



Can European manufacturing industries boost competitiveness and productivity by embracing the circular economy?

Manufacturing is a pillar of innovation and growth for Europe, providing over 32 million jobs and 16% of GDP; but outdated machinery and unplanned downtime can cause significant losses for companies and employees. To reclaim lost productivity and strengthen competitiveness, the European Commission asked innovators to improve industrial sustainability and unlock the potential of digital connectivity. A recently launched European project is looking to provide the solutions.

We all slow down over time. Joints start to creak, tasks seem harder and we begin to make mistakes... well it is the same for the machinery that produce the goods and equipment that make today's world possible. So what to do? Leaving aging and underperforming machinery idle and neglected is costly. Replacement is often very expensive and also carries a large environmental footprint thanks to raw materials, production and transportation.

But imagine if manufacturing machinery could not only find the secret to their youth again – but integrate new digital capabilities to make them highly productive and effective in a new era.

A group of researchers and industries from nine countries recently launched the [RECLAIM manufacturing](#) project to do just this. They hope to benefit the environment and the economy with new recycle and reuse techniques to reduce obsolescence and prove the advantages of high-tech refurbishment.

The project will focus on harnessing digital analytics, the Internet of Things (IoT) and circular economy strategies to improve predictive maintenance and upgrade legacy machines. Known as digital retrofitting, it could be key to staying one step ahead of possible disruption and production failures.

CERTH/ITI brings to the project strong experience in research fields relevant to the Factories of the Future. Moreover, CERTH/ITI has been involved in numerous relevant research projects which deal with the design, research and delivery of novel tools and services of big data analysis, machine learning algorithms and factory-wide control optimization. Alongside, CERTH/ITI holds strong experience in manufacturing modelling and simulation, while developing also corresponding decision support systems. Finally, CERTH/ITI has led the technical integration of a series of past projects, being also responsible either for the Coordination and/or for the overall technical management of these projects.

CERTH/ITI will act as a Technical Coordinator and also as a strategic partner with profound experience on Big Data Analytics, Visual Analytics and Machine Learning. Under RECLAIM, CERTH/ITI will contribute to the development of real-time optimization methodologies, ensuring the optimization of multiple criteria by the DSS. CERTH/ITI will also lead all aspects concerning the Decision Support System and basically undertake the development of the algorithms (data-driven, model-based, and knowledge-based) needed for the detection and forecast of the faults, at a component and machine level, contributing significantly to WP4.

“By 2025, 15% of all material used in the European economy should be reused. RECLAIM will provide strategies and decision-making tools that accelerate the development and deployment of digital technologies in manufacturing” outlines project coordinator Michael Peschl of [Harms & Wende GmbH](#) & Co. KG. “This is especially important for ageing equipment that often require time-consuming manual data crunching and analysis to gain any real performance and maintenance insights.”

His company will be one of five key pilot sites testing RECLAIM across sectors – including welding, woodwork, textiles, robotics and footwear – before being proposed to an even broader range of potential clients. The demonstration cases are firmly focused on working with industry to meet their requirements and develop technologies with a bottom up approach. Armed with an approved set of technologies and solutions, the consortium intend to capitalize on a long term commercial potential for the tools and techniques developed.

RECLAIM could be especially valuable in times of economic slowdown, explains Enrico Callegati of project partner [SCM Group](#). “By including digital retrofitting into their business portfolio, producers can use these new aftersales services to ensure a stable turnover - even when demand for new machinery falls”.

Indeed, refurbishment and re-manufacturing has significant potential as a standalone industry. It currently employs around 190,000 people and has a turnover of €30 billion. With adequate support from public authorities re-manufacturing could reach up to €90 billion and an associated employment of 600,000 by 2030 according to a recent market study.

“The RECLAIM project is an excellent opportunity to improve European industry’s triple bottom line and bring a new circular economy mindset” adds Michael Peschl. “We believe many European industries can benefit from new ways to maintain and increase efficiency to remain competitive in a global marketplace”.

[Follow their progress @Reclaim FoF](#) or the [project’s LinkedIn page](#)

Notes:



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