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MANUFACTURING AND VALUE CHAINS

For manufacturers, the circular economy strengthens supply chains. Here's how

Feb 27, 2024


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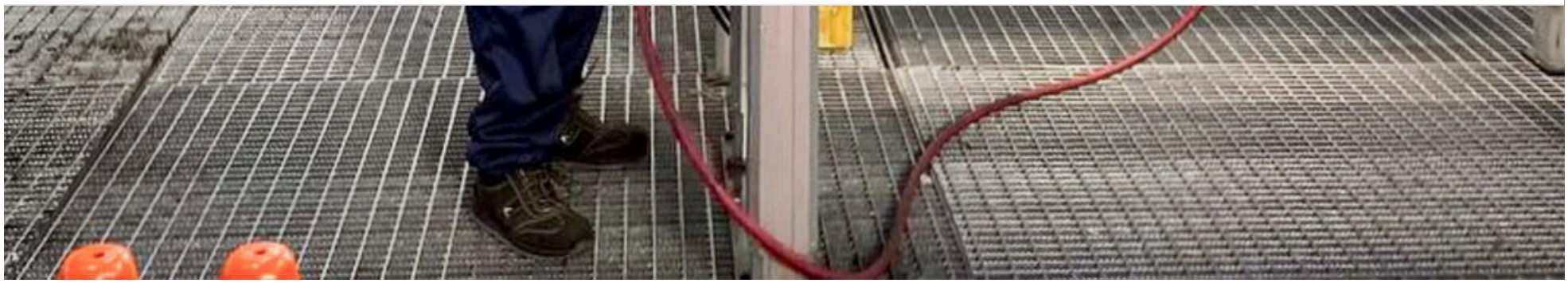

Manufacturers who adopt circular economy principles benefit from resilient supply chains. Image: REUTERS/Giulio Piovaccari

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Advanced Manufacturing and Supply Chains

- **Manufacturing supply chains are the basis of the global economy.**
- **Today, a growing number of challenges threatens to undermine those supply chains that we rely on so deeply.**
- **Adopting circular economy principles in the manufacturing sector can protect our supply chains and aid the green transition.**

In an era defined by globalization and the pursuit of efficiency, supply chains have become essential yet vulnerable networks within the global economy.

This vulnerability, exacerbated by geopolitical tensions, environmental challenges and trade conflicts, underscores the critical need for resilience — not just for risk mitigation but as a strategic imperative that can serve as a competitive advantage in an uncertain world.

Integrating circular economy principles offers a solution. Circular economy principles bolster sustainability and transform these vulnerabilities into strengths. Circular economy principles help supply chains adapt to and maintain operations amidst unforeseen disruptions, fostering sustainable growth and resilience in an interconnected world.

Have you read?

