

Executive Summary

The world generates approximately 1.3 billion tonnes of waste annually, with Asia alone accountable for 1 million tonnes per day. With current urbanisation and population growth rates, global waste is estimated to rise to 2.2 billion tonnes by 2025.1 Despite huge investment, countries are battling with the challenge of preventing environmental degradation.

This paper presents the challenges of food waste and recycling faced by manufacturers, retailers, councils and consumers in the UK. Framed within the context of a change in consumer behaviour and lifestyle choice, there are many considerations that must be addressed to achieve effective change.

The good news is that there is a growing interest and focus from the general population, businesses and the government when it comes to the environmental impact of our current lifestyles and this has been fuelled by a number of drivers:

1. People have become more aware and concerned with the effect of our packaging waste. This has been driven to a large extent by David Attenborough's 'Blue Planet II' programme. Internet searches of 'plastic recycling' rose by 55 percent following the programme's appeal in the final episode.²

2. Legislation is being put in place by the government.

3. There has been a move towards a circular economy, keeping resources in use for as long as possible. The business model of 'eBay' was one of the first examples of a circular economy, giving items another life and value beyond the original owner.

This paper will discuss the following subjects:



How the sociodemographic shifts found in our new research, and a consumer demand for convenience, value and experience have changed the way we shop. This is presenting new challenges in food waste and recycling.

Where the responsibility of food waste and recycling lies, and who the public believe should take the lead in tackling the problem according to our new research.

An evaluation of whether plastic is as 'bad' a material as the media are portraying.



The rise of the health and lifestyle trend, and the positive and negative implications this has for the environment.



An outline and evaluation of the current strategies being taken by retailers, manufacturers and councils.



Recommendations and solutions for retailers and manufacturers towards a more sustainable future.

The UK's

The UK consumer landscape is changing, and significantly so. Our busy lifestyles are driving a move away from the big weekly food shop towards more convenience shopping. It is the flexibility of convenience stores that is key for today's time pressed

say the opening times of convenience stores makes it easier to fit shopping into their daily schedule, whilst half (49%) say that shopping at convenience stores allows them to be more flexible in their meal choices.³

Sociodemographic Landscape

consumer, as three quarters (75%) of Brits

Recent Ipsos MORI research found that the most common way to grocery shop in the UK is to do one large grocery shop in store, with a couple of top up shops during the week (38%). However, almost a third of Londoners (30%), and a fifth of the total population (20%) do a few small shops each week, when they need to, rather than a large shop.

In part, the rise in convenience shopping is due to shifts in our sociodemographic make up. Nearly one fifth of the population are aged 65 or older, and 3.8 million people in this older age group live alone.⁴ Indeed, our survey shows us that people who live alone are most likely to do a small number of shops during the week when they need to [34%]. In the capital, we see a significant proportion of young professionals living in house shares, who are also more likely to do their grocery shop alone.

The table below shows the projected growth of grocery store formats in the UK between 2017 and 2022. Online retailers are projected to grow by over 50%, whereas we can only expect a 1% increase in value for hypermarkets over the next 5 years. The convenience grocery channel is forecast to grow by almost 18%.

A report by the Institute of Grocery Distribution (IGD) indicates that foodto-go is one of the fastest growing categories in convenience grocery retail, providing the sector with a £36 million boost last year.⁵ Retailers have capitalised on the consumer convenience culture, expanding offerings beyond the humble sandwich to 'meal deals', sushi, crudities with dips and salads.

Employment is at an all-time high, average lunchbreaks are down to 34 minutes⁶ and a healthy lifestyle is more desirable than ever before. Meal times have blurred, and consumers want to be able to purchase foods they want exactly when and where they need them. The combination of these factors creates an incredibly lucrative business opportunity for the food-to-go sector.



Rapid technological developments in other non-related categories are ultimately influencing consumer expectations in the grocery channel. For example, the frictionless service provided by Uber for ordering, tracking and payment of your transportation is influencing consumer experience expectations. This has given rise to innovations by Amazon such as the Dash button providing auto-replenishment of products to the home and frictionless retail with 'Amazon Go.' We call this 'liquid expectations'.

In grocery retail, this has involved the reimagining of the shopper experience towards convenience shopping – being able to purchase something at the time of need. On one street in London, there is a large Sainsbury's supermarket, two Sainsbury's Local Stores, a Little Waitrose, an Iceland, a Morrisons M Local, and a

Londis, all squeezed into less than a mile. The sheer quantity and proximity of these stores is a perfect illustration of how demand for convenience is driving the strategy of large retailers, to meet the complex needs of the consumer.

The changes we see in the shopper landscape, driven by socio-demographic shifts, lifestyle changes and 'liquid expectations' has consequences for both food waste and recycling. Consumer behaviour shapes the way in which we produce and manage both, and needs to be fully understood if we are to develop successful strategies to help alleviate the problem.

Figure 1: Projected growth of different grocery store formats⁵



Source: IGD UK food and grocery forecast 2017





+53.8



Lifestyle

war on plastic, including the queen, who has banned plastic straws and bottles on the royal estate, and the Ellen MacArthur Foundation, which was established in 2010 with the aim of accelerating the transition to the circular economy.

health with increasing media attention, (such as Jamie Oliver and Hugh Fearnleyand concerns over obesity, sugar intake,

Health and

Key influencers are taking the lead on the

food sensitivities and diet related disease. This has caused a gradual but noticeable shift in consumer behaviour towards healthier lifestyles.

In an era where our lives are played out on social media, looking and feeling great is an idealistic lifestyle consumers want to We see a similar story with the issue around showcase and enjoy. Perhaps driven in part by these increasing social pressures, the government campaigns and vocal activists Ipsos MORI Global Trends Survey found that just two-thirds of the global population Whittingstall) promoting greater awareness say their health is good (62%), and even less (44%) are satisfied with their weight.

