



DEVELOPING A SUSTAINABLE MODEL

ZONE 5 DIGEST

THE CIRCULAR ECONOMY

A condensed look at changing how our economy works –
as explored in the Era of Sustainable Logistics Global Summit.

UNDERSTANDING THE CIRCULAR ECONOMY

RESHAPING BUSINESS TODAY FOR A BETTER TOMORROW

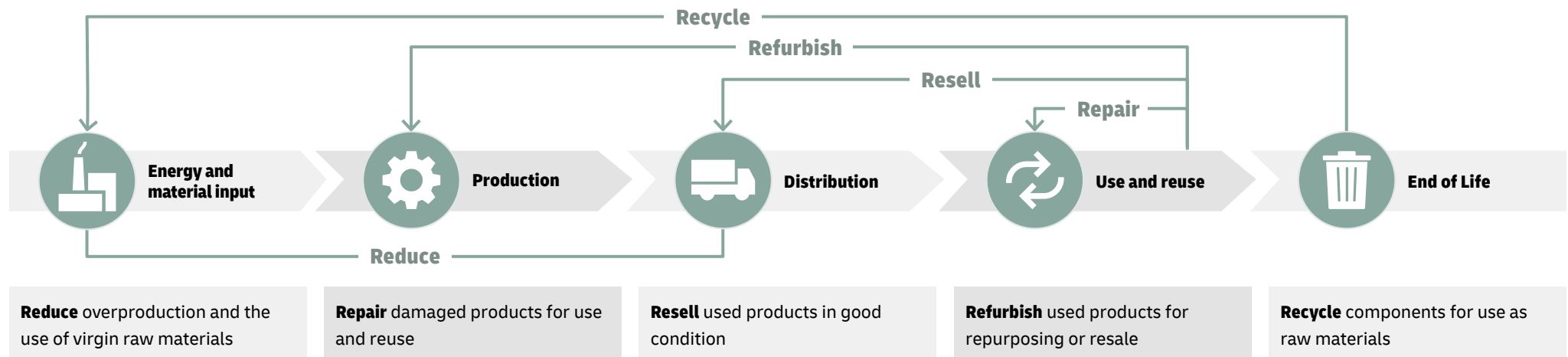
Global demand for products and services will continue to rise as the world becomes increasingly populated and interconnected. But today's "take-make-waste" linear economy is rapidly depleting the planet's resources. Thankfully, we're seeing the early stages of the much-needed transition to a circular economy that maximizes the use of available resources and minimizes waste.

The circular economy involves decoupling economic activity from the consumption of natural resources. It's rethinking how we design products,

