands

SHARON THIRUCHELVAM



The Ordinary

Hit skincare brand The Ordinary set one of the biggest beauty trends in motion when it launched in late-2017, offering low-cost, high-performance, no-frills skincare. The Ordinary revolution brought the generic drug model to cosmetics. Every item is sold as close as possible to cost price, many for as little as £5.

It is of course a misnomer that “unbranded” goods are truly unbranded. Every detail of The Ordinary’s visual identity from its dark laboratory pipettes and vials, and its chic pharmaceutical labelling has been carefully designed to strike the right note of reassuring simplicity.

What does set its visual identity apart is that every item is packaged exactly the same and product names are given according to active ingredient and percentage strength, rather than intended effect. For

instance, Niacinamide 10% + Zinc 1% (30ml) is called just that, rather than blemish and congestion reducing serum.

Letting the ingredients speak for themselves dispenses with another layer of marketing spin and indeed the kind of obfuscation that besets the beauty industry. Consumers, male and female alike, are charged with educating themselves, with the help of in-store staff, about ingredients and which combinations would benefit their skin.

Thinx

American company Thinx, behind the innovative period-proof underwear stocked in Selfridges, has launched a tampon range that comes packaged in a smart red carton illustrated with a simple pop-art drawing of a tampon. A clear outer sheath slides over the box which, emblazoned with a labia, leaves no room for coyness about what tampons are for. In case there was any doubt, a tagline reads: “For real menstruating humans.”

Thinx may be the most upfront of the new challenger tampon

brands, but they share a commitment to savvy design and straight-talking about menstruation. Like Thinx, new UK-based tampon brands Freda, Callaly and Lola sell beautifully presented tampons made from organic cotton and donate a percentage of their profits to charities providing women in developing countries with sanitaryware.

The popularity of these brands among millennial women represents a backlash against the clinical and euphemistic marketing of the major tampon brands which has dominated the market for so long.



Snact

UK fruit jerky company Snact has impressive environmental credentials. It promotes healthy eating and reduces supermarket waste by using surplus and store-spoiled fruit that would otherwise end up in landfill. Plastic wrapping, however, presented an environmental problem.

Snact turned to the Israeli packaging company Tipa, which also supplies carrier bags to designers Stella McCartney and Gabriela Hearst, to produce an entirely biodegradable wrapper. Made from a multi-layer film of plant-based polymers, the Snact wrapper decomposes like an orange within six months.

Tipa's biodegradable plastic shares the same durability, sealing strength, printability, flexibility



and transparency of regular plastics, but without the environmental risk. While Tipa products are more expensive than standard plastic, biodegradable wrapping has all the potential to disrupt the packaging industry as more consumers consider the price a fair one to pay.



adidas Parley

Among consumer brands, adidas is perhaps the most committed to upcycling ocean plastics, much of which would have originated from plastic bottles, bags and other forms of packaging. Since 2015, the company has partnered with sustainable design studio Parley for the Oceans to upcycle marine plastics into high-performance materials that make its swimwear, trainers,

Stella McCartney range and even a Manchester United kit.

For consumer-facing brands, packaging is one of the most visible waste products. As such, adidas uses only recycled and recyclable materials. With the declaration: "The production of one pair of Parley shoes prevents approximately 11 plastic bottles from entering our oceans," the adidas Parley campaign is specifically framed around packaging waste.

The Parley range includes almost 100 products, but by 2024 the brand has pledged to use recycled marine plastics in every product it sells. Not only will adidas's global reach bring with it enormous benefits of scale, but its market standing has the potential to convince other brands that neither style, performance nor sales need be compromised by switching to recycled materials.

Assurpack

The legalised or decriminalised recreational marijuana market in North America is barely six years old, but is already worth \$9.2 billion and over the next decade is expected to increase fivefold, surpassing \$47.3 billion. Packaging and marketing have been essential to building brands in entirely new and mind-boggling categories, such as edibles, topicals and concentrates.

Indeed, Canadian research found that brand visibility bolsters consumer confidence in cannabis products, with two thirds of consumers finding branded products more reassuring than plain packaged.

At the same time, brands have had to comply with medicinal-level regulations. In Colorado and California, products must be child safe and tamper evident propelling packaging companies to think creatively about eye-catching and safe new designs.

Assurpack has rode the wave by developing an array of



child-resistant, customisable, US Consumer Product Safety Commission-certified and bisphenol A-free formats, including pouches, cartons, spray bottles, boxes and blister cards, for some of the industry's largest players, such as Organa Brands.

Jim Burack, director of Colorado's Marijuana Enforcement Division, notes: "There has been an evolution and sophistication of different containers and packaging as the industry has evolved." ♦

Material changes in sustainable packaging

Going green in the beauty packaging sector is not easy but it can be done, says **Jeremy Garrard**, director of design and advanced technologies at Quadpack



Sticking a plastic straw in a mojito these days is about as PC as ivory cufflinks. Single-use plastic is the new moral outrage. It has been banned at Wetherspoons and Pret A Manger, and now McDonald's is testing paper alternatives.

In the beauty packaging industry, however, single-use plastic remains the norm. Clearly, there are competitive advantages for brands that react to consumer demand, so why is it so hard to take positive action?

As director of design and advanced technologies at beauty packaging manufacturer and provider Quadpack Industries, I am immersed in debate and one thing has become abundantly clear. Going green in our sector is not quite as easy as might be thought, for a number of reasons.

Plastic alternatives

First of all, the obvious replacements for plastic are flawed. There are alternatives sourced from organic material, such as sugar cane. While sourced from a sustainable material, this biopolymer is not biodegradable and leaves micro-plastics. Even using wood is not a guarantee of sustainability if it is not sourced from certified forests.

The second problem is price. Brands may want to embrace more environmentally friendly techniques across their supply chain, but are faced with cost implications. A switch to sustainable materials can often double the cost of the packaging. For products in a competitive marketplace, it may not be viable to pass these extra costs on to consumers.

The third challenge is the level of understanding of the options. Some of the larger organisations have specialists devoted to exploring sustainable solutions, but many do not. This lack of knowledge is making the transition to sustainable materials so much harder.

Material breakthroughs

If all that sounds gloomy, now it is time for the good news. There are solutions. In terms of materials, new technology is providing the breakthroughs we have been waiting for. Sulapac, for example, with whom we partner, produces a material made from wood chip and natural binders. It is water and oil resistant, and is also truly biodegradable. It is potentially a game-changer, offering all of the benefits of plastic without the plastic waste problem.

As scale kicks in, the cost of materials will fall, helping to break down the cost barriers. Also, our creative team

routinely designs with sustainability in mind, for example light-weighting where possible, which reduces cost impact. In any case, new products often bear a higher price, as consumers make up their minds about an acceptable price tag.

A massive plus is the attitude of the industry. Brands want to improve – this can be seen in the rise of life-cycle assessments – and consumer habits are also changing. Millennials care deeply about the environment. Brands that take the lead on sustainability can leap-frog cautious rivals.

Importantly, the investment climate is backing sustainable practices. Banks are embracing ESG (environment, social and governance) investment principles. The Norwegian sovereign fund, worth a trillion dollars, and French investment bank Société Generale are prioritising ESG-compliant funds. They regard the risk-return matrix as superior, as responsible brands are less vulnerable to scandals and consumer desertion. The performance of ESG indexes support this, outperforming rival benchmarks such as emerging markets, since 2012.

Positive outlook

What this adds up to is an industry with serious challenges, but a growing arsenal of solutions. Progress is slow but, at Quadpack, our plan is to guide the industry in the right direction. This year, we implemented a comprehensive corporate social responsibility strategy. We have a sustainable packaging team dedicated to increasing our range of environmentally friendly materials. Our wood factory is certified by the FSC (Forest Stewardship Council) and PEFC (Programme for the Endorsement of Forest Certification). We work with genuinely sustainable materials such as Sulapac and team up with researchers across the globe to find new alternatives.

We take the initiative on design. Even if you don't ask, we will usually come up with design changes which can save weight and improve the footprint of your product. As a global company, with offices in Europe, the United States and Asia, we have the ability to harness innovation no matter where it happens. Together with our industry colleagues, we can make a huge impact in this complex but critical mission.

To find out more please visit Quadpack.com



Jeremy Garrard
Director of design and advanced technologies



Seaweed on rising tide of sustainability

Consumers have become more attuned to sustainability, prompting restaurants and shops to launch initiatives to reduce single-use plastics in packaging

JOEL CLARK

Regular customers of The Fat Pizza in Southend may have noticed something different about their ketchup and dipping sauces in recent weeks. Rather than using standard plastic sachets and pots, the restaurant is trialling the use of a curious looking transparent pouch, made entirely from seaweed and biodegradable within six weeks.

It seems a small step, but if successful the use of seaweed pouches could pave the way to more widespread adoption and greater innovation in the takeaway sector. Skipping Rocks Lab, the startup that developed the pouch, has an ambitious mission to make packaging disappear altogether. It is currently trialling the product in multiple formats ahead of its commercial launch later this year.

"Replacing sauce sachets is very exciting because small-form plastics are the ones that are least likely to be recycled and if they contain an aluminium layer they cannot be recycled at all. Seaweed is the perfect alternative because it is biodegradable, abundant and a cheap raw material, so it has the potential to compete with plastic," says Lise Honsinger, chief operating offer at Skipping Rocks Lab.

Seaweed sachets could be a positive development for consumers, as concern mounts over excessive use of plastics in the convenience sector. While some might historically have been willing to shelve environmental awareness when they dialled for a pizza or curry, increased publicity on the impact of single-use plastics is changing behaviour.

Online food delivery service Just Eat, which is facilitating the trial of the seaweed sachets, has launched a number of initiatives this year to reduce excessive use of plastics in the UK takeaway sector. After it introduced new functionality on its app, for example, more than 20 per cent of customers opted out of receiving plastic cutlery and straws that could otherwise have been discarded. It has also removed all single-use plastic boxes from its partner shops to drive change.

"There is growing awareness and concern among consumers, particularly with recent television coverage such as *Blue Planet*. People now think about sustainability at more frequent touch-points in their lives, whether through the charge on carrier bags or reusing coffee cups, and our research suggests many would also be willing to pay a little extra for a more sustainable option," says Robin Clark, business partnerships director at Just Eat.

With rising pressure from consumers, addressing sustainability is fast becoming a necessity for large outlets. UK restaurant chain LEON, for example, has sought to influence consumer behaviour through a series of subtle changes. Bags are now only dispensed on demand, while paper straws that have replaced plastics will be kept in dispensers to further reduce use.

"These changes require both persistence and consistency, with a balance of moral and commercial decision-making. Sustainable packaging options tend to cost more, which requires long-term business



Jack Taylor/Getty Images

01

I can't remember a time when there has been such a marked change on a particular issue in such a short period of time

planning, but there is a lot we can do to subtly inform and influence our staff and customers," says Kirsty Saddler, brand and sustainability director at LEON.

Offering customers a financial incentive to reuse coffee cups has proven to be a successful initiative and LEON is not the only outlet to have done this. Sandwich shop chain Pret A Manger this year

increased the discount for reusable cups from 25p to 50p, driving a ten-fold increase in reusable cup use. Pret now serves more than 85,000 drinks in a reusable cup each week, up from 8,000 six months ago, and estimates it will save four million disposable cups this year.

Momentum for such changes appears to be on the rise, but it is not solely the result of media coverage. Engagement in sustainability tends to move in line with the economy, rising in the good times, says Giles Gibbons, chief executive of Good Business and director at the Sustainable Restaurant Association. As the world emerges from the downturn brought on by the financial crisis, brands and consumers are ready to engage again, he says.

