



“Better Than New”

Designing new products for many lives

#Remanufacturing



ELLEN MACARTHUR
FOUNDATION



CE100

Remanufacturing - a hidden pathway to a low-carbon circular economy

Remanufacturing is a perfect example of circularity; instead of destroying or landfilling products at the end of their life, this industrial process, starting with disassembly, gives them another one.

Instead of creating more CO₂ emissions from mining, refining and machining new products, remanufactured products save **up to 98% of CO₂ emission** compared to equivalent new products¹.

Instead of quickly becoming waste, like too many products for businesses and consumers, remanufactured products are **made to last and to be maintained for many lives** - not just one - **while delivering performance**.

Today **digital technologies offer a new gateway for the expansion of remanufacturing**, boosting innovation in the sector at an unprecedented pace, allowing the remanufacturers to know much more about the use-profile, locations and actual wear and tear, and eventually enabling them to **maintain and upgrade** products.

Remanufacturing already represents a €30 billion market in Europe, but its growth is constrained by a regulatory framework refined over many decades to assist the traditional “take, make, waste” model of the current linear economy. If this opportunity was understood and seized upon by the industry and policymakers, then Europe could be home to the largest remanufacturing market in the world – **it could at least triple in size by 2030**.

To make this happen, the Ellen MacArthur Foundation’s network members identified the following recommendations to remove constraints and create strong incentives for remanufactured products.

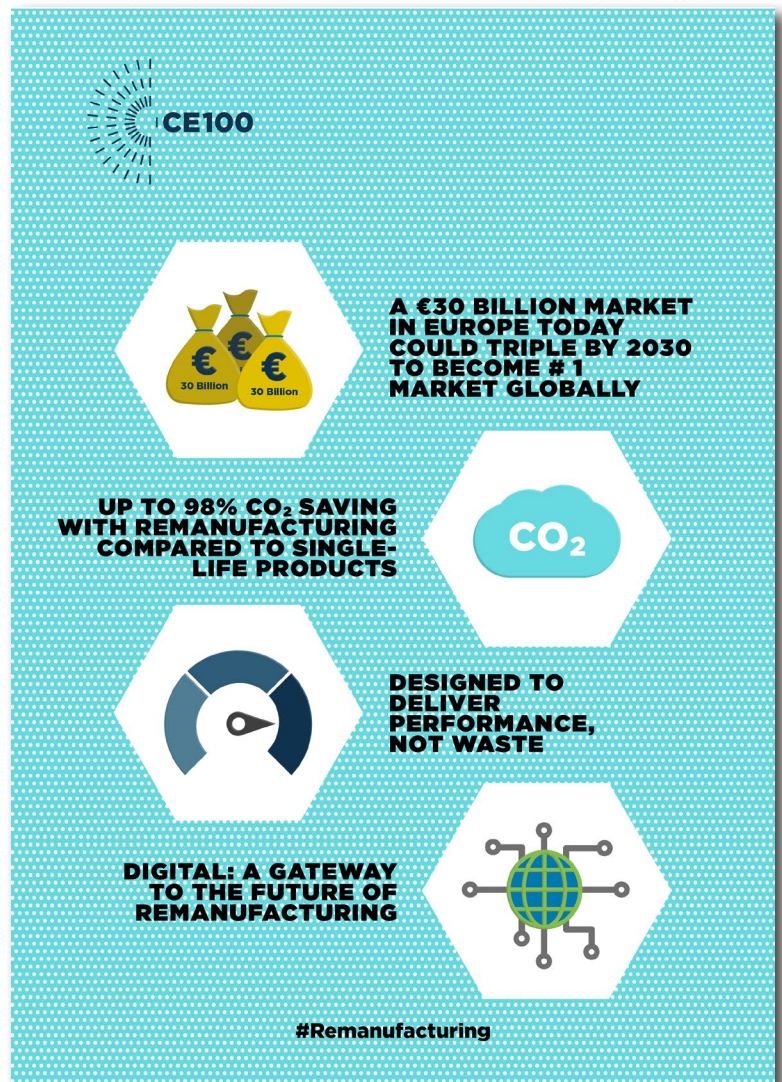


¹Re-defining Value – The Manufacturing Revolution, International Resource Panel, 2018.

RECOMMENDATIONS

For Policy-Makers

1. Align international **legal definitions** of remanufacturing, acknowledging the work underway at International Standards Organisation (ISO)
2. Acknowledge the reduced CO₂ emissions and increased material efficiency from remanufactured components by including them, where possible, in **CO₂ emission reduction and material efficiency instruments**.
3. Introduce specific remanufacturing **targets in waste legislation** that incentivize and/or prescribe the remanufacturing components of products.
4. Confirm the legality of providing **remanufactured replacements** when a new product fails during its warranty period and enforce a **2-year guarantee** on all the sales of used goods by businesses.
5. Eliminate **regulatory barriers** to trade in used products destined for remanufacture. Where possible, draw a new distinction between such used products and waste.
6. Eliminate **trade barriers** for products remanufactured to certified international standards.