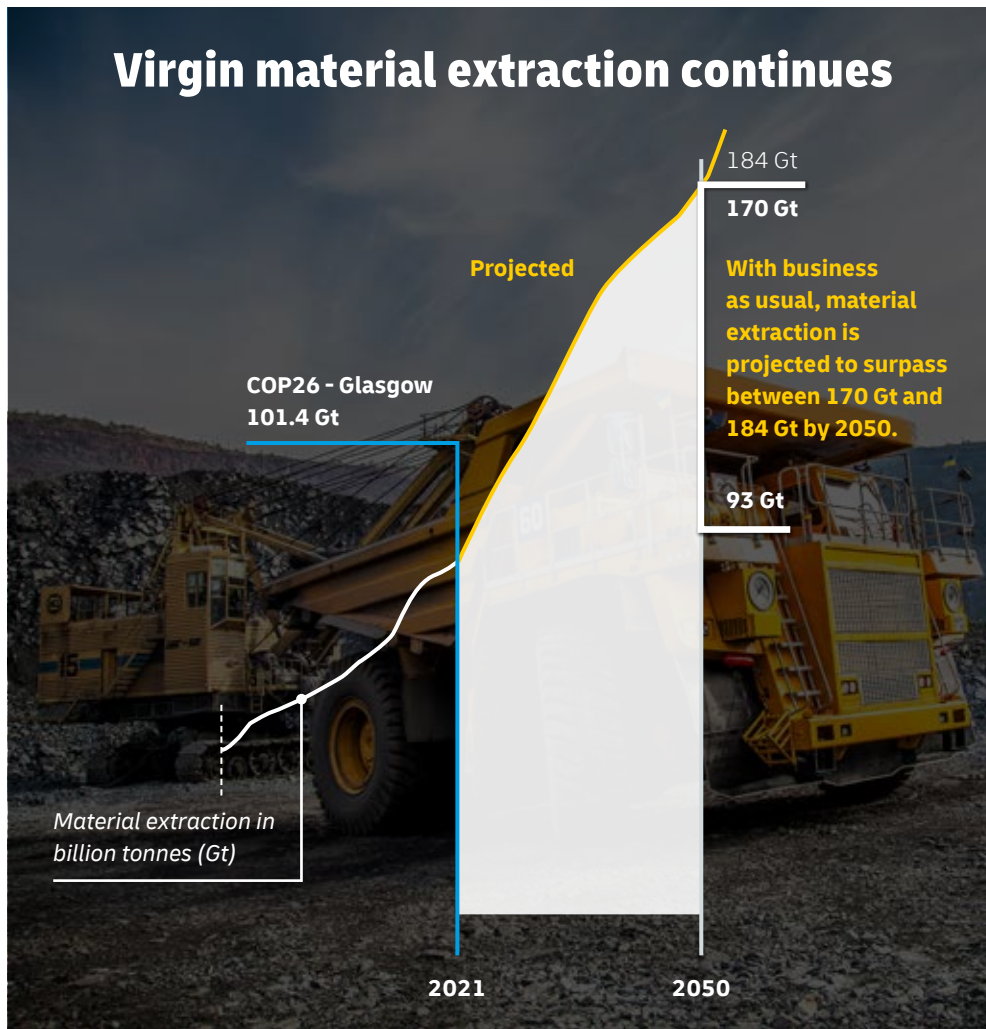
services, and supply chains to avoid waste or pollution. Instead of throwing things away after use, a circular system reuses, repurposes, and recycles them. This keeps resources in circulation and reduces the need for new raw materials. Think of it as bending the linear economy into a continuous loop, where we make and remake again and again.

In the following pages, we review the status quo, outline the challenges, and explore the role various factors will play in the transition to circularity.

The 5Rs of the circular economy



THE CURRENT TRAJECTORY

THE NEED IS UNMISTAKABLE AND URGENT

▲ Figure 1 The Circularity Gap Report 2023

In the past 50 years, the extraction of raw materials worldwide nearly quadrupled, outpacing population growth. From 2016 to 2021, the six years after the Paris Agreement was signed, the global economy consumed half a trillion metric tons of virgin material – an upward trend that unfortunately persists. Currently, only 8.6% of extracted materials make it back into the economy.¹

The need for a new economic model is clear, but the transition to a circular economy is not advancing at the speed and scale required to combat the climate crisis.

4x

Raw materials extraction worldwide has nearly quadrupled in the past 50 years.

500 billion

The global economy consumed half a trillion metric tons of virgin material from 2016 to 2021.

8.6%

Less than one-tenth of extracted materials make it back into the economy.

“If it can't be reduced, repaired, rebuilt, refurbished, refinished, resold, recycled or composted, then it should be restricted, redesigned, or removed from production.”

Peter Seeger

Musician and social activist



THE CHALLENGES WE FACE **TURNING THE CORNER**

Transitioning to the circular economy involves decoupling economic activity from the consumption of natural resources. No one has said it will be easy, but we must do it – and by design.