"I can't remember a time when there has been such a marked change on a particular issue in such a short period of time. Society has

01 Rising demand for convenience food has put pressure on the takeaway sector to reduce excessive use of plastics

02 Online food delivery service Just Eat is trialling seaweed sachets, developed by Skipping Rocks Lab, which are biodegradable within six weeks

warmed up to be much more positive about environmental activity and that is driving consumer-led change, which is the best possible form of change. Most companies are moving very quickly to capitalise on this opportunity," says Mr Gibbons.

Progress will be limited by the complexity of the underlying issues, however. Skipping Rocks Lab might have made a small breakthrough with seaweed pouches, but its next challenge would be to find an alternative to the plastic takeaway box.

Just Eat currently facilitates more than 100 million orders a year for its restaurant partners in the UK, which it estimates have the potential to include up to half a billion plastic boxes. Despite research showing many of these boxes are reused domestically, the company remains committed to finding an alternative.

"Even if the plastic box is reused six times, it still eventually goes to landfill. Any alternative has to be just as effective in keeping food properly sealed, but through our investment in research and development, we hope we will find a more environmentally friendly solution," says Mr Clark.

In any drive to introduce more sustainable options for consumers, restaurants and shops must consider the end-to-end impact. Consumers should be properly educated, for example, about how plastic alternatives should be disposed of. While the seaweed pouches will biodegrade naturally, some materials require the addition of heat and enzymes to biodegrade, which can only be found at dedicated plants.

"A big concern is that retailers will switch to new forms of packaging without telling their customers what to do with it, with the end result that it doesn't go into the correct facility and so there is no benefit," says Martin Kersh, executive director of the Foodservice Packaging Association. ♦



Just Eat

02



Packaging that makes a real difference

Consumers and brands are continually demanding more from packaging, from sustainability to enhanced ease of use

When the BBC's *Blue Planet II* aired at the end of last year it caused an outcry that still reverberates today. With footage of oceans awash with waste, the public demanded action. Packaging was placed squarely in the firing line.

Seven years ago, Parkside took a decision to lead on the development of sustainable packaging solutions. Now it is one of the only companies in the world with a fully tested compostable packaging solution that breaks down to nothing in seawater.

Nick Smith, managing director of Parkside, says: "Innovation in packaging matters. It might not be obvious to consumers, but packaging plays an environmental role – it protects goods from damage and extends the shelf life of many products. But by innovating we can make packaging more sustainable, which clearly matters to ecosystems, consumers and brands alike."

Parkside offers a portfolio of sustainable packaging solutions. It produces the only packaging in Europe and Australia accredited for home composting. Consumers eat the product and dispose of

the packet in their organic waste bin, and nature takes its course in under 26 weeks.

Parkside produces sustainable packaging for a range of goods, from coffee to snacks, helping a growing number of brands reinforce environmentally responsible credentials. When Australian coffee company SIPP wanted packaging to reflect the sustainable nature of its product and process, Parkside provided the solution.

"None of this comes easy," says Mr Smith. "It takes years of development to create sustainable packaging, given that every part of that wrapper, from the bar-

rier materials to ink and the adhesive that binds everything together, has to meet the most stringent assessment criteria."

But consumers want more than just credible green credentials. They want packs and wrappers that suit changing lifestyles. Brands now have to wrestle with the obvious need to keep products safe and fresh, while also acknowledging increasing consumer demands for convenience, portability and portion control.

Mr Smith says: "Consumers want convenience foods that can be reclosed and saved for future use. They want products that are easy to open and easy to share."

Creating a reclosable film lid for a pot of on-the-go cherry tomatoes has taken the product into a new market, providing consumers with a healthy snacking option in a convenient format. Inventing a pack that makes crisps easy to share enhances the consumer experience, driving brand loyalty and sales.

Meanwhile, designing a sealed zip pack for humid climates enables brands to expand into new global markets. All are challenges of packaging innovation. All have been overcome by Parkside.

Great ideas come from great insight. Parkside finds out how consumers interact with packaging by filming ordinary people at home opening it, using the product and attempting to store unused food. Researchers also trawl social media for advocacy or complaints. Together, these exercises gain valuable understanding of the real experience of consumers, and the waste and storage challenges that poor packaging design can create.

Armed with this insight, Parkside combines technology and inspiration in its Innovation Centre, a connected high-tech suite where experts in everything from materials to graphic design gather to create and fine-tune ideas. Designs always have manufacture in mind.



Nick Smith
Managing director, Parkside

"We can produce fully functioning prototypes on site that replicate the look and feel of the final product, complete with client's logo and graphics," says Mr Smith. "A prototype can be produced in the course of a day, with clients on site helping to guide the process."

The company has won 33 innovation awards since 2015. It has launched 45 innovative packaging solutions in that time.

But this is not innovation for the sake of it. Packaging has to tap into changing consumer tastes, engaging the senses of touch, hearing and smell as well as sight. Products are given the look, feel and sound congruent to a brand's values. Packaging becomes an integral part of a complete brand experience, engaging consumers and driving sales.

Parkside provides packaging for internationally recognised brands and blue-chip corporations as well as ambitious food startups. The company recognises that changing consumer behaviour and rapid advances in technology make packaging an increasingly vital part of brand differentiation. A mindset of innovation means it is already ahead of the curve.

Parkside is one of the only companies in the world with a fully tested compostable packaging solution that breaks down to nothing in seawater

For more information please visit parksideflex.com



Seabrook: a sharing success

Parkside client Seabrook is a national snack brand renowned for its crinkle cut crisps. Research showed the company that larger packs, designed to be opened and shared, were a strong driver of sales in the category. How could Seabrook make its sharing packs of lattice crisps more appealing to consumers?

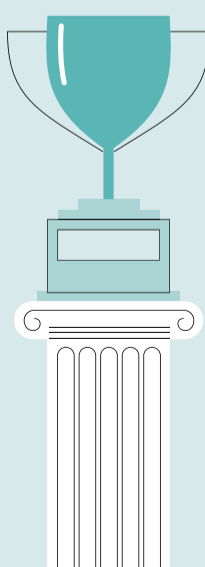
Research by Parkside uncovered valuable insight. Consumers loved to share, but ripping open traditional crisp packets could be fiddly and messy. If they didn't finish the contents in one sitting, they were left with a

ripped pack, food waste and a storage issue.

Its solution was the Peel and Share pack; an easy-to-open design which enables instant access for sharers and, crucially, is fully reclosable. Seabrook was impressed by Parkside's in-house New Product Development facility and confident that Peel and Share would provide a strong point of difference.

So it proved. Retailers liked the design and so did consumers. To date, Peel and Share has increased sales of Seabrook Lattice sharing packs by 7 per cent.

Innovation performance



33

innovation awards won since 2015

41

new customers have launched innovations with Parkside since 2015

45

new innovation product launches since 2015

Why packaging makes the difference

83%

of marketing communication appeals to only one sense

65%

of people experience mood change when exposed to positive sound

75%

of our emotions are influenced by smell

96%

of consumers are more likely to purchase a product after picking it up in store

Parkside supply chain

Supplying twenty one countries across six continents with operating facilities in the UK and Malaysia



Glass packaging is already...



endlessly, 100% recyclable – its unique chemistry makes it non-toxic and safe to recycle indefinitely, even for food contact.



routinely using 30% to 80% recycled content – depending on the new container's colour.



achieving 67% recycling – with most of this going back on a shop shelf as new bottles and jars in as little as 30 days!



around 30% lighter – compared to 20 years ago ...and we know we can still do even more.

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British Glass

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PLASTICS

Pact is central to forming

Plastics are in danger of being demonised, but how can these versatile materials be made environmentally friendly in the packaging industry?

JIM McCLELLAND

The first step towards fixing something is often to admit it is actually broken. Well, the plastics system is broken.

The problem is big, so the fix must be even bigger. It has to be strategic and ambitious but, most of all, systemic.

It must move society away from the “take, make, dispose” mindset that has long-informed linear consumption patterns and business models, towards a win-win scenario that simultaneously keeps plastics in the economy, but out of the environment.

Led by the Ellen MacArthur Foundation, the New Plastics Economy is a three-year initiative to build momentum towards a plastics system that works: the fix.

It is applying principles of circular economy and brings together key stakeholders to rethink and redesign the future of plastics, starting with packaging. But why packaging?

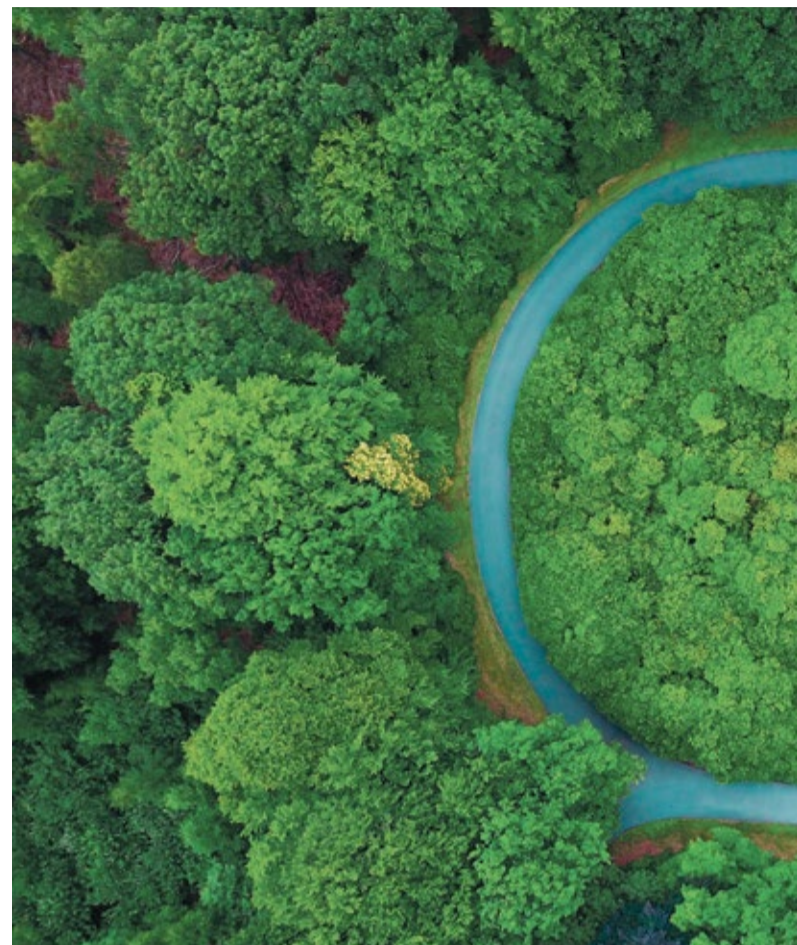
The thing that is really bold and ambitious about the pact is it's what you call systemic change

“The reason for choosing packaging was quite straightforward,” says Sander Defruyt, New Plastics Economy lead at the Foundation. “It is the biggest application of plastics, with about one third to 40 per cent produced going into packaging.”

“Especially because of the short lifespan of most packaging, if you also look at the volumes at end of use, it represents almost 60 per cent of that material stream, too.”

“On top of that, it is very visible and recognisable. Almost every person on the planet, every single day, comes into contact with plastic packaging.”

The list of leading brands, retailers and packaging companies working towards using 100 per cent reusable, recyclable or compostable



packaging by 2025, or earlier, now numbers 14. They are Amcor, Colgate-Palmolive, Ecover, evian, Innocent, L'Oréal, Mars, Marks & Spencer, Nestlé, PepsiCo, The Coca-Cola Company, Unilever, Walmart and Werner & Mertz.