Figure 2 – How is your health in general? Would you say it is good/poor?

Good 2016 Good 2014 Poor 2016 Poor	r 2014	112



Figure 3 – Of all the things I can do to maintain good health, eating right is the most important

Agree 2016

al all a second

Disagree 2016

Т	Total	80%
1	Indonesia	95%
2	India	90%
3	S Korea	88%
4	China	87%
5	Spain	87%
6	Argentina	86%
7	Brazil	85%
8	S Africa	85%
9	Turkey	84%
10	Peru	84%
11	Australia	82%
12	Canada	82%
13	U.S.	82%
14	Mexico	79%
15	Germany	78%
16	Italy	78%
17	GB	77%
18	Sweden	74%
19	France	72%
20	Russia	71%
21	Japan	68%
22	Belgium	67%
23	Poland	63%

Source: Ipsos MORI Global Trends Survey. 18,180 adults across 22 countries, online, 12 Sep-11 Oct 2017

Source: Ipsos MORI Global Trends Survey. 18,180 adults across 22 countries, online, 12 Sep-11 Oct 2017

Food plays an important part in this lifestyle Trends Survey, 2017). A prioritisation of too, with four-fifths of the population believing that out of the things that can be done to maintain good health, eating right is the most important (Ipsos MORI Global

experience over material goods creates a need for more convenient lifestyles to allow time to indulge in experiences with friends and family.





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The following three case studies explain how a move towards healthier lifestyles is complicating the issues surrounding food waste and packaging.

PLASTIC WATER BOTTLES

13 billion plastic bottles are used each year in the UK. That's 1.5 bottles for every household. Worryingly, 5.5 billion plastic bottles were not collected to be recycled from UK households, equivalent to 15 million plastic bottles everyday.⁷ In 2017, UK sales of bottled water exceeded that of cola for the first time, as awareness about the dangers of excessive sugar in the diet started to make an impact. UK sales of plain water is forecast to hit 4.7 billion litres by the year 2121, driven in part by the increasingly health conscious consumer.⁸

Demand for bottled water has also been driven by the spread of 'on the go' culture across the world. Consumers avoid having to purchase, fill up and carry a refillable container around with them. Instead, they can buy water exactly when they want it and throw the bottle away after use. By responding to the desire for convenience, retailers and manufacturers are letting consumers choose single use plastic bottles over refillables, which allows for a more frictionless experience. Selfridges are supporting a change in behaviour, and have recently stopped sales of disposable

Some responsibility does lie with the consumer. Plastic bottles can be recycled, however almost half the bottles we use (44%) are placed in general waste landfills, simply because they are not recycled.¹⁰

plastic water bottles in their stores, saving

the equivalent of 6 tonnes of plastic

each year.9

Local council and governments could do more. There are significantly fewer water fountains in the UK compared to the rest of Europe, which makes it difficult for people to refill their water bottles. Indeed, the advent of bottled water in the 1980's pushed the need for drinking water fountains lower down council's priority lists. In December 2017, the London Mayor pledged to create 20 new water fountains and other bottle refill points across the city, which aims to reduce the purchase of single use plastic water bottles. As Water UK's Chief Executive said, providing

easily accessible water will "help turn this

harmful tide of plastic waste".11

One

Million

plastic water bottles

are bought around the world every

minute

44% of bottles we use go to landfill, despite most being recyclable.

RECIPE BOXES

Recipe box services have burst onto the UK market, delivering pre-portioned ingredients and easy to prepare recipes directly to consumers. The new subscription services, such as 'Hello Fresh' and 'Blue Apron' are responding to the 'healthy convenience' trend. The service makes people feel like they are cooking fresh, healthy meals, but with very little effort and without the guilt of the traditional microwaveable ready meals. The trend is, in part, a consequence of popular food television programmes such as 'Masterchef' and 'The Great British Bake off', food bloggers and vloggers such as 'Deliciously Ella', and the rising popularity of Instagram.

Recipe boxes certainly help households eat more healthily, and remove the lengthy shopping process and planning element of dinner time. By ordering ingredients that have already been weighed and measured food waste is minimised; in theory, you wouldn't have anything in your fridge that you wouldn't eat. However, the ingredients also tend to have a short shelf life, and lastminute dinner plans may leave you with a box of perished ingredients.

Furthermore, the pre-packaged ingredients mean you will find tiny boxes and jars for single portions of herbs, spices, sauces and butter. Buying ingredients in bulk means one packet rather than multiple, and the insulated cardboard boxes used by these companies for delivery would not be needed for a 'normal' online or in-store supermarket shop. This presents a quandary and conflict between healthy eating, food waste and over-packaging

FROZEN FOOD

The retail frozen sector maintained a sales growth in 2017, exceeding the £6 billion milestone in the second half of the year.¹² The growth can be attributed to the increased premiumisation of frozen food and a growing awareness by consumers that frozen can be as good, if not better for you nutritionally, than the quality of fresh, and is often much better value. Frozen vegetables for example get picked, washed and blanched within the hour, and the nutritional goodness remains. Fresh produce on the other hand, can be stored by the supermarkets for weeks, and will gradually lose nutritional value up until the moment of consumption.

Frozen foods are also attractive because of their convenience. If there is no food in the fridge, or time to prepare it, frozen food offers a perfect 'meal for tonight' solution, without compromising significantly (or at all) on quality and nutrition. Frozen food can be stored for a long period of time and hence food waste is significantly lower than fresh produce.

