

First Quarter 2016

The Circular Economy

US clothing retailer Patagonia famously encouraged consumers not to buy their jackets in 2011. Kingfisher (owner of DIY store B&Q) has encouraged consumers not to buy their electric drills. H&M is taking back worn and unwanted clothes to "repurpose" them to sell second hand or to contribute to the 20% of used fibres in new garments.

These are all profit-driven businesses that recognise the shortfalls in our current economic system

Historically, we've lived in a 'linear' economy of seemingly limitless inputs for goods which are bought, consumed and disposed, and where the costs of pollution are not borne by companies.

Some of the reasons behind this economic system:

- Convenience disposable nappies are much easier than dealing with cloth nappies.
- > Price technology and transportation allow cheaper access to inputs and disposal of waste.
- > Informational advantages as products become more complicated they're harder to fix repairing or servicing a car engine requires a computer today.
- Changing technologies and materials fixing a wooden toy is worthwhile, but fixing a plastic or electronic one often doesn't work.

Given our planetary resource constraints, rising consumption in emerging countries means there's more potential than ever in the circular economy – one that produces, consumes and maintains goods, rather than discarding them, or, following consumption, goods are collected and reused, refurbished or recycled. Essential to this process is better design and more efficient logistics.

The circular economy is about redesigning a faulty linear system to reduce leakage

It's not just about recycling or dealing with something at the end of its life. Perhaps the best way is by 'designing out' waste and designing for 'disassembly' and 'materials recovery'. The waste from one process becomes the input for another when systems are well designed. An example is Royal DSM using agricultural residue to produce fuel from bio-ethanol.

Brambles (Australia) is another classic example. The company, which provides pallets for distribution, was the first to move from replacing pallets to refurbishing them. A pooled pallet system is incredibly efficient and significantly reduces waste.

The same goes for consumer goods. Fairphones is an example. Any component can be replaced easily, lengthening device life and preventing faults. Designing for easy materials recovery is essential and cheap disassembly imperative, so that benefits are not eroded by labour costs. A leader in this area is Tomra (Norway) which makes reverse vending machines and materials sorting machines. The reverse vending machine allows consumers to recycle packaging materials and send products back. Payments can be used as an incentivise consumers. Materials sorting machines allow valuable materials to be separated and not disposed. Tomra recovers 715,000 tons of metal each year by metal recycling machines.¹

An average electric drill is used for only 12 minutes during its lifetime, according to What's Mine is Yours (2010). Consumers don't want a drill per se, just a hole in the wall! With low use, consumers choose to buy low cost, poor quality drills, which can deliver poor performance and contribute to a relatively high environmental footprint.

The move towards hiring ensures a better consumer experience with lower environmental impact. Kingfisher is looking at hiring rather than selling. The 'project box', which contains tools and safety equipment necessary, for example, to tile a room, is hired rather than bought. Professional grade equipment is offered, providing a better user experience and lower environmental footprint and cost. Similar models are being tested for washing machines by Bosch and Siemens.

Focusing on the outcome has helped shift water utility companies onto the circular economy

The traditional pattern of water usage is: collect, treat, distribute, use and dispose. The opportunities are endless for closing this loop at different stages. Manila Water (Philippines) reduced leakage rates from 63% to around 11% in their concession zone. Aguas Andinas (Chile) captures glacial run-off from the Andes to avoid environmental damage by taking water from rivers.

These savings open up a new market place where third parties can gain access to utility assets to provide lower impact solutions, e.g. golf course irrigation. There's barely a market which cannot be transformed by removing leakage.

Even something as simple as an office chair is an opportunity

Steelcase (US) produce office furniture with fewer parts for quicker disassembly, using common tools so all parts can be reused. After many reuses, 95% of parts can be recycled.

This type of business model and the mindset that comes with it becomes a hugely competitive advantage in an age of resource constraints.

Feike Sijbesma, CEO of DSM (Netherlands), believes that if we are to make our economic system really sustainable, we must redesign it.

With the richest quarter of the world's population using about half of global resources – and producing half the global waste – while another third live in poverty, it's clear our economic and social system is failing us.

An increasing number of listed companies agree, and shareholders are benefiting from the redesign.

¹ Tomra Annual Report 2015

² Manila Water Sustainability Report 2013-14

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