



Circular Economy Our Perspective & Driving Action

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DELIVERING SOLUTIONS
UNLOCKING OPPORTUNITIES

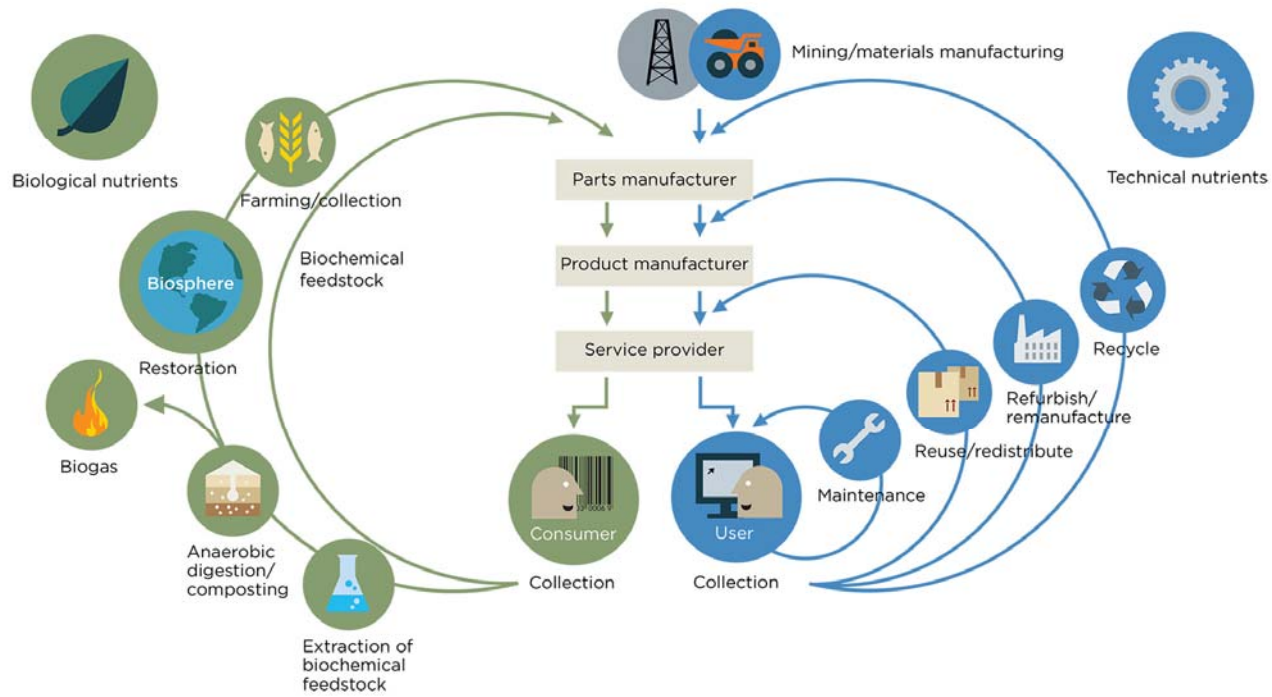
■ Circular Economy – Ellen MacArthur Foundation Definition

A **circular economy** is one that is restorative and regenerative by design, and which aims to keep products, components and materials at their highest utility and value at all times, distinguishing between technical and biological cycles.



EMF Circular Economy Loops

Where does this company sit within the circular economy?



■ Circular Economy – Dow Definition

The **circular economy** is keeping resources at their highest value throughout their lifecycles.

The circular economy maximizes the value and use of our resources by designing more efficient systems and materials, turning what used to be waste into resources that can be used again.

SYSTEMS REDESIGN. INNOVATION. COLLABORATION



■ Realizing a Vision for Improved Recovery



A Future Where All Plastic Packaging Goes Into the Recycle Bin



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Dow: 2025 Sustainability Goals



Leading the Blueprint

Dow leads in developing a societal blueprint that integrates public policy solutions, science and technology, and value chain innovation to facilitate the transition to a sustainable planet and society.



Delivering Breakthrough Innovations

Dow delivers breakthrough sustainable chemistry innovations that advance the well-being of humanity.



Advancing a Circular Economy

Dow advances a circular economy by delivering solutions to close the resource loops in key markets.