To realise its vision, the New Plastics Economy initiative has launched the concept of Plastics Pacts. The pacts bring together national and local authorities, businesses involved in designing, producing, using and recycling plastics, as well as NGOs, innovators and citizens.

The UK Plastics Pact is the first of this planned global network of agreements, led by WRAP (Waste and Resources Action Programme) and launched in April 2018. A second pact is being developed in Chile, with local B Corp TriCiclos.

The UK Plastics Pact sets out four big targets for 2025: making 100 per cent of plastic packaging reusable, recyclable or compostable; getting 70 per cent effectively recycled or composted; incorporating 30 per cent average recycled content across all plastic packaging; and eliminating all problematic or unnecessary single-use plastic.

“The thing that is really bold and ambitious about the pact is it's what you call systemic change”, explains Peter Skelton, WRAP lead on the UK Plastics Pact. “It is looking at the whole system moving from linear to circular. The nature of the targets is such that it needs businesses from across the value chain, governments and citizens to help meet them.”

UK Plastics Pact targets for 2025

100%

of plastic packaging should be reusable, recyclable or compostable

70%

of plastic packaging should be effectively recycled or composted

30%

average recycled content across all plastic packaging



Action should be taken to eliminate problematic or unnecessary single-use packaging items through redesign, innovation or alternative (reuse) delivery models

ing a circular economy



Thomas Lambert on Unplash

The goals are interdependent and demanding, adds Mr Defruyt. “While each of these targets is important in itself, they are also mutually reinforcing; it is almost impossible to achieve any one of these targets without achieving the others,” he says.

“In addition, they are all really ambitious. The first is 100 per cent and you can’t get more ambitious than that. The 70 per cent means roughly doubling today’s recycling rates and the 30 per cent recycled content probably represents about a fourfold increase.”

The UK Plastics Pact now boasts some 87 members, including all major supermarkets, plus global food and beverage brands, restaurant chains, packaging, waste and recycling companies, from Aldi and Birds Eye, to Pizza Hut, Quorn, Valpak and Veolia.

The government is, of course, part of the system too and plays a critical role in setting the regulatory framework, especially perhaps considering pact commitments are voluntary. As well as providing a necessary legislative push, it can also put in place a catalysing commercial pull, by way of fiscal incentives.

Funding packages to date include £20 million for single-use plastic waste innovation, £25 million for research into marine impacts, £20 million towards developing nations and £16 million for national and city-level waste management, plus introduction of a bottle deposit scheme and consultation into using the tax system to tackle single-use

plastics, beyond the existing carrier bag charge.

While pots of money are clearly welcome, for Mr Skelton there are also longer-term strategic alternatives available to government of more intrinsic value. He says: “What is probably more critical is the reform of the PRN [Packaging Recovery Note] system, because that is not currently aligned to drive the behaviour we need to meet the targets. There is no fiscal incentive to use recycled content.”

Mr Skelton is relatively upbeat, though, about prospects for PRN rule changes, given that Environment Secretary Michael Gove has been making positive noises about recommendations submitted by WRAP, working with the Industry Council for Packaging & the Environment and the Advisory Committee on Packaging.

“Having that systemic year-on-year funding coming from the PRN reform is the thing that will be the game-changer. Local authorities can be incentivised and encouraged to collect plastics because it

We need to acknowledge there is a role to play for eliminating problematic and unnecessary items

costs them and it costs householders in sorting and reprocessing. The closure of China as an end-market means we need investment in our own capacity,” says Mr Skelton.

“What is really encouraging is that because of the focus on plastics, demand for recycled content is higher than it has ever been. So we need the infrastructure, the sorting, the contracts with local authorities in place to meet that 30 per cent target.”

Plastics represent not only a risk, but also an opportunity. Reports suggest the global plastic packaging market could be worth as much as \$400 billion by 2023. This is an industry with an appetite for growth and investment. It is also a sector ripe for innovation and disruption.

When the Ellen MacArthur Foundation launched a \$2-million New Plastics Economy Innovation Prize, together with the Prince of Wales’s International Sustainability Unit, in 2017, the broad base of more than 670 entries was testament to the dynamism of the market. Included on the new business models being pitched was Cupclub, pioneering reusable packaging for coffee and one of the 11 eventual winners.

Reuse business models are under-explored and there could be much more attention paid to how we deliver products to consumers, argues Mr Defruyt. “This is not a recycling story alone. While it is part of the solution, we won’t simply recycle our way out of this problem, neither will we compost our way out,” he says. “We need to acknowledge there is a role to play for eliminating problematic and unnecessary items. There is a role for rethinking business models, innovating and redesigning.”

The rethinking debate must remain nuanced and avoid blanket plastic bashing or demonising, concludes Mr Skelton. “There is definitely packaging that is unnecessary and problematical, but lumping all plastic into one category is misleading and unhelpful. We have a mantra: ‘There is no bad material, just inappropriate application,’” he says.

Of course, challenges remain, including finding solutions for such things as multilayer packaging or recycled food-grade polypropylene. But there are exciting developments too, such as the groundbreaking demonstration facility for integrating mechanical and chemical recycling at Project Beacon in Scotland.

The Ellen MacArthur Foundation has also just announced they are working towards a global coalition of leading businesses and governments that will significantly raise the ambition level of commitments, bolster credibility and drive transparency deeper.

The plastics system might still be broken, but the fix is on. ♦

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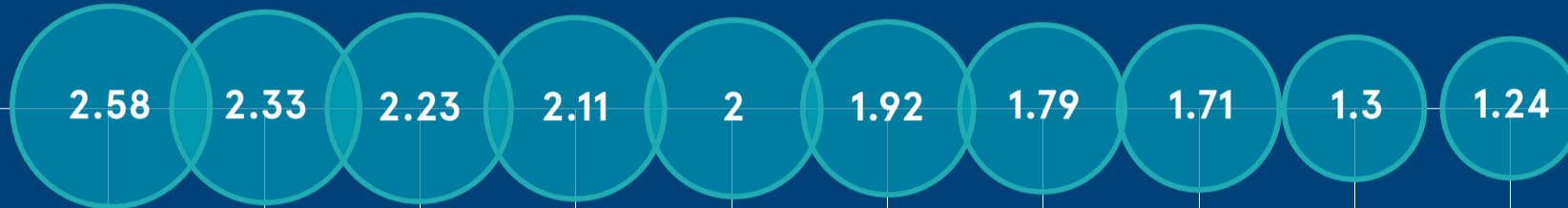


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WHAT THE WORLD THINKS ABOUT WASTE

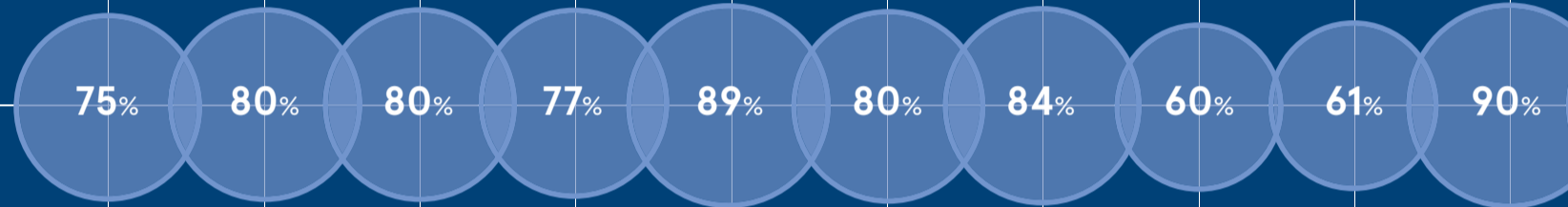
Most waste

Municipal solid waste generation daily per capita (kg)



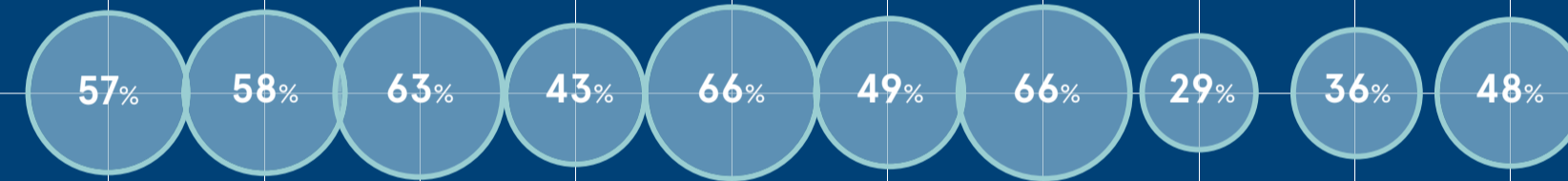
Non-recyclables

Percentage of people who are concerned with the use of non-recyclables/disposables



Re-use disposables

Percentage who would re-use disposable items to reduce the use of non-recyclables



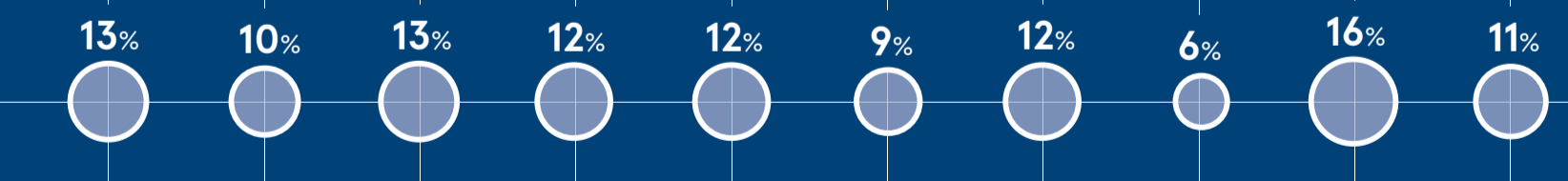
Stop buying non-recyclables

Percentage who would stop buying goods that have non-recyclable packaging



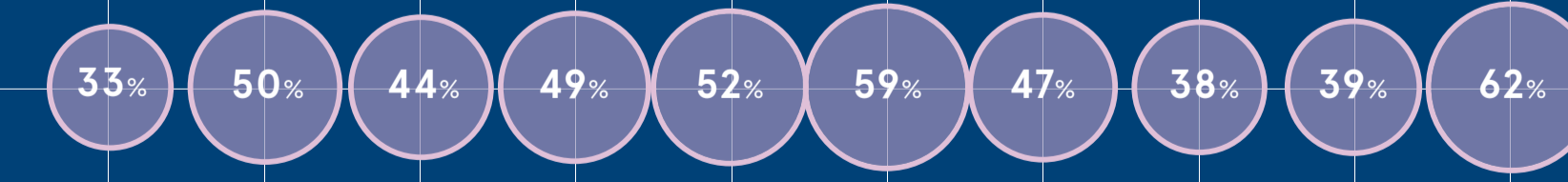
Pay extra for non-recyclables

Percentage who would pay more for goods without non-recyclable packaging



Climate change

Percentage who believe climate change is mainly/entirely caused by human activity



United States

Canada

Australia

Germany

South Africa

France

UK

Japan

Saudi Arabia

Mexico

Attitudes towards the environment, and how packaging affects it, vary wildly from country to country. This infographic explores the views of different nations when it comes to waste, recycling and what's needed to reduce packaging's impact on the planet