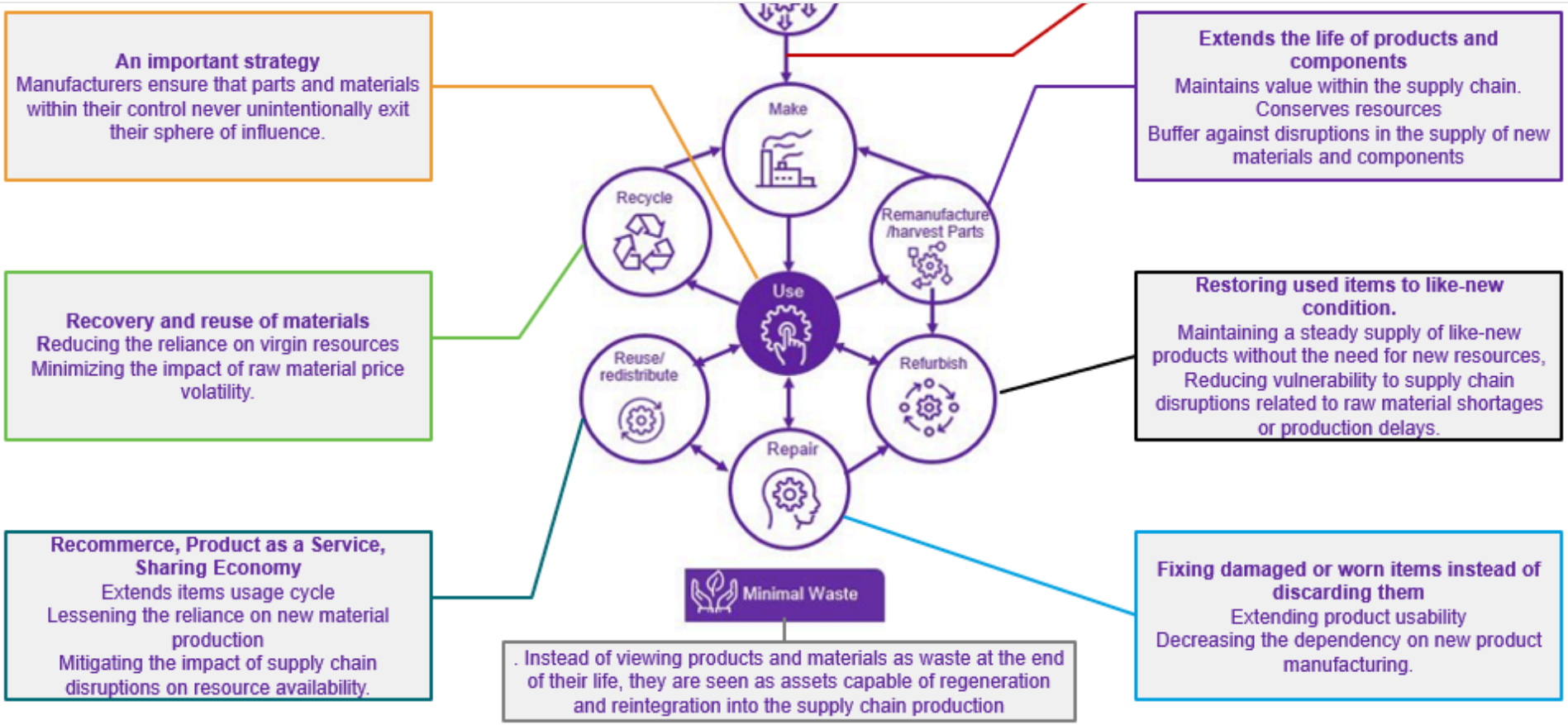
- **Why businesses must embrace the circular economy to build sustainable success**
- **Our waste is valuable: how one company is creating a circular economy for plastics**

The circular economy can strengthen supply chains

The circular economy represents a paradigm shift from the traditional linear model of "take-make-dispose" to a regenerative approach that emphasizes the restoration and regeneration of products, materials and energy. It challenges conventional metrics of value creation and encourages manufacturers to design products and business models with durability, repairability and recyclability in mind.

Through recycling, part harvesting and remanufacturing, repair, refurbishment and recommerce circular economy principles can reduce dependency on scarce resources and component suppliers, building adaptable and resilient supply chains.

For manufacturers, this means ensuring parts and materials within their control *never unintentionally exit their sphere of influence*. By retaining control over the lifecycle of products, materials and components, manufacturers can prevent resource loss, ensure efficient reuse, enable capitalization of circular practices and reduce their environmental impact.



The 5 Rs of the circular economy: recycling, remanufacturing, repair, refurbishment and recommerce. Image: DXC Technology

By prioritizing the management and recovery of materials and components, manufacturers can maintain a degree of control over their resources, ensuring that materials remain in use and within their control for as long as possible. This approach not only helps to decouple economic growth from resource consumption but also fosters ore sustainable and resilient supply chain.

impact.

DISCOVER

What is a circular economy?