The challenge for the frozen food industry is balancing the need to reduce the environmental impact of products with the need to make sure food is adequately protected. The category has started innovating to reduce polymer types in packaging and removing metallised linings to increase recycling. With a growing focus on reducing waste and a rising awareness of sustainability issues, frozen food packaging will need to keep up with changing expectations.



Concern and responsibility

There is a high level of concern around of 55-75-year olds (52%) state they are third (33%) of 16-34-year olds.

Millennials are likely to face more in their home location. Blame is often

low engagement from consumers.¹³ In plastic packaging with seven in eight adultscontrast, older generations have more timein the UK claiming to be at least 'fairlyto invest in recycling their waste correctly. concerned' about the issue. However, it is They are more likely to have been living the older generation who worry the most. in the same area for longer, and therefore Our recent survey found that just over half understand the local council schemes.

'very concerned'. This compares to only a We also see differences among age groups around attitudes towards food waste. Our research shows that the younger age groups are more sensitive to the challenges around their personal recycling. 'use by date' than the older population. They are a more transient population and Before the introduction of these use by therefore less likely to understand recycling dates, working out whether food was edible or not was down to judgement of placed on poor communication from the appearance and smell. Using experience local authority/waste contractors driving to determine whether a food or drink is

safe to eat is likely to still be a primary indicator for older consumers, meaning less importance is placed on use by dates compared to the younger generations who have never known any different. Older consumers will also be more sensitive to food waste having been born into a thrifty post-war era.

Use by dates were introduced by Mark's and Spencer's storerooms in the 1950's, before making it to the shelves in the 1970's. As processed food became more commonplace in the 1960's, consumers got further away from the direct handling of the ingredients in their meals, and therefore became more worried about how safe and fresh those products were.¹⁴



Please select the number of days after 'use before' expiry date you would be willing to eat the following food products? Source: Ipsos MORI Global @dvisor. 20,794 respondents across 28 countries, online, April 2018



Figure 4 – Percentage of participants who are willing to consume the food product more than one week past its use by date



Source: Ipsos MORI Global @dvisor. 20,794 respondents across 28 countries, online. April 2018 Ipsos' recent study found that those aged 55-75 are significantly more likely to consume yoghurt more than one week past a use by date [16%] compared to 16-54-year olds [8%]. We see a similar pattern with soft cheese and butter. Just half as many of those aged 16-54 are prepared to consume soft cheese more than one week past the use by date, compared to 55-75year olds. 35-54-year olds are significantly more likely to consume butter more than one week past the use by date [33%] vs 16-35-year olds (21%). Attitudes towards use by dates on fresh meat and fish, chilled pizza, milk and pre-prepared fruit, vegetables or salad are more similar across age groups.

There is a gap in attitude between the 'eat to live' generation of the post-war era, and the younger 'live to eat' generation, who demand variety and a more exciting diet. This creates variations around food waste management. Young people moving away from home may face practical barriers

outside of their control, such as storage, fridge and freezer space in multi person households.

levels of concern regarding food waste and recycling are also observed. Wales ranks second in the world for recycling household waste whereas England falls behind most other European countries.¹⁵ Despite this, our research shows that Wales is also the most concerned [93%] about the effects on the environment of plastic packaging, plastic bags and other disposable objects which cannot be recycled. The country has doubled their recycling rate in the past 10 years.

In Wales, a devolved government has enabled significant economic investment and demonstrates what can be achieved if a co-ordinated and concerted effort around recycling is adopted, and social consciousness on the issue is improved.

Figure 5 – Percentage of participants who are willing to consume the food product more than one week past its use by date, by age group





Please select the number of days after 'use before' expiry date you would be willing to eat the following food products?

Geographical variation in the UK around

Our research also finds that the more educated population, and those with higher incomes are significantly more likely to be concerned about the effects of plastic on the environment, possibly because they have more of an understanding on the topic, and a greater understanding of the consequences of the impact. A recent report by the Waste and Resources Action Programme (WRAP) did find that typically, lower recycling levels occur in areas with higher levels of deprivation, and the correlation is significant.¹⁶ However, the report also shows that the significance of the effect of deprivation levels on recycling rates reduces when considered in isolation to other factors, including higher housing density which correlates to lower recycling rates and rural areas which are associated with higher rates of recycling.¹⁵

Figure 6 – Boroughs with more flats tend to have lower recycling rates

The adjacent diagram shows a clear correlation between housing density and recycling rates in London. Recycling in flats is notoriously difficult. Indeed, WRAP found that 50% less recycling is yielded in flats compared to the average low-rise property. Space inside and outside flats are cited as an obstacle, and councils have found it difficult to get residents to separate waste where they do not have space for multiple bins in the home or on the doorstep.

The percentage of households in London living in high rise buildings is significant (54%), compared to Wales and all other areas of the UK, which influences the levels of recycling. This, among a number of other factors must be considered when comparing recycling rates between different areas of the country.¹⁶



Source: London Datastore. Municipal Waste Management Survey, DEFRA. February 2017. Dwellings by property build period and type. March 2016.

0	60	70	80	90	10

% of flats per borough





Where are we now?

The Ipsos MORI Global Trends Survey (78%) believe we're heading towards an environmental disaster unless we change will need to significantly reduce the environmental and social costs of their products and services to capitalise on rising demand for environmentally friendly options, that ease the conscience of the consumer.



Consumers demand transparency, and found that globally, most of the the public are taking an increasing interest in ethical practices of those they buy from. Sixtytwo percent of the global population say our habits quickly. In response, businesses they are willing to pay more for products that use ingredients that do not harm the environment, although in Great Britain this figure is much lower (45%).