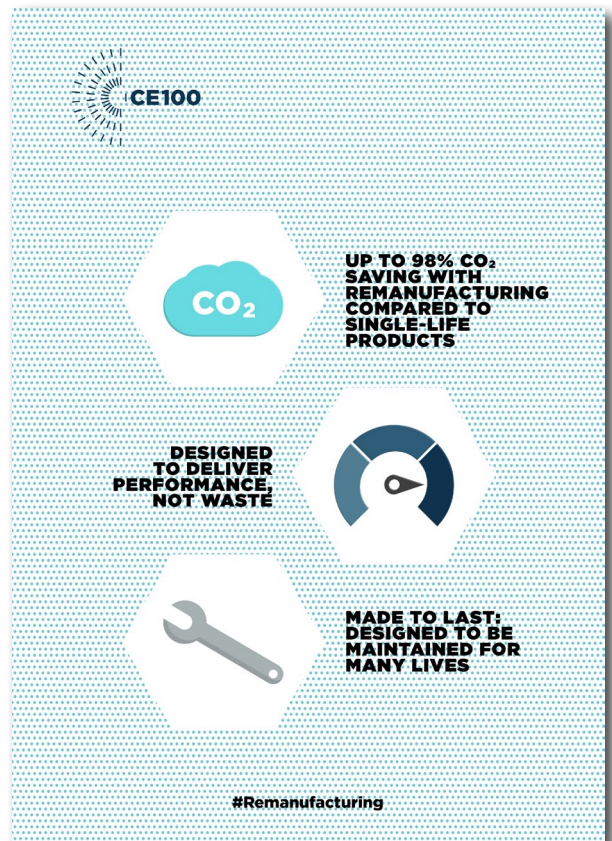


For Business Organisations

1. **Design** future products, where feasible, to enable industrial-scale remanufacturing.
2. Reconfigure supply chains and partnerships to enable the option of **product take-back** with value retention services.
3. Align **staff incentives** to reward value retention and avoid cannibalisation of “new” sales.
4. Consider a transition from product sales models to **rental or performance models** (including subscriptions, leasing, product-as-a-service, etc.) where equipment remains under the ownership of the manufacturer/trader.

For Both Policy-Makers and Business Organisations

1. Direct **R&D funding** - such as Horizon Europe - towards products designed for multiple lives.
2. Cooperate on data protocols to create **new shared metrics and reporting** on the benefits of procuring and designing multi-life products.
3. Encourage demand for remanufactured products through **Green Public Procurement (GPP)** and private sector supply chain procurement. Begin by supporting private/public procurement pacts.
4. Raise **consumers and customers' awareness** about the benefits of remanufactured goods. The infographics below provide accessible, yet compelling information about the remanufacturing industry's potential for positive impact on the economy, society and environment.



ANNEX

Method

To supplement interview-based evidence provided by the participating member companies, we reviewed the policy recommendations in two recent major studies:

1. “The European Remanufacturing Network (ERN) - Market Study” (2016)²
2. “Re-Defining Value – The Manufacturing Revolution” UN IRP (2018)³

The ERN study includes questionnaires to 200 European industrial partners and deeper

analysis from six industrial workshops to generate an extensive list of structured recommendations. The IRP study was based on three product categories from four countries: Brazil, China, Germany and USA. It provides separate higher-level recommendations directed at business leaders and policy-makers.

All participating member companies were invited to comment on the recommendations before approval of the final document during the CE100 meeting in Catalonia held in May 2019.

About the Ellen MacArthur Foundation

The Ellen MacArthur Foundation was launched in 2010 with the aim of accelerating the transition to the circular economy. Since its creation, the charity has emerged as a global thought leader, putting the circular economy on the agenda of decision-makers around the world. The charity’s work focuses on seven key areas: insight and analysis; business; institutions, governments, and cities; systemic initiatives; circular design; learning; and communications.

With its Knowledge Partners (Arup, Dragon Rouge, IDEO, McKinsey & Company and SYSTEMIQ), the Foundation works to quantify the economic opportunity of a more circular model and to develop approaches for capturing its value. The Foundation collaborates with its Global Partners (Danone, Google, H&M Group, Intesa Sanpaolo, NIKE Inc., Philips, Renault, SC Johnson, Solvay, Unilever), Core Philanthropic Funders (SUN, MAVA, players of People’s Postcode Lottery (GB)) and its CE100 network (businesses, universities, emerging innovators, governments, cities, affiliate organisations), to build capacity, explore collaboration opportunities and to develop circular business initiatives.

Further information: ellenmacarthurfoundation.org • [@circulareconomy](https://twitter.com/circulareconomy)

About the CE100

The Circular Economy 100 is a pre-competitive innovation network of the Ellen MacArthur Foundation, established to enable organisations to develop new opportunities and realise their circular economy ambitions faster. It brings together corporates, governments and cities, academic institutions, emerging innovators and affiliates in a unique multi-stakeholder platform. Specially developed elements help members learn, build capacity, network and collaborate with key organisations around the circular economy.

About Collaborative Projects (co.projects)

Co.projects are opportunities for formal precompetitive collaboration between CE100 members. They are driven by members, for members and their focus can range from research initiatives to pilots and toolkits. co.projects leverage the CE100 network with the aim of exploring opportunities and overcoming challenges which are commonly and collectively faced by organisations making the transition to a circular economy, and which organisations may not be able to address in isolation. making the transition to a circular economy, and which organisations may not be able to address in isolation.

² www.remanufacturing.eu

³ www.resourcepanel.org/reports/re-defining-value-manufacturing-revolution