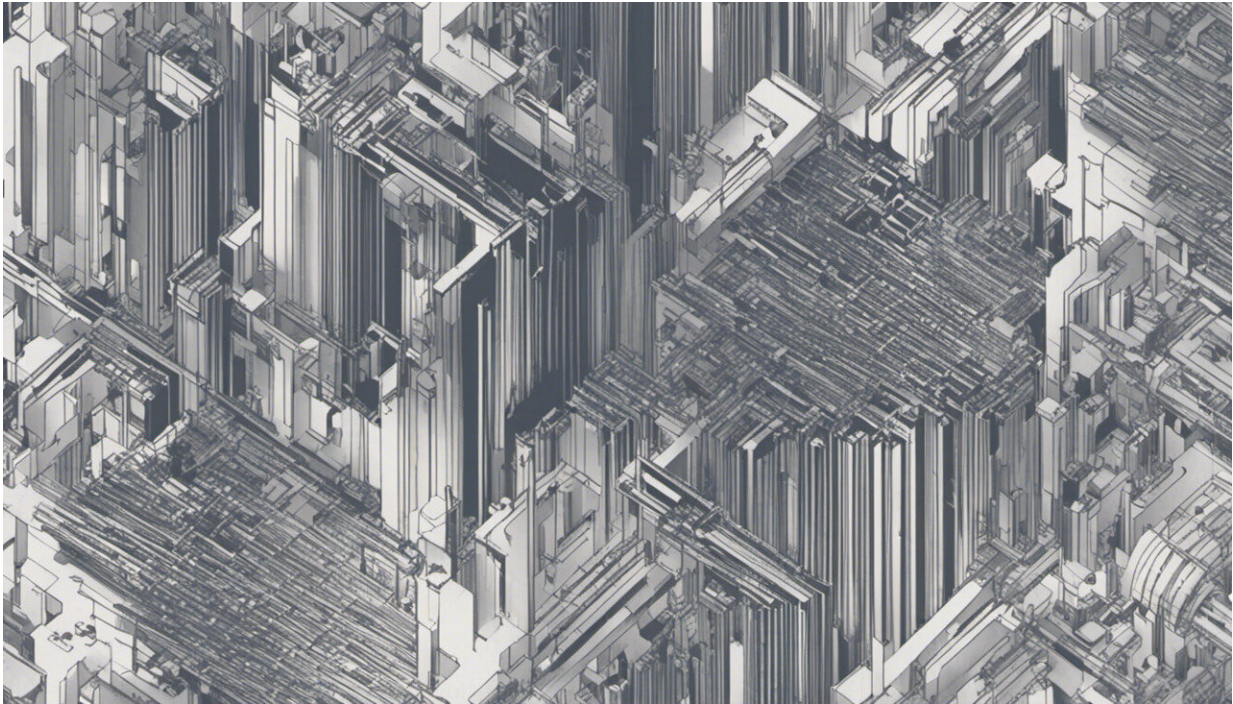


# Revolutionising European machine tools

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Credit: AI-generated image ([disclaimer](#))

From lathes and shapers to cutting and grinding machines, machine tools helped put Europe at the forefront of manufacturing in the past and remain essential to many industries, including aerospace, automotive, power generation and medicinal products.

However, traditional machines are very high energy consumers, which is not only unsustainable, but leads to high costs for operators, the majority

of whom are small and medium-sized enterprises. In the face of growing competition from abroad as well as environmental concerns, a team of researchers is giving European companies the knowledge they need to make Europe's [machine tools](#) industry more competitive.

The key concept behind the EU project DEMAT ('Dematerialised Manufacturing Systems: A new way to design, build, use and sell European Machine Tools') is 'dematerialisation'. This means that the 16-partner, 7-country team will show machine tool makers how to produce ultra-light, adaptive and recyclable structures. The material content will be reduced by over 70 percent, while the machines will lose none of their precision or efficiency.

The objective is to save 1.5 million tonnes of steel and cut CO<sub>2</sub> emissions by 2.5 million tonnes per year.

Dr Juanjo Zulaika, DEMAT's project coordinator and a [mechanical engineer](#) from Tecnia in Spain says: "We have built a demonstrator for a milling machine which is 40 percent lighter than other conventional milling tools of similar functionalities...and we have still managed to ensure the productivity and quality has been maintained."

The project has already won acclaim, having been a finalist for the Best Project Award at the 2012 Industrial Technologies Conference in Aarhus, Denmark. The award recognises initiatives with a significant economic and [societal impact](#), and that boost European competitiveness with new products and processes.

Employing new damping strategies to reduce mechanical vibrations, the team has even managed to improve some machining operations.

The DEMAT research team is confident of the project's legacy - a 50 percent drop in the life-cycle impacts of machine tools and a 60 percent

cut in lead-time to markets - to 3 months for catalogue machines and 9 months for customised systems.

Dr Zulaika believes that both are essential to the long-term future of sustainable manufacturing. And indeed his next research project will deal with the adaptation of previously built machine tools to dynamic and variable manufacturing requirements.

The project will also increase the agility of European companies and help transform the European machine tool industry into a knowledge-based, competitive, sustainable and value-adding sector.

DEMAT received EUR 3.5 million in funding from the EU. The [project](#) is due to finish at the end of 2013.

**More information:** DEMAT [www.dematproject.eu/](http://www.dematproject.eu/)

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