72% of plastic packaging is not recovered at all

40% is landfilled

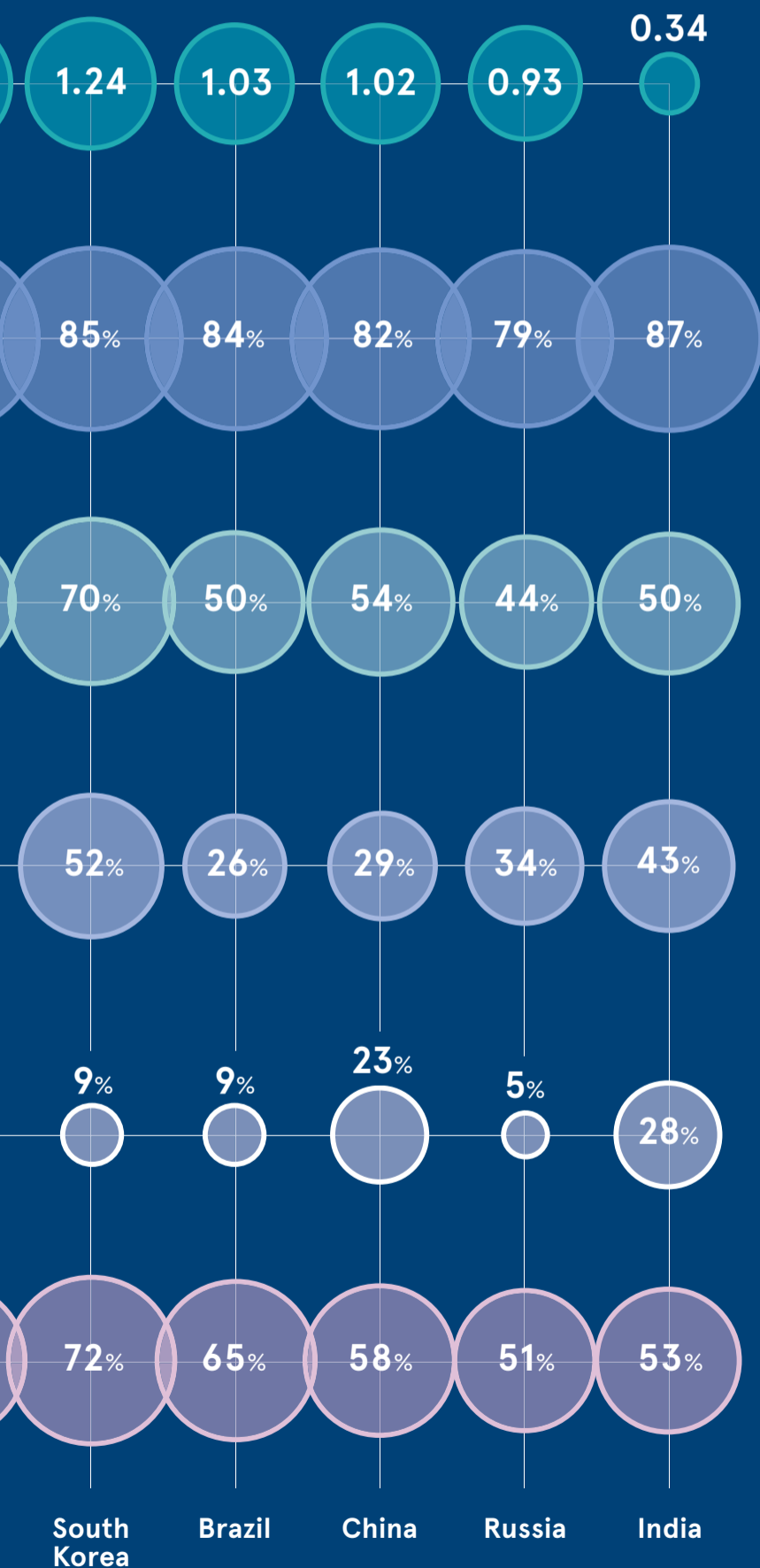
32% leaks out of the collection system (not collected at all or illegally dumped/mismanaged)

of plastic packaging is not recovered at all

is landfilled

leaks out of the collection system (not collected at all or illegally dumped/mismanaged)

Ellen MacArthur Foundation 2018



World Bank 2018/ Ipsos 2018

Who's responsible for reducing waste?

Percentage of global consumers who believe the following should take responsibility for reducing the amount of unnecessary packaging sold

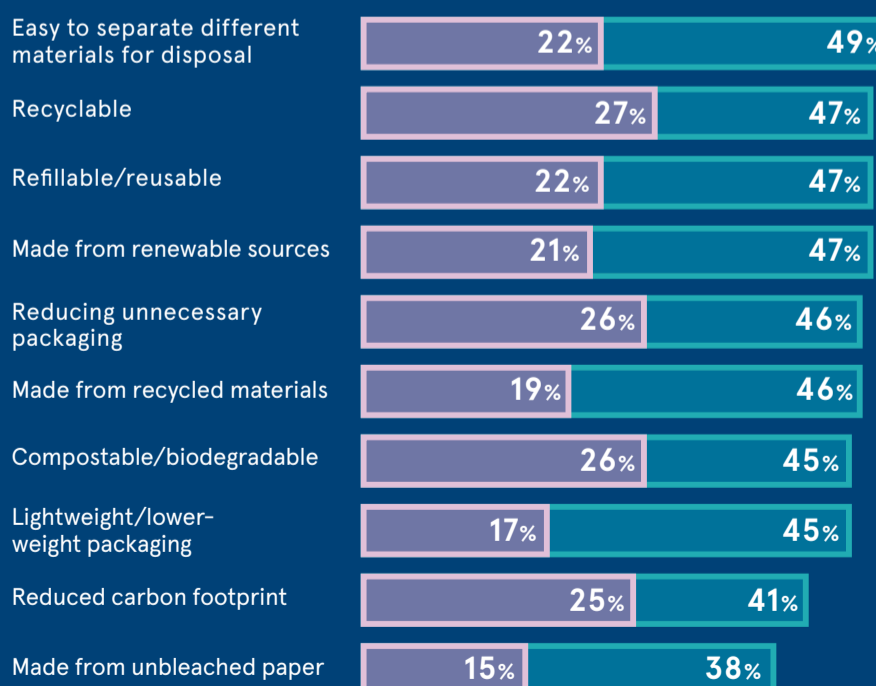


Ipsos Mori 2018

Important factors of environmentally friendly packaging

Survey of global consumers

Extremely important Very important



Packaging Insights: Innovation Scenarios in Sustainable Packaging Materials, GlobalData 2018

Carton makers answer call for sustainability

Demand is high for environmentally friendly packaging. Carton producers are stepping up to the challenge of delivering the materials and containers required

Individuals and businesses increasingly demand that the packaging enclosing their products is not ecologically damaging, as awareness rises around the effect of packaging on the environment. Meanwhile, governments are pushing the packaging industry to reduce its environmental impact dramatically

Against this backdrop, cartonboard is gaining ever-greater favour because it is inherently well placed as a sustainable alternative to plastic and other materials. The market for carton packaging continues to expand, growing by around 2.5 per cent per annum in recent years, a figure expected to accelerate as negative media coverage intensifies on the use of environmentally harmful packaging.

"Cartons are the most sustainable of packaging materials," says Tony Hitchin, general manager at Pro Carton, a European industry body representing the mills that make cartonboard material. "They are renewable, they come from trees in sustainably managed forests and from recycled material, and around 83 per cent of paper and cardboard packaging is sent for recycling." Cartonboard is also biodegradable. Mr Hitchin describes this as a "perfect example of the circular economy", as recycled cartons can be made into new cartons.

Aside from the benefits of carton packaging itself, big strides are also being taken in manufacturing processes. "Whole cartonboard mills have been set up to run on an ecological and sustainable basis. More than 90 per cent of European mills have combined heat and power plants that provide their own energy," says Mr Hitchin.

96%

of brand owners and retailers believe sustainable packaging is important

78%

rank cartonboard as 'most sustainable form of packaging'

97%

say that recyclability is the most important factor in sustainability

Over the last two decades the scale of carbon emissions at these mills has reduced by around 40 per cent. In addition, the industry is the largest producer and user of biomass energy, and more new trees are planted than are used, ensuring the expansion of European forests.

Pro Carton is looking to expand the three Rs of recycling – reduce, reuse and recycle – into the five Rs of responsibility, adding renew and replace. This means choosing packaging materials that are truly renewable and encouraging brand owners and retailers, in particular, to act responsibly and choose

Cartonboard looks set to play an evermore central role in the packaging industry's improvement and governments' drive towards cutting environmental impact

sustainable materials to replace ones that are not as environmentally friendly.

"There are plenty of opportunities where cartons and cartonboard could replace other materials; companies just need to look and challenge the status quo," says Mr Hitchin. Carton makers have a strong background in packaged foods and pharmaceuticals, and the fast food industry is becoming a particularly important growth area.

More companies are keen to package their fast foods in cartonboard, as Hans van Schaik, managing director of the European Carton Makers Association (ECMA), explains: "A lot of fast food packaging is now cartonboard, with new biodegradable lining barriers increasing their range of potential applications."

This is a clear case of usefully replacing less sustainable material. "Packaging materials are chosen based on their particular protective characteristics, functionality, aesthetics and cost, but unfortunately some cause long-term harm to the environment," adds Mr Hitchin. "We should only use them when there's not a viable sustainable option."

Cartonboard also offers a huge range of potential shapes and structures, finishes and effects, textures and varnishes. The industry continually researches how to improve its designs. "All manufacturers are looking at how to use less packaging in their designs,

and less of the material itself, while retaining its impact and strength," says Mr van Schaik. "They do this in collaboration with their clients, always thinking about how best to protect, preserve and present the product."

Research efforts need to continue to shift the packaging industry towards the position of having much-improved environmental and sustainability credentials. An important part of that process will be conversations between producers and consumers, with new applications for cartonboard constantly being explored.



Tony Hitchin
General manager, Pro Carton



Winners of the European Carton Excellence Award 2017

Awareness of packaging waste and its potential environmental impact continues to grow at the consumer level, as well as among retailers, brand owners, manufacturers, industry bodies, NGOs and governments. What the future holds for the packaging process and products at large remains to be seen, but cartonboard looks set to play an evermore central role in the packaging industry's improvement and governments' drive towards cutting environmental impact.

Demand among retailers and brand owners for sustainable packaging materials is now very strong. Pro Carton's own research in 2017 found 96 per cent viewed packaging sustainability as an important issue for their businesses, with a focus on the use of recyclable, renewable and minimal lightweight materials that are biodegradable or compostable, and having a low environmental footprint.

"Each company's view of sustainability may be different, but having a lower impact on the environment overall is clearly very high on their agenda," notes Mr Hitchin. "There needs to be co-operation between brand owners, retailers, carton manufacturers and carton mills to provide a continually more sustainable solution."

Major decisions on packaging sustainability are already being taken by large goods buyers such as supermarket chain Iceland. Earlier this year, the company vowed to eliminate the use of

plastic packaging on all its own-brand products in the space of only five years.

As Mr van Schaik says, the importance of getting packaging right should not be underestimated. "Packaging is preventing food waste and protecting products. It's part of daily life, in the supermarket, in your kitchen and your bathroom cabinet. It's everywhere, and has a big, positive impact on the economy and on life in general," he says.

Mr Hitchin concludes: "The industry has tremendous credentials. European forests are increasing in size by the equivalent of 1,500 football pitches every day, cartons are recycled in huge quantities, they are compostable and biodegradable, and don't leave scars on the environment. Our message is quite succinct: your planet needs you to choose sustainable packaging, choose cartons."

To discover the high quality and sustainability offered by carton packaging please visit www.procarton.com and www.ecma.org



PRO CARTON
PACKAGING FOR
A BETTER WORLD



**EUROPEAN
CARTON MAKERS
ASSOCIATION**

CHINA



Sander Wehkamp/Con Unsplash

Thinking outside the single-use plastic box

A Chinese ban has sent shockwaves through the recycling industry which must now rethink its strategy

NICK EASEN

It is strange to think that an edict rubber stamped in Beijing could directly affect the bottom line of local authorities from Birmingham to Brisbane. But that's exactly what happened when China slammed the door on all global imports of low-grade plastic, card and paper packaging waste earlier this year.

