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# Cradle To Cradle: Remaking The Way We Make Things



## Synopsis

A manifesto for a radically different philosophy and practice of manufacture and environmentalism. "Reduce, reuse, recycle" urge environmentalists; in other words, do more with less in order to minimize damage. But as this provocative, visionary book argues, this approach perpetuates a one-way, "cradle to grave" manufacturing model that dates to the Industrial Revolution and casts off as much as 90 percent of the materials it uses as waste, much of it toxic. Why not challenge the notion that human industry must inevitably damage the natural world? In fact, why not take nature itself as our model? A tree produces thousands of blossoms in order to create another tree, yet we do not consider its abundance wasteful but safe, beautiful, and highly effective; hence, "waste equals food" is the first principle the book sets forth. Products might be designed so that, after their useful life, they provide nourishment for something new—either as "biological nutrients" that safely re-enter the environment or as "technical nutrients" that circulate within closed-loop industrial cycles, without being "downcycled" into low-grade uses (as most "recyclables" now are). Elaborating their principles from experience (re)designing everything from carpeting to corporate campuses, William McDonough and Michael Braungart make an exciting and viable case for change.

## Book Information

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## Customer Reviews

Paper or plastic? Neither, say William McDonough and Michael Braungart. Why settle for the least harmful alternative when we could have something that is better—say, edible grocery bags! In

Cradle to Cradle, the authors present a manifesto calling for a new industrial revolution, one that would render both traditional manufacturing and traditional environmentalism obsolete. Recycling, for instance, is actually "downcycling," creating hybrids of biological and technical "nutrients" which are then unrecoverable and unusable. The authors, an architect and a chemist, want to eliminate the concept of waste altogether, while preserving commerce and allowing for human nature. They offer several compelling examples of corporations that are not just doing less harm--they're actually doing some good for the environment and their neighborhoods, and making more money in the process. Cradle to Cradle is a refreshing change from the intractable environmental conflicts that dominate headlines. It's a handbook for 21st-century innovation and should be required reading for business hotshots and environmental activists. --Therese Littleton

Environmentalists are normally the last people to be called shortsighted, yet that's essentially what architect McDonough and chemist Braungart contend in this clarion call for a new kind of ecological consciousness. The authors are partners in an industrial design firm that devises environmentally sound buildings, equipment and products. They argue that conventional, expensive eco-efficiency measures things like recycling or emissions reduction are inadequate for protecting the long-term health of the planet. Our industrial products are simply not designed with environmental safety in mind; there's no way to reclaim the natural resources they use or fully prevent ecosystem damage, and mitigating the damage is at best a stop-gap measure. What the authors propose in this clear, accessible manifesto is a new approach they've dubbed "eco-effectiveness": designing from the ground up for both eco-safety and cost efficiency. They cite examples from their own work, like rooftops covered with soil and plants that serve as natural insulation; nontoxic dyes and fabrics; their current overhaul of Ford's legendary River Rouge factory; and the book itself, which will be printed on a synthetic "paper" that doesn't use trees. Because profitability is a requirement of the designs, the thinking goes, they appeal to business owners and obviate the need for regulatory apparatus. These shimmery visions can sound too good to be true, and the book is sometimes frustratingly short on specifics, particularly when it comes to questions of public policy and the political interests that might oppose widespread implementation of these designs. Still, the authors' original concepts are an inspiring reminder that humans are capable of much more elegant environmental solutions than the ones we've settled for in the last half-century. Copyright 2002 Cahners Business Information, Inc.

Cradle to Cradle and its following book (The Upcycle) describe how in practical terms people and

businesses can affect the health of the planet. The authors are/have worked with companies and governments to put their theories into practice. It works and those companies who have gone that route have saved money and improved the environment around them. Individuals can also follow many of their ideas to improve our lives and the environment. The choices can be as simple as planting trees, recycling and buying products from companies who follow the authors stands to putting solar panels on your roof. Read the books, get to work.

