

Advanced Technologies for Industry

Advanced technology landscape and related policies in China

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International Report on China



China's technological performance has rapidly improved in the past decade, though the EU27 countries still hold a higher share in global patent applications

The EU27 continues to hold a higher share of global patent applications than China in many advanced technologies



Source: Fraunhofer ISI, based on EPO PATSTAT

For more information, read the full International Report Advanced technology landscape and related policies in China here: https://ati.ec.europa.eu/reports/international-reports/advanced-technology-landscape-and-related-policies-china

China has higher capacity to develop and deploy AI compared to Europe

The Chinese government follows a top-down approach to promote the development and deployment of AI and Big Data in the country. This is achieved by investing in relevant areas and by devoting human resources to the identified areas, stimulating a variety of city-level funds for AI and Big Data.

Moreover, China also places special focus on attracting AI talent and companies. For example, there are rewards offered to research institutions and companies employing AI professionals settling in specific regions, and to initiatives for recruiting AI professionals from abroad.



The Chinese government also initiates initiatives to promote startups, technologies and ideas related to AI and Big Data. It provides targeted funding and other incentives to AI and Big Data companies, enabling them to accelerate growth and further increase their capacity to develop and deploy AI.





Source: Candelon et al. (2020)

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China is promoting the development of advanced technologies in Advanced Manufacturing and Robotics

Underlying framework conditions are required to achieve constant development in the fields of Advanced Manufacturing and Robotics in China. This includes:



Industry development. In 2019, China's industry consists of 41 industrial division, 207 groups and 666 classes of products and services. Though the global robot installations fell by 12% in 2019, China remained the world's largest market for industrial robots since 2013. The decline was triggered by factors such as difficulties in the automotive and electronics sector and trade conflict between China and the United States of America.



Regional specialisation. To target specific clusters, China is pursuing strategies for regional specialisation. This strategy brings together research and development institutions and universities to promote a specific innovation. Moreover, regional clusters bring greater employment, consumption and economic growth to local industries.

Various funds, strategies and initiatives are in place to promote Advanced Manufacturing and Robotics in China, including:



National Advanced Manufacturing Investment Fund. The first phase of this fund was launched in 2016 and is valued at \in 2.56 bn and was targeted at enterprises focusing on railroad equipment, industrial robots, new energy vehicles, etc. The second phase of an estimate of \in 6.39 bn was initiated in 2019 to boost industrial restructuring, help achieve economic growth and leverage AI and 5G to guide the modernisation of manufacturing.



National Manufacturing Transformation Upgrade Fund. This fund aimed to push industrial upgrading up in 2019 and is valued at \in 18.82 bn. It was established by approximately 20 Chinese companies to support and upgrade the Chinese manufacturing industry, focusing on investment in areas such as new materials, electric equipment and new generation information technology.

The field of Advanced Manufacturing and Robotics in China offers several lessons for Europe, including:



The EU needs to work towards a unified, overarching strategy for the development of Advanced Manufacturing and Robotics on an international level.



The digital maturity of European firms must be increased on a broad basis to upgrade their digital readiness in the business sector.



European clusters should facilitate and coordinate technological development across national borders to gain international visibility and relevance.



The EU needs to work on improving the image and openness for automation and robotics.

The Chinese government used the Covid-19 pandemic to accelerate the development of self-reliant infrastructure for new technologies

Following the first detection of Covid-19 in the Hubei province in December 2019, China became the first country to be severely affected by the pandemic. Following this, the Chinese government implemented several wide-spread lockdowns throughout the country to control the outbreaks and closed the international borders to all but essential businesses.

This led to an unprecedented worldwide economic crisis and the Chinese economy contracted by 16% in the 1st quarter of 2020. However, in contrast to many other countries, China recovered quickly with a growth of 6.5% by the 4th quarter of 2020.

Due to the widespread mobilisation of new and digital technologies during the pandemic, advanced technologies grew significantly in 2020.



Al and Big Data technologies versus Covid-19 in China, January-May 2020

Use of advanced technologies to combat the pandemic. Distribution of 543 applications using advanced technologies that are listed on the 'information platform on



Source: Carnap et al. (2020)

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