

14th Five-Year Plan on Intelligent Manufacturing Policy Update | February 2022

On 28 December 2021, the Ministry of Industry and Information Technology (MIIT) released the [14th Five-Year Plan for Intelligent Manufacturing Development](#) (hereinafter called the Plan), in conjunction with seven other government ministries¹. The Plan describes the overall path and goals of China's Intelligent Manufacturing development for the next five years and strongly influences Chinese industry trends. Furthermore, the plan includes concrete quantitative targets and milestones. Traditionally, these will be strongly promoted and/or incentivised by the national and regional governments.

What has changed compared to the 13th FYP?

In 2016, the central government released the [13th Five-Year Plan for the Intelligent Manufacturing industry](#) (hereinafter called the 13th FYP). By comparing the two documents, the new Plan signals a **continuation of the previous policy** with new specific **trends of Intelligent Manufacturing developments** added:

- **Continuation of the blueprint designed by Made in China 2025**

Although "Made in China 2025" has not been stated in the Plan, its objectives, focused industries, and technologies can still be traced back to "Made in China 2025". A comparison table between the newly identified key industries with the previous ones can be found in a previous [policy update](#).

- **Increased importance of the development of Intelligent Manufacturing**

The 13th FYP was jointly issued and implemented by **MIIT** and **MOF**. The 2021 Plan was published by MIIT in conjunction with seven other ministries including **MOST** and **MOE**, signalling the government's intention to involve more ministries with the long-term development of Intelligent Manufacturing. Moreover, the inclusion of additional ministries hints at governmental efforts to further promote R&D and to address upskilling needs of the domestic labour market in the sphere of Intelligent Manufacturing.

- **More emphasis on growing SMEs**

The digital transformation of small and medium-sized enterprises (SMEs) is highlighted. The Plan promotes several projects that meet the digitalisation needs of SMEs. Furthermore, it supports the development of "little giant"² enterprises. These shall also serve as role models for other SMEs with regards to adopting Intelligent Manufacturing technologies.

¹ The Plan is jointly published by the Ministry of Industry and Information Technology, the National Development and Reform Commission (NDRC), the Ministry of Education (MOE), the Ministry of Science and Technology (MOST), the Ministry of Finance (MOF), the Ministry of Human Resources and Social Security (MOHRSS), the State Administration for Market Regulation (SAMR) and the State-owned Assets Supervision and Administration Commission of the State Council (SASAC).

² "Little Giant Enterprises Project" selects and cultivates SMEs, which focuses on market segments with strong innovation capabilities and good growth potential, providing key components and supporting products to large enterprises and projects. A policy update introducing the development of high-quality manufacturing enterprises including "little giant" enterprises can be found on our project's [website](#).

- **Intelligent Manufacturing Technologies for Carbon Neutrality**

The 13th FYP promotes Intelligent Manufacturing solutions as a means to support China's planned carbon neutrality by 2060. For example, industrial software should be introduced to monitor and manage CO2 emissions. Moreover, digital platforms should be set up to enable data sharing on the product lifecycle.

Development path of the next five years

Three objectives by 2025:

Industrial Upgrading: Over 70% of manufacturing enterprises above a designated size³ shall become digitised with networking capabilities. Over 500 leading demonstration factories shall be built. The production efficiency, yield and energy utilisation of manufacturing enterprises shall be significantly enhanced.

Supply Capacity: The industry competitiveness shall be significantly improved, meaning that the domestic market demand for Intelligent Manufacturing equipment and industrial software products shall increase by 70% and 50% respectively. More than 150 Intelligent Manufacturing system solution providers with high professional levels and strong service capabilities are to be cultivated.

Supporting Infrastructure: Several Intelligent Manufacturing innovation centres and public service platforms shall be built. A standard system and network infrastructure adapting the development of Intelligent Manufacturing is to be built. More than 200 national and industry standards shall be completed. More than 120 industry-wide and region-wide industrial Internet platforms are to be established.

The plan shall be implemented within six focus areas:

- i. Intelligent Manufacturing technology research**
 - Including key core technologies (e.g., additive manufacturing technology, Digital Twin, 5G, and AI) and system integrated technologies (e.g., data integration technology, business connected technology and information interaction technology)
- ii. Construction of demonstration factories**
 - Promoting the application of new technologies into the production process, such as Digital Twin, AI, 5G, Big Data, Block Chain, VR/AR/MR
 - Creating intelligent shop floors to achieve flexible and intelligent production
 - Supporting the intelligent upgrading of the whole production process and creating smart supply chains
- iii. Intelligent transformation and upgrading of the industry**
 - Developing digital designs and promoting product lifecycle platforms in the whole industrial chain in the areas of equipment manufacturing, electronic information, raw materials, and consumer goods
- iv. Intelligent Manufacturing equipment innovation and development**
 - Focus areas include basic components and devices, general and specialised Intelligent Manufacturing equipment and novel equipment integrating with advanced technologies

³ Enterprises with annual main business income of 20 million yuan or above (i.e., approx. 2.77 million EUR).

v. Industrial software upgrade and improvement


- Development of software for R&D, design, manufacturing, management, control and execution as well as industry-specific usages

vi. Intelligent Manufacturing standards

- Regularly revising the [Construction Guidelines of the National Intelligent Manufacturing Standards Systems](#) and building standard systems for industrial application in subdivided industries (e.g., automotive industry, electronic equipment sector, new energy sector)
- Promoting the development and application of standards
- Continue to strengthen the Sino-German cooperation on Intelligent Manufacturing/Industrie 4.0 standards

International exchange and cooperation

The Plan emphasises the significance of cooperation with foreign countries. It explicitly encourages multinational companies and foreign scientific research institutions to build Intelligent Manufacturing R&D centres, demonstration factories, and training centres in China. Furthermore, the Plan encourages to make use of bilateral (e.g., Sino-German cooperation) or multilateral cooperation mechanisms, such as the "Belt and Road" initiative and the Regional Comprehensive Economic Partnership (RCEP).



We hope you enjoyed reading this Policy Update and welcome your comments and suggestions. Your feedback to info@i40-china.org is highly appreciated. More policy products can be found in our [Download Area](#), more information about the Sino-German Industrie 4.0 Cooperation is on our [Project Website](#).