Figure 7 - I am willing to pay more for products that use ingredients that do not harm the environment

Agree 2016 Disagree 2016



Source: Ipsos MORI Global Trends Survey. 17780 adults across 22 countries, online, 12 Sep-11 Oct 2016

MANUFACTURERS

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The recent focus on the detrimental impact that plastic is having on our environment has led manufacturers to look for more innovative solutions than simply recycling, both in terms of increased recyclability of existing plastic and finding low cost and simple solutions which reduce carbon emissions.

Morrison's have introduced flow wrap to their cauliflower and broccoli bags, which has saved 85 tonnes of packaging per year through the removal of trays and labels, whilst new lighter flower and plant carriers have saved an additional 97 tonnes of packaging per year.¹⁷ 2018 has also seen the rise of biodegradable alternatives to plastic bottles. Some, like Icelandic product designer Ari Johnson's algae-based bottle provide an alternative for an everyday product in a very similar format.¹⁸ Some inventors, however, are looking further afield, leading to the creation of alternative water vessels, such as the edible water bubble, also made from algae, created by Skipping Rocks Lab, who have made the recipe readily available for public use.¹⁹

Committing to the use of recycled content in all packaging can help drive the circular economy, reducing ocean plastic by ensuring an efficient route for packaging from the consumer back to the producer. Collecting plastic waste from the sea to recycle into new packaging can raise consumer awareness, but won't ultimately solve the problem. Often, polymers have degraded in the marine environment and are not then suitable for recycling into other products.

Often, polymers from ocean plastic have degraded in the marine environment, and are not suitable for recycling into other products.



RETAILERS

Retailers are queuing up to release news of their latest green pledges, but only time will tell whether these initiatives are translated into results. Plastic as a preferred packaging has some strong rationale, and alternative materials will inevitably come with both pros and cons of their own.

The push for less packaging has operational implications which will be difficult to overcome. Customers frequently use branding and packaging to shortcut purchase decisions.

Many retailers are pledging to go plastic free or use only recyclable, reusable or compostable packaging for all their own brand products. New measures such as selling loose fruit and vegetables and paper rather than plastic straws, or allowing consumers to bring their own containers to the meat counter, may sound like small steps. But they have the potential to add up to big changes for the plastic industry.

The figure below shows just a handful of the other promises across the largest grocery retailers in the UK, which

illustrates the extent of the change in behaviours these companies are prepared to make.

Morrisons no longer buys plastic straws and plastic cotton buds, and do not sell 5p single-use carrier bags²⁰

Waitrose stopped selling products containing micro beads in September 2016. They were the first supermarket to do this. At the same time, they switched their plastics stem cotton buds to paper.²¹

Lidl has set a realistic target of ensuring that packaging that is not reusable or refillable is 'widely recyclable', which it defines as processed by three quarters of the councils though kerbside collections.²² **Marks and Spencer** are committed to reducing all of its plastic packaging type to one single polymer, which will help consumers recycle the material without any confusion.²³

We know that small actions can make the biggest difference. In 2015, the 5p plastic bag levy came into force for shops in the UK with 250 or more full time employers. Since then, 6 billion fewer plastic bags have been taken home by shoppers, the equivalent weight of 300,000 sea turtles. Over £29 million has also been donated to good causes as a consequence.²⁴





5p plastic bag charge comes into force for shops with 250 or more full time employers introduced in the UK.



January 2018 •

Government outline in their 25 year environmental plan that the 5p plastic bag levy will be extended to all shops in the UK.

Asda, Morrisons, Aldi and Lidl commit to removing single use carrier bags from their shops by the end of 2018.





Tesco ends sales of 5p plastic bags. 10p bags are still available for purchase.



Impact Today

Since the scheme was introduced, the number of bags used has gone down by more than 80% in England. The UK government estimates that over the next 10 years, the benefits of the scheme will include:

- An expected overall benefit of over £780
 million to the UK economy
- Up to £730 million raised for good causes
- £60 million savings in litter clean up ccosts
- Carbon savings of £13 million



COUNCILS

The waste collection system in the UK is relatively sophisticated, but it remains a significant reason why managing waste is difficult for consumers – with 300 different municipal contracts in place across the country there is much opportunity for confusion.²⁵ There are varied sizes and colours of bins, different types of trucks and inconsistent requirements which means materials that are collected in one part of the country may not be in another. This patchwork approach creates confusion, and ultimately results in the consumers becoming less likely to manage their waste correctly.

The UK is a complex geography, and thus, government will need to look beyond observing what more successful countries are doing (although this is still useful). A 'one size fits all' approach simply doesn't work. In urban areas, trucks are sometimes unable to drive down the streets which limits pavement sorting time and the amount of rubbish that can be collected. In high rise apartments, an additional bin is an extra trip down the many flights of stairs, which puts consumers off managing their waste correctly. In extremely remote locations, trucks may not be able to reach households, and consumers have to take their waste to a central location should they wish to recycle it. And, in areas with high populations of non-English speaking consumers, a seemingly incomprehensible system for those who do speak English is a significant barrier to action.

A more consistent national recycling system (which accounts for the considerations outlined above) will begin to address the issues of confusion over recycling, growing contamination and stagnating recycling rates. This may mean that some councils with more advanced recycling schemes will need to take a step backwards in order to align with less sophisticated areas . However, building consistency will ultimately enable clear and simple communications nationwide to drive up recycling rates. A uniform strategy which limits likelihood of contamination will maximise the value of materials and improve the quality of the recycling material in the medium and long term future.