Show more

Circular strategies for localized production

Incorporating circular economy principles aligns with growing political pressures to develop local production capabilities. This movement towards localization is driven by the desire for economic resilience, job creation and reduced dependencies on global supply chains.

The circular economy fosters the development of local circular service provider markets by encouraging the design of products for longevity, repairability and recyclability. This approach supports local businesses and encourages the growth of repair services, remanufacturing facilities and recycling centers. By investing in local ecosystems that support the circular economy, regions can reduce their reliance on imported goods and materials, leading to more resilient local economies.

remanufacturing industries and regulations that favour the use of recycled materials in new products.

This focus on creating local circular product and service markets provides a strategic response to supply chain vulnerabilities, fostering economic resilience, reducing environmental impacts and supporting the transition to more sustainable and self-sufficient local economies.

Overcoming circular economy barriers

Companies looking to integrate circular economy principles into their operations must navigate a complex landscape of regulatory, market and financial hurdles.

Navigating regulatory hurdles

Regulations regarding waste, product standards and cross-border movement of materials can inadvertently hinder recycling and remanufacturing efforts. For instance, certain materials classified as “waste” under current legislation may face strict controls or prohibitions on their reuse or transport, even for recycling or remanufacturing purposes.

Building market acceptance

sumers and business customers alike may have reservations about products made from recycled materials or remanufactured products, perceiving them as inferior to new ones. Overcoming this perception requires

Addressing cost implications

The initial costs associated with transitioning to circular economy models can be prohibitive. Investing in the necessary infrastructure for recycling, remanufacturing or setting up product-as-a-service models requires upfront capital. Additionally, the operational costs of collecting, sorting and processing used products and materials can be higher than sourcing new materials, at least in the short term.

Fostering mindset shifts

Transitioning to a circular economy requires overcoming entrenched resistance at multiple levels. Internally, organizations may face inertia from established linear processes, with the prevailing "*this is how we've always done it*" mentality posing a significant barrier to change.

Upstream in the supply chain, the shift can disrupt the value propositions of some players, leading to resistance from those who stand to lose from the transition away from linear models. While downstream, altering customer habits and preferences to align with circular practices requires concerted effort and engagement, as it challenges traditional behaviour patterns.

Building a market for services

Building a market for circular service providers requires creating demand for such services and ensuring a supply chain that supports the repair, refurbishment and recycling of products. Establishing this market requires

Navigating the parts and recycling market

Establishing a competitive market for part harvesting and material recycling is crucial. Relying on single entities for these phases can undermine resilience. It is essential to cultivate a diverse ecosystem of partners to ensure flexibility and reliability in supply chain recovery processes.

Digitization's investment requirements

Digitizing the circular economy presents challenges such as integrating technology into traditional systems, ensuring data security and managing the complexity of tracking products and materials across their lifecycle. Effective digitization requires substantial investment in technology and skills development.

Manufacturers and the circular economy: the path forward

Manufacturers, in embracing circular economy principles, have the opportunity to lead this transformation, building supply chains that are resilient to the shocks and stresses of the global market and sustainable and

The adoption of digital technologies such as Internet of Things, Digital Product Passports and Artificial Intelligence offers potential innovative solutions for manufcaturers, enabling transparent, efficient and adaptable supply chains that can support circular practices.

The path forward calls for a fundamental reimagining of how products are designed, produced and consumed. To do this, manufacturers should start with a thorough audit of current practices, developing a strategic vision for circularity and implementing pilot projects to test and refine circular initiatives. This is a journey that requires a shift in mindset, from viewing waste and end-of-life products as problems to seeing them as opportunities for value creation and innovation.

Overcoming this resistance requires persistence, leadership and a clear vision for the future — a future where circular economy principles are a central pillar of supply chain strategy. For manufacturers willing to lead the way, it offers the promise of a future where business success is aligned with environmental stewardship and societal well-being. The time to start is now.

