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FROM “TAKE-MAKE-WASTE” TO CIRCULAR ECONOMY:

PAVING THE PATH TO A SUSTAINABLE FUTURE

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There is a growing consensus among climate activists, environmental enthusiasts, and green experts that we need to move beyond our existing (linear) economic model — and fast.

If what we're looking for is a healthy future for both people and the planet, we won't find it if we continue to do "business as usual." But where do we go from here? What exactly are the old models we should leave behind?

THE CURRENT, LINEAR ECONOMY IS ALL ABOUT "TAKE-MAKE-WASTE." WHAT DOES THIS MEAN?

When we talk about 'take-make-waste', what we're talking about is an approach to resources. This model is the basis of the linear economy, in which raw materials are collected, transformed into products which are used briefly, and then thrown away - "take, make, waste."

In this system, value is created by producing and selling as many products as possible. The problem is, it operates on the assumption that there will be an infinite supply of raw materials, energy and labor. Today, we are seeing just how wrong that assumption is.

WHY IS IT SO UNSUSTAINABLE?

In a linear economy, waste is the end point; the full stop. Because of this, all kinds of waste are now threatening our ecosystems: plastic waste, textile waste, food waste, electronic waste, construction waste; just to name a few. **The numbers are staggering: our landfills are growing by some 2 billion tonnes of garbage every year. If all this waste was put on trucks, they would stretch around the Earth 24 times**.

Meanwhile, one-third of all the food produced for human consumption is wasted, and a whopping 8 million tonnes of plastic end up in our oceans every year. Many of us know this, yet still we continue buying more and more stuff.

BUT HERE'S THE GOOD NEWS:

WE CAN DO **BETTER**

WHAT IS CIRCULAR ECONOMY?

The circular economy is an alternative framework for designing, making and using things with our very limited resources. Unlike the linear economy, it is restorative and regenerative by design, and prevents waste by recovering and reusing as many products and materials as possible.

> *"The circular economy is a system focused on drastically decreasing the amount of materials which become waste and is focused on nature being regenerated.*
>
> *In a circular economy, products and materials are kept in circulation through processes like maintenance, reuse, refurbishment, remanufacture, recycling, and composting.*
>
> *In it, living, biological, technical and financial resources are maintained and kept in use at their highest societal value at all times."*
>
> *Armenian Circular Economy Coalition*

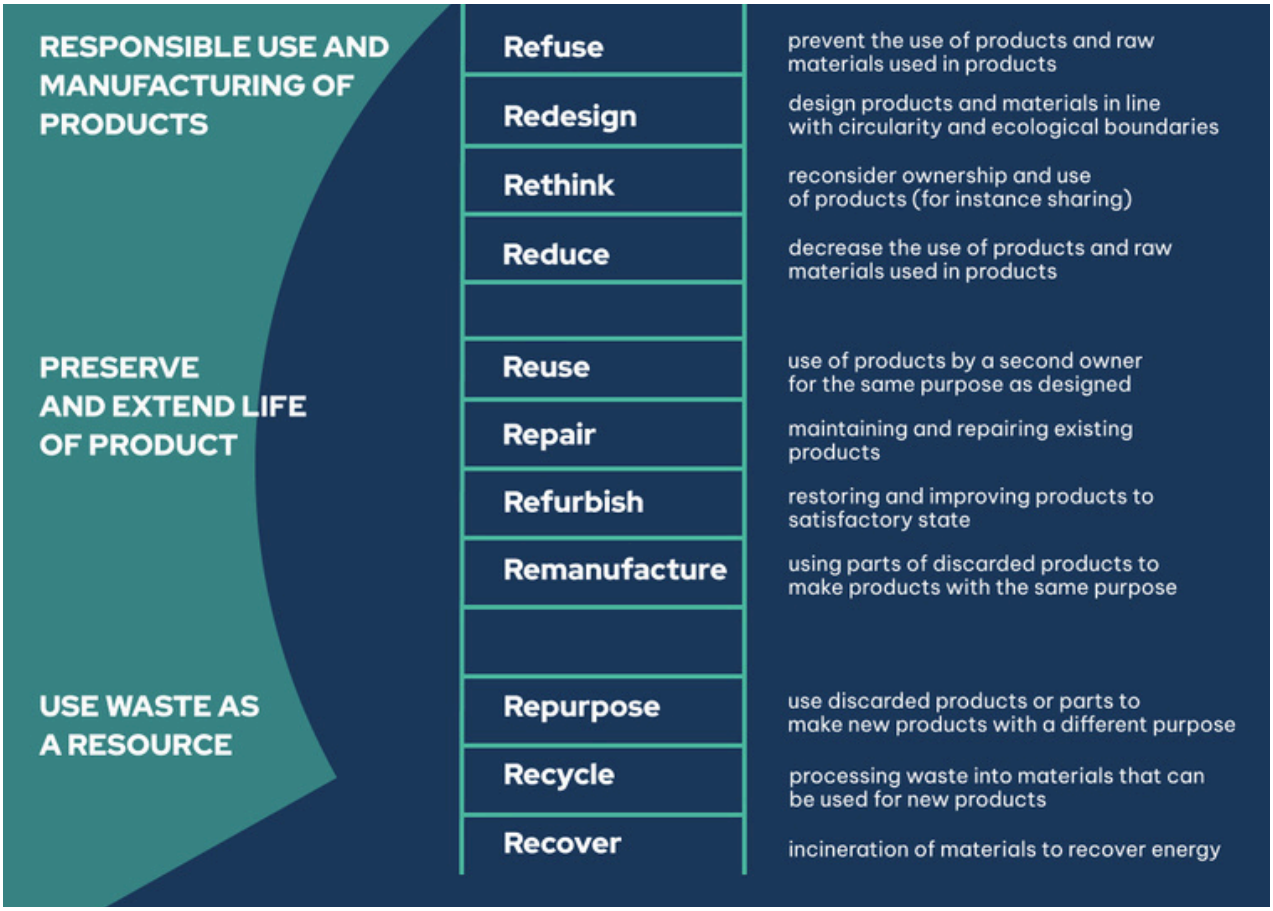
In other words, the circular economy tries to embed things in cycles: take, make, use, consume, regenerate, restore, reuse. But it is more than just recycling; it is a dynamic and complex system that requires radical change in almost every sector.

