## Circular economy principles could help businesses face the worst recession ever

Rémy Le Moigne June 1, 2020



During the COVID-19 pandemic, many hospitals faced a major shortage of personal protective equipment, ventilators and other essential medical supplies.

By applying circular economy principles, various businesses actively helped hospitals face this shortage. They extended the life of single-use masks, <u>designed reusable masks</u>, <u>refurbished ventilators</u>, <u>gave access to</u> <u>their internal repair manuals</u> and <u>printed spare parts to repair life-saving</u> <u>equipment</u>.

As businesses start to reopen, they face potential shortages of their own as well as an unprecedented economic meltdown. The European Union is expecting the deepest recession in its history while, in the United States, roughly one in four people who had jobs in February were unemployed by the end of April.

To rebuild the global economy, businesses are called upon to rethink models and operational processes. Indeed, many organizations, such as <u>LEAD on Climate 2020</u> in the U.S. or the <u>Green Recovery Alliance</u> in Europe, are calling for a recovery that recognizes the need for a resilient, sustainable and low-carbon economy.

By keeping materials and products in use, and by designing out waste and pollution, a circular economy could help address both the short-term economic crisis and a persisting climate and ecological crisis. Using circular economy principles, businesses will be able to build more resilient supply chains, to reduce materials costs and create new customer value propositions while reducing their environmental impacts.

## **Build resilient supply chains**

Over the years, to avoid environmental standards or save labor costs, global companies have moved their manufacturing facilities to emerging economies, creating extended and dispersed supply chains. Materials, components and products travel all over the world, sometimes senselessly. An example: codfish caught off Norway and <u>traveling to China (French)</u>, solely to be turned into filets, before returning in France to be sold.

Leveraging a sustained trade liberalization, a continued technological progress in transport and communication, and a massive vertical industrial specialization, these global supply chains are very efficient. Until now. In just a few weeks, the COVID-19 pandemic has disrupted manufacturing in China, increased trade restrictions and grounded commercial flights — creating major shortages in the face of soaring demand.

To face this crisis and those to come, business will need to build more resilient supply chains. They will have to design supply chains that are

probably shorter and more distributed, that reuse materials and components. They will need to move away from an intensive consumption of virgin materials and remotely manufactured components. They probably will have to establish, in the long run, new partnerships and nontraditional collaborations.

For instance, during the COVID-19 epidemic, the state of California faced a critical gap between how many ventilators were needed and how many were available. Ventilators deliver air to patients' lungs and help prevent respiratory failure, a common cause of death among patients with coronavirus.

Unfortunately, just at the time when they needed them most, the global supply chains that could deliver all those parts and products at high velocity were being dismantled. Thus, the state asked Bloom Energy, a fuel cell company, to <u>refurbish hundreds of ventilators</u> sitting idle in a state warehouse, allowing the state to alleviate the ventilator shortage.

"A more modern and circular economy will make us less dependent and boost our resilience. This is the lesson we need to learn from this crisis," said the European Commission President, Ursula von der Leyen. "This is not only good for our economies, it is not only good for our environment but it reduces dependency by shortening and diversifying supply chains."

## **Reduce materials costs**

Businesses have long focused on improving labor rather than material productivity. In Germany, for instance, labor productivity increased 3.5 times between 1960 and 2000, while material productivity only doubled. Yet, material resources are finite and sometimes scarce, while labor resources are available, especially now.

Businesses have many opportunities to improve resource productivity and reduce their costs. In Europe, for instance, the average office is at least 40 percent unoccupied during office hours and this percentage is likely to increase with the fast growth of teleworking. Chemicals used in industrial processes, such as solvents, often have a chemical yield of less than 50 percent. That is, half of the chemical becomes waste without being used once.

To develop resource-productive operations, many manufacturers have long used lean manufacturing methodology, mostly to minimize waste. But few have leveraged circular economy strategies such as managing industrial waste as a resource, using recycled materials or refurbishing industrial equipment.

That's changing. By using refurbished and upgraded medical equipment rather than new ones, hospitals are reducing costs and improving services. For example, Philips has established a healthcare imaging systems refurbishment facility in the Netherlands. The facility takes back old CT scanners that hospitals have been using for nine to 10 years, gives the system a hardware and software update so the scanners work like new, and then sends them back to the hospital.

During the pandemic, hospitals used CT scanners that allow doctors to quickly take pictures of people's lungs to help determine whether they have coronavirus. Leveraging a short supply chain, Philips has been able to <u>refurbish customer scanners in only two weeks</u>.

Improving material productivity will be especially critical for manufacturing firms in the EU that <u>spend on average about 40 percent on materials</u>. For them, closed-loop models could increase their profitability, while sheltering them from resource price fluctuations. According to the European Commission, the circular economy would 666 billion for EU companies, or 8 percent of their annual turnover.

## Design for durability to create new customer value propositions

During the COVID-19 pandemic, tire manufacturer Michelin designed a reusable mask using interchangeable filters that can be washed and reused 20 times. It was intended to cope with a shortage of FFP2 masks.

Manufactured by a French small business and sold with five filters at a price of \$31, this mask costs 31 cents per use. In comparison, a single-use FFP2 mask <u>cost 44 cents (French</u>) before the pandemic, and much more since.

Today, most producers make products that break down too quickly, cannot be easily reused, repaired or recycled, and many are made for single use only. They often have little incentive not to do so. But dramatic shifts in industry structure, customer expectations and demand patterns will change these incentives.

For customers, durable goods often offer a lower total cost of ownership as well as a lower environmental impact. For businesses, durable goods can help increase revenue from rental, repair and refurbishment as well as reduce costs of raw materials and energy.

Global supply chains are a major source of pollution, including air pollution, which accounts for <u>7 million deaths around the world every year</u>. Air pollution can be caused by resource extraction (20 percent of health impacts from air pollution), shipping (<u>400,000 deaths a year</u>) or production of goods in China for Western countries (<u>100,000 premature</u> <u>deaths</u>). Therefore, after having shut down economies to save lives, returning to business-as-usual cannot be an option anymore.

Businesses should leverage a circular economy to not only create economic value, but also preserve resources, reduce carbon emissions and cut pollution. Because today, resilience, sustainability and health matter.