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David Attenborough's Blue Planet II has highlighted the detrimental environmental impact of the vast quantity of plastic waste in our oceans to millions of viewers. The ever-growing challenge of packaging and plastics waste has drawn intense media coverage, public attention and NGO scrutiny. Furthermore, Theresa May's [announcement](#) on 11 January 2018 has set the tone for the UK Government's agenda on how to tackle this issue. The increasing awareness around this topic has also begun to influence consumer behaviour, with many [reported](#) by Veolia to be willing to pay more for recyclable or alternative packaging. This represents a need for greater innovation, and an emerging business and investment opportunity.

In two recent Environmental Audit Committee (EAC) reports, several potential solutions have been recommended to help address the problems around the disposal of packaging and plastics.

The focus in [the first report is on plastic bottles](#), framed around ocean plastics more broadly. In its conclusion, there are three key recommendations: encouraging packaging design innovation through a reformulation of producer responsibility; building in stronger governmental targets on the use of recycled materials; and introducing a Deposit Return Scheme (DRS) on plastic bottles.

The second report, [focused on coffee cup disposal](#), calls for clearer consumer messaging about what is recyclable, increased producer responsibility to raise a fund to improve 'binfrastructure', more robust government recycling targets, and crucially, a 25p levy on disposable coffee cups.

This issue is, and will remain, high on the government's agenda in the face of growing public demand for action. It is therefore undoubtedly an opportune time for **private equity firms**, and other growth investors, to consider how the changing narrative on packaging, plastics, and the environment more broadly, will shape innovation in the area and create a thriving climate for disruptive business models, new technologies and product offerings.

The following three areas, build on the recommendations in the EAC reports, and are likely to attract further investor interest.

### 1. Packaging of the future

#### **The coffee cup**

An increasing number of retailers are offering discounts to customers using reusable cups. The tacit acceptance that disposable coffee cups, at present, are an easy target for public and legislative outrage has seen one retailer report a 537% increase in the sale of reusable portable coffee cups. The proposed '[latte levy](#)', a 25p charge on single-use cups, is an attempt

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Three areas of innovation likely to see growth

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to dissuade consumers from using a conventional, often plastic lined, cup that is currently difficult to recycle.

Business is readily considering alternatives. Compostable cups, for example, have received widespread attention, and more companies have started manufacturing and supplying this kind of container. Closed loop recycling options are becoming more common, with some companies treating the recycling of cups as a significant service in its own right. Integrating coffee cups better into conventional waste paper streams is dependent on several factors from installing local infrastructure, through developing innovative materials, to finding ways around the wax used in the internal plastic lining that can be difficult to separate at the point of recycling.

Whether focusing on reusable or compostable cups, or improving recyclability of the paper cups, solving this complex challenge will require system thinking and behavioural change – two important catalysts of new business opportunities.

### **On-the-go packaging**

The pace of modern life has led to increased demand for eating on-the-go. However, insufficient infrastructure to recycle and dispose of packaging has put the onus on business to find new solutions to reduce packaging waste. With greater emphasis on circular economy principles, product designers are having to balance convenience with sustainability. This has seen investment in research and development begin to optimise packaging weight, minimise composite materials, focus on using renewable materials, and look into integrating compostability where appropriate. On-the-go consumption is a lasting trend, and businesses are beginning to integrate end-of-life usage into their packaging blueprint.

### **Smarter packaging**

Packaging has always played a key role in extending the shelf-life of food and reducing food waste. This role is evolving with technological advancements in the food packaging industry. Improved labelling with the integration of smart tags, such as QR codes, and printed electronics is linked to sophisticated sensors and data-enabled technologies, to help better monitor freshness, quality and safety and improve convenience. These smart enhancements also enable the storage and exchange of large amounts of data throughout the various parts of the value chain, and greater transparency overall.

Additionally, one should not underestimate the benefits that the use of blockchain technology could have in managing the flow of information from smarter packaging. Among other potential benefits such as reducing food waste, it could help improve real-time traceability and flag critical risks such as contamination in a timely fashion.

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## **2. Collection, reuse and recycling**

### **Deposit return schemes**

A key development in the current debate on plastics, in particular of plastic bottles, is the growing support for Deposit Return Schemes (DRS). This sort of scheme requires high investment in infrastructure and new technologies. There are clear opportunities for business as the concept once again gains popularity in the UK. The technology would have to fit seamlessly into the traditional shop, and importantly be easy for customers to use. Momentum around this idea is building, with Scotland being the first country in the UK to announce a pilot DRS scheme. England and Wales could be set to follow suit. On the business side, Tesco has recently joined Coca-Cola and others in supporting a British DRS, and it's clear that better infrastructure is both required and being actively considered.

The 'reverse vending' technology that supermarkets, small convenience stores, and other chains are likely to have to invest in potentially has significant upfront capital expense. It is worth noting that most PET bottles and HDPE milk and juice containers are indeed completely recyclable. As such, the need is less about the reformulation of plastic bottles themselves, and more about their disposal and shifting consumer behaviour, especially when individuals are on-the-go. Companies providing efficient and intuitive infrastructure that could work within a DRS would be in a strong position.

### **'Bininfrastructure'**

In the summer of 2017, the Department for Environment, Food & Rural Affairs (DEFRA) announced a fund to invest in community projects aimed at tackling litter in new and more innovative ways. Better public recycling infrastructure is long overdue, and local authorities have recently benefitted from new technology in this area. Smart bins that can identify different and complex materials have been trialled, and provide a glimpse into the possible future of local recycling infrastructure – namely one that takes away some of the decision-making process.

### **Implementation**

One of the key aspects in the successful implementation of DRS or 'bininfrastructure' is rewarding consumers for good behaviour. 'Nudges' (a form of positive reinforcement) are well known for their impact on influencing disposal behaviour, but more compelling means of gratification are proving popular. App-based platforms that encourage or discourage certain actions, as trialled in Hackney in London, for example, provide consumers with a clear financial incentive to recycle. Integrating such apps with on-the-go infrastructure and GPS technologies could be one opportunity to bring consumer intention closer to the desired recycling outcome. Studies show that consumers do indeed want to do the right thing in terms of recycling, and any innovation that enables them to fulfil that desire will be rewarded.

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Where rewards don't work, there will be a need for steeper fines for littering in public areas. That will require a more efficient system of enforcement in many regards similar to security services in car parks or large shopping malls. Businesses that can provide skilled resources are well positioned to benefit from this societal need.

### **3. By-products**

As more packaging materials become readily recyclable, and collecting and sorting infrastructure becomes 'smarter', there will be greater volumes of materials to be recycled and reintroduced in the economy. However, there will be plastics, and packaging more broadly, which will continue to be difficult to recycle. For a niche of non-recyclable plastics that are characterised by possessing high calorific value, investors may consider advancing technologies for alternative value-add uses such as incineration with energy recovery and refuse-derived fuels which will help prevent sending more plastics into our oceans.

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