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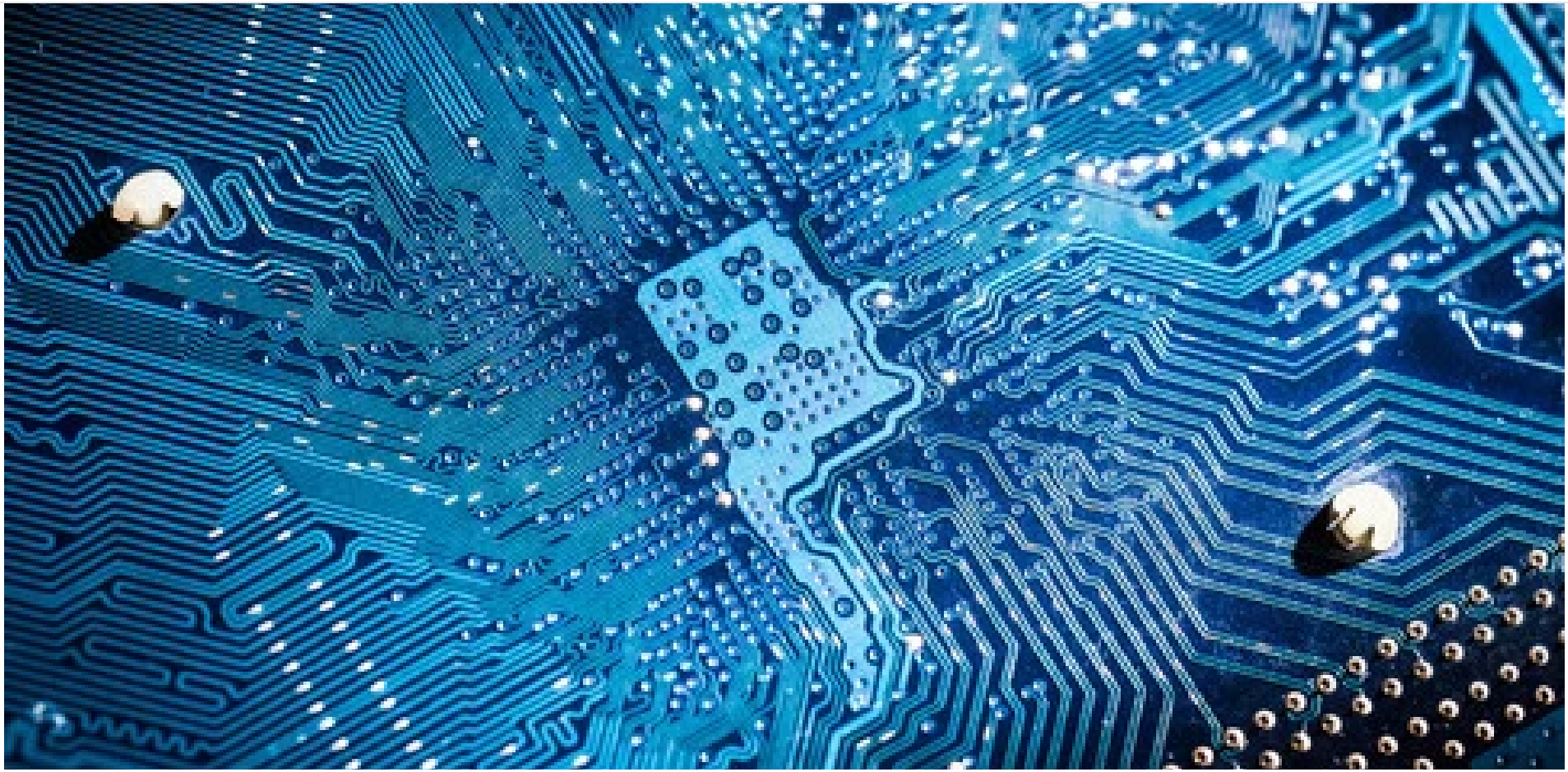

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