It demands that we think differently about many things. In circular economy, waste is viewed as a valuable resource (that can even generate profit); growth is decoupled from consumption; and our economy is made to fit nature, not nature to our economy. Not only does this make sense from an ecological perspective, it also presents new economic opportunities to innovate, create new revenue streams, and reach more customers.

But, does this work? Research suggests that yes — a circular system would have a positive impact on both the planet and the economy. If we made the transition today, we would halve the amount of CO2 emissions in our atmosphere by 2030. The consumer goods industry would save some USD 700 million in annual material costs, and a significant amount of new jobs will be created in innovative design and business models, research, recycling, and product development.

SO, HOW CAN WE PUT THIS INTO PRACTICE?

What can we do to help move beyond the take-make-waste economy? Consider the R-Ladder!



The 'R-ladder' is a diagram that can be used to rank and prioritize strategies towards a circular economy. Generally, strategies higher up on the ladder (such as those for rethink, reuse and repair) require fewer resources, and therefore have more impact in the long-run. At the bottom of the ladder, are strategies for recycling and recovery, which are helpful, but should still be limited because they often destroy some value or lower the quality of resources.

This concept offers a valuable checklist for innovators. It helps you to remember the true goal of any circular system. It's not about decreasing waste that already exists, or handling it more responsibly. It's about using less resources, making fewer products, and producing less waste from the start.

STRATEGIES TOWARDS A CIRCULAR ECONOMY

Circular strategies are all around us. Wedding dress or evening gown rentals are a great example of businesses that adopt circular strategies. Another example is your local neighborhood watch repairman. Have you ever purchased a used item from a secondhand seller, such as list.am? That's also a circular strategy.

Curious to explore these strategies and more? Read below for an in-depth explanation and real-world inspirational examples.

Strategies that contribute to the responsible use and manufacturing of products:

Refuse: Prevent the use of products and raw materials used in products. A prime example is Broadbit, a technology company for next generation electric vehicles, portable electronics, engine starters, and grid energy storage. Its lower cost, better-charging batteries are based on metallic sodium and other widely-available compounds. Among the active materials is sodium chloride (NaCl), or table salt. Using an abundant raw material is earth friendly, unlike mining for scarce metals like lithium, cobalt, nickel, and copper for conventional batteries.

Redesign: **Design products and materials in line with circularity and ecological boundaries**. Zero waste supermarkets are a great example of this, such as UK-based "The Clean Kilo". By selling plastic-free products, sourcing as local as possible and reducing food waste, they radically designed out packaging from the traditional supermarket model.

Rethink: **Reconsider ownership and use of products (for instance, sharing.)** One company spreading the digital love is Grover, a startup that rents tech items on demand. It circulates a range of over 5,000 items, including smartphones, laptops, virtual reality gear, wearables, and smart home appliances. Business owners and managers hold onto only what they need. When they're done with it, they can send it back to Grover's warehouses, where it is assessed for its condition, wiped of data, refurbished, and returned to the inventory, lengthening the product's life, and diverting it from landfills or collecting dust in a drawer.