Warning. This is a plastic book (recycled something other than paper, waterproof). A pen smears, so plan to use a pencil if you are a normal person who reads serious books with an annotating hand. It is a fast light read, and in some ways I think the authors do not do their pioneering work full justice. It was very helpful to me to have first read Paul Hawken's books (with his co-authors--see my reviews for a fast overview), namely *Seven Tomorrows*, *The Ecology of Commerce*, and *Natural Capitalism*. With that background, and of course having read *Limits to Growth* and related works in the 1970's, I found these authors to be impressive, coherent, and on target. HOWEVER, someone without that broader background could possibly find this book facile and unpersuasive if not somewhat opaque, which would be unfair to the authors. They are brilliant and merit our attention. The book opens with a review of the industrial era which is characterized by cradle to grave design, meaning all things are designed for eventual disposal, generally at the taxpayers' expense and without regard to the natural capital cost of what was produced. This era, as the authors describe it, has been characterized by one size fits all planning (which wastes enormously on diverse points along the spectrum of actual need); by design for worst case conditions (more waste when they do not materialize 80% of the time); by the application of brute force to the land (with all that implies in energy consumption); by a monoculture concept (lawns with pesticide instead of natural gardens as eco-systems), and relatively crude products. The authors' bottom lines here are that being less bad is not good enough, because in a closed system you can only go so far in relegating stuff to a grave, eventually the whole Earth will be one massive grave. The four R's, and they give credit throughout the book to others, are Reduce, Reuse, Recycle, and Regulate. They are very specific in stating that downcycling is not true recycling, and most often leads to a cumulative increase of toxins with each reuse. They are conscious of and discuss conflicting views of growth, but like Paul Hawken, they are clearly pro-business and articulate in pointing out that if Henry Ford can see the value of going green, then all businesses should take this general message seriously: sustainable profit is ONLY possible if you go green. They distinguish between biological recycling and technical recycling. Although many more examples could have been provided of both

processes being successfully implemented, they go far enough to be understood on this point. "Clean" water is not so clean after all. Just as fish are absorbing and passing on to human very high levels of mercury, so also is even the cleanest of water being found to be contaminated in alarming ways. The authors conclude that it is possible to design cradle to cradle products if one commits to converting the products into leased services, with the "producer" being responsible for taking any given product back for proper and full recycling. This gives the producer every incentive for designing products that can be easily broken down, re-used, and purified of all toxins from cradle to cradle. The localizing of processes, but especially of waste treatment, is another theme that runs strongly here. Not only can neighborhoods create aquatic biological localized waste treatment processes that are beautiful and natural, but since the water they drink comes out the other end, they are individually incentivized to avoid dropping toxins into the natural waste system. The authors have a triangle comprised of Energy, Equity, and Economy, and without getting into the public philosophy (see my review of the book by that title), suggest that the three must go forward together. They point out that feedback is important, that information improvements can contribute a great deal to our making progress along the lines they suggest, with business being the greatest beneficiary. The book concludes with five steps and five guiding principles. The five steps are: 1) Get rid of known toxins and culprits in every product and service 2) Follow informed personal preferences 3) Do detailed analysis of the positive, neutral, and negative components of any product or process 4) Design around the positive 5) Reinvent constantly--exceed the first fix again and again. The five guiding principles are: 1) Signal intention 2) Restore, restore, restore 3) Innovate and keep innovating 4) Understand and prepare for the learning curve of the client 5) Exert inter-generational (sustainable) responsibility. This is not a good book to read in isolation. It earned four stars because of the authors' proven accomplishments, but the book I wish they had written would have had much more substance of successful natural designs from the past, and proposed new designs for neighborhoods, townships, rural areas, and cities as well as factories. It would be quite interesting for these two authors to create a book on "Designing Forever: The Way It Needs to Be." If they write it, I will buy it and review it here at .

