California Management Review

SUSTAINABILITY

# How Companies Can Benefit from the Circular Economy

by Mark Esposito

*Since the industrial revolution, our economies and companies have relied heavily on the availability of bountiful and inexpensive natural resources. But this linear trend is no longer sustainable. Is there a viable alternative?*

INSIGHT | NOTE 04 Nov 2015

## The Problem with Linearity

**We have been doing something wrong over the past 250 years.** Since the industrial revolution, our economies – and companies – have relied heavily on the availability of bountiful and inexpensive natural resources in order to persistently raise our standard of

living and levels of affluence. The stellar rise of the Chinese economy is a showcase: China's growth has been spurred by its vast manufacturing capabilities, and the country excels at turning natural resources into marketable goods. In more mature economies, growth occurs when consumers spend more, mostly on material products. What is the result of these trends in manufacturing and consumption? Modern companies very often produce without taking product end-of-life or exhaustion of resources into consideration. But we can no longer be relying on this "take, make, and dispose" growth principle, as resources are rapidly depleting and dropping in quality. The condition of our environment – which you can see in many cities today – is getting worse day-by-day.

## What is Circular Economy?

**The circular economy represents a viable alternative** to this detrimental "linear" model. As the name suggests, rather than going from "cradle to grave," this new development pathway promotes "cradle to cradle." In this type of economy, company growth is no longer reliant on the use of scarce resources. Instead, it is achieved through the use of disruptive technology and business models that are based on longevity, renewability, reuse, repair, upgrade, refurbishment, capacity sharing, and dematerialization. Circular economy thus requires companies to step away from focusing only on driving more volume and cutting costs through greater efficiency in operations and supply chains. Instead, companies should focus on rethinking products and services from the bottom up to "future proof" their operations, all the way to customer propositions.

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So, how can companies take advantage of circular advantages? Broadly speaking, there are three main starting points: reducing waste through closed loop recycling, shifting from selling products to servicing them, and broadening and lengthening product lifespans.

# Closed Loop Recycling

Not all forms of recycling are equal. There are two main forms: *closed loop* and *open loop* recycling. Closed loop is about using waste to make new products without changing the inherent properties of the material being recycled. Open loop (or "downcycling"), by contrast, uses recovered materials that have gone through a degradation of quality. In this respect, closed loop is the only recycling that truly meets the cradle to cradle principle.

Many companies are already making headway in recycling. Dell, for example, has established a closed loop supply chain to get more value out of the plastics used in its products. When Dell electronics get recycled, the company's partners sort the plastics and sell them for reuse. The plastics are then shredded, melted, blended, and subsequently moulded into new parts. Dell's product design places an emphasis on the reuse of recycled material, and takes consideration of these factors during the assembly process. Another example is France's MTB-Recycling. As a partner to prominent car manufacturer Renault, the company recovers copper wiring from end-of-life vehicles. It then removes the surrounding polymers, and subsequently cuts and granulates the remaining copper. What is left is 99.9% pure copper that, in turn, is fed back into making new wiring.

# From Selling to Servicing

But recycling, no matter how good, is not enough. This is because we are ultimately depending on end users to recycle their unwanted goods. Some companies, instead of selling products to customers, have turned to renting or leasing them instead. In this type of "servitization" or "performance model," companies effectively retain the ownership of the goods throughout their life. The result is that customers must return the goods at the end of their lives to the sellers. After all, the customers have never owned them. Take Renault's electric cars as an example. Buyers have to lease the batteries from the company. Why? Renault can properly dispose of these old units, or recapture their value through reuse. Another example of servitization is **Mudjeans**. While it sells jeans to customers, the company is only leasing cotton to them. So, while the shoppers own the jeans, the company

retains the ownership of the material. In this case, when the customers no longer want their pair of jeans, they must to return them, at which point Mudjeans will either remake new ones or turn them into a vintage pair.

## Broadening and Lengthening Use

Instead of just melting unwanted products down, many physical goods can undergo "remanufacturing" to extend their longevity. Many companies have been targeting end-of-life parts and product components in order to return old products to like-new (or better) performance, often by refurbishing or replacing the worn-out parts with new ones. Rolls Royce, for example, has been remanufacturing their aircraft turbines. Caterpillar has been remanufacturing their machines as well as military equipment. There are a lot of environmental benefits from doing so. It is estimated that remanufacturing a cylinder head leads to a 61% decrease in greenhouse gases emissions, a 93% reduction in the use of water, and an 86% reduction in energy used, compared to producing a brand new one.

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Let's go again to the example of Renault, which recovers some 43% of its car parts for remanufacturing. Annually, it now refurbishes some 30,000 engines, 20,000 gearboxes, and 16,000 fuel injection systems. The result: parts are 30 to 50 percent cheaper for customers, along the way saving 80% of energy, 80% of water and 80% of chemical products and waste that would otherwise have come with producing new ones.

Instead of just lengthening product lifespan, we can also widen the use of goods. Car-sharing schemes like Uber and Lyft help create less waste as they put fewer cars on the road. A report points out that, in Europe, cars are parked 92% of the time and while on average cars have five seats, they usually only carry 1.5 persons per trip.

## We Are All in this Game

**For circular economy to work, the onus is not only on businesses; governments and consumers need to play their roles too.** Government schemes like the "cash for clunkers" program may help boost our economy, but it ultimately leaves us with a lot more unwanted cars. Instead, legislation should focus on better goals – like requiring cell phone manufacturers to make their phone batteries removable and replaceable again. As consumers, we also need to work to change our consumption preferences. For instance, we should consider keeping electronics for longer; there is probably no need to upgrade our laptops or TVs as often as we do. By the way, don't forget to sell those old cell phones that have been sitting in your drawers in second hand markets!

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