Reduce: **Decrease the use of products and raw materials used in products.** For example, Pure Waste's clothing is made of 100% recycled fibers, containing 60% recycled cotton and 40% recycled polyester from bottles. One t-shirt has a water footprint of 1.2 liters and a carbon footprint of 1.1 kilograms, while the same shirt manufactured from virgin materials uses 1,426 liters of water and produces 2.1 kilograms of CO2. Eliminating virgin fibers from their supply chain saved 4,907,070,999 liters of water and 3,091,056 kilograms of CO2 emissions as of December 2022.

Strategies that preserve and extend the life of products:

Reuse: **A different consumer uses a discarded product that is still in good condition and is able to fulfill its original function**. This extends to anything from second-hand markets (like List.am!) to the standardization of items like pallets and glass bottles, so they are compatible with international or cross-industry use.

Repair: **Maintaining and repairing existing products so that they can perform once more.** These are actually quite common in Armenia. If you take a walk through your local neighborhood, you will definitely encounter many old butkas (or booths) where shoe repair, appliance repair, or even watch repair are offered. All these are strategies essential to a circular economy.

Refurbish: **Restoring and improving products to satisfactory state.** The obvious makeovers are for tech and appliances, and Apple, Dell, HP, Samsung, Amazon and many others offer refurbished product programs for devices. Another example is Patagonia Worn Wear, a program that the outdoor clothing company started to promote sustainability and reduce waste. It's a way for people to buy and sell used clothing and have their old Patagonia clothing repaired or recycled.

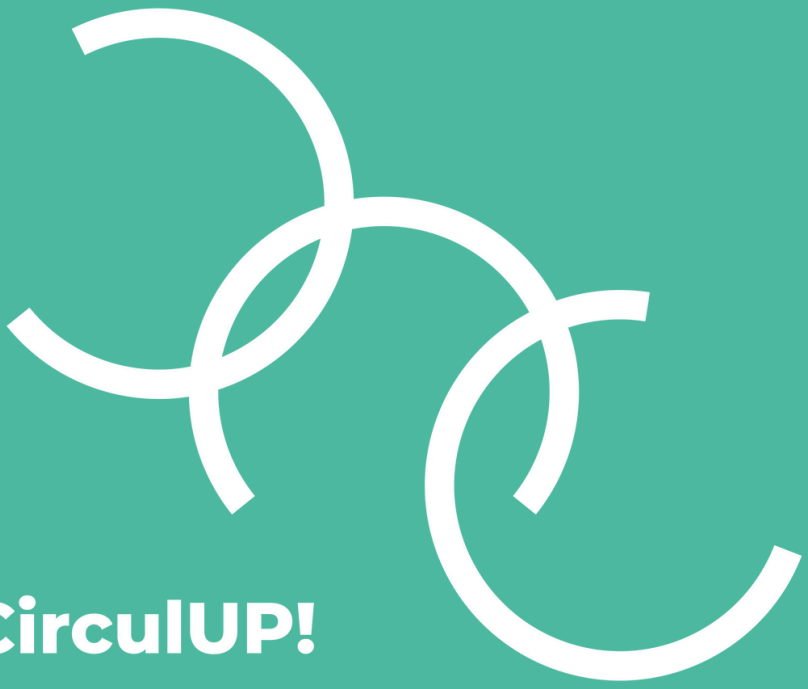
Remanufacture: **Using parts of discarded products to make products with the same purpose.** With more than 20 remanufacturing plants worldwide, automotive supplier ZF takes back used parts, remanufactures them, and puts them back on the market. At just one remanufacturing plant, approximately 40-50 tons of used clutch parts (or "cores") arrive daily, of which between 80 and 95 % are remanufactured and returned to the market.

Strategies that use waste as a resource:

Repurpose: **Use discarded products or parts to make new products with a different purpose**. For example, Tracegrow Oy produces organic certified fertilizers from used alkaline batteries. The Finnish company's patented process separates micronutrients from recycled alkaline batteries and industrial side streams. Compared to traditional methods, Tracegrow's fertilizers are proven to reduce carbon emissions and enhance crop productivity.

Recycle: **Processing waste into materials that can be used fo new products.** Terracycle is a company that specializes in recycling hard-to-recycle materials, including cigarette butts, snack bags, and coffee capsules. Where local facilities are not taking certain waste, TerraCycle works with brands, retailers, and other stakeholders who fund the recycling process. Its in-house scientists and material application specialists operate in 21 countries worldwide.

Recover: **Incineration of materials or anaerobic digestion (think composting!) to recover energy**. For example, Biogas Energía in Mexico processes manure, food waste, and municipal solid waste into biogas, which can be used to generate electricity, heat, or renewable natural gas. One plant processes over 1,000 tons of organic waste per day and produces enough biogas to generate 1 MW of electricity.



CirculUP!