

Remanufacturing has major potential if we get the processes right

Forecasts highlight the increasing importance of remanufacturing as a critical component in the future of manufacturing industries. Oakdene Hollins Research and Consulting, for example, projects the potential of the remanufacturing market in the EU to be €90B by 2030.

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The optimism of such forecasts reflects how remanufacturing not only helps companies reduce waste and carbon emissions, it also has a big role to play in developing circular supply chains. When we talk about remanufacturing we mean taking used or old parts and products, dismantling them, and returning them to a like-new, same-as-new, or better-than-new condition.

By integrating remanufacturing into their operations, manufacturers can move towards near-continuous recycling of materials back into production. This reduces dependence on virgin raw materials and creates a more resilient supply chain that can better withstand fluctuations in material availability and costs.

It offers manufacturers substantial financial benefits, including direct cost savings on raw material purchases and the potential to explore new market opportunities. Embracing remanufacturing is not just an environmentally conscious choice but a strategic business decision that can enhance sustainability and profitability

Several factors will fuel growth, but the increasing demand for sustainable solutions is certainly a primary driver. As sustainability rises up the priority list of more companies and consumers, the requirement for remanufactured products is expected to rise.

In the automotive industry, the trend is very clear. Manufacturers like *Renault* and *BMW* are good examples, implementing remanufacturing programmes to support sustainability and address consumer demand for environmentally-friendly products.

Additionally, regulatory pressures are playing a significant role. The European Union's *Circular Economy Action Plan* and the forthcoming *Corporate Sustainability Reporting Directive (CSRD)* are encouraging companies to implement more sustainable practices, which includes remanufacturing. These regulations are designed to reduce waste, promote resource efficiency, and drive the transition to a circular economy. For example, *the EU's Ecodesign for Sustainable Products Regulation (ESPR)* includes requirements for product longevity and recyclability, directly addresses remanufacturing.

Reverse logistics

Despite all the promising projections, many companies, still only partially engage in true remanufacturing practices. Many face significant problems accessing and integrating the right Environmental, Social, and Governance (ESG) data within operational systems. Effective remanufacturing requires comprehensive data management to track the lifecycle of products, assess their condition, and determine their remanufacturing potential.

The establishment of return logistics paths to collect used products is another hurdle. Traditional linear models of manufacturing do not encompass the return of end-of-life products, necessitating the

development of new logistics strategies. Companies find themselves deciding whether to incentivise returns through deposits or buy-back programmes, similar to the recycling schemes used for beverage containers. In the electronics sector, *Apple* has addressed this challenge by launching trade-in programmes that encourage customers to return their old devices, which are then refurbished and resold.



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Tackling the data difficulties

To fully embrace remanufacturing, organisations need to overcome these data accessibility barriers and commit to sustainable business models. Companies must develop robust data management systems that can capture and analyse ESG data effectively. This involves automating data

collection from various sources, such as supplier invoices and product usage reports, to track environmental impacts and identify opportunities for improvement

Developing efficient return logistics is crucial. This may necessitate partnerships with third-party logistics providers and the use of more creative tactics so customers return used products. *Philips*, for example, has implemented a take-back scheme for medical equipment, ensuring used devices are returned for remanufacturing.

Advanced technologies come to the aid of manufacturers in these efforts. AI and IoT solutions can enhance remanufacturing processes. AI helps design products for easier disassembly and reuse, while IoT devices can provide real-time data on product usage and condition, facilitating more accurate assessments of remanufacturing potential.

Some businesses have started using IoT sensors to monitor the condition of machinery, allowing them to predict when components will need remanufacturing. Devices predict when a component needs repairing. When it gets beyond repair and is up for remanufacturing, the data collected, through IoT, provides in-depth insight into the state of the component and what elements of it can be used again.

Remanufacturing comes with significant financial benefits, including cost savings and new market opportunities. By reusing existing materials, companies shrink the costs associated with raw material extraction and processing. Additionally, remanufacturing provides a reliable alternative supply of components, helping to mitigate problems around fluctuating costs and irregular availability of new parts.

Coupled with this, remanufacturing contributes to overall resource efficiency by minimising waste and reducing the demand for new raw materials. This approach aligns with the circular economy's goal of

creating closed-loop systems where products are continuously reused, repaired, and recycled.

A sustainable growth booster

As the analysts predict, the remanufacturing market is set to enjoy strong growth, propelled by sustainability regulation and the search for solutions. Yet if companies are to enter the market meaningfully they must overcome the common difficulties with data integration and return logistics.

Once they do that, they can harvest the financial benefits while reducing environmental impacts. They should then be able to position themselves as leaders in the transition to a circular economy. The odds are that remanufacturing will become an essential component of sustainable manufacturing practices, offering a well-defined route to commercial success in a resource-constrained world.

This is an approach that will achieve more than boost corporate environmental and sustainability credentials, it is also destined to increase economic growth.

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