

# THE CIRCULAR ECONOMY

REDUCE, REUSE, RECYCLE  
THE FIVE R'S AND HOW TO  
USE THEM...

## What is a Circular Economy?

A circular economy keeps materials, products and services in use for as long as possible. A circular economy reduces material use, redesigns materials, products and services to be less resource intensive, and recaptures "waste" as a resource to manufacture new materials and products.

## Why is a Circular Economy important?

A circular economy focuses on material recovery and the vital role in reducing waste headed to the landfill. A thoughtful and inclusive economy, has potential to protect the environment, improve economics and serve through equality. Safe jobs and healthy communities are the goals to a circular economy.

[www.epa.gov/recycling-strategy/what-circular-economy](http://www.epa.gov/recycling-strategy/what-circular-economy)

Taking materials from Earth, making products from them and disposing of them is a linear process.

In a circular economy, in contrast, we stop waste from being produced.

**The Circular Vision:** Imagine a time when our throw away economy will be reduced, even eliminated. Resources are circulated, and nature is regenerated; a circular economy has potential to do just that.

### Three Principles of Circular Economy:

1. Eliminate waste and pollution
2. Circulate products and materials
3. Regenerate Nature

### How to eliminate waste and pollution:

Currently our production structure is to take from the earth and make useful items. Once the usefulness is complete, we dispose of that item.

In a circular economy, the specification for any design is that the materials re-enter the economy at the end of their use. Thus making the take/make/dump waste system we currently use, and make it a circular system.

**Designing for Circular and Regenerative Products:** There are two fundamental cycles to consider in Circular design: Technical Cycle and Biological Cycle.

The technical cycle focuses on products that can be reused, repaired, re-manufactured, or recycled. On the biological cycle, items are made of biodegradable materials, and returned to the earth through composting and anaerobic digestion.

### The Key Is Design:

Successful products in either the biological or technical cycles should be designed with their eventual circulation in mind. Today, many products are created with a short life span and the end of use considered to be waste.

Designers should think about their designs with technical or biological cycles after use. Products created with technical cycles would be easily repaired or maintained, easy to pull apart and able to use modular components. These items would withstand the wear and tear of many uses. Once the usefulness is done the product would be recycled into a new design/product.

Studies and products are currently being worked to be biologically beneficial. Items are being created from agricultural by products from corn and other grains, and mycelium (mushroom roots) to create packaging that is 100% compostable. Once the product is shipped and received, the packaging can be put out with the compost and eventually be returned to soil.

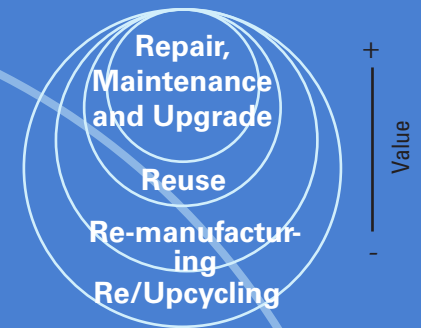


Image source: Ethica, Anne Roudaskoski  
Information from: [sustainabilityguide.eu](http://sustainabilityguide.eu)

## The Circular Economy - 4 loops:

The circular economy is all about retaining value. The better the integrity of the product is preserved, the more value is retained.

Business will be markedly different in a circular economy. Enforcing companies to rethink how design and manufacturing products for their customers will lead to longer product life and better quality, rather than consumption. The focus on function places different demands on the business community. We will see companies benefiting from one another's successes in this cascade of different cycles.

While challenging, the shift will bring many new opportunities in infrastructure, energy and production in fitting into the circular economy model. Companies will find new ways to extend the life of products or components finding value in the waste, or the design of circular use.

Information from:  
[ellenmacathurfoundation.org](http://ellenmacathurfoundation.org).

## REDUCE, REUSE, RECYCLE THE FIVE R'S AND HOW TO USE THEM...

In the current linear economy, where products have a limited lifespan and we continue the make/take/dump mentality, the way to work sustainable is through understanding the Five R's of Waste Reduction and Sustainability.

These five R's are: Refuse, Reduce, Reuse, Recycle, and Repository.

Let's explore these 5 R's to better understand how we can minimize our waste and divert from the landfill/repository.

### Refuse:

Refusing is an option that consumers have to voice their opinion. In refusing to purchase reusable items not only minimizes waste but sends a message to the companies on what the consumer is most interested in.

### Reduce:

Reducing the use of dangerous, wasteful or non-recyclable products not only reduces the hazard of these items ending up in the landfill, but also reduces the dependency upon them. The more consumers seek out more sustainable alternatives, the better it is for the climate.

### Reuse:

Reusing items instead of buying new, offers a secondary life and steps closer to the circular economy mentioned on side one. Plastic has become the world's most significant environmental challenges. Single-use cutlery for example is used for 10 minutes and will be on the earth for over six generations. Consider replacing single-use items with reusable alternatives.

### Re-purposing:

Finding new ways of using items that no longer are of original use to you is very desirable. Giving new life to used items, not only shows creativity, but also shows sustainable thinking and living, not to mention it is very chic.

### Recycling:

The last of the five R's is a great option if the first four don't work. Recycling is an option everyone has to better the environment. However, not everyone takes the opportunity to recycle, sometimes it is more convenient to just toss the item away, mindlessly.

## THE WASTE HIERARCHY

In the current liner design we have a Waste Hierarchy that we should discuss as well. While this works in a liner design, it is less advantageous than the circular model at keeping waste from the landfill.



Although recycling is often thought of as a single act, it is actually third place (out of five) in the *Zero Waste Network's Waste Hierarchy*. To succeed in a journey toward minimal waste, steps one and two have to be a priority.

### Step One: reduce.

Consider your purchases - is it something you really need to buy, or could you borrow it from someone?

### Step Two: reuse.

Finding ways to reuse items, instead of throwing them away once their initial use is complete. (SEE BROCHURE FOR IDEAS)

### Step Three: recycling

(and composting). Still vital, but as a third option.

### Step Four: recovery.

Done by the Ames Resource Recovery Plant - combining processed burnable garbage with natural gas to provide electricity for the Ames community.

This step offers a final option before landfilling (basically a storage repository), which is step five. The challenge lies in OUR hands. Only we decide what happens to the waste that we produce. We can skip the first four steps and send everything to the landfill, or we can BOSS YOUR TOSS for an option that keeps items out of the landfill.

As you have a waste decision - pause, remember and choose wisely your options: reduce, reuse, recycle, recovery or repository.

## BOSS YOUR TOSS, is a

campaign on Iowa State University Campus to help students, faculty and staff, understand as mentioned above, that WE decide what happens to our waste. While this is a campaign for Iowa State University, it really resonates to every community and individual.

Help us keep waste out of the landfill, where it will be stored for many thousands of years, and instead practice a circular economy, or the R's of Recycling.

For more information contact:

Steve Kohtz ("coats")  
Recycling and Special Events  
Coordinator at  
Iowa State University  
sakohitz@iastate.edu