The waste collection system in the UK is complicated There are 300 different municipal contracts in place which creates confusion

PERILS OF PERCEPTION

An Ipsos MORI survey asked consumers to estimate the percentage of household waste that is recycled in the UK. The map shows the estimate and actual percentages in each area of the UK. Whilst the mean estimate is 37%, the actual figure is 45.2% which means we underestimate the percentage quite significantly. The Welsh population guessed correctly, illustrating how the targets, funding, and commitment from their government and the public has created heightened awareness and a good understanding around waste and recycling. The media attention on the need to improve our waste and recycling systems may have caused this underestimation of recycling rates, and can be interpreted positively, in that the population know there is a need for change.

Figure 9 displays some of the symbols currently being used on packaging in the UK.²⁶ Not only are they almost identical to each other, the sheer amount leads to confusion and consumers not being able to recycle their waste properly. Local authorities in the UK do not all collect the same materials, so are often based on what the majority do or do not collect. This increases the likelihood of contamination.

FOOD WASTE

A recent report by WRAP revealed that the average UK household wasted £700 of food per year, generating 19 million tons of greenhouse gasses, the equivalent to a quarter of cars on British roads.²⁷ Sixty percent of this food waste could have been avoided. By weight, household food waste makes up 70% of the UK post-farmgate total, manufacturing 17%, hospitality and food service 9% and retail 2%.¹⁶

The blame for food waste is often attributed to retailers. This seems unfair given the small percentage of food waste they create when compared to other industries. Indeed, it is difficult to directly attribute the blame of food waste to different industries. Instead, the whole supply chain should be involved in the reduction of food waste, from post-harvest and processing methods, to more effective packaging and storage solutions.

Figure 8 — Recycling rates - guess vs actual





Figure 9 – Some of the recycling symbols currently being used on packaging in the UK²⁶





Importantly, large retailers have direct links with farmers, processors and consumers, and therefore have the most power to influence the entire supply chain.

Ten percent of mature strawberry crops were wasted during 2015.²⁸ The main cause was linked to the strawberries not meeting quality requirements, primarily as a result of fruit being misshapen or bruised, and therefore not meeting retailer specifications. Although important to maintain produce quality, specifications can cause excessive food waste, especially when they are not responsive to seasonal challenges.

Positively, we have started to see some change in retailer strategy. In 2017 Asda included Class 1 and 2 type fruit in packets of strawberries and customers didn't notice (Class 2 items are usually found in 'basics' or 'wonky' ranges). Tesco have also started selling green oranges, which previously would have been rejected. Despite the colour, they are perfectly ripe and taste the same.

Given the perishable nature of fresh food, stores are regularly ending up with surplus produce – it is unavoidable. Instead of throwing away food that can't be sold but is still edible, supermarkets are beginning to build nationwide systems to distribute surplus edible foods to charities and supermarket employees. Technological developments in packaging are also important in the fight against food waste. Perforating the lidding film on a punnet of strawberries to match the moisture content of the fruit, vacuum packing cuts of meat, and using a laser to cut microscopic holes in croissant packaging has added additional days of shelf life to products.²⁹ Packaging designed to be closed multiple times, such as salad bags, keeps products fresher for longer even after they are opened.

With the shift towards convenience led grocery shopping, stores are being forced to adapt. They cannot be blueprinted, and must be dynamic. This means carefully curated ranges in different locations, offering multiple size packs to fit the needs of shoppers in that area, and accounting for individuals for whom it isn't appropriate to shop in bulk.

According to the Waitrose Food report, 71% feel guilty about waste, and many would like more advice on how to do better. Additionally, just 3% of people attach a social stigma to throwing away food.³⁰ Innovative packaging provides an opportunity to give tips on how to use up left overs, and how to reuse packaging. WRAP estimates that changes to labelling could save UK homes £1bn annually.³¹

Collaboration with farmers, tech companies, packaging firms, logistic corporations and consumers will help food retailers achieve their food waste goals. Mimica is a label which used gelatine to model the decay process of food. The gelatine copies what the food in the package is doing, so it is more accurate than a printed date. If the label is smooth, the food is still in date. However, if the gelatine becomes bumpy, this indicates that the food is starting to go off. 'Use by', 'Best before' and 'Display by' labels can all be quite confusing for the consumer. This scientific method is more accurate, and avoids throwing out food that may still be edible.³²



Olio is a food sharing app, connecting consumers and businesses together, so surplus food items can be shared rather than thrown away. Unwanted food is photographed and uploaded with collection details, and any other Olio member is then offered the chance to pick the food up.³³

Is plastic really that bad?

and needs to be removed.

need some form of packaging to allow

anas tar

So much media attention has been given to Packaging has a role in the presentation plastics and the rhetoric is that plastic is bad and protection (physically and hygienically) of the product, and is used to convey important information (be that use before However, is there a risk that we are looking dates, allergens, instructions for use or to get rid of a packaging solution which has toxic warnings on household products]. strong and unique benefits? We will always Packaging also extends the shelf life of products, assists in storage and dispense/ manufacture, distribution, handling in store serving in home, and prevents crossand transportation by consumers at scale. contamination with other products.

The carbon impact of using plastic to cover the cucumbers is lower than the impact of the spoilage that would be created if the plastic film was not used

Additionally, the use of plastics isretuinintrinsically linked to the challenge of foodbecomewaste. It has a distinct role in extendingThethe shelf life of many perishable goods. Ifto retuinwe take the example of cucumbers, the204carbon impact of using plastic to cover thehaveunnecessary packaging) is far lower thanthethe impact of the spoilage that would beMucreated between production and deliveryassto the consumer if the plastic film wasqui

We must remember that a sophisticated system has already been created in waste management to collect, sort and recycle many different plastics. There needs to be a clearer discrimination between plastics that can efficiently and effectively be recycled versus those plastics in the retail chain which need to be eliminated because they cannot be easily recycled. The UK government has made a pledge to eliminate all avoidable plastic waste by 2042,³⁴ although many lobbying groups have laid criticism that this timeframe is not urgent enough.