Valuing Nature

Dow applies a business decision process that values nature, which will deliver business value and natural capital value through projects that are good for business and good for ecosystems.



Increasing Confidence in Chemical Technology

Dow increases confidence in the safe use of chemical technology through transparency, dialogue, unprecedented collaboration, research and our own actions.



Engaging Employees for Impact

Dow people worldwide directly apply their passion and expertise to advance the well-being of people and the planet.

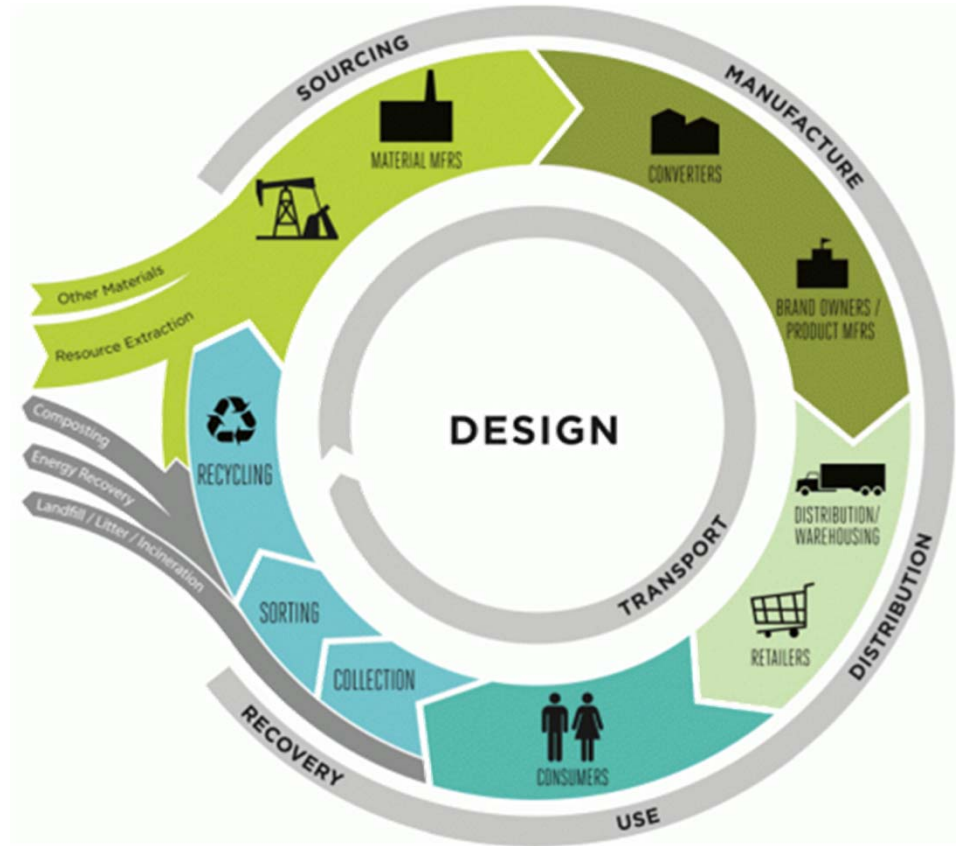


World-Leading Operations Performance

Dow maintains world-leading operations performance in natural resource efficiency, environment, health and safety.



Innovations Across the Lifecycle



Source:
GreenBlue



■ Why Do We Want a More Circular Economy?