The bottom has well and truly fallen out of the market; in the UK paper prices were at £90 a tonne, now some are deemed worthless. One council could lose £3 million a year from recyclable material, according to the Local Government Association (LGA), another will have to pay an extra £500,000 to sort paper and reduce contamination. Similar issues resonate whether you're in Australia, Canada or the United States.

"China's manipulation of the market is a wake-up call to the recycling industry that has been relying on the country as a destination for low-quality materials,"

says MP Mary Creagh, chair of the Environmental Audit Committee. "The public do not want to see our waste sent overseas, and I want recycling and reprocessing at home, creating new British green jobs."

However, that's not exactly what's happening. Unsurprisingly, the multi-million-tonne a year issue has found willing markets elsewhere including India, Vietnam, Thailand, Indonesia, Malaysia, Turkey and even Poland, many of which are less regulated.

"Exports to Taiwan, which is not included in the China ban, grew by a staggering 1,200 per cent. There's clear evidence that these countries are struggling to cope with the sudden influx. We are generating more waste than our recycling system can cope with," explains Fiona Nicholls, plastics campaigner at Greenpeace.

The unintended consequences of the ban led to stories of more virgin material being used by Chinese mills and plastics producers. Not exactly the plan. This means less recyclable material, more felled forests and more fossil fuels.

"You could argue that the Chinese strategy, which was introduced to improve the environment, has actually had the opposite effect," says Simon Ellin, chief executive of The Recycling Association. "The World Trade Organization (WTO) should look closely at this; also the same quality criteria for imports are not applied domestically in China, which contravenes WTO trade rules."

However, after January's ban, the fear that vast amounts of packaging would go to landfill have yet to materialise, although there are reports of low-grade plastics, such as black plastic trays, being incinerated for energy recovery.

45%

of the world's plastic waste has been exported to China since 1992

United Nations Comtrade Database

111m

metric tonnes of plastic waste will have to be redirected by 2030 because of the Chinese ban

University of Georgia

"Poland is reporting that poor-quality plastics are being discarded and set on fire. Thailand is clamping down on imports where low-value plastics have been abandoned at ports. Indonesia is concerned it may be inadvertently importing sub-standard materials and has introduced 100 per cent inspections," says Mr Ellin.

The strong message from recent events is the need to improve the quality of material that's generated throughout the whole supply chain. It helps that a recent hike in oil prices has buoyed the price of higher-quality plastics such as PET (polyethylene terephthalate) bottles and polyethylene film.

"On a macro level, it's about shifting incentives and making secondary raw materials more competitive against virgin alternatives," says Jakob Rindegren, recycling policy adviser at the Environmental Services Association. "We need to get better at linking waste management policy more closely with product, as well as climate change policy, and consider the end of life of products already at the design stage."

This kind of joined-up thinking is at a nascent stage. A regulatory crackdown on single-use plastics across Europe will help, so will design for recyclability; for instance, so paper products avoid bonding to plastics, as with some food packaging, as well as a reduction in the range of plastic polymer colours.

The next step is to recycle more in each market and create a localised, strong, end-economy for collected material. Some in the industry think that taxes on virgin material, particularly plastics, could encourage more recycled packaging.

"The key here is the political will power to prohibit the placing on the market of non-recyclable materials," explains Ross Bartley, trade and environment director at the

You could argue that the Chinese strategy, which was introduced to improve the environment, has actually had the opposite effect

Bureau of International Recycling based in Belgium. "Consumer awareness is also important, but will enough consumers boycott goods themselves or the packaging they come in?"

Reform of the producer responsibility system for packaging is another focus, with more obligations on producers in the offing. Currently, the UK raises the lowest level of contribution from producers among all European Union countries, at less than €20 a tonne of material, compared with more than €150 in France and Spain, and €200 in Austria, according to the European Commission.

"Any new scheme must ensure that producers take greater responsibility for the life cycle of the waste they create. This burden is currently predominantly placed on council tax payers," the LGA says.

Mr Ellin at The Recycling Association says: "If you don't design for maximum recyclability, you should pay more and we should make it financially beneficial for those who invest in the circular economy."

Time's running out, by 2030 an estimated 111 million tonnes of plastic globally could have nowhere to go, according to research from the University of Georgia.

Chinese recyclers are also now expressing interest in setting up facilities in Europe and the United States, partly to pelletise and export the material for recycling in packaging.

"One of the big changes we're likely to see is full cost recovery for producers to cover the price of meeting packaging recycling targets," says Mr Rindegren. "This is part of the circular economy package which was recently adopted by the EU and is likely to feature in the consultation on the producer responsibility system, which is linked to the UK government's resources and waste strategy expected later this year." It is time consumers revalued these materials. ♦

'It's only by working together that we can tackle the issue of plastic waste head-on'

Across brands, retailers and manufacturers, the people who design and specify materials and formats for packs, are grappling with demands from their customers to use less plastic. Some businesses, such as the retailer Iceland, have said they will remove plastics altogether from their packaging and others are targeting major reductions.

Politicians, too, are paying close attention to the issue. The problem with politics is that it thrives on soundbites that score points and can miss the nuances or complexities of a question.

In this case, while we know that the ocean plastics issue must be solved, we must not forget why we use plastics in the first place; it is light to transport and offers combinations of ways to protect the product inside and keep it fresh – so-called barrier properties – that other materials can't always match.

Plastics play a key role in keeping much of the food we eat fresh from farm to fork; their role in the supply chain that feeds the population is crucial and undeniable.

So there is a danger here that a knee-jerk political reaction to the plastics issue could lead to negative unintended consequences. Multiple solutions are needed for different parts of the market. And I know, because I see it every day, that people across the packaging supply chain are working night and day to solve the issues ocean plastics raise.

We must not forget the impact that consumers have on reducing plastic waste. Littering is a behavioural change that should come from individuals, while councils can develop waste collection systems which are easy to understand.

How do we get used packaging back from the consumer and into recycling plants, and then back into the supply chain? Packaging, after all, doesn't litter itself or dump itself in the sea.

The good news is there is a huge amount of work in this area too. Deposit return schemes are being reintroduced to encourage consumers to bring back their bottles. And there have been some moves towards standardising the many different local models of waste collection.

There are organisations and schemes out there, such as the on-pack recycling label, doing great work in this area. But there is a way to go; a recent survey showed that most people are still unable to identify correctly what can or cannot be recycled.

So educating the consumer is a crucial focus. This has to come from more than one direction, with brands and retailers helping to get the message across. And the task here would be made much easier, in the UK at least, with a standardised collection system across the country.

The exciting part is how challenges, such as the ocean plastics issue, bring out the best in innovation. We are already seeing a range of new inventions across the board, from papers with plastic-like barrier properties and effective recycling for black plastic trays, to plastics that can compost and so on.

The best and most innovative solutions, though, come when people across the supply chain collaborate, listen to each other and work towards a common goal. This ensures government makes informed decisions on our behalf, that industry develops the best solutions and consumers have the tools to make the right decisions. It's only by working together that we can tackle the issue of plastic waste head-on and give future generations a better outlook.



James Drake-Brockman
Divisional director of packaging innovations and luxury packaging
Easyfairs



Luxury fruit gifts are commonplace in Japan, where a perfectly packaged box of rare strawberries can retail for up to 5,000 yen (£34)

Watermelons, strawberries and Smarties

Global cultural differences can influence, or even dictate, design changes in packaging, reflecting local consumer demands

MAGDA IBRAHIM

Ever considered buying a luxuriously wrapped strawberry as a gift? Or at the opposite end of the spectrum, a laser-labelled avocado designed to banish packaging?

As packaging design evolves, and goals around sustainability, health and convenience need to meet diverse cultural expectations, there's an explosion of innovation worldwide, from Asia to the United States and Europe.

"Packaging nowadays generally carries heavy symbolic weight," says Caspar Lam, assistant professor at The New School's Parsons School of Design in New York.

Colours, typeface, images and material are distinct markers that create an emotional connection, but the game is changing with consumers expecting "more from

their packaging and brand", says Constantijn Huynen, managing director at Cartils branding and packaging design agency.

With packaging no longer just about point of sale, the advent of letterbox packaging for items including coffee, shaving products, flowers and even flat wine bottles brings added consumer convenience as well as business insight through subscriptions.

For Melyssa Koh, Asia managing director for agency Labbrand, the rise of ecommerce in the region means new opportunities in packaging, rather than a brand's appearance on a physical shelf space.

"Unboxing becomes part of the experience," explains Ms Koh, pointing out that brands like Singapore-based jewellery business The Mindful Company incorporate inspirational quotation cards, and layers of wrapping to build excitement and connection.

Using layers to convey a sense of journey is equally important in Japan, where gifting is culturally highly meaningful.

"Packaging causes us to stop and think about our own assumptions when it has some unexpected utilitarian function," says Professor Lam.

In Japan, rectangular watermelons originally grown to fit in a compact refrigerator have become a luxury item where the fruit itself becomes a package, while certain prize fruits such as rare strawberries and grapes are expertly wrapped in gift-like layers to prevent damage.

Meanwhile, in the beer market, packaging is being used to create new consumption moments.

"In Mexico, an alcoholic drink is not normally part of a working lunch," explains Mr Huynen. "Transnational brewing company AB InBev introduced a 25cl beer, which is more acceptable, and massively affects packaging. Innovation is often driven by the search for new sales opportunities."

Similarly, Swedish brand Pangpang collaborated with creative agency Snask on a new "shower beer", in an 18cl bottle designed to be drunk in the shower without getting warm.

While brands are cultivating new ways of consumption through packaging use, it's important to consider challenges based on disposable income.

"There are dramatic differences as you move around the world and the biggest is between emerging and developed markets, which do cross cultural divides," points out Martin Bunce, principal consultant at Tin Horse design agency.

In the haircare sector, a price-driven consumer might buy a sachet, which could be seen as a

magazine giveaway in a more developed region.

“It’s about understanding a customer might be looking for two to three doses from what another customer would think of as a single dose,” adds Mr Bunce.

“So how can we make that sachet reclosable so it can be used again and not waste product? We have to understand it through other people’s eyes, rather than carrying assumptions from our own cultural expectations.”

Saswata Das, founder of India-based Almond Brand Strategy & Design, agrees. “India is a value-conscious market where a large part of the rural audience gets daily wages and can only afford to buy smaller chunks of products,” he says. “No wonder India is where the sachet revolution started and is still a big hit.”

Mr Das adds that colour coding is another key design strategy as, with the exception of the urban population: “India as a country sees more and reads less.”

But it’s not only by looking to emerging markets that smaller sizes are challenging assumptions about packaging. Inspired by the laundry detergent and dishwasher market, San Francisco-based Pacific Shaving Company developed its new single-use shaving cream pods, which are water soluble and zero waste.

Meanwhile, cultural expectations around food and drink portion-sizing are being confronted amid a drive for greater responsibility concerning health, while continuing to target business growth.

“Packaging can be a good solution for those categories under pressure because of new guidelines around obesity,” says Pierre Chandon, professor of marketing at INSEAD business school and director of the INSEAD-Sorbonne University Behavioural Lab. “Customers choose based on what is available and it is all relative, which creates opportunities around perceived size and value.”

In Canada, Nestlé has introduced a smaller 45g Smarties pack, divided into three 15g sections, rather than the old 50g pack.

“Nestlé understood portion control is a win-win area, while research shows smaller portions are actually

We have to understand it through other people’s eyes, rather than carrying assumptions from our own cultural expectations

more satisfying for a customer,” adds Professor Chandon.

