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Food Waste and the Circular Economy: No Stinky Business

by Mark Esposito

One billion people go hungry every year, and another billion are undernourished. At the same time, three billion tons of food waste are thrown out annually. The circular economy can fight hunger while providing new business opportunities.

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2015 might have been the watershed year for food waste. For starters, as one of its Sustainable Development Goals of 2015, the UN set a target of cutting retail and consumer food waste in half on a global level by 2030. The USDA and EPA also set the first national food waste reduction goal, matching the UN's global goal. Meanwhile, in France, the nation's legislators voted to make it illegal for supermarkets to throw out unsold food, requiring instead that they donate it to charities or for animal feed and composting. These

actions reflect a growing discourse and discontentment with the increasing awareness that modern conveniences have negative consequences for our food supply and limited natural resources. In the U.S., for example, since 1974, food waste per capita has increased by 50%. According to the FAO, one billion people go hungry every year, while another one billion are undernourished. At the same time, three billion tons of food is thrown out annually. Fortunately, innovative thinking by both entrepreneurs and executives in the circular economy have slowly but surely catalyzed business-oriented solutions on multiple dimensions in the best way possible: on a hyper-local scale.

Retail spoilage is a major category of food waste. In the linear economy, food that is still good but needs to be removed from shelves typically heads to the landfill. With circular thinking, however, nonprofits and companies like SpoilerAlert, WasteNoFood, Copia, and **Zero Percent** have created online marketplaces to connect retailers with charities and food recovery groups to divert fresh fruits and vegetables away from the junkheap. **Food Cowboy** takes this same model and focuses on truckers along the supply chain. In the case of these trucks, retailers or distributors can turn away fresh, ready-for-retail produce away for reasons such as overstock, even if the trucker has driven 1,500 miles from their origin.

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Developers have also used technology to impact food waste at the business level. B2B company LeanPath created software that allows restaurants and food service industries to keep track of their waste. Until LeanPath, companies ignored food waste since food was considered to be cheap. With LeanPath, managers were able to discover how much value they were leaving on the table, and some companies have been able to cut their food waste by as much as 80%.

In supermarkets and among other retailers, imperfect foods are a big part of the problem when it comes to food waste and failure to understand circular economics. "Imperfect" refers to misshapen or slightly blemished fruits and vegetables that don't meet the strict cosmetic requirements of supermarkets. Retailers typically only accept about 60%-80% of farmers' produce due to not meeting cosmetic expectations. This type of rejection has

sometimes resulted in farmers either leaving their crops to rot in the fields or for distributors to toss the rejects. When it comes to looks, though, **Misfit Juicery** didn't have to think twice. As cold-pressed juices became mainstream health food, the company's founders recognized a fundamental business opportunity: they could sell their juices at premium prices while buying their fruits and vegetables at discount prices. Another company, **Imperfect Produce**, aims to change public perception of blemished or misshapen produce by offering a subscription delivery service at a discount under the tagline: "ugly produce delivered."

Full case study available online »

Manufacturing waste and byproducts in the food industry also create "waste"—waste with lots of opportunity in the circular economy. On average, a coffee shop in a city the size of London throws out about 200,000 tons of coffee grounds per year. Nikhil Arora and Alejandro Velez, enthusiastic coffee drinkers and founders of California-based company **Back to the Roots**, wanted to take to market the demonstrated method of growing mushrooms out of coffee grounds, realizing that this was a business opportunity that could also help the environment. In 2013, they collected three million pounds of used coffee grounds in the San Francisco area from about 50 local cafes. They eventually found out they could diversify their revenue sources by charging a waste removal fee to collect the grounds and by selling the grounds also as premium soil amendments. In London, a startup called Bio-bean is also helping to keep coffee grounds out of landfills. Through partnerships with instant coffee makers and waste collection companies, Bio-bean extracts oils from the grounds for biofuel and processes the remaining solids into biomass pellets to be used for heating.

Innovating for the circular economy to reduce food waste doesn't always have to mean the start of a new business. For instance, French yoghurt company Danone has focused innovation on manufacturing byproduct since they realized there was value to be had from the leftover acid whey the company generated from straining their Greek yoghurt products. Rather than send this protein-rich byproduct to the landfill, they found a way to repurpose the acid whey into their baby food lines.

Practicing circular economy principles on the consumer level is among the most difficult issues to eliminating food waste. However, mobile phone apps like Green Egg Shopper and Love Food Hate Waste help consumers keep track of what they buy and when they buy it, and offer recipe suggestions to make use of every ingredient. At home, the company BluApple is tackling this end of the food waste cycle right in the kitchen. Part of the reason why produce goes bad is ethylene gas: a natural ripening agent given off by fruits and vegetables. Warehouses utilized technologies indoors to reduce the amount of ethylene gas in its storages and to keep produce from spoiling. Inspired by their observations of warehouse practices in the food industry, the founders of BluApple realized that they could bring the same principle to common households. Their product, a small blue container in the shape of – you guessed it – an apple, filled with sodium permanganate, absorbs ethylene gas to slow down the ripening process and helps keep produce fresh and edible for longer periods in busy households.

New business models in the circular economy promise to help change the trajectory of food waste, but more still needs to be done. Standardizing rules for "best by" dates and breaking down perceptions that quality and taste is dependent on cosmetic appearance are some of the next challenges to a circular economy in food waste that business owners, managers, innovators, environmentalists, and entrepreneurs alike will face in the coming years.

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