Cradle to Cradle was published quite a while ago, and somehow I didn't catch up to it until now. From the moment one picks up the book, it is evident that this book is a little different - even physically, as it is made from a durable material that is waterproof and smudgeproof, and better for the environment than typical paper. The authors do a great job of alarming the reader through anecdotes, stories, and descriptions of all the junk we manage to produce, consume, and throw

away - along with all the little pieces of that junk that end up in our lungs, food, and ultimately, bodies. The crux is, in order to become ecologically sustainable, we need to drastically re-envision the paradigm of "green." It is not enough for items to be organic, free of pesticides, or made to be recycled - items need to be completely reused, upcycled, or converted back to the virgin material. The authors are both practical and straightforward with their descriptions, cite most of their findings heavily, and present a solid case. I highly recommend this book.

A new trend is beginning to emerge and its presence increasingly felt in our everyday lives. Let me offer an example: As you take a stroll through your neighborhood you are likely to see not just one container, but two lining the curbs of the street. To many, their existence resembles progress and an increased responsibility in the way we interact with our environment. In fact, to own and use a recycling bin (yes, you likely already guessed it) in some ways has progressed to an object of pride or a display of consumer responsibility. However, it's early and you take little notice of them as they have become quite commonplace in your neighborhood. You continue your walk and pass a couple wearing matching slip-on shoes, which you recognize from an advertisement as being made of recycled rubber and various other recycled materials. In addition, they are each carrying a cotton grocery bag which they intentionally bring and reuse every time they make such a trip to the store. You head back down your street (feeling slightly guilty after the couple passed you and wondering if you shouldn't also be using such a bag) and arrive back at your residence. You reach down and pick up the newspaper (made of recycled paper) just as your neighbor pulls into their driveway, windows down and music playing. You recognize the soothing voice of Jack Johnson and strain your ears to listen more closely: If you're going to the market to buy some juice. You've got to bring your own bags and you learn to reduce your waste... And if your brother or your sister's got some cool clothes... You could try them on before you buy some more of those... Reuse, we've got to learn to reuse. And if the first two R's don't work out.. and if you've got to make some trash... Don't throw it out... Recycle, we've got to learn to recycle. I think I've made my point. The message is everywhere. And as Johnson's song laid out for us above, the message is clear: Reduce, reuse, recycle. However, as widespread and as this message is becoming one must stop and ask: is it effective? William McDonough and Michael Braungart argue in *Cradle to Cradle: Remaking The Way We Make Things* that such a design goal is ineffective. Efficient? Yes. Effective? Not quite. They propose that such efforts, which they categorize as "eco-efficient" design, are only a "less

bad design methodology that emerged from the industrial revolution. These efforts do not change the way products are designed, rather they seek to mitigate the effects of poor design. As result, they seek a negative goal of zero impact on the environment. The problems associated with this approach are numerous. First, it creates a dichotomy between the environment and industry, with gains to one necessitating a loss to the other (also known as zero sum, see the trend). This leads to conflict and opposing agendas between the two and does very little to reveal how the two may actually be of benefit to one another. Second, as mentioned, it only makes a bad thing, less bad. To reduce something bad or harmful does not negate its impact, but only delays it. As such, these efforts are by definition unsustainable. Third, at best it has a goal of seeking not to degrade the environment and certainly does not consider the possibility that good design may actually improve the environment. So what is the main problem with the design form that emerged from the industrial revolution? Put simply, it was designed to become waste. Or put another way, it was designed with waste in mind. The authors label such design, cradle-to-grave design, as it is purposed from inception to become waste. They suggest that to solve this design dilemma we must rethink our idea of waste, or rather not think of it as a possibility at all. If design is reborn without waste in mind then we will have new products and new systems that bring life and wasteful abundance to its surroundings. If we sow design with new life in mind, our industries and our environment will reap the benefits of this change in design methodology. The authors point out that nature's idea of waste or excess actually enriches its surroundings. What if we design products from inception that sought to do the same? What if we learned from nature's example and designed our systems cradle-to-cradle?

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