

Circular Economy

Virtuous Circles: The Circular Economy Gets Rolling

Circular business models are not yet widespread, but economic, social, and technological changes are quickly making circularity more enticing.

They've already shown great potential for increasing profits while reducing production costs and improving our planet. Meanwhile, opportunities to create competitive advantage through traditional linear methods are running out of steam.

The circular economy makes sense not just from an environmental perspective; it's also likely the only way forward as a prosperous business strategy.

What's Driving Circularity

Waste. The circular economy is sustainability taken to its ultimate goal: zero waste. Waste is neither expected nor accepted. It's a failure.

Scarce resources. Skyrocketing demand for consumer goods has turned finding and maintaining reliable sources for many raw materials into risky business. Price volatility for metals and other commodities has persisted during the past decade.

Customer preference. Customers prefer to buy from companies that visibly demonstrate sustainability, such as products that can be easily repaired or upgraded instead of being tossed into a landfill.

Technology. Digital technologies are helping to bring the circular economy and circular business models tantalizingly close to the mainstream.

 [Read More in *Circular Economy the Path to Sustainable Profitability*](#)

Circular from the Start

By factoring circular principles into product design, companies will net more profits from production, logistics, and the entire value chain, as with:

- **Modularity.** Modular components can be swapped out of a product when they wear out or become technologically obsolete instead of junking the entire item.
- **Maintenance.** When products are designed to be maintained, parts can be refurbished and reused rather than discarded.
- **Disassembly.** By designing products to be easily disassembled, companies can recover a higher percentage of the embedded materials for reuse or recycling.
- **Regeneration.** Products are designed to use regenerative, easily accessible materials rather than scarce ones or those sourced from countries with high geopolitical risk. Meanwhile, the energy used to create products comes from renewable sources or is repurposed from other companies' waste.
- **Recovery.** By designing product lines using as many similar and biodegradable materials as possible and by creating reverse logistics processes such as product trade-ins, companies can make recovering the materials used in products easier so they can be repaired, remanufactured, or recycled.

Digital Technologies: Drawing the Circles Closer

3D Printing. It lets manufacturers build complex shapes that are impossible using traditional methods. That means fewer parts, less waste, and easier reuse.

Sensors and the Internet of Things. Live data streams about condition, location, and availability of components are the foundation for product life extension and advanced recovery and recycling.

Machine Learning. Instant adjustments to demand and logistics enable circular supply chains that save money while reducing or eliminating waste.

Blockchain. Automating and simplifying complex exchanges of information are of great value in circular systems.

Robotics. Apple's disassembly robot can rip apart and extract the usable materials from an iPhone in seconds.



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