

A World Without Waste

Nick Enge

The chair in which I write this column is a toxic conglomeration of mixed plastics, several unknown alloys of metal, cardboard, grease and polyurethane foam soaked in carcinogenic flame-retardants. If the intention of my anonymous chair designers was to pollute my indoor environment and create twenty pounds of unrecyclable waste, they've certainly succeeded. If it was to provide a place for me to sit, they could've done better.

My chair is a classic example of "cradle to grave" product, an artifact designed to have a brief life at the lowest cost to the manufacturer and customer, regardless of the waste and environmental impact. Though created from the highest-quality steel and plastic, my chair, with all of its valuable aggregate materials, is destined for a landfill. As an eco-conscious engineer, even if I attempted to recycle the metal and plastic in my chair, the best I could do is "downcycle" it — turn the unidentified plastic into plastic lumber, and make low integrity junk from the mixed metals.

Consider how different this life cycle is from what a monkey sits on: a tree branch, the product of an elegant combination of seed, water, carbon dioxide and soil. After its useful life providing services for monkey and tree, the branch is decomposed directly into the same basic building blocks of life: water, carbon dioxide and soil.

The basic biological nutrients produced by this decomposition may then be reused for a myriad of other local purposes. Instead of downcycling or trashing "waste," nature "upcycles" it by eternally reusing nutrients without degrading their quality — the life cycle of a tree branch is "cradle-to-cradle," not "cradle-to-grave."

Let's consider how a chair in the future will be made.

As dictated by the great Truth-in-Labeling Act of 2015, each chair is labeled with a prominent ingredient list, and seeing as my local Environ-Mart carries only cradle-to-cradle products, each chair's list will include at most four or five easily recognizable compounds: steel, high quality non-toxic plastic, an organic upholstery fabric and several plant based dyes. In fact, every time I shop at Environ-Mart, I am astonished by the overwhelming diversity of options made from so few materials, but so too am I amazed when in nature I see such diverse wonders, made mostly from carbon, hydrogen and oxygen.

In 2030, my eco-chair is still going strong, but I'm in the mood for something a bit snazzier. So I load the eco-chair into my electric car, and drive not to the dump, as I did with my toxic chair in 2007, but back to my local Environ-Mart. At a window labeled "Upcycling Return," a helpful neo-hippie takes the chair off my hands, and presents me with store credit for the value of the steel, plastic and organic materials I just returned.

From there, my chair is transported to the local manufacturer, who disassembles it into its component steel, plastic, and organics, and feeds each high quality material straight back into the manufacturing process — the steel and plastic are melted down and recast, the organics composted and used to nourish new upholstery fiber at a neighboring organic farm. The manufacturer is thus able to create a new chair, using only my returned materials.

Back at the store, I pick out a new chair of the latest 2030 style and apply my store credit to the purchase, effectively paying only the cost of labor, recycling energy and transportation.

In a hypothetical world with constant population, cradle-to-cradle manufacturers could provide a constantly evolving supply of stylish replacements without ever depleting resources or creating wastes, simply by recycling everything. There would be just as much economic activity in the chair market, just as many chair-making jobs, and as much diversity of design as there is today, but the whole system would create zero waste, zero pollution, zero health effects and zero resource depletion. That's a chair on which I'd be proud to sit.

If you are interested in learning more about cradle-to-cradle design, check out "Cradle to Cradle: Remaking the Way We Make Things" (2002) by William McDonough and Michael Braungart. Send your ideas to nick@positivesustainability.org.

Citation: Enge, Nick. (2008, May 1). "A World Without Waste." *The Stanford Daily*. <http://www.positivesustainability.org/daily/ps3cradle.php>