Beauty is another area where culture plays a huge part in packaging. While in the America and Europe, the notion of efficacy is often portrayed in a clinical way, the opposite can be true in Asia, with Korean brands such as Oh K!, Tony Moly and La Biotte using fun, characterful packaging, with the knock-on effect of being enormously shareable on social media.

“These brands are not just aimed at younger consumers, they reflect what is seen as beautiful in Korea, Japan, China and Taiwan, which is about revealing the youthful and child-like part of you,” says Labbrand’s Ms Koh.

Meanwhile, technology developed at the Korean Packaging Centre is disrupting traditional information-sharing on packaging, creating opportunities for inclusive design, a concept which helps enable as many consumers of all abilities as reasonably possible to use products without difficulty.

The Korean Packaging Centre’s four-year project spearheaded the idea of talking packaging, which gives information messages through a smart phone. That smart design is now being used on medicines packaging created by Cambridge Consultants, which uses touch-sensitive paper to trigger audio messages to help patients overcome any fears of starting a new treatment.

Among all the cultural considerations, the overriding theme of sustainability and waste is yet to be fully tackled, says Mr Bunce at Tin Horse. “We have paid for a one-way trip in terms of packaging and somehow we need to start paying for the return journey,” he warns. ♦



Nestlé has introduced a new Smarties pack divided into three smaller sections to address portion control in Canada

Jones Packaging Inc.

Commercial feature



Recycling plastic myths

Plastics are superb materials in many ways, genuinely solving environmental and social problems. Society is now turning a solution into a problem, says Klöckner Pentaplast’s (kp) global sustainability director **Lubna Edwards**

Plastic packaging is an essential part of the food supply chain, helping to protect food, extend shelf life and deliver significant reductions in waste. So, what are the misconceptions surrounding it?

Plastics are demonised for many of the wrong reasons. But it is not the material that is the issue; plastic is resource efficient, flexible, hygienic, durable and lightweight, with protective barrier properties. Other materials don’t match those sustainable and functional properties.

The fundamental challenge is the careless disposal of plastic, resulting in land and marine litter, rather than the material itself. Many plastics can be easily recycled. The key question is whether there is the recycling infrastructure and appetite to dispose of litter and recycle responsibly.

kp designs and manufactures plastic food packaging, among other packaging and industrial products, which include flexible films, rigid films and rigid trays, many of which are made with up to 100 per cent recycled content and are recyclable themselves.

In the UK, kp principally uses post-consumer recycled polyester (rPET). When a consumer disposes of their PET

packaging in a recycling bin, it is collected, sorted and recycled. We then buy the processed material back into our business and reuse it, closing the recycling loop. We invest a lot in innovation, designing for sustainability and recyclability; it’s a priority for us.

Recyclable packaging should be the answer, not seen as the problem

Food waste in Europe totals 88 million tonnes, with associated costs estimated at €143 billion. Taking meat as an example, using plastic vacuum skin packaging can increase the shelf life from two to three days, if wrapped in paper, to sixteen days and more, reducing food waste by a staggering 75 per cent. The environmental, social and economic impacts of food waste far exceed the same for plastic packaging, which is specifically designed to protect products using minimum resources.

Food on the go is a growing trend, predicted to increase by 30 per cent within the next five years, particularly in large cities. But are there enough recycling units for consumers to dispose of their packaging responsibly, in line with this?

Improvements are being made, but not at the rate needed. In 2016, 27.1 million tonnes of plastic waste was collected through official schemes in the European Union to be treated. And for the first time, more plastic waste was recycled than landfilled.

For the ten years to 2016, the volume of plastic waste collected for

recycling increased by 79 per cent, energy recovery increased by 61 per cent and landfill decreased by 43 per cent. But more needs to be done.

Plastic waste is not the same as littering; plastic waste is a valuable raw material to us. Littering is a serious cultural problem. If consumers understood the value of it, they would not throw it away. They wouldn’t throw away a plastic £10 note.

More than 80 per cent of marine litter comes from developing countries, because there is a lack of infrastructure in place for waste disposal.

England has the seventh highest recycling rate in the EU at 45 per cent. Wales has the second highest at 57 per cent and the third highest in the world. It has invested heavily in standardised and incentivised recycling systems.

Last year, kp used more than 140,000 tonnes of post-consumer rPET, the equivalent weight of 85,000 cars or 1,500 blue whales.

We need more material so we can generate more recyclable protective packaging to meet the growing needs of society. But there are so many interdependencies and moving parts to the recycling chain. We have more than 300 councils in England, each collecting different waste materials and products for recycling. The government needs to create consistency, and we need adequate mechanisms and provisions for consumers to recycle at home or on the go.

kp can then continue to design plastic packaging for recyclability and deliver environmental and social solutions, today and for future generations.

For more information please visit www.kpfilms.com



Lubna Edwards
Global sustainability director
Klöckner Pentaplast



Reimagining the future of labelling and packaging with sustainable design

Georges Gravanis, president of Avery Dennison's Label and Graphic Materials Group, reveals how a collaborative industry approach coupled with the company's materials science capabilities and other innovation in sustainable design are driving positive change in the labelling and packaging of consumer goods



George Gravanis
President, Label and Graphic Materials Group, Avery Dennison

How have consumer attitudes towards sustainable packaging changed?

Sustainability has been important in the labelling and packaging industry for some time, but has become even more important recently as consumers are more aware of the impact of waste. Consumers expect the brands they purchase from to be good corporate citizens and fully transparent about the sustainability of the product itself, and the labelling and packaging. How the material is made is important, but more so is the impact it has on the overall recyclability of the package and its end of life. Consumers are increasing the pressure on brands to take responsibility and to create more sustainable design.

To what extent is the packaging industry thinking about sustainable design differently?

Sustainability has become much more about whole system thinking. Historically there has been a focus mainly on the materials, such as FSC (Forest Stewardship Council) paper and reduced material consumption. That's still important, but now the emphasis is really about the whole life cycle of the packaging. For example, how can you reduce materials in the original design? How can you ensure the packaging can be recycled? And

how can you manage the waste created through the production of the labelling and packaging? While we have portfolios of recycled content materials, a large part of our focus is on thinking holistically about our supply chain to reduce overall waste, increase recyclability and innovate to zero.

How is sustainability influencing the way food is labelled and packaged?

Reduce, reuse and recycle remain the key influences of sustainable design. How can we reduce the materials used in the original design, how can that packaging be reused, and how can the labelling and packaging be made from more recycled content or be more easily recycled? With whole system thinking, we also need to consider the whole life cycle of the product. For example, our food reclosure solutions combine oxygen barrier films with easy open and reclosing functionality that are ideal for preventing oxygen and moisture from entering food packaging. This provides convenience for the consumer, but also keeps food fresher for longer, reducing waste.

Also, our RFID (radio-frequency identification) technology is being used to reduce food waste in perishable goods. Recent pilots and food retailers' feedback have shown up to 20 per cent reduction in food waste and further potential to reduce food stock management costs by around 50 per cent. We are also seeing dramatic improvement in inventory accuracy by more than 99 per cent in food distribution across the supply chain and overall process efficiency.

How can the packaging industry increase the rate at which it is able to create sustainable change?

For us it is about focus and industry-wide collaboration. Throughout our innovation process we are ensuring we are considering sustainability for every product and process improvement, not just those classified in our sustainable

product portfolio. This is not always straightforward, but it is a critical cultural change to ensure we are achieving each of our eight 2025 sustainability goals, which we set out in 2015 based on the natural step methodology. One of the goals is to ensure 70 per cent of our products and solutions will conform to, or will enable end-products to conform to, our environmental and social guiding principles. The combination of these goals, the level of our chief executive and leadership commitment, and the empowerment of 26,000 employees worldwide adds up to a pretty unique approach.

Equally, it is clear that to really drive change across the whole value chain we need to be collaborating much more across the industry. We have built a number of significant partnerships within the industry and are continuing to build more. Our supply partners are key to us in achieving our sustainability goals, which is why we have partnered with EcoVadis to operate a collaborative dashboard providing sustainability ratings and performance improvement tools for global supply chains. We also have an ongoing relationship with the World Wildlife Fund (WWF) and are part of the Climate Savers programme. Very recently we supported the WWF with a \$100,000 grant to support the Forest Owners' Sustainable Development Association of Thua Thien-Hue province in Vietnam.

As a materials science company, how are these capabilities and other technological advances driving your approach in sustainable design?

We invented pressure-sensitive materials and we have more than 300 research and development professionals continually working to reinvent those materials every day. We are focused on not only evolving the applications for our materials, but also their sustainable footprint. For example, we have continued to set the standard on the lowest gauge of materials – the thinness – enabling less material to be used, but with the same overall product performance. Reducing the amount of materials used in the first place is our key objective.

RFID also plays a central role in reducing the overall wastage within supply chains, which in turn contributes towards sustainability goals. As the world's largest ultra-high frequency RFID partner, Avery Dennison has focused on producing the most sustainable solution that, as well as driving significant benefits through the supply chain, is now recyclable. Our proprietary SmartFace technology removes the PET (polyethylene terephthalate) layers used commonly in RFID manufacturing and replaces them with a paper substrate to enable recyclability.

What products do you have that will improve recycling?

We think about recycling in two ways: building demand for recycled content and enabling the recyclability of the package it is affixed to. A common challenge with labels in the recycling process of plastic containers is that the label material, adhesive and ink can contaminate the plastic flake. To overcome this challenge, we developed a label solution called CleanFlake that enables full recyclability of any PET bottle or thermoform by allowing labels to separate cleanly. Similarly, we have a product called WashOff which removes cleanly from glass or PET containers when submerged in hot water.

Finally, we are helping our value chain by finding recycling solutions in each of the process steps. At label application, a release liner is left behind as labels are dispensed on to the packaging. Instead of the release liner being sent to landfill, we are finding local recyclers that can recycle the liner into new products. A recent successful collaboration is with L'Oréal in Australia which is now recycling its liner material into pulp material for packaging.

For more information please visit label.averydennison.com/sustainablesolutions



Avery Dennison Cleanflake™ portfolio

Purpose-built for the PET recycling stream

01

Demand continues to rise for PET, a 100 per cent recyclable plastic

06

The result is 100 per cent recycled food-grade quality PET flake that can be remanufactured into new bottles

05

More high-quality rPET in the supply stream can help reduce recycling costs

02

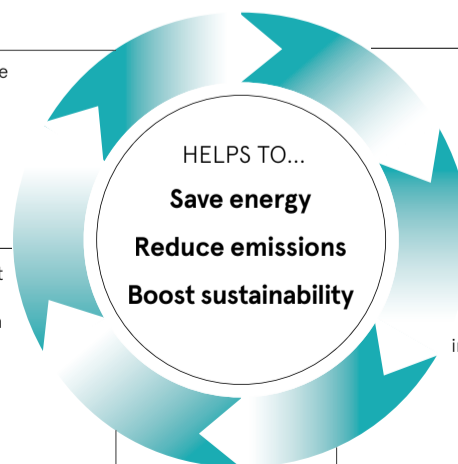
PET reclaimers are being challenged to produce high-quality PET

03

1.3 billion bottles are wasted in the recycling process every year due to incompatible label materials

04

SR3011 is the world's first adhesive that switches off during washing so the label cleanly separates from the plastic



Tech is transforming packaging sector

Exciting tech innovations, focusing on marketing, labelling and prolonging shelf life, as well as protecting the environment, are transforming the future of packaging

DAVID BENADY

Fibre-based materials

Amid the current intense scrutiny of plastic packaging, manufacturers are exploring alternatives such as plant-based fibres. An example is microfibrillated cellulose (MFC) where plant fibre is broken down to micro levels and reconstituted as packaging material. This process can create materials that are stronger and lighter than those made of glass or carbon fibres, and MFC can be added to other packaging materials to strengthen them. However, researchers have yet to find ways of producing thousands of tonnes of this wrapping material, rather than the few grams that have been created in the laboratory. An additional challenge for any fibre-based packaging material is the ability to act as a barrier to elements that will degrade the contents, such as light, oxygen and moisture. Laminates on packaging provide protection, but are resistant to recycling, so the industry is developing water-based coatings to act as a barrier.

