Supply chain leaders have faced exceptional challenges as COVID-19 exposed hidden weaknesses in globalized value chains. Materials in demand were hard to get, prices escalated, speculative purchasing increased and availability for some goods plummeted.

Customer spending patterns radically shifted to focus on essential goods as a “panic buying” mentality took root. As we focus on lessons learned, questions are being asked about supply chain design, globalization and trade, such as “How do we reshape our relationship with raw materials to improve resilience?”

The willingness to challenge and change our relationship with raw materials is a step into the unknown, with both risks and rewards. It takes courage. It is this same courage that drives adventurers to push the boundaries into the unknown and to make breakthroughs. It is the kind of courage that drove Dame Ellen MacArthur to single-handedly circumnavigate the globe in 72 days (27,000 miles) in 2005.1 More recently, in 2013, Diana Nyad became the first woman to swim from Cuba to Key West, Florida, at the age of 64, after four failed attempts.2 Just as these accomplishments require courage, we also need to muster up the courage to persevere and to find alternative paths to the outcomes that we seek.

We need the same types of breakthroughs when it comes to navigating a new relationship with raw materials. **We are approaching a consumption-based tipping point, placing the societal progress we have made at risk.** Our continued consumption of finite resources is simply unsustainable. The limitations of our resource consumption-based model are highlighted by the World Bank and the United Nations’ International Resources Panel (IRP).
**Poor materials end-of-life management:** The World Bank forecasts that municipal solid waste generated in cities will increase from 2.01 billion metric tons in 2016, to 3.04 billion metric tons annually by 2050. Significant effort goes into product creation, yet “globally, most waste is currently dumped or disposed of in some form of landfill.” In high-income countries, recycling and composting waste remains low, at 36%. Resources prized for their value at the beginning of life become a financial cost and environmental burden at end of life.

When waste is generated in manufacturing, it means that organizations and supply chains pay twice for materials — first, with the initial cost of purchase and second, with the cost of disposal. There are also hidden costs in the labor, processing and environmental impacts. The growth in consumption-based resource management is inefficient, costly and fundamentally broken.

**Treadmill of consumption:** The IRP, a group formed by the United Nations Environment Program in 2007 to improve consumption of resources, states that the use of natural resources has more than tripled since 1970, and continues to grow. The use of metal ores has grown 2.7% per year. Nonmetallic mineral consumption (for example, sand, gravel and clay) increased from 9 billion metric tons to 22 billion metric tons between 1970 and 2017. The IRP recommends decoupling resource use and environmental impacts from economic activities to enable a sustainable relationship with materials. Because supply chains are working with finite materials, low availability will drive up price and decrease access. A one-direction flow of materials, from cradle to grave, is an inefficient and ineffective approach to raw materials management.

Supply chain’s primary function is to provide resources to develop and manufacture products, and to deliver them. The challenge is to ensure resilience in an environment of increasing uncertainty, competition and diminishing resource availability. COVID-19 has created the conditions for change, to challenge assumptions and previous practices. Like adventurers, now is our time to challenge norms and, to design a future-fit raw materials management approach.
The circular economy is based on three tenets. First, to design out waste, complexity and toxicity to allow for products to be reprocessed at the end of life. Second, to keep raw materials in use for as long as possible at their highest quality. Last, to return materials into the natural environment in a manner that has a positive environmental impact. The disruptions caused by COVID-19 demonstrate the fragility of globalized, interconnected, complex supply chains. These disruptions challenge us to reflect on our linear consumption-based models and to look for new opportunities. The circular economy has the potential to create an additional stream of raw materials. A comparison between a circular and linear economy is shown in Figure 1.
Our research shows that emphasis on the circular economy is likely to increase for the following three reasons:

1. **The circular economy may provide a recovery mechanism.** Research from Gartner’s 2020 Opportunities After Crisis Survey shows that 51% of supply chain professionals expect the focus on their circular economy strategies to increase over the next two years, while 44% say it is too soon to assess the impact from COVID-19 on circular economy strategies. Only 4% expect emphasis on the circular economy to decrease.

   Supply chain professionals in very large companies ($25 billion plus) were more optimistic (58%) that emphasis on the circular economy would increase in the coming years compared to midsize organizations ($1 billion to $10 billion and $10 billion to $25 billion) (see Figure 2). It is likely that large organizations have the resources and risk appetite to explore the opportunities of the circular economy.