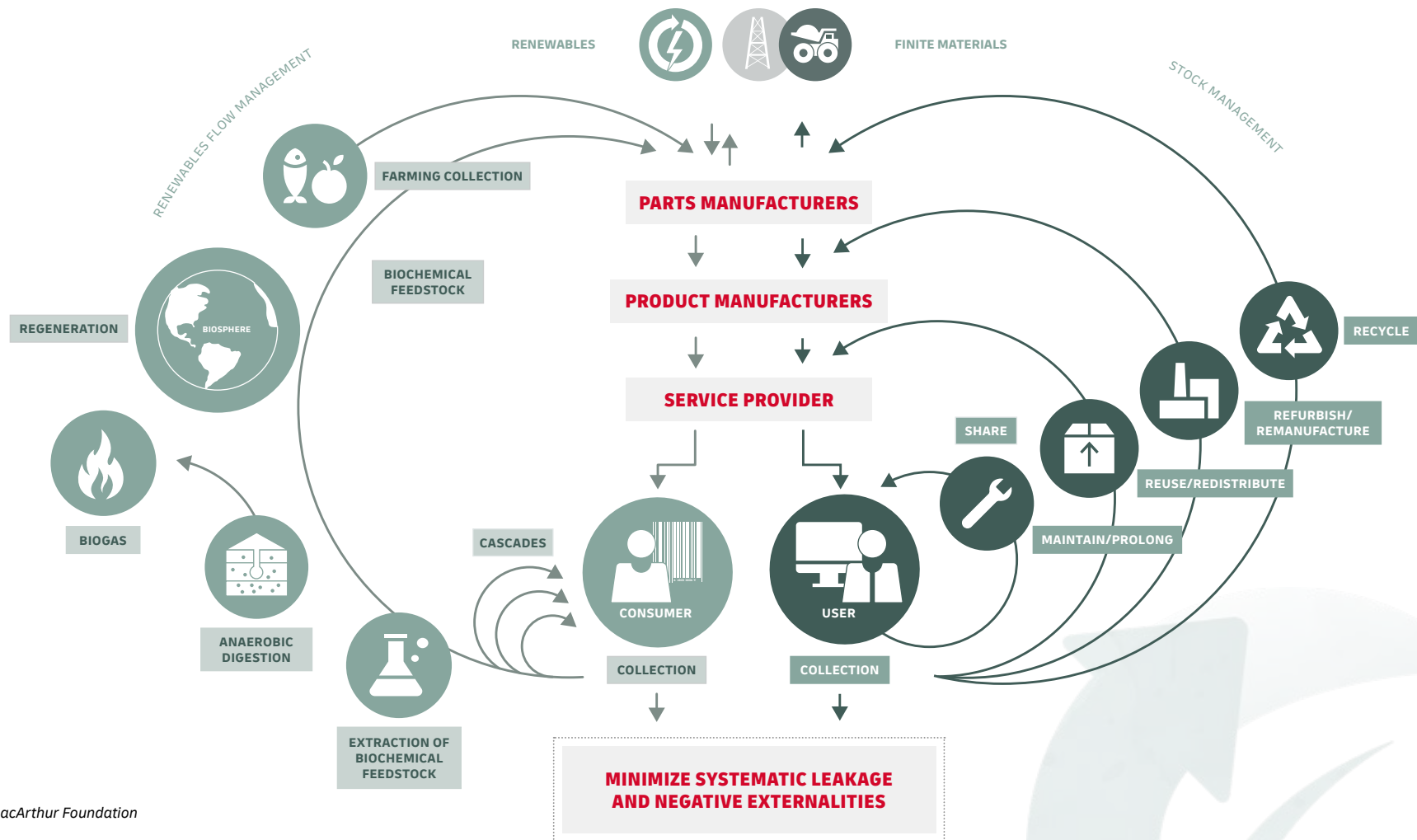
And we know it can be done. Early adopters like Vinted, an online marketplace for new and second-hand clothing, are leading the way, creating a “re-commerce” industry that empowers people to buy pre-owned products. Subscription models

(such as car sharing) and other “as-a-service” offerings are becoming integral parts of everyday life. Innovators like BuyBay and Resourcify are finding ways to turn excess stock and waste into million-dollar enterprises.

But the challenges are real. Widespread adoption requires a massive shift in long-standing structures and mindsets. Companies face formidable obstacles.

“There is no such thing as ‘away.’ When we throw anything away, it must go somewhere.”

Anni Leonard
Executive Director of Greenpeace USA



▲ Figure 2 Ellen MacArthur Foundation

From linear to circular: the challenges

Economic structures and incentives

Current economic models favor the production of new goods over recycling or refurbishing, mainly because it's often cheaper.

Consumer behavior

We are accustomed to the linear model. Changing long-standing habits and mindsets will be difficult.

Lack of design for circularity

Many products are not designed with end-of-life in mind, making them difficult to recycle or repurpose.