Robotics

Robots are transforming the packaging industry, particularly in the field of ecommerce. The ability of robotic arms to sort small items into boxes for delivery quickly and accurately has made them a favourite with manufacturers and retailers. Robots offer flexibility as the arms can be positioned and replaced for different jobs, while the systems can be reprogrammed to change their packing functions. Mobile robotic platforms, which can navigate their way around warehouses, have also meant huge efficiency improvements. These autonomous mobile robots, or AMRs, teach themselves new routes so can be deployed quickly in fresh environments, making them more flexible than previous models that had to be programmed to follow fixed routes. Crates used to transport products, known as secondary packaging, are becoming increasingly important for retailers as the boxes are



often placed directly on to supermarket shelves, rather than each item being unpacked. The whole process of getting goods from factory to shelf is thus being speeded up, with precision and consistency, alongside developments in sensors and computer vision to help monitor the performance of the robotic packaging. Online grocery retailer Ocado uses robots with human pickers as robots deliver pallets of goods to humans who pick out the specific customer orders. It is likely that the future of automated packaging lies in this type of "co-botics", where robots work alongside humans to deliver a superior performance than could be achieved by either working alone.

Smart packaging

Since packaging first became a "thing" in the internet of things, its role in the customer journey has extended far beyond the shelf. This has had a transformative effect in a number of ways, including smart packaging which helps to cut down food waste in complex, global supply chains, as well as in a healthcare setting, enabling doctors to keep track of their patients through connected medical packaging. Product piracy is a continuous issue for brands and manufacturers, not just because of financial loss, but also damage caused by potential health risks, especially in counterfeit medication and use of unlicensed chemicals. Packaging specialists such as STI Group are among those developing

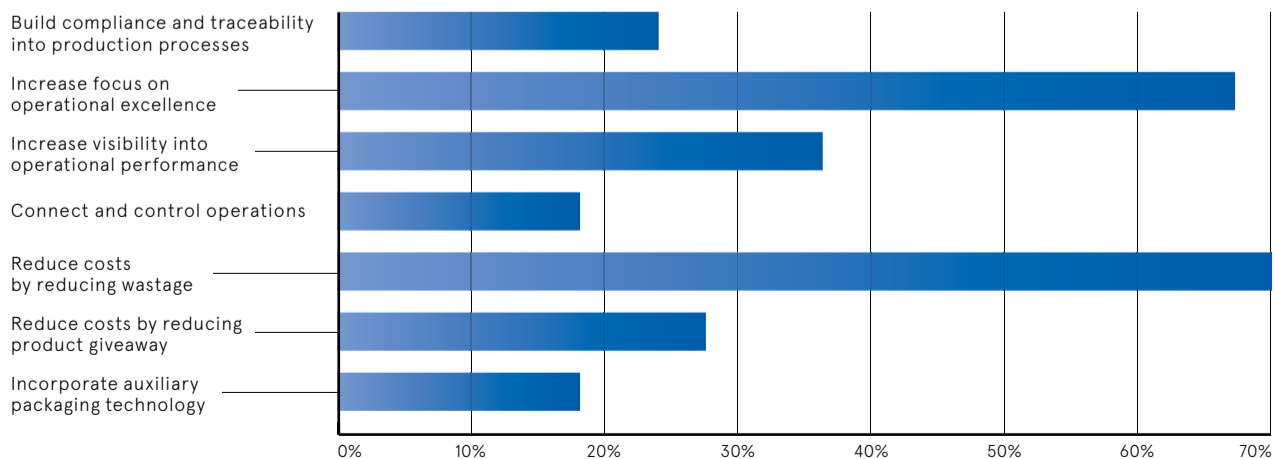
technologies including concealed RFID (radio-frequency identification) codes, which are printed either directly on to packaging or integrated in it. RFID technology sends identifying signals to a reading device, which could be a regular smartphone, enabling automatic, contactless communication with the package so retailers can determine the current status of their goods in a matter of seconds. This assists protection them from theft, but also identifies product location across the entire value chain. The constant need to monitor the state of goods is also fuelling the growing popularity of sensors being used to track temperature and quality, especially in the food, beverage and pharmaceutical industries.

3D printing

A game-changer for its ability to provide a quick way to test products and packaging before they go into full-scale production, 3D printing has more recently played a pivotal role in scaling packaging to new levels of customisation and creativity. 3D printing works by squirting molten plastic on to a base and gradually building up a design by layers. For this reason, it is also known as additive manufacturing. The operation is directed by software which controls the production from a computer-aided design. A recent innovation has been to use 3D printing to produce food products which are combined with the packaging. For example,

US company Smart Cups has come up with a range of 3D-printed cups which produce an energy drink when water is added as the ingredients of the drink are embedded in the packaging. 3D printing's great benefit is to improve manufacturing processes by enabling the rapid prototyping of machine parts. For instance, additive technology can be deployed to produce robotic arms for use in the packaging process, achieving in days and weeks what previously may have taken months. However, the main challenge for 3D printing to go mainstream in packaging remains higher costs in scaling up production compared with more standard formats. ♦

Top market pressures driving companies to upgrade packaging line capabilities



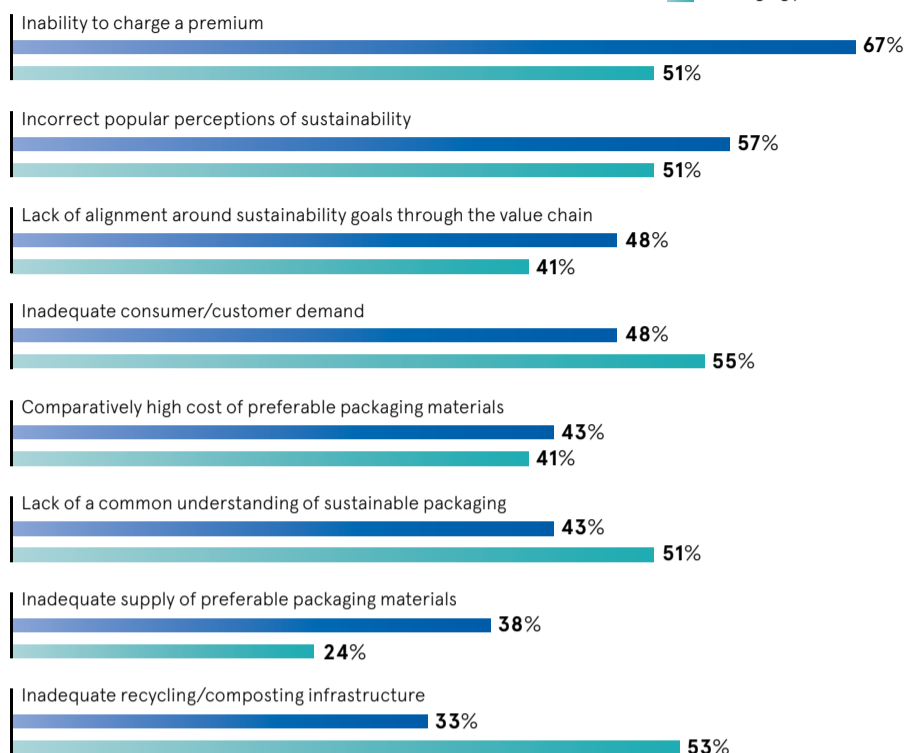
COST OF SUSTAINABILITY



Clare Carrier/Getty Images

The move to ban plastics from supply chains is great for reputation and the environment, but can have a big impact on the bottom line

Biggest challenges with sustainable packaging



Packaging Digest 2017

Business impact of being sustainable

As more brands pledge to go green, what is the impact of using environmentally friendly packaging on all links in the supply chain?

HEIDI VELLA

Increasing consumer pressure, instigated by what is now known as the Attenborough effect, and recent pledges from the UK government to eliminate plastic waste by 2042, have forced brands and retailers to rethink the sustainability of their product's packaging.

Consequently, numerous brands, including McDonald's, Deliveroo and Iceland, have made pledges to go plastic free or to use 100 per cent sustainable packaging.

These promises are a win for a brand's public relations as well as the environment. But how challenging is it for the packaging manufacturers to make the change?

Packaging affects the entire supply chain, starting with the material producer to the converter, to the brand owner and retailer, to the waste and recycling organisations. And then back to the material supplier again.

Given the intricate complexities and the often-changing tide of public opinion, the challenge for packaging manufacturers starts with determining which new material is best to invest in.

"Some companies are nervous about committing to buying a new material or to invest in developing a new piece of packaging when they don't know how successful it is going to be," says Tracy Sutton, circular economy packaging design consultant at Root.

Previously, says Barrington Pamplin, a packaging technologist for 30 years and technical director at consultancy ThePackHub, there was a push for light-weighting materials, so packagers swapped glass bottles for plastic ones. Now plastic is on the blacklist.

"Packagers have to react to pressure from the media and lobby

groups, but many elements of sustainability, such as recycling, are out of their control," says Mr Pamplin.

So-called sustainable and recyclable materials, such as biodegradable and bioderived plastics, which packagers may look to transition to, away from fossil fuel-based ones, are not in fact widely recycled, but instead collected as general waste.

"It should be laid out clearly what materials can be recycled and what cannot to reduce investment risk," says Mr Pamplin.

Furthermore, in the UK and other places, waste collection and recycling is not co-ordinated centrally, but by local authorities, creating inconsistencies and hindering closed-loop recycling of materials.

In January, Unilever in Australia called for standardisation of the

waste management laws and regulations across three tiers of government. It said differing recycling policies were slowing down progress in sustainability.

Such a disjoint in waste management can make it harder for investment in recycling facilities, thus hindering material supply for packagers, says Mr Pamplin, because the waste stock is lacking or of poor quality. For some materials, there is an oversupply, while for others there is a shortage.

This is even more challenging in developing nations, which have far bigger pollution problems and where recycling is significantly less advanced.

Using recycled and new materials are also, on average, more expensive than virgin ones. "Their cost is almost always higher because they don't have the same scale of production, and additional research and development investment is needed to change the machinery line," says Dominic Cakebread, director of consulting for packaging at Global Data. The cost implications, he says, are much higher upstream of the supply chain.

"For brands, it will be around 1 per cent on cost, but for manufacturers it will be around 10 per cent because they have to make an upfront investment," says Mr Cakebread.

Sustainability often goes hand in hand with cost reductions if it is implemented at the design stage to reduce packaging size and material use




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He adds that these costs tend to come down when volume increases and the original investment is recovered.

There are timescales of up to 18 months, or longer for larger companies, to also consider, according to Mr Pamplin, which may require some internal restructuring.

“Changing a can to a pouch requires a completely new production line, as well as the need to prove that the quality of the shelf life, product, food safety and how it travels are not adversely affected,” he explains.

At present, demand for sustainable packaging has only started trickling down to manufacturers, according to Ms Sutton.

“There is no doubt it is increasing, but not at the rate needed to really encourage more strategic investment by packagers to offer a sound portfolio of easy-to-recycle materials and packs,” she says. “However, they have the opportunity to invest strategically and develop an informed packaging design strategy, enabling them to really support brands that want tried-and-tested solutions, which can be recycled.”

