Sustainability in the consumer packaged goods industry

In June 2019, 18 senior privacy, security and data professionals met at the Langham Hotel in central London to discuss the crucial issue of sustainability in the packaged goods industry. At the meeting, sponsored by Siemens, a leading company in digital automation, major companies from across the packaged goods industry were represented, including fashion, food, jewellery and pharmaceuticals, ensuring a wide-ranging and pragmatic discussion.

What is sustainability?

Sustainability means different things to different people. To many it is about energy-saving during the manufacturing process or when transporting and storing raw materials and goods. To others it is about avoiding single-use plastics or polluting chemicals, such as lead in glass or dioxane in soaps and shampoos.

For some it is about not buying things unnecessarily, especially when they won't be used for long – cheap clothing that goes to landfill after a few outings or food that is wasted. And it can be about ethical trading practices, treating employees and suppliers fairly.

Whatever the focus, many European countries, including the UK, take these issues seriously; and increasingly so does Asia. Perhaps it is in the USA where the problem of indifference to sustainability lies: some delegates pointed out that EMEA-based initiatives rarely get the correct attention from their US head offices.

A major misconception

Is plastic the enemy? You might think so. But as several delegates pointed out, one long-life coffee cup, water bottle or shopping bag needs dozens or even hundreds of uses before it is more sustainable than single-use plastic version. And in a "throw away" culture many long-life items get thrown away after only a few uses.

There are worse things than plastic, so long as plastic is recycled. Sustainability doesn't mean getting rid of plastic. It means using plastic in a circular economy.

Is it the fault of the consumer?

The UK's consumer packaged goods industry is making huge efforts to address sustainability. But creating recyclable packaging is itself a waste if the consumer won't or can't recycle. And that happens all too often. Sometimes it's because people are too busy – do you always have time to wash those plastic containers? – sometimes it is because recycling is difficult , but often it is caused by a lack of knowledge.

There is still a need to educate the consumer, not just about what and how to recycle but also about changing their behaviour so that there is less to recycle. Unfortunately, social media constantly encourages unnecessary consumption: clothing that is only used a handful of times or a desire for the latest model of a mobile phone, even if the one we currently own meets all our needs.

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People are growing up in an environment that is plentiful. The middle-class is growing and people are wealthier. So there is a temptation to have what you want, when you want it.

But, it was agreed there is also much to be done to help consumers to play their part. Most people are very much in favour of sustainability. Given the chance they will at least recycle packaging. However, they may not go the extra mile when local government or manufacturers present obstacles.

When it is not clear what can be recycled or when packaging has to be separated into recyclable and non-recyclable parts, recycling rates inevitably fall. And when consumers are punished for using the wrong recycling bin by over-zealous local authorities, perhaps it is unsurprising that they hide recyclable items in general waste that goes to landfill.

But the problem is wider than consumer behaviour. Packaging and design also play a part. Food gets discarded because of the way it is packaged – a large quantity of biscuits will go stale quickly if they are packaged as one unit. White and brown goods seem to have obsolescence built-in: it can be cheaper to replace a whole fridge than send an engineer out to replace a small part. Business has an important part to play in allowing the consumer to act sustainably.

Benefits of sustainability

And there are benefits to business from promoting sustainability. Increasingly renewable energy generated at a factory, through wind or solar for instance, is cheaper than energy from the grid. And there are obvious cost benefits from cutting down on waste.

However, the benefits from sustainability are not always immediate. Investments may be required and companies need to look to the medium-term to see savings. Significantly, when delegates were asked whether sustainable manufacturing could lead to more profits in the short-term, no one raised their hand. For the medium-term around half did. But when asked about the long-term, almost everyone raised their hand. [1]

Getting sustainability right

Thinking differently

So, the packaged goods industry accepts that sustainability is both important globally and a long-term opportunity to increase profits. But it is clear that there is a need for a shift in the way organisations think about sustainability.

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For example, getting rid of plastic is not easy. Alternatives to plastic are expensive, and may not be as effective at protecting items such as food, clothing or delicate goods.

One delegate's example cited drinking straws. Straws made paper cost four times as much as the plastic version, so the financial argument for moving to paper is difficult – until you make using straws more difficult.

So, their company simply moved drinking straws from in front of the counter to behind it, where they could be handed out by employees. The number of straws used reduced massively, offsetting (and more) the increased cost of using paper instead of plastic.

There is a need to think differently to address sustainability issues.

Moving to a more sustainable product may not increase sustainability. One delegate described how their company experimented with despatching products in a starch-based wrapper rather than plastic.

Unfortunately, under certain circumstances, some of the goods were affected by the wrapper. This resulted in more returns – more wasted raw materials, more wasted energy. The answer wasn't a sustainable form of packaging but using less plastic in the packaging.

The answer is rarely simple. Wrapping a cucumber in plastic might seem wasteful and a way of increasing pollution in the ocean. But a wrapped cucumber won't emit ethylene that could cause nearby avocados to rot. And a wrapped cucumber is much less likely to be thrown away and left to rot, as it will last more than three times longer as one that is unwrapped. So we need to work out which is worse: the plastic (bad for the ocean) or the methane from rotting food (bad for global warming)? Sometimes the wrong decision will merely create a different kind of pollution.

Thinking holistically

As well as rethinking processes, there is a need to think holistically across the whole value chain.

What is the effect of a sustainability decision on weight and energy requirements for logistics? Or on return rates caused by damaged goods? What is the overall carbon impact?