Much plastic in the grocery chain is associated with drinks bottles and the question has been asked why we don't move back to glass rather than plastics for our drinks. In many respects, glass is the perfect material as it can be easily cleaned/ sterilised, eliminates cross-contamination of flavours, can be fully recycled and for aesthetic purposes can be coloured and shaped to create a unique brand experience. However, it is a fragile material, expensive to transport (both in distribution of the product and in collection for recycling) and energy intensive to produce.

Advances in technology have led to suggestions for a move towards biodegradable polymers, which could significantly help to improve recycling rates. However, the waste and recycling system is not yet designed or ready to deal with these materials and they are potentially creating more problems than they are solving at this point in time. This is because they need fully specialist systems to be broken down, which are not yet available at scale. If these biodegradable polymers get mixed in with regular recyclable plastics they act as a contaminant which can ultimately mean that regular recyclable plastics become unrecyclable.

One of the biggest challenges for recycling is the use of mixed polymer packaging (for example a pot with a film lid and a plastic safety seal). The packaging creates barriers for both consumers, in correctly sorting for recycling, and for local authorities, in terms of effectively sorting the materials. A potential, albeit intermediate measure for manufacturers and retailers is to simplify the use of materials, and move towards using a single polymer system for all their packaging, an initiative central to Marks & Spencer's 'Plan A'.³⁵ This not only makes it easy for the consumer to know that all packaging from a specific brand/retailer can go in their recycling bin, but simplifies the whole waste chain.

The pros and cons of different packaging materials need to be considered, alongside

the ability to create efficient systems for managing the materials, and the overall carbon footprint created. Layered on top of this is a need to future proof the success of recycling to ensure that the onus on the consumer is low, requiring minimal education and effort. So, the challenge is a highly complex one and not just a case of removing all plastics per se.

Indeed, perhaps we have already solved a sizeable part of the plastics problem, with recent news that scientists have accidentally created an enzyme, nicknamed PTAase, that is able to break down the plastics used in drinks bottles?

not used.



What is clear is that the solution to reduce waste and increase recycling will need to be multi-faceted. However, it is likely that the answers will ultimately be driven by manufacturers, retailers and the government, as consumers see little their apparent shock at the amount of packaging we create as a society.

seen when we draw a parallel to another global societal crisis, that of obesity. An

The way forward

issue which also has global relevance, is visually apparent and has significant economic implications.

When we look at the obesity crisis and who is responsible for addressing it, we see responsibility being in their hands, despite that consumers are willing to put up their hands and acknowledge that they have a significant role to do more themselves. Indeed, 81% strongly agree that they are The lack of obligation by consumers can be not doing enough themselves to eat more healthily (see Figure 11). This is likely because it impacts them directly.

Figure 11 – Healthy eating – whose responsibility?

Consumers think it starts at home, but that industry should do more

Individuals and families are not doing enough themselves to eat more healthily.



Source: Ipsos MORI Base: 1,004 GB adults 18-65, March/April 2016

However, when we look at the amount of packaging being used, we see that only three percent of consumer believe that they have a primary role in finding ways to reduce the amount of packaging in products. Our research also shows that consumers place responsibility on manufactures (27%) and retailers (13%) to find ways to reduce the amount of unnecessary packaging. However, consumers are not passive bystanders. Their underlying wants, needs and behaviours influence and drive decisions by manufacturers to continue with practices which are often sub-optimal or

not conducive to recycling. These needs and wants can be ergonomically driven (easy to open, close, hold, store etc) but are primarily aesthetic.

Food and drink

doing enough to

eat more healthily

manufacturers are not

encourage people to

An example of this is black plastic packaging, which is used by most major retailers in their 'premium' own-label ranges. The colour black has become synonymous with 'premium' for many food and drink categories, and so has a strong aesthetic appeal. Even though black plastic is recyclable (with the exception of plastic which contains 'carbon black'], the infrared systems used in major waste and recycling

plants are not able to identify black plastic as recyclable and therefore much of it ends up in land fill.

65%

Strongly tend

to agree

There are other consumer needs, such as products created for ultra-convenience and on-the-go consumption which creates a greater demand for certain packaging formats and styles. Consumers do have some ownership in reducing packaging waste and improve recycling, but it is going to require them to embrace potentially less appealing formats and visual styles.

Figure 12 – Whose problem is it?

Who if anybody do you believe should take most responsibility for finding a way to reduce the amount of unnecessary packaging which is sold?



EXAMPLES OF 'UBER CONVENIENCE' GONE TOO FAR

The cauliflower steak was originally launched as part of the new Marks and Spencer vegetarian range. The sliced cauliflower, which came in plastic packaging with a separate sachet of lemon and herb drizzle, was being sold for twice the price of a whole, single cauliflower at the supermarket. It was removed from the shelves after public outcry.



a local veg shop.

Marks and Spencer stores are selling sliced cauliflower as 'Cauliflower Steak' with lots of lovely plastic and charging £2 (normally £2.50). A cauliflower costs about 69p from Supermarket Wholefoods in the US came under fire for selling ready peeled oranges packaged in plastic containers. The product was being sold for \$5.99 per pound, before also being removed from sale after a social media backlash.

If only nature would find a way to cover these oranges so didn't have to waste so much plastic on them.