   The contextual drivers for the circular economy are also changing as China and Europe enact legislation. In China, the Circular Economy Promotion Law was passed in 2008 and came into force in 2009, while the European Green Deal promises to focus on resource-intensive industries. The contextual pressures through legislation could also be driving this optimism.

2. **Growing company receptivity to new operating and business models.** Our research shows that 57% of respondents state that customers may not be willing to make big spends, making product as a service (PaaS) or leasing models more attractive. This approach may be more relevant for B2B than B2C organizations. Forty-one percent of respondents stated that the circular economy will improve raw material security from end-of-life products, while 37% say PaaS or leasing options would provide increased customer insights. Lastly, 29% believe that emphasis on the circular economy would come through product upgrades. High-tech organizations give greater emphasis to PaaS models or leasing models improving customer insight. This result is not surprising, as user experience is central to success.
**Figure 2. Anticipated Impact on Companies’ Circular Economy Strategies Within the Next Two Years, by Company Size**

<table>
<thead>
<tr>
<th>Company Size</th>
<th>Increased Emphasis</th>
<th>Decreased Emphasis</th>
<th>Too Soon to Assess the Impacts</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>51%</td>
<td>44%</td>
<td>4%</td>
<td>1%</td>
</tr>
<tr>
<td>Less Than $1 Billion</td>
<td>48%</td>
<td>50%</td>
<td>6%</td>
<td>1%</td>
</tr>
<tr>
<td>$1 Billion to $10 Billion</td>
<td>52%</td>
<td>53%</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>$10 Billion to $25 Billion</td>
<td>53%</td>
<td>42%</td>
<td>2%</td>
<td>4%</td>
</tr>
<tr>
<td>More Than $25 Billion</td>
<td>58%</td>
<td>36%</td>
<td>2%</td>
<td>2%</td>
</tr>
</tbody>
</table>

n = 506

Q. How do you anticipate the new normal, following the crisis, will impact your circular economy strategy within the next two years?

Please select one response only.

Source: 2020 Gartner Opportunity After Crisis June Survey

3. **Wider questions about supply chain design and resilience may also move organizations in a circular direction (see Figure 3).** Our research shows five changes with supply chain design and resilience implications in the next five years, following the COVID-19 crisis. First, working from home will become the new normal, as 98% expect this to increase. There will be an increased focus on digitalization (95%) and new business models (92%). As customer willingness to visit stores declines, home delivery and e-commerce will increase. Lastly, there are questions about supply chain network design, with concerns over restricted movement of goods, and potential moves away from globalized supply chains and offshore manufacturing.

The circular economy has the potential to provide a new avenue of raw materials through end-of-life reprocessing, local to the markets that these products serve.

Our society will remain dependent on resources into the future. However, navigating the new normal presents the opportunity to build resilience. We have the opportunity to reshape our relationship with resources by focusing on resource longevity and stepping off of the consumption-based treadmill. Increasing resilience can also be a force for societal good and customer engagement. HP Inc., for example, has shown how embracing the circular economy is good for business, the environment, customers and the broader society.
**Figure 3. Anticipated Broader Supply Chain Changes Following the Crisis, Within the Next Five Years**

<table>
<thead>
<tr>
<th>Change in Supply Chain</th>
<th>Increase</th>
<th>Stay the Same</th>
<th>Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working From Home</td>
<td>98%</td>
<td>5%</td>
<td>2%</td>
</tr>
<tr>
<td>Focused on Digitalization</td>
<td>95%</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td>Adoption of New Business Models</td>
<td>92%</td>
<td>7%</td>
<td>1%</td>
</tr>
<tr>
<td>Consumer Engagement in Home Delivery/E-Commerce</td>
<td>91%</td>
<td>8%</td>
<td>1%</td>
</tr>
<tr>
<td>Customer Unexpected Variation — Spikes and Falls in Demand</td>
<td>64%</td>
<td>31%</td>
<td>5%</td>
</tr>
<tr>
<td>Restricted Trade and Movement of Goods</td>
<td>56%</td>
<td>31%</td>
<td>13%</td>
</tr>
<tr>
<td>Raw Material Prices</td>
<td>53%</td>
<td>33%</td>
<td>14%</td>
</tr>
<tr>
<td>Improved Access to Raw Materials</td>
<td>25%</td>
<td>42%</td>
<td>33%</td>
</tr>
<tr>
<td>Globalized Supply Chains</td>
<td>22%</td>
<td>32%</td>
<td>46%</td>
</tr>
<tr>
<td>Offshoring of Manufacturing</td>
<td>9%</td>
<td>30%</td>
<td>61%</td>
</tr>
<tr>
<td>Consumer Willingness to Visit Stores</td>
<td>28%</td>
<td>69%</td>
<td>13%</td>
</tr>
</tbody>
</table>

n = 523

Q: What changes do you see to supply chains within five years following the current COVID-19 disruption? Please select one response per row.