Reduce Energy Usage & Avoid Depletion of Energy Reserves

Reduce Raw Material Extraction & Depletion

Prevent Waste from Being Landfilled

Retain Value from Manufactured Goods

Avoid Emissions of GHGs and Pollutants

Prevent Waste from Becoming Litter

Save Money & Create Jobs

Increase Economic Competitiveness

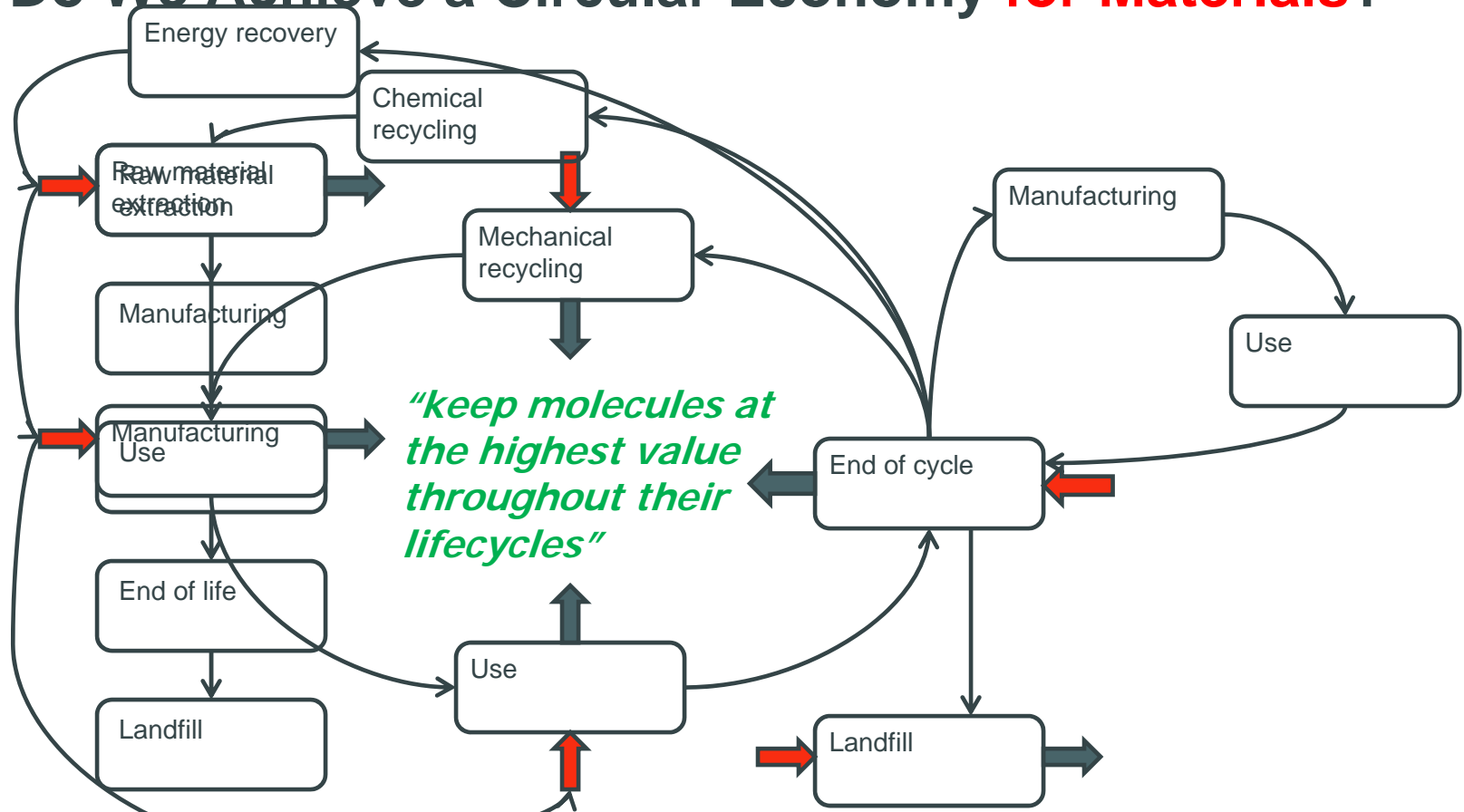


■ Why Do We Want a More Circular Economy?

- Reduce Energy Consumption
 - Reduce Freshwater Consumption
 - Prevent Pollution
 - To Address Climate Change
 - To Protect Public Health
 - To Save Money
 - To Increase Economic Competitiveness
- What might otherwise
be known as
- Sustainability**
- erves



How Do We Achieve a Circular Economy for Materials?