Regulations and policy

Existing regulations and policies often don't support or incentivize circular practices, even creating barriers to circularity in some cases.

Limited infrastructure

Many regions lack the infrastructure to collect, recycle, and repurpose waste, particularly for complex products.



THE CIRCULAR ECONOMY IN ACTION

DECOUPLING ECONOMIC ACTIVITY FROM RESOURCE CONSUMPTION

The world has faced much disruption in recent years, and transitioning to the circular economy means more change. The change will have many moving parts, each playing an essential role.

What will it take to toss out today's throwaway system? Here are just some of things we need to do:

Sustainable procurement

Companies must embed circularity into their operations by establishing procurement processes that minimize their carbon footprint, reduce waste, and optimize commercial benefits. That means proactively buying low-carbon materials, working with environmentally conscious suppliers, and seeking out local recycling partners.

Sustainability by design

Design engineers will need to simplify designs, minimize material use, and switch to recycled materials to reduce costs and carbon footprints. They should seek to discover how even minor product modifications can have a significant impact.

Green packaging

Logistics and warehouse managers must make green packaging standard practice. That can start with replacing single-use packaging but must ultimately be closed-loop systems that maximize resource efficiency and minimize material use.

Circular logistics

Companies must regard circular logistics as key to business success, and logistics providers must offer reverse logistics so that companies can leverage returns to recapture value. They will need to manage every part of the cycle, from returns management to fulfillment back into the economy.



THE ROLE OF BUSINESS

CREATING CIRCULAR BUSINESS MODELS

Circular business models are essential for the transition to a circular economy – sustainable, regenerative approaches across all industries. Companies must reimagine traditional transactional models, focusing instead on resource optimization, value preservation, and extended product lifecycles. Re-commerce and device-as-a-service are two current examples of trend-setting circular business models.

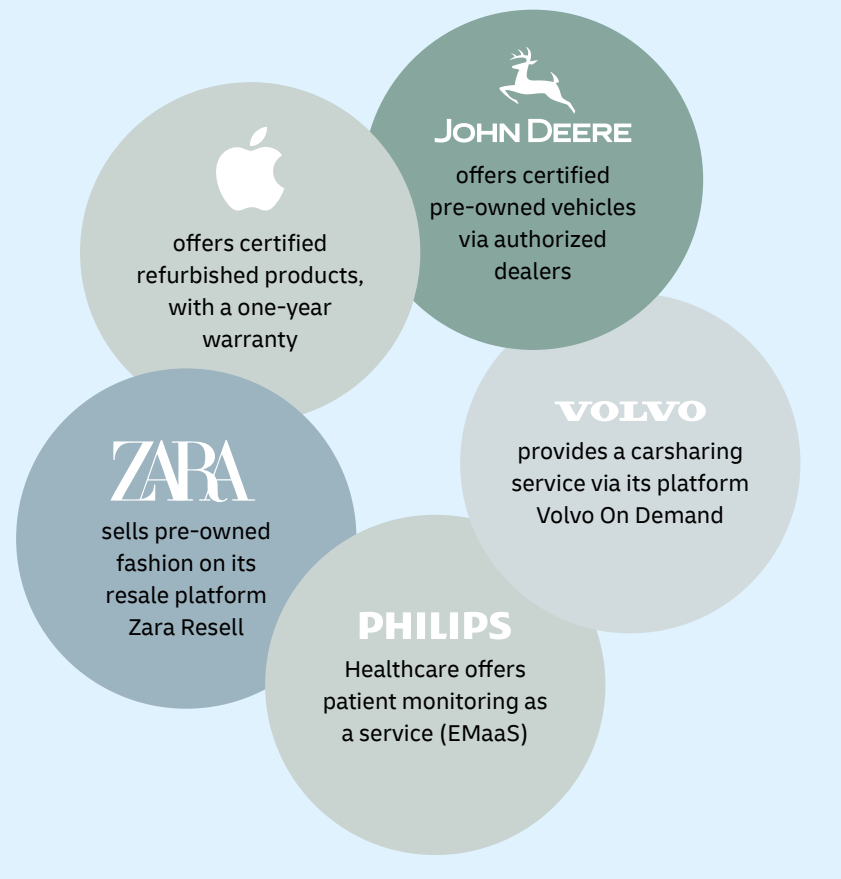
Re-commerce facilitates the sale of used products, giving them a second life and extending their value proposition. Re-commerce platforms promote the idea that items still have significant value after initial usage. Products range from second-hand clothing and refurbished electronics to repurposed furniture. The model decreases the demand for new merchandise and the resources needed for their production, reducing waste and the environmental costs associated with disposal.