Source: 2020 Gartner Opportunity After Crisis June Survey
Customer and Community Engagement Through the Circular Economy

The shift to working from home during the COVID-19 crisis increased demand for laptops and IT equipment. Not only did computing power become necessary for home workers, children too required computers as they tried to learn remotely. HP Inc. enabled communities to provide refurbished laptops to schoolchildren to enable them to continue their studies virtually. Secondly, HP Inc. has been working with local communities and industry partners in Haiti to collect ocean plastics for reprocessing and inclusion with its products.

HP Inc. has shown that it continues to be driven by its sustainability values, even during the crisis. Like most high-tech companies, HP Inc. initially experienced disruption in China, which led to supply issues in Europe and the U.S. This supply constraint prompted HP's salespeople to inquire about refurbished and remanufactured products, specifically computers.

Judy Glazer, global head of sustainability and product compliance, says the coronavirus has led to a change in customer mindsets. "There has been a real shift in the need for computing, rather than computers." Glazer says that throughout the COVID-19 pandemic there has been a focus on getting access to computing, with less emphasis on product type and specification.

The organization's circular economy strategy is based on three principles — to decouple growth from consumption, to disrupt industry business models and to digitize supply chains and production.

- **Decouple growth from consumption:** This means keeping materials in use for as long as possible. Glazer says that the approach to end-of-life management varies by product and depends on the context. For example, there are high recovery rates for HP Instant Ink, as return envelopes are provided with new ink orders. HP Inc. uses the packaging to promote the importance of recycling spent ink cartridges.

For some devices, HP Inc. takes a profit-sharing approach — companies may receive money back for recycled materials. Where leasing is adopted, end-of-life recovery may be part of the contract and sales process. The organization says products are more difficult to reclaim when there is a middle finance partner involved in the transaction, as ownership and reclamation paths become less transparent.

- **Disrupt industry business models:** HP Inc. is seeking opportunities to shift to service models, reducing waste and costs, while extending product life spans. The organization has undertaken life cycle analysis on different business models such as device as a service (DaaS), printing solutions (Managed Print Services) and Instant Ink. (See Figure 4 for DaaS versus a transactional approach.) Across global warming, water consumption, human health, ecosystems and materials (resource) consumption, all three business models show better performance than a transactional approach, especially when products are reused at least two times.

- **Digitize supply chains and production:** HP Inc. emphasizes the need to transform product design, manufacturing and distribution to include circular material flows. The organization aims to create the most sustainable product portfolio as measured by Electronic Product Environmental Assessment Tool (EPEAT) certification, improved energy efficiency, increased recycled content, reduced chemicals of concern and a transition to fiber, plastics-free packaging.7
Glazer says organizations that are looking to initiate a circular economy strategy should first focus on getting started, without being overly concerned about specific measures. She recommends thinking about how a circular economy can improve customer engagement. She also highlights the need to understand the finance arrangements to obtain materials back, and balance sheet impacts and tax implications for selling second-life products.

HP Inc.’s circular economy strategy is driven by the commitment of the leadership team. President and CEO Enrique Lores states, “Through our history, we have proven that doing well and doing good are not mutually exclusive. In fact, we believe improving the world and improving our bottom line are one and the same.”

Figure 4. Positive Impacts From Service Models Compared to Point-of-Sale Transactions
By embracing circular economy strategies, supply chain organizations can strategically improve raw material resilience, increase customer engagement and meet environmental commitments.

This triple “win” can only be achieved if the business case is sound. Now is the time to strategically assess how reclaiming raw materials provides an opportunity to enhance market share through refurbishment or increase raw materials security through reclamation.
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This research is drawn from Close the Loop to Create Future-Fit Raw Material Strategies, a Supply Chain Executive Report by Gartner Senior Director Analyst, Sarah Watt.