Martin Leeming, chief executive at TrakRap, says if big brands approved new types of packaging quicker it would accelerate the process massively. Brands, on the other hand, are sometimes uncertain about implementing change too fast.

The Hilton hotel chain has committed to cutting its global environmental impact in half by 2030, which involves reducing its plastic. But it will do so incrementally, says Maxime Verstraete, the company’s vice president of corporate responsibility.

“From our perspective, it is better to start small and scale up, because the world changes so rapidly and implementing something across all our hotels takes a long time,” he says.

To manage the transition to a more sustainable packaging future, Mr Pamplin thinks some smaller companies may need government support due to a lack of resources. Whereas, most experts agree a national tax on plastic is more likely to be created to incentivise change.

Though there are considerable challenges, many of which are out of a packager’s control, there are also numerous, effective ways for them to be more environmentally friendly.

Sustainability, after all, often goes hand in hand with cost reductions if it is implemented at the design stage to reduce packaging size and material use.

Major packaging firm, DS Smith use made-to-fit technology to package ecommerce products more snugly. Their machine achieves a 99 per cent fill rate for a single shipment, reducing transportation carbon emissions, an aspect of sustainability often overlooked, according to Isabel Rocher, the company’s head of ecommerce.

Investment in the technology pays for itself in a year, Ms Rocher says. But she concedes that the future of packaging will be challenging for everyone. However, those who are “a little visionary and flexible enough” will adapt, she says.

“Sustainability is really exciting if you are investing in the right solutions,” Ms Rocher concludes. “I think some organisations will struggle, but for the most part it’s a great opportunity.” ♦



Insight
Good plastic or bad plastic?

Plastic is perceived as the least sustainable packaging material. Yet if it was banned tomorrow, the whole infrastructure of how we shop and feed ourselves would need to change, says Barrington Pamplin, technical director at consultancy ThePackHub.

So is plastic really that bad? “Plastics have been demonised but sometimes they are the more sustainable option,” says Sam Jones, customer sustainability manager at DS Smith.

He offers the example of their plastic beer crates, which can be used for 17 years, then ground and

reformed again in 30 minutes.

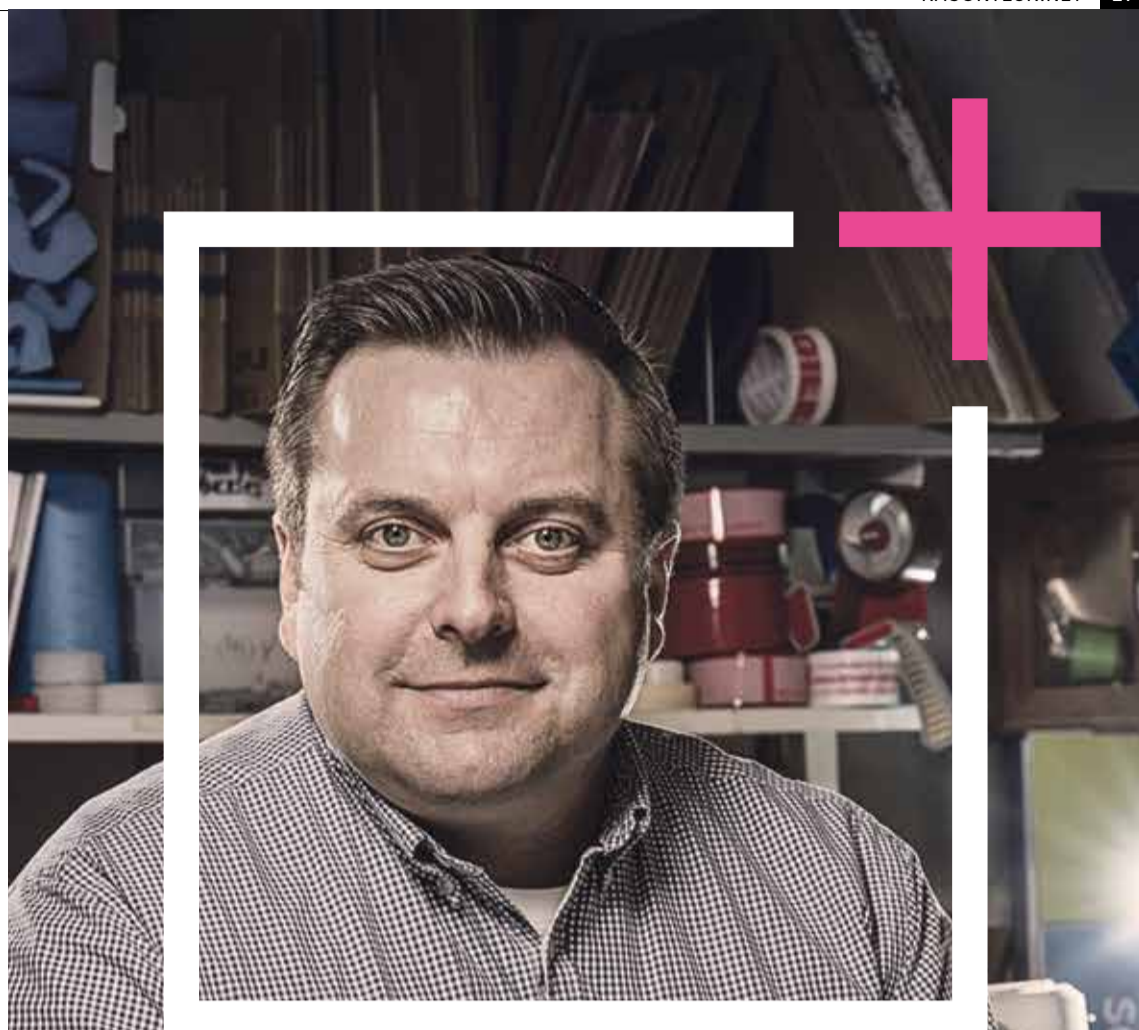
Like aluminium and glass, which are more carbon intensive to produce, some plastics can be recycled.

In the UK, Coca-Cola, at a cost of £250 million over five years, has developed new technologies that mean 100 per cent of the packaging the company uses, both primary and secondary, is recyclable.

“While we do not view our packs as ‘single use’,” says Liz Lowe, corporate responsibility and sustainability manager at Coca-Cola Great Britain, “the fact is too many consumers still do.”

According to many industry experts, part of the plastics problem is that the material is perceived as having no value, unlike glass or aluminium, so it is often thrown away instead of recycled.

This is a problem acknowledged by the European Union, which has created a new directive to make all plastic packaging across Europe recyclable or reusable by 2030. Presently, some renewable or compostable plastics are not widely recycled.



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TRENDS



It's back to the future for past wrap

In the quest for an environmentally friendly circular economy what goes around comes around

NICK EASEN

Wrag Wrap sells reusable, fabric gift wrap for presents, made from recycled plastic bottles. The company was started eight years ago, but only recently has demand quadrupled. "Call it the *Blue Planet* effect," explains Nicky Rajksa, co-founder of the company. "The mass market is now informed about the issue of single-use plastic and the environment; there's been a turning point."

At the same time, consumer-led innovation and backing is on the rise. Recently, Recycling Technologies raised £3.7 million in just two weeks, partly by crowdfunding, for the use of novel technology that will chemically recycle plastic packaging in the UK.

"Crowdfunding has completely changed the way environmentally friendly products are founded. The creator doesn't have to a big company these days, it can be anyone with a good idea," says Anna Glansén, a designer from Tomorrow Machine, a Stockholm-based studio specialising in novel packaging.

Take Final Straw; in the United States it plans to replace single-use plastic straws with a novel metal one. The company asked for \$12,500 on Kickstarter and in the end crowdfunded \$1.8 million.

"A lot of startups are now working to develop sustainable packaging solutions that challenge traditional industries," says Caroline Bettan, co-founder of Newcy, a French company developing a reusable cup for office coffee machines. "Consumers can make companies accountable for the products they use and that's a great way to lessen their environmental impact."

China's ban on imports of packaging waste earlier this year is also shaking up industry and recycling at local authorities, while a proposed deposit return scheme for plastic bottles from the UK government shows a willingness to legislate. With 700,000 bottles littered every day in the UK, according to the Environmental Audit Committee, there are strong grounds for action.

Then there's the UK Plastic Pledge, which saw 42 companies sign up to a pact in April. This aims to cut plastic and eliminate unnecessary single-use packaging by 2025.

"The sector is now under immense pressure to take action fast, with retailers and manufacturers being forced to plan for plastic-free aisles, packaging take-back and much stricter end-of-life rules on products and packaging," says David Honcoop, managing director of Clarity Environmental, a green compliance company.

The role of packaging is also changing in our lives with more home deliveries. Brand communication is increasingly done through webpages rather than packaged goods on supermarket shelves. Think Amazon's Brown-Box.

"Customers are now choosing brands based on their philosophy than by their actual packaging. One of the significant principles brands should have is their own established code of ethics, this includes packaging design," says Kosuke Asaki, a Japanese designer who uses agar for packaging and producing tableware out of food waste.

Some are hailing this as a "back to the future" age of paper bags and recyclable glass bottles, reversing the switch to plastic packaging which was introduced for greater production efficiency, lower cost and less weight in distribution.

"Glass packaging was precisely the system that was abandoned

in the 1970s because it was wasteful, outmoded and tied retailers and pubs into the distribution systems of dominant manufacturers," explains Nick Cooper, executive director at Landor Associates.

Frugality when it comes to packaging is in. The bigger the box, the better the toy, is out, with consumer sentiment shifting. "It's now the bigger the box, the fuller the bin," says Pippa Moyle, founder of social media platform City Girl Network. "Brands need to start

Some are hailing this as a 'back to the future' age of paper bags and recyclable glass bottles, reversing the switch to plastic packaging



shifting their processes towards this new psychology.”

Ms Moyle started a campaign called Trash Talk, with the support of Clarity Environmental, to identify consumer opinion on packaging waste, across its network in ten cities. “Environmental activism is becoming cool. The more that people are educated, the more questions they’re asking. The biggest challenge is the lack of communication between consumers and brands,” she says.

This has come at a time when there’s been an explosion in sustainable packaging solutions, bioplastics, new and innovative materials that are biodegradable, as well as recyclable products, all entering the market in a bid to satisfy evolving consumer demand.

“Yes, these are exciting times, but it’s all being done in a rush. Of course, we need new investment, but all these innovations are being created in isolation. We need an ecosystem approach,” says Benjamin Punchard, global packaging insights director at Mintel. “If new innovative packaging has a label saying check local recycling, that means nothing at all to most people.”

Convenience is still king. If the consumer needs to work harder with their recycling, it’s an issue. Already

there is a lack of coherency across local authorities. Much bioplastic packaging is not biodegradable and does not reduce waste.

“This is very difficult for consumers to understand. I have seen many products marketed as environmentally friendly without any scientific justification. This creates a new challenge. How can we clarify for consumers what is a truly sustainable choice?” says Suvi Haimi, co-founder of Sulapac, a Finnish company that produces innovative wood-based packaging. “We hope the authorities, especially the EU, will clarify for consumers what these choices are.”

The law of unintended consequences also looms large, if left solely to consumer-driven demand. Less packaging can mean more food waste and more carbon emissions in some cases. If packaging has no value, other than for compost, there’s a risk that consumers might care less about recycling. Bio-based packaging also takes up land to grow.

“With so much pressure to make changes, and as businesses join the race to ‘green’ their packaging, there is the risk of ill-informed decisions being taken. The industry must be encouraged to work together,” Clarity Environmental’s Mr Honcoop concludes.◆



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