Device-as-a-Service (DaaS) is redefining the concept of ownership. Instead of consumers purchasing products, they lease or rent them for a specific period or until they're no longer needed. Manufacturers or service providers retain ownership and are responsible for maintenance, repair, recovery, and recycling. Examples include leasing washing machines, renting high-end fashion, or using shared transportation services. DaaS encourages businesses to design durable, repairable, and recyclable products because their profitability is linked to longevity and lasting quality.

“There is no such thing as waste – just material in the wrong place.”

Michael Thompson,
Author of *Rubbish Theory*, 1979

CIRCULAR BUSINESS IN ACTION EARLY ADOPTERS PAVING THE WAY



THE ROLE OF DESIGN

INTEGRATING CIRCULARITY FROM THE START

Design is the foundation of circularity – the initial stage that determines a product's lifespan, recyclability, and reusability. By integrating circular principles at this phase, products can be designed for prolonged life, reduced waste potential, and minimal environmental impact.

Circular design starts with selecting materials that can either biodegrade without harm or be perpetually recycled, reducing the need for virgin

resources. Material flow becomes a high priority, with products made to disassemble easily and facilitate efficient repair, refurbishment, or recycling.

A shift from product to system thinking takes place. Instead of viewing design as a process for creating individual products, it is seen as a tool for building end-to-end systems. This perspective considers circularity across the entire product ecosystem from the beginning, including models like shared use or products-as-a-service.

Efforts to decarbonize must include designing for sustainability



Circular Design

Design products based on sustainable materials (recycled, biodegradable, low-CO₂e) and with disassembly in mind to allow component recycling or upcycling.

+



Sustainable Sourcing

Select recycled, biodegradable and low-CO₂e raw materials and suppliers with more sustainable business practices.

+



Green Electricity

Use clean energy for production and transportation.

THE ROLE OF PACKAGING

RETHINKING THIS ESSENTIAL PART OF THE SUPPLY CHAIN

We can't ship or sell products without some sort of packaging. In a circular economy, packaging is designed for multiple use cycles. Pallets, crates, and containers are made more durable to withstand multiple trips, reducing the need for single-use materials and minimizing waste in the supply chain.

Pooling and sharing programs to optimize the reuse of assets like pallets and containers become critical elements of circular packaging systems. This shared

approach minimizes the number of these items required in the logistics cycle, reduces costs, and increases packaging availability for multiple stakeholders.

The efficiency of circularity is increased using advanced IoT tracking technologies to monitor location, condition, and lifespan. These devices optimize return and maintenance systems, facilitate asset sharing among partners, and provide insights into improving design and extending life.



THE ROLE OF CONSUMERS

DEMANDING CIRCULAR BUSINESS MODELS

Consumer demand will play a pivotal role in the pace of change as purchasing power can drive market trends and push companies to prioritize circularity. Increasingly environmentally conscious consumers will choose products that are sustainably designed, ethically produced, and offered as part of circular systems.

Beyond purchasing, consumers can actively participate in prolonging product life cycles. They can make use of repair, resale, and recycling options. They can also reduce waste and conserve resources by taking care of their purchases, participating in take-back programs, and opting for refurbished rather than new products.

Consumer advocacy is another important aspect. Promoting circularity can inspire others, influence policymakers, and change communities. Consumers can raise awareness of the circular economy by supporting and advocating for sustainable practices, joining community-driven circular initiatives, or demanding transparency and responsibility from brands.



