Policy Update

Industrial Big Data

2020-02-11

MIIT Guidance on Developing Industrial Big Data (Draft Version) | September 2019

On 4 September, China's Ministry of Industry and Information Technology (MIIT) released the draft of a *Guidance on Developing Industrial Big Data* with a request for comments until 16.09.2019. To achieve a data-driven industrial economy and high-quality manufacturing, the draft aims to enhance the integration between manufacturing and the internet, Big Data, Industrial Internet and Artificial Intelligence.

The draft signals upcoming regulations and industry support on industrial Big Data. In this Policy Update, we will highlight the major content of the draft. Furthermore, you will read an initial analysis based on this content.

Highlights

From this draft, we highlight the following two messages that are of high relevance. First, industrial Big Data is regarded as a factor of production and important economic resource. The draft encourages the development of market transaction mechanisms for data, the evaluation of data assets, and the determination of data ownership.

➔ The message that data should be treated as a production factor also appears in the *Decision of the Fourth Plenary Session of the 19th Central Committee of the Communist Party of China (CPC)*[1] released in November 2019. The high significance of the plenary session of the CPC underlines the importance of data for Chinese policymakers.

Second, legislation on data governance is to be expected; the draft calls for improving the legal environment in areas of data ownership, circulation and security.

➔ Specifically, the National People's Congress Standing Committee Legal Work Committee has listed the draft of the Data Security Law on its 2020 agenda, according to a press conference on 20 December 2019.[2]

Analysis – General Remarks

The plan to develop industrial Big Data described in the draft focuses on four areas: data resources, data analysis, data industry, and data governance. A few key points are outlined below.

➔ The timeline is set to be until 2025 for "initially established" industrial Big Data systems of resources, analysis, industry and governance. A roadmap, timeline and detailed implementation plan will be developed later. Other than the timeline of 2025, the draft does not specify any quantitative indicators such as market shares or the number of pilot projects.

1 A newsletter (in English) from Trivium regarding the fourth plenary session and its mentioning on data is available here. An official overview (in English) of the fourth plenary session is available here. The full-text Decision (in Chinese) is available here.

2 http://www.npc.gov.cn/npc/c30834/201912/885be3e9128247518bfb25242f56aec4.shtml

- ➔ The draft outlines the plan to construct several national platforms to aggregate data resources. While companies could benefit from such aggregated data resources, it remains unclear as for *how and under what conditions* individual companies interact with the national platforms.
- ➔ To define market transaction mechanisms and to evaluate industrial Big Data as assets are ambitious and provide individual companies with exciting opportunities. The draft takes an open stance on potential business models and notes the needs of improved data governance and a sound legal environment. However, as mentioned above, a detailed implementation plan and a timeline are not yet specified.
- ➔ The draft does not mention financial support from governments; instead, other financial instruments, such as policy banks[3], equity financing, social venture