Sweden, Denmark and Norway are achieving recycling rates of close to 90% for plastic bottles.³⁶ Notably, all three countries have a form of incentivisation scheme for returning bottles. This comparison will have been a key driver behind proposals for a Deposit Return Scheme (DRS) announced by the UK Government in March this year.³⁷

DRS is one of many measures being considered to improve recycling rates in the UK, but there are complications with the scheme and opinion has been divided about the merits of such a system. Criticism has focused on the fact that DRS is not aligned or in consideration of well defined practices such as kerbside recycling. It could therefore negatively impact the financial efficiency and hence disrupt an established waste ecosystem.

Serious thought needs to be given to the cost associated with putting in place an infrastructure and fit-for-purpose system. If consumers are going to engage with this scheme, it must be a frictionless experience for them, which means having plentiful deposit return points.

There is also the question of the level of incentivisation required to trigger effective return of bottles. In other countries, this ranges from 6p in Australia to 8p in Sweden, right the way up to 22p in Germany.³⁸ There may be accidental negative behavioural consequences of the scheme, where consumers become less concerned with recycling other materials where there is no incentivisation.

There would possibly be stronger support for DRS if there was evidence of littering in the UK, however, plastic bottles are not considered to be a significant littering issue. Potentially, other behavioural nudges need to be explored to ensure more plastic makes its way into the recycling system.

Generally, consumers will do the right thing, but only if the mechanisms for recycling are intuitive, free of pain points and do not require conscious mental effort. In the consumers' defence, there is much confusion around what can and cannot be recycled, and what different labels and instructions mean, particularly



Sweden, Denmark and Norway are achieving recycling rates of close to 90% for plastic bottles

on multi-material pack formats. There is also confusion about the ability to recycle packaging from personal and household care products. This is complicated by processes in the home, which are not conducive to these packs making their way into the recycling bin. A frictionless and instinctive system will be required to drive behaviour change by the consumer.

Technology may ultimately provide part of the solution to facilitate packaging recycling in the home but also to reduce food waste with the evolution in smart fridges, intelligent labelling, and food sharing apps.

Manufactures and retailers are making strides towards reducing packaging waste and delivering packaging which is fully recyclable. A co-ordinated and concerted effort across manufactures and retailers, like that announced recently with the Plastic Pact, will be required to turn the tide of plastic waste and drive more holistic and environmentally friendly recycling practices. In April 2018, UK supermarkets and food companies launched a new voluntary pledge called the UK Plastics Pact,³⁹ which aims to transform packaging and reduce avoidable plastic waste. The signatories (who are responsible for 80% of plastic packaging on products sold in the UK), have agreed on several targets, including removing unnecessary packaging and changing the designs of their products so that all packaging can be recycled, composted or reused. The thought is that by working together, the changes may not be as expensive than if companies decided to go alone. It is the first initiative of its kind in the world, and is hoped the pact will serve as a template for other countries and spark " a global movement for change".



Summary

There is the opportunity to take real ownership in offering great products whilst still protecting the planet for future generations. The following provides some potential routes forward to avoid a wasted opportunity.



Designing new product packaging with shelf life and recycling being front and centre of the design process from the outset, to ensure that all elements can be fully and easily recycled across the whole supply chain. Proactively building this into new product innovation will help future proof companies against potential environmental taxes and new regulation.

In an adjacent example, the creation of The Portman Group meant that organised and co-ordinated self-regulation with strict guidelines to adhere to, ultimately protected alcohol companies from the government imposing stricter regulations or banning alcohol advertising. Taking direct ownership and proactively searching out ethical and responsible solutions will also potentially allay the need for government to further intervene in packaging.



2.

Using behavioural science to better understand consumer behaviour and decision-making will help manufacturers and retailers find the optimal balance of adopting sustainable business practices whilst still meeting the needs of the consumer. Below are three behavioural nudges which have demonstrated the powerful effects that small changes can have on consumer behaviour.

Being watched by a pair of eyes at a bus stop impacted commuters to be more diligent in correctly sorting rubbish. Simple cues and nudges such as this could be implemented to drive behaviour change.40

Herd like behaviours – doing as others do (descriptive norm) in combination with the use of approval/disapproval (injunctive norm) are powerful factors in driving behaviour change for recycling - and can be activated in signage and other communication.41

Design has the power to emotionally incentivise, influence and nudge consumers towards different and better behaviours. Designing through the consumers eyes has the power to positively impact the desire to recycle with minimal investment required.⁴²



3.

Having a compelling sustainability message will help to drive brand growth, creating affinity to establish more emotional connections with the consumer. Brands will need to tell compelling stories (e.g. Fairy 'Ocean', aimed to drive awareness of the issue of ocean plastic, the Fairy Ocean bottles are made from 10% ocean plastic collected from the ocean and beaches around the world, and 90% post consumer plastic)⁴³ and truly demonstrate useful solutions in the fight against food waste and recycling packaging.

There is overwhelming consensus that more should be done to increase recycling rates and reduce food waste globally. How we achieve this is a complex matter, and a 'one size fits all approach' even within countries simply won't work. Addressing the issue successfully will involve commitment, cooperation and financial investment from governments, manufacturers, retailers and consumers who must work together.

Our report outlines how sociodemographic frictionless for the consumer, and where shifts and changing consumer demands have presented new challenges for food waste and recycling in the UK in recent

years. Trends continue to evolve and any attempt at solving the waste issue will have to be adaptable to such change.

Consumers place responsibility on manufacturers and retailers to find ways to reduce the unnecessary packaging, despite their underlying needs being a reason why manufacturers and retailers are involved in some unsustainable practices. Retailers and manufacturers must therefore develop a sustainable model which is the environmental benefits are clear and easy to see.

We know that currently, removing plastic from our shelves altogether is completely unrealistic, and will only create additional problems to solve. However, considering the whole supply chain in the product design process, and creating a compelling sustainability message for the consumer will go some way to help alleviate the environmental problem we are currently faced with.