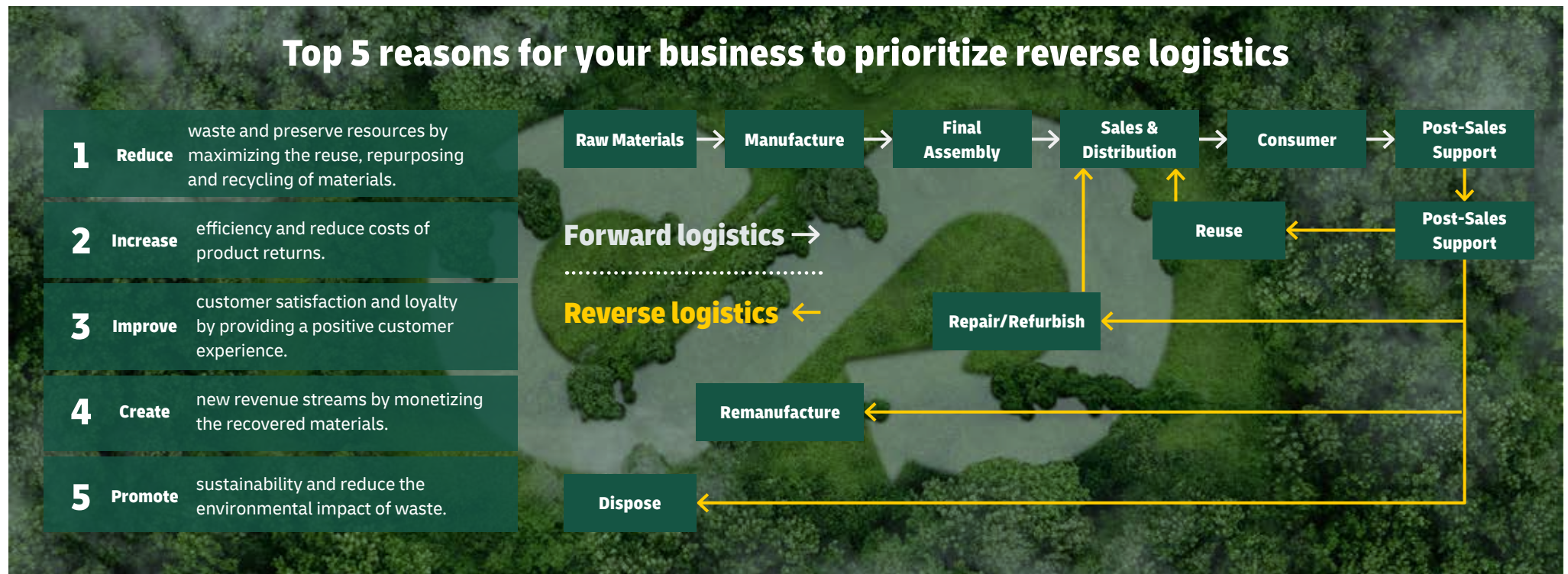
THE ROLE OF LOGISTICS

ENABLING CIRCULAR BUSINESS MODELS

Circularity rests on collecting and returning used products or components into the production cycle – also known as reverse logistics. Returning goods up the supply chain allows businesses to extract residual value through refurbishing, remanufacturing, or recycling. This maximizes resource utility and minimizes waste.

Efficient reverse logistics plays a fundamental role in circular business models like re-commerce, product-as-a-service, and take-back programs. It enables the effective management of the aftermarket phase of a product's life, which is needed to make these models economically viable.

Consumer-driven and convenient reverse logistics will simplify returns processes, increase incentives for product take-back, and encourage consumers to participate in the circular economy.



KEY TAKEAWAYS

YOUR ROLE IN THE CIRCULAR ECONOMY



Circularity at the core

Incorporate circular economy principles into the company strategy, from product design and packaging to the overall business model.



Rethink packaging

Make the switch to green packaging with the goal of eliminating single-use packaging wherever possible and switch to reusable packaging solutions.



Embrace circular design

Waste should be designed-out in the early stages of product development, and focus on recyclable and reusable materials in the production.



Reverse logistics is an investment

Reverse logistics is significantly more complex than forward logistics, with items having to travel unique paths to their final disposition. A successful reverse logistics program unlocks new business models and opportunities.



Sources

1. **The Circularity Gap Report 2023.**
<https://www.circularity-gap.world/2023>
2. **Ellen MacArthur Foundation**
<https://ellenmacarthurfoundation.org/circular-economy-diagram>