And what about waste that is 'managed' by sending it to another country? If it simply gets added to landfill, that's not sustainable. One delegate pointed out that unless you know what actually happens to your waste when third parties handle it, you might simply be dumping the problem on someone else and doing more harm than good.

Digital technology and sustainability

Digital technology has a part to play in sustainable business. And many organisations are starting to experiment with this. Examples offered by delegates included:

- The use of virtual design and 3D modelling, which enables an organisation to bring a design to life through software without the need for wasteful physical prototypes
- The use of software to model packaging in different forms to see how it will stand up to different circumstances, such as heat and humidity or vibration on bumpy roads
- The use of "digital twins" when designing production lines so that different situations, such as increases and decreases in orders, can be tested; this can be combined with virtual commissioning where digital production lines are tested for faults so that these can be eliminated before physical production lines are activated
- The use of digital technology to enable product and order customisation so that customers can be more flexible about their orders. This leads to higher satisfaction, less waste and fewer returns. This type of technology is especially important in the automotive industry but it also has considerable use elsewhere, such as in fashion where customised garments can be created and shipped in as little as two weeks
- The use of digital technology to enable small production runs, which can be used to trial products and gain customer feedback before scaling up, reducing waste from failed products
- The creation of simpler products with fewer raw ingredients and simpler supply chains through a combination of a better understanding of consumer preferences and usage patterns, and more efficient design processes

"A sustainable business has to look at the whole value chain, including the supply chain"

- Better sensors, machines that can communicate to one another, and everything connected to the internet, all allowing a better understanding of end-to-end manufacturing value

These uses of technology can promote sustainability of course; but they have other more direct business benefits as well: lower costs, the ability to go faster to market, and the ability to personalise products. In this optimised but increasingly real world, fast R&D and fast manufacturing are combined with better productivity, lower wastage levels and improved energy saving and higher product quality.

Making sustainable business happen

Working with the workforce

Unfortunately there are often very human barriers that get in the way of using digital technology to increase sustainability.

First up are worries about employment. And it is true that digitisation can cause some factory jobs disappear. This isn't exactly new – it has been happening for a couple of hundred years. But at the same time that some jobs (which are often dull, dirty and dangerous) disappear, others are created. Eighty years ago, for example, no one could possibly conceive the idea of software engineering as a career path.

Another obstacle is that many people dislike new digital ways of working. Designers and buyers in the fashion industry, for instance, are often very traditional and like to hold and feel clothing. But digital design can be highly flexible and it also saves wasting raw material. Digital twins can be used to run virtual test batches to see how production lines will perform. And one day, haptic interfaces will be used to recreate the feel and look of new fabric designs, while sensory interfaces will enable people to smell and taste new food products digitally.

Sometimes the obstacle is simply that people are unwilling to learn a new digital system. This might be because they are frightened of failure. They might think, "I'm too old to learn a new skill." There is a real need to encourage people away from this attitude so they can prepare themselves for a world where work constantly demands new skills – life-long learning is essential.

And counter-intuitively, the move towards personalisation and away from mass production means that more and more consumers are prepared to pay premium prices for one-off handcrafted items. These items can be created by skilled artisans and assisted by digital technology. This enables them to maintain quality and, when routine parts of the production process are automated, reduce costs.

Working with the supply chain

A sustainable business has to look at the whole value chain, including the supply chain.

Products start with raw materials. Blockchain is now being used to ensure the traceability of raw materials while sensors

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can ensure the quality of the materials that are being used.

Technology also helps with distribution. Picking and packing are often automated. And soon logistics will be too, with drones and autonomous vehicles delivering goods to "last mile" destinations. And automated distribution comes with greater accuracy and less damage to goods as they are processed, adding to customer satisfaction and reducing costs.

Marketing and retail partners also benefit from technology. Increasingly, they are able to analyse big data (large quantities of unstructured data) to generate new customer insights that allow them to sell more effectively and with lower levels of over ordering. And for some manufacturers this sharing of data is second nature. We already know of apparel companies that regard it as unethical not to share insight that will contribute to greater efficiency and less waste.

Can business afford not to be sustainable?

It's clear that in a time of global climate change and reducing stocks of raw materials and energy, sustainability is an important issue for any organisation. It's true that "sustainability" may not be the right word, as it doesn't always push the right buttons; perhaps "responsibility" is a better word?

But whatever we call it, reducing waste and pollution is essential. Some sustainability measures are easy to use. Waste reduction, energy saving, lower costs – these will always be popular with senior management.

But others are harder to measure. What is the effect of sustainable policy on African farmers or Filipino factory workers, on their incomes, the diseases they are exposed to and the environment they live in? These are just as important, even if they are harder to justify. However, they do have value – customers will feel better about purchasing from ethical companies (even if their behaviour is more strongly driven by price). And just as important is the way sustainable business practices can make employees feel they are working for a worthwhile enterprise.

That is not to say that moving towards more sustainable business practices is easy. A long-term view of any investment required is generally needed. But the payback can be greatly hastened when the right digital technology is employed. And increasingly this technology is available to large and small companies.

There is plenty of doom and gloom in the media about pollution and waste caused by industry. But this need not be the case. With the right attitude, supported by the right digital tools, the consumer packaged goods industry is set to become more and more sustainable.

Siemens helps organisations develop a vision for digitalisation. A good place to start if you are looking for inspiration is Siemens' digitalisation portal. For more information, please visit www.siemens.com.

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[1] Sir David Attenborough's address to the 2018 UN Climate Change conference in Katowice makes this point very clearly. (Sir David speaks at 1. 10. 55)