



European
Commission

JRC PORTFOLIO 13

INDUSTRIAL TRANSFORMATIONS FOR SUSTAINABILITY, COMPETITIVENESS AND OPEN STRATEGIC AUTONOMY

A strong industrial base is a prerequisite for the independence, autonomy, and prosperity of the European Union (EU) and for being able to deal with unpredictable shocks and shifting geopolitics. EU industry needs to undergo major transformations to meet the imperatives of climate neutrality and progress towards zero pollution and circularity, while remaining competitive, resilient, human-centred, and inclusive. Green and technological sovereignty policy targets, combined with rising energy prices, increase costs for EU industrial stakeholders. These impacts need to be analysed from a global perspective, merging considerations on open strategic autonomy, critical technologies, critical raw materials, sustainability, and economic efficiency. Targeted industrial research and innovation (R&I) investments and industrial transformations are needed to strengthen technological and industrial capacities across the whole value chain, to sustain EU leadership in green, carbon-neutral, circular, and strategic technologies and to avoid dependencies that create vulnerabilities.



The portfolio aims to:

Provide policy support to strengthen the sustainability and competitiveness of the EU industrial base by fostering innovation and the deployment of new technologies to bring about the twin green/digital transition

Contribute to the achievement of Open Strategic Autonomy through technological sovereignty, notably in relation to critical raw materials, critical technologies and key value chains, especially in the energy, space, security and defence sectors

Provide a multifaceted understanding of the changing dynamics and drivers of key global value chains to reduce undesired dependencies of the EU on global competitors or third countries. Analyse supply chains in the context of digitalisation and low-carbon society

Joint
Research
Centre

Delivering on anticipation, integration and impact of EU policies

- ▶ developing environmental norms for large agro-industrial installations under the Industrial Emissions Directive, through the 'Sevilla Process' regarding, for example, emissions prevention or reduction, energy and water consumption, circularity,
- ▶ analysing of the role of technological solutions and innovation to decarbonise the European energy-intensive industry to become climate neutral by 2050, and helping to set default values for the Carbon Border Adjustment Mechanism,
- ▶ identifying drivers, opportunities, and bottlenecks (for example, technological, economic, legal) to the development and market deployment of new and critical technologies by EU industrial players,
- ▶ contributing to the Foreign Direct Investment screening and reporting,
- ▶ gathering evidence on firm dynamics, high-growth firms, start-ups and scale-ups and their impact on employment, industrial renewal and keeping the EU at the forefront of competitive innovation-driven entrepreneurship, including regional capabilities via Economic Complexity analysis,
- ▶ monitoring and analysing private R&I investments and technological capacities in the EU and its Member States, with emphasis on the twin transition of industrial ecosystems and value chains.

Time frame

This portfolio will support policy needs in both the **short- and long-term**. The Raw Materials Information System 3.0 will be launched in early 2023 and the Innovation Centre for Industrial Transformations and Emissions will become operational in 2024. In a **more long-term perspective**, the Observatory of Critical Technologies will continue monitoring critical technologies and their value chains for defence, space and related civilian sectors during the entire Multi-Annual Financial Framework.

Find out more



INDUSTRIAL TRANSFORMATIONS FOR SUSTAINABILITY, COMPETITIVENESS AND OPEN STRATEGIC AUTONOMY

<https://joint-research-centre.ec.europa.eu/jrc-research-portfolios/industrial-transformations>

Main partners

Partner DGs

AGRI, CLIMA, CNECT, COMP, DEFIS, ECFIN, ECHO, EEAS, ENER, ENV, FISMA, GROW, HOME, INTPA, MOVE, NEAR, RTD, SG, TAXUD, TRADE

Selected stakeholders

Committee of the Regions, EEA, EGS, EIB, EIT-RM, IEA, IRENA, OECD, UNIDO

Research and innovation

Industrial policy

Strategic priorities

EU resilience and security

Green policy

Sustainability

Technological sovereignty

Open Strategic Autonomy

Critical technologies

Critical raw materials

Economic efficiency

Circularity

Technological and industrial competitiveness

Industrial Decarbonisation

Resource efficiency

Science for policy

Joint Research Centre

joint-research-centre.ec.europa.eu

The Joint Research Centre provides independent, evidence-based knowledge and science, supporting EU policies to positively impact society.

@EU_ScienceHub

@EU_ScienceHub

@EU_Science

EU Science, Research and Innovation

EU Science Hub - Joint Research Centre

PRINT
PDF

ISBN 978-92-76-99489-3
ISBN 978-92-76-99488-6

doi:10.2760/208044
doi:10.2760/877780

KJ-04-23-213-EN-C
KJ-04-23-213-EN-N