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What the rest of the world thinks

WHAT ARE THE MOST IMPORTANT

ENVIRONMENTAL ISSUES?

In your view, what are the three most important environmental issues facing... today? That is, the top environmental issues you feel should receive the greatest attention from your local leaders?





30% of the global population believe that the most important environmental issue facing us today is the amount of waste we generate. In Great Britain, this figure is 46%, higher than every other country except Serbia (49%).

There is a serious problem in Serbia, where masses of poorly secured industrial waste is dumped or hidden, which has the potential to create long term problems. This could be a barrier to joining the EU if they fail to meet the standards required.

28 countries, online. April 2018. GB: n=1000



North America is significantly more likely to be concerned about global warming/ climate change (38%) and wildlife conservation (20%).

Latin America significantly more likely to be concerned about water pollution [38%] and deforestation [38%].



Middle East Africa is significantly more likely to be concerned about overpopulation (26%), poor quality drinking water (24%) and future energy sources and suppliers (30%).



LEVEL OF CONCERN AROUND PLASTIC

PACKAGING AND PLASTIC BAGS

80% of the global population are very concerned or fairly concerned about the effects of the environment of plastic packaging, plastic bags and other disposable objects which can't be recycled. In the UK, 84% of the population are concerned or fairly concerned.

Overall, levels of concern among the majority of countries we surveyed are high.

Latin America is significantly more concerned about plastic packaging and plastic bags compared to any other region.

Global % of concern levels around plastic packaging and bags



12% Not very

Country differences in level of concern around unrecycled plastic

Some people have recently been discussing the effects on the environment of plastic packaging, plastic bags, and other disposable objects which cannot be recycled. How concerned, if at all, would you say you are about this issue?

Top 5 countrie	es	Bottom 5 cou
% very conce	rned	% very conce
India	57%	Italy
Brazil	54%	Saudi Arabia
South Africa	50%	Poland
Mexico	47%	Hungary
Chile	46%	Japan

Ipsos MORI Global @dvisor. 20,794 respondents across 28 countries, online, April 2018





2% Not at all concerned



untries erned 26% 20%

20% 18% 10%



STRATEGIES TO REDUCE UNRECYCLABLE

PLASTIC AND PACKAGING

45% of the global population believe forcing local government to spend more time on recycling so that a wider range of items can be recycled would be the most effective route forward.

In the UK, having higher taxes on supermarkets and shops which use a lot of packaging that cannot be recycled is believed to be the most effective strategy. (44%)

Different regions have different views on which strategies would be effective at reducing unrecyclable plastic and packaging. The following are significantly more likely to be suggested as effective at reducing the problem vs. other regions.

LATAM: Forcing local governments to spend more on recycling so that a wider number of items can be recycled (56%) The government "naming and shaming" supermarkets and shops which use a lot of packaging that cannot be recycled [32%]

APAC: A tax on containers such as plastic drinks bottles and disposable coffee cups that cannot be recycled, to increase their price [32%]

LATAM and Middle East/Africa: A public information campaign funded by taxpayers' money to tell people about the issue [31%]

....

П

Which if any of the following do you think would be effective at reducing the problems caused by unnecessary use of plastic and packaging that cannot be recycled?

Global % 📕 GB %



PERSONAL WAYS TO REDUCE

UNNECESSARY PLASTIC AND PACKAGING

The global population (53%) are most likely to re-use disposable items such as plastic bags and plastic bottles to help reduce plastic consumption. Ways to reduce plastic consumption in the UK mirrors the global population.

LATAM are significantly more likely to re-use disposable items such as plastic bags and bottles (66%), buy more products made from recycled materials (57%) and stop buying products that cannot be recycled (43%).

Middle East/Africa are significantly more likely to suggest stop going to supermarkets which use a lot of packaging that cannot be recycled [22%] and pay more tax so recycling facilities can be improved, allowing a wider range of items to be recycled (17%).

Less developed regions are more likely to do things to personally reduce unnecessary plastic and packaging

People are the least willing to make financial sacrifices in order to address the challenge of reducing unnecessary plastic and packaging.

WHO IS RESPONSIBLE FOR FINDING WAYS TO REDUCE PACKAGING

20% of the global population believe that companies who produce packaged goods should take most responsibility for finding ways to reduce packaging. Only 8% believe consumers should take responsibility. The same story is seen in the UK.

Who if anybody do you believe should take most responsibility for reduce the amount of unnecessary packaging which is sold? [Globa

37% All of the above equally

10% Companies that sell packaged goods

Ipsos MORI Global @dvisor. 20,794 respondents across 28 countries, online. April 2018

Which if any of the following do you think would be effective at reducing the problems caused by unnecessary use of plastic and packaging that cannot be recycled?

Re-use disposable items such as plastic bags a	and plastic bottles 53%
Buy more products made from recycled mate	arials 47%
Stop buying goods that have packaging that o	cannot be recycled 36%
Stop going to supermarkets and shops which lot of packaging that cannot be recycled 18%	use a
Pay more tax so recycling facilities can be imp allowing a wider range of items to be recycle 12%	proved, d
Pay extra for goods that have no packaging that cannot be recycled 12%	
None of these 5%	
across 28 countries, online. April 2018	
France are most likely to attribute responsibility for reducing packaging to companies that sell packaged goods. French operate a cost covering system whereby the company placing packaging on the market pays for the full recycling,	treatment and recovery cost of waste packaging. Middle East/Africa are more likely to believe the government is responsible [23%] vs all other regions
e most responsibility for finding a way to ing which is sold? (Global %)	
20% Companies that produce packaged goods	16% Government
Consumers countries, online. April 2018	1% Nobody has responsib to do this

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