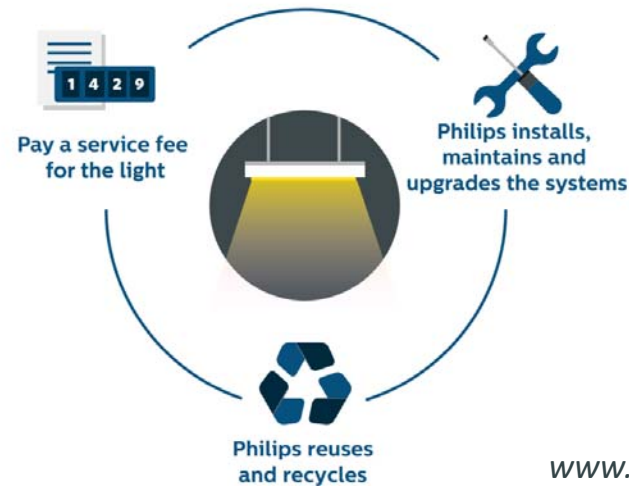
Circular Economy New Business Models

Access over Ownership

Become a Service Industry by Leasing




- Carpet Leasing (Desso)
- Lighting Leasing (Philips)
- Electric Car Battery Leasing (Renault)

Selling light as a service instead of bulbs



www.philips.com/sustainability

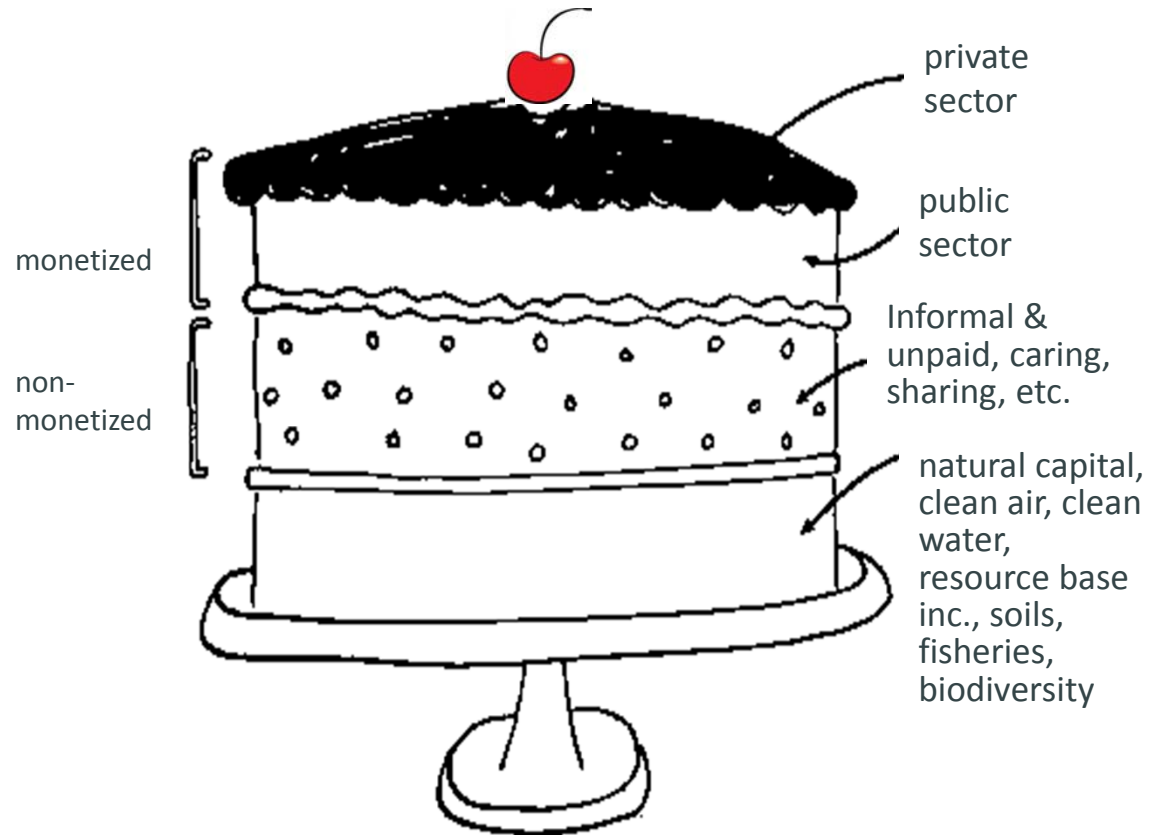
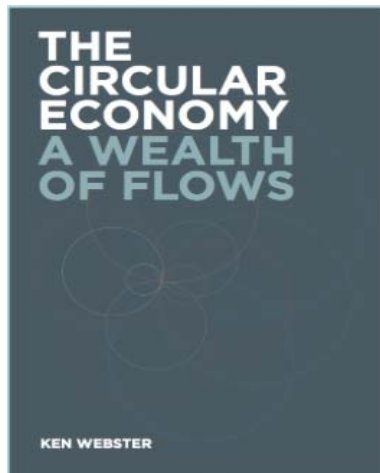
Ownership → Access Collaborative Consumption

