

SINCTRONICS

Founded by Flex

Bringing Circular Manufacturing To Electronics

Sinctronics has been amply recognized for its pioneering work:

- » Eco Amcham Award, 2015 and 2017
- » Plastics Magazine, Editor's Choice Award, 2016
- » Federation of Industries of the State of São Paulo Environmental Merit Award, 2017
- » The Circulars Award, 2017
- » Ellen MacArthur Foundation CE100 Brazil, 2015
- » R2 Certification, 2016

The modern world has a big electronics habit and it's getting bigger all the time. Electronic devices keep us connected and on the go, but when they break or become obsolete—which is often very quickly—they frequently end up in the trash. Electronic waste, or e-waste, is a problem not only because of the volume of material that is being discarded, but also because some components can cause serious pollution. Now, **Sinctronics**, a Brazilian company founded by Flex, is pioneering circular manufacturing processes that are making the information technology industry greener and more sustainable.

A Mountain of Waste

While today's electronic devices are often very small, the mountain of waste they have caused is enormous. During 2014 alone, nearly 42 million tons of e-waste was created around the world. E-waste recycling is growing, however. In the United States, about 29 percent of e-waste was recycled in 2012, up from 19.6 percent in 2010¹. Better still, the world is recognizing that past recycling practices, such as sending devices to developing countries for disassembly and disposal (where they are often harmful to local environments) can be replaced with something better.

That improvement is circular manufacturing, in which materials are collected to be refurbished or re-manufactured. Flex and Sinctronics realized that a market such as the region around São Paulo, Brazil, where manufacturing and re-manufacturing sites are close together, could help them showcase the true potential of a circular economy.

Innovating on Everything

The region is home to a large market of individual and business consumers, as well as to the companies that supply them with the electronic devices they need. What's more, Brazilian law incentivizes local production and mandates electronics recycling, with the goal that companies must recycle 17 percent of all electronic equipment sold in the country². Founded by Flex in 2012, Sinctronics describes itself as the first "integrated ecosystem" for sustainability in the electronics market. To succeed in circular manufacturing, it needed to build out four separate functions: reverse logistics, recycling facilities, R&D through its Green IT Innovation Center, and reverse supply chains.

It began with reverse logistics, because that is the most expensive part of the entire process, accounting for about 60 percent of total cost. Sinctronics' logistics infrastructure now covers all of Brazil, with dedicated vehicles in high-volume areas³.

The company has had to invent virtually every process related to circular manufacturing. "The world has been optimizing a linear economy for more than 200 years," says Carlos Ohde, director general of Sinctronics. "Everything is optimized from the factory to the consumer. The circular economy is a new thing for the world. Everything we're doing, from process and logistics to fiscal and legal, is something we've had to create and barriers we've had to overcome. It's pure innovation here."

The company's investment in innovation is driven by the belief that the new circular economy will ultimately be more efficient than the old linear model. The plastic parts produced by Sinctronics through its re-manufacturing process represent a savings of up to 82 percent on energy over normal plastics production, and an 82 percent reduction in greenhouse gas emissions⁴. And that is not all. Thanks to the processes that Sinctronics has pioneered, 97 percent of recovered material is going back into the supply chain, with Sinctronics selling customers both finished products and reused raw materials that they can redevelop on their own. Sinctronics' Zero Waste Initiative also means that less material is going to landfills⁵.

Sinctronics is improving circular manufacturing in other ways, too, Ohde notes. One of the most radical changes has been its creation of a reverse logistics infrastructure. Reverse logistics was not common in Brazil, so logistics companies charged more for it than the regular process. Sinctronics developed partners for doing reverse logistics in an optimized way, tracking all the equipment and service levels involved. Thanks to this approach, Sinctronics has reduced client costs by up to 30 percent and increased material collection times by 50 percent.

Partnerships and internal innovation go hand-in-hand, in Sinctronics' view. While the company processes all plastics itself in its own facilities, it has partnerships for metals such as iron, copper and aluminum.

Sinctronics has been amply recognized for its work. In 2015 and again in 2017, it was given the Eco AmCham Award, the oldest award for sustainability initiatives in Brazil. In 2016, it was hailed by *Plastics Magazine*, with an award adjudicated by the publication's editors, clients and suppliers.

More recently, the Federation of Industries of the State of São Paulo, the largest business group in Brazil, awarded Sinctronics its FIESP Environmental Merit Award—winning out over many larger, multinational candidates. In 2017, it was recognized by The Circulars, the world's top circular economy award program created by the World Economic Forum in collaboration with Accenture Strategy. Sinctronics' Experience Center helps educate customers on sustainability and provides practical training.

Redesigning the Future

What does the future hold for Sinctronics? In Ohde's view, it will be built around the core concepts of its founding company, Flex.

"Flex has the idea of helping customers achieve impact by fusing [sustainability](#) and [Sketch-to-Scale® solutions](#)," he says. "Like Flex, we're developing sustainable product features for our customers. We're enabling a Fortune 100 company in the enterprise IT and technology space, which has a major presence in the Brazilian market, to put more recycled material in their products. We're helping them to have a more sustainable design." On average, Sinctronics' customers have replaced 20 percent of the virgin plastic they use with recycled materials⁶.

Sinctronics and Flex are also looking to expand efforts in the São Paulo region into a national reverse supply chain. "We can set the standard for the national industry," Ohde says. "We can share technology and we can license technology. We will not be just one operation, but a collaboration among hundreds of partners."

If your company is interested in clever solutions for recycling and repurposing recycled goods, take a closer look at Sinctronics, founded by Flex.

^{1,2} E-Waste Recycling Facts and Figures, The Balance, <https://www.thebalance.com/e-waste-recycling-facts-and-figures-2878189>

^{3,4} "A study on the environmental aspects of WEEE plastic recycling in a Brazilian company", *International Journal of Life Cycle Assessment*, February 2017.

^{5,6,7,8} Sinctronics Green IT Innovation Center (corporate brochure), February 2017.

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