Circular economy in action saves the planet, boosts profit

Shoes made from ocean plastics, packaging material made from mushrooms and a green partnership between Ford and Heinz to build car parts from tomato fibre are examples of the circular economy in action.

In a traditional linear economy, materials flow in a line; they are taken from the earth, made into an item in a affordable way, and waste goes into landfills when we are finished using the product.

The circular economy has been inaccurately referred to as “recycling on steroids”. It was shown to be muc more in an impactful presentation by United States based supply chain specialist Deborah Dull at the rece SAPICS Conference in Cape Town.

Deborah Dull at SAPICS 2019

Dull contends that supply chain management - and the circular economy - can save the planet. In her curre role as principal of supply chain management at General Electric subsidiary GE Digital, Dull works across the supply chain community to accelerate the transition to a circular economy. Her goal is to progress past linear “take-make-waste” approach to one in which supply chains around the world are supporting a “make reuse circular approach to dramatically lengthen the lifecycle of the items around us”.

“Circular economy is already well underway around the world and goes beyond sustainability agendas,” Du informed delegates in her presentation at the annual SAPICS Conference, which this year attracted some 800 supply chain professionals representing 28 countries.

Industrial symbiosis

“The circular economy builds on the idea of industrial symbiosis where the idea is that a series of factories are set up next to each other; the bi-product or residual product of one factory process is used as a

resource by another. Through local collaboration, public and private enterprises buy and sell residual products from one another, both making money and saving the environment. With new Industry 4.0 technologies, the concepts beyond the industrial symbiosis can be stretched across digital supply networl allowing for materials and byproduct exchanges to happen at scale."

Organisations and governments are investing in these initiatives because of the capabilities of the circular economy, including profits, she said.

Challenging the misconception that saving the planet always comes at a cost, Dull reported that the circula economy is on track to add US$4.5 trillion to the global economy by 2030 and create hundreds of thousar of new jobs. "I argue that the true focus of circular is first on the 'economy' part; on expanding profits," she stated.

Embracing circular economy principles

Sports brand Adidas is embracing circular economy principles in its partnership with "Parley for the Ocear an environmental organisation that is fighting environmental threats posed by ocean plastic pollution.

"In 2017, Adidas sold one million pairs of its Parley brand shoes, which are made with ocean plastic. In 2018, five million pairs were sold; and Adidas has announced that it will make 11 million pairs in 2019. The are not inexpensive shoes, but they are in demand," Dull said.

Proctor & Gamble is making bottles from recycled plastic and ocean plastic. "As part of their 'Ambition 20 Initiative', they have taken nearly all of their manufacturing facilities past zero waste towards circular model and have saved over US$2bn."

She revealed that there is a growing emphasis on designing products for the circular economy. EcoCradle one such product. Designed to replace Styrofoam, it is a mushroom-based packaging material that is now being used by furniture giant IKEA.

"It grows relatively quickly. It is cost-effective, and it decomposes in 30 to 90 days," explained Dull, adding that the global market for sustainable packaging is expected to reach more than US$140bn in the coming years.

Increase of PaaS

The circular economy highlights the importance of extending the useful life of an item for as long as possible. This has increased "Product as a Service" offerings across the market, such as Uber, US-based "Rent the Runway" clothing rental, and – for an industrial example – "time on wing" for airplane engines.

Dull explained that GE Aviation offers this time on the wing through an "Outcome as a Service" offering to airlines, which means GE Aviation is responsible for predictive and preventative maintenance.

"This is important because assets are smart. Machines are intelligent. The Industrial Internet of Things and Industry 4.0 are bringing together sensors, advanced analytics, and machine learning. This combination means that the engine tells us when it needs to be serviced. And, as you can imagine, this is very powerfu Maintenance, Dull explained, is a key enabler of the circular economy.

Dull finished her presentation by exploring the impacts of the circular economy on the supply chain, asking

delegates to imagine waste as something of value that will be exchanged among supply chains as input to products and processing.

With materials exchanges starting to emerge across the world, Dull showcased early examples of “parts passports”, which record an asset’s details and history, including market analysis for valuation, and pair up potential buyers and sellers. “We need to start thinking about waste as inventory. Consider how much of th circular challenge could be solved if everyone switched, tomorrow, to using recovered materials only – an no longer used new, virgin materials,” she challenged.

At circular economy forums around the world, supply chain professionals are missing from the conversatic Dull concluded by urging SAPICS delegates to “invite yourselves to the discussions; supply chain teams find solutions to impossible challenges across the world. Now is the time to come together as a global community and create supply chains that can support circular business models”.