	THE PROBLEM	THE SOLUTION
PRODUCT SERVICE SYSTEMS	Half of U.S. households own power drills, but most of them are used for only 6 to 13 minutes during their lifetime.	 <p>Zilok.com offers peer-to-peer daily rental of tools, camcorders, and other goods.</p>
REDISTRIBUTION MARKETS	Americans discard 7 million tons of cardboard annually.	 <p>UsedCardboardBoxes.com “rescues” and resells boxes to movers.</p>
COLLABORATIVE LIFESTYLES	Millions of houses and spare rooms around the world are sitting empty and have “idling capacity.”	 <p>Airbnb.com, the “Match.com for travel,” allows anyone from private residents to commercial property owners to rent out their extra space.</p>



Botsman, R. and Rogers, R. “Beyond Zipcar: Collaborative Consumption.” Harvard Business Review. October 2012.

Economy as a three-layered cake (with icing)



■ Ellen MacArthur Foundation Circular Economy 100

Dow became a corporate member of the (CE100), the Ellen MacArthur Foundation's pre-competitive innovation program in 2015

“ **The move to a circular economy will require a broad spectrum of innovation. Dow brings to the CE100 a strong track record of research and development, and we are looking forward to seeing how this expertise will contribute to the network, to open up new opportunities for collaboration and innovation.**

- Casper Jorna, CE100 Programme Lead, Ellen MacArthur Foundation

“ **We are pleased to join the Ellen MacArthur Foundation CE100 network. This is a great opportunity to foster collaborations that can advance circular economy solutions across multiple value chains and geographies.**

- Dr. Neil Hawkins, Corporate Vice President and Chief Sustainability Officer, The Dow Chemical Company



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■ The New Plastics Economy Initiative

Dow supports the New Plastics Economy Initiative with more than 40 leading companies including Amcor, Coca-Cola, and Unilever, as well as front-running cities like Copenhagen and the Londo Waste and Recycling Board

The initiative is led by the Ellen MacArthur Foundation in collaboration with a broad group of leading companies, cities, philanthropists, policymakers, academics, students, NGOs, and entrepreneurs. It builds on two years of formative work as part of Project MainStream, a multi-industry, global initiative launched in 2014 by the World Economic Forum and the Ellen MacArthur Foundation, with McKinsey & Company as knowledge partner.



Partnering to Lead



Supporting Research & Improving Materials Management



Hollister Center for
Business and Environment



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Materials Recovery for the Future

A New Research Collaborative

- Members of The Materials Recovery for the Future Collaborative share a simple vision:

“Flexible packaging is recovered, and the recovery community captures value from it.”

- We are leading research to advance understanding of how flexible plastic packaging can be effectively sorted for recovery



■ Polyethylene Stand-Up Pouch

Designing Recyclability into an Existing Package Format



■ Innovation is Critical to Successful Implementation

By promoting and supporting innovation, we can encourage businesses, governments, and non-governmental organizations to develop better solutions to the world's biggest challenges.

These solutions can help us improve resource efficiency by driving a more circular economy, eliminating waste from industrial processes, and providing the tools and incentives to capture the value of materials we have already created.



■ The Circular Economy (in my opinion)

Is	Is Not
A set of guiding principles	A simple checklist or flowchart
A powerful tool to improve sustainability	A magic bullet to eliminate all environmental & economic issues
A framework with lots of options	A one-size fits all solution
A systems approach to drive efficiency	A perpetual motion machine
A solution that is compatible with other frameworks, such as sustainable materials management	A replacement for lifecycle thinking or the need for careful scientific evaluation of solutions

Note: Not a comprehensive list!



■ Thank You

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