

Open innovation platform for

Optimising Production Systems



by combining

**PRODUCTION
DATA**

**PRODUCT
DEVELOPMENT**

**VIRTUAL ENGINEERING
WORKFLOWS**



Funded by
the European Union

PROJECT

PIONEER brings together an open innovation platform and a digital pipeline, combining various technologies towards optimising the design of industrial systems through simulation and improving the efficiency of production processes.



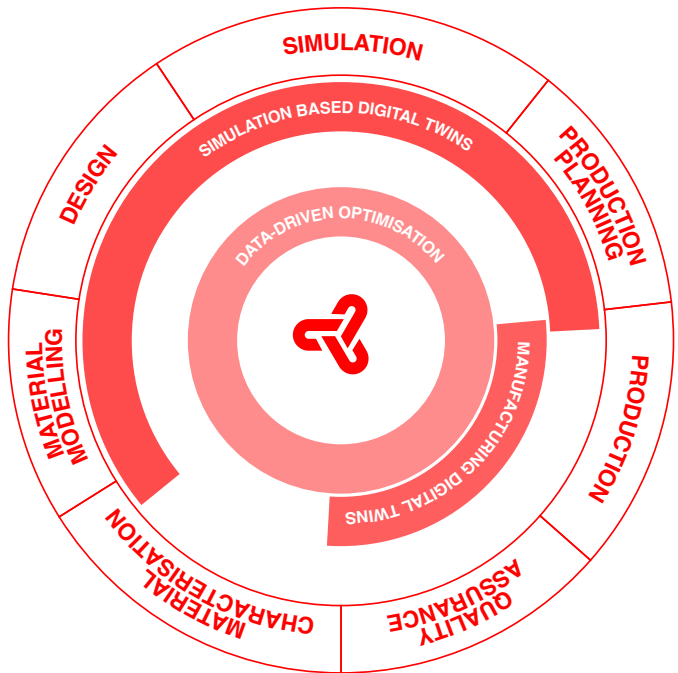
Optimising industrial systems and processes

17
Partners

11
Countries

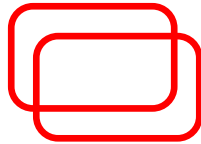
36
Months

5.2M
Total Budget

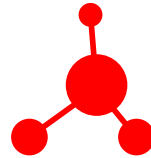


TECHNOLOGY

PIONEER's optimisation framework will allow a **seamless dataflow** along the material value chain, from product design to manufacturing and quality control.



Open Innovation Platform integrating materials, products, and processes to enhance the efficiency of the manufacturing processes.

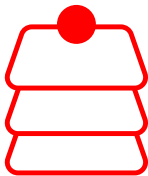


Interoperable virtual engineering workflows for integrating multi-scale/ multi-disciplinary and multi-software simulation processes.



PIONEER integrates product development, process, and material characterisation data to **improve design efficiency** through interoperability between virtual engineering and production/quality data.

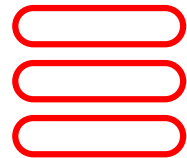
This will allow virtual multidisciplinary optimisation, **reducing physical testing and improving product quality.**



Advanced material modelling and hybrid modelling for improving product quality and optimising responsiveness to market changes.



Multi-dimensional visualisation tool for an end-to-end representation of the material value chain.



Semantic layer for common knowledge representation.

USE CASES

6

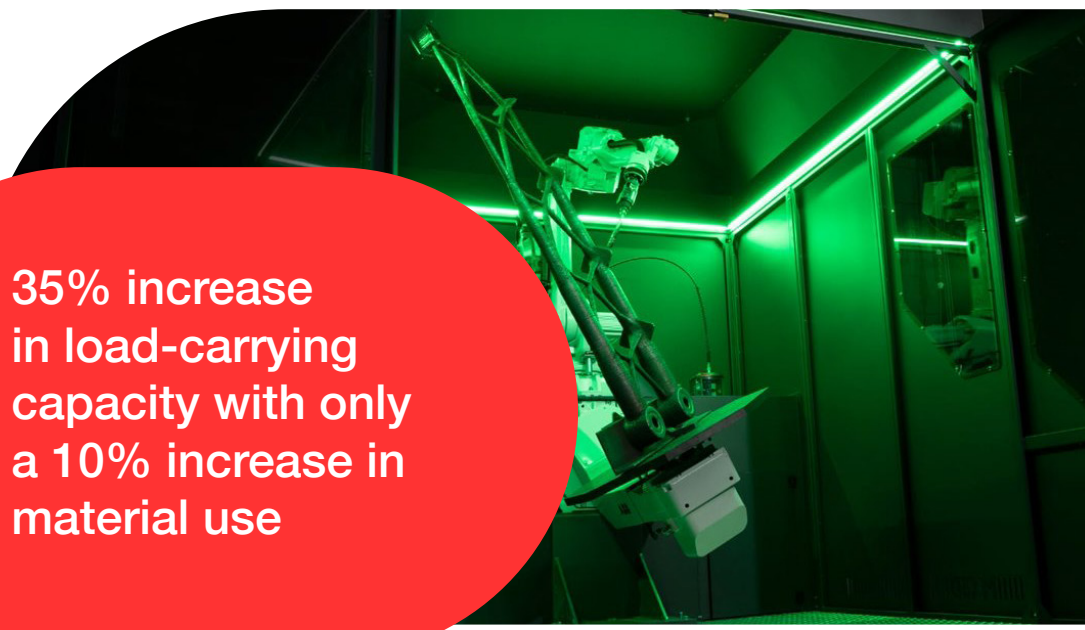
Metal Additive Manufacturing for Construction

This pilot aims to increase structures' efficiency through hybrid construction, combining traditional rolled steelwork with a small amount of additively manufactured material.


Carbon Fibre Sheet Moulding Compound (SMC) Components For the Automotive Sector

PIONEER seeks to revolutionise exterior parts manufacturing in the automotive industry, significantly decreasing reliance on extensive physical testing. This initiative aims to streamline product development, saving time, costs and material use.



A photograph of a robotic arm in a green-lit industrial environment. The arm is positioned vertically, and the surrounding area is illuminated with a strong green light, creating a futuristic atmosphere. The arm's joints and structure are visible against the dark background.

**35% increase
in load-carrying
capacity with only
a 10% increase in
material use**

A close-up photograph of a red industrial machine. The machine features a complex arrangement of pipes, valves, and electrical components. The red color of the machine is prominent, and the lighting highlights the intricate details of the machinery.

**Expected mass
saving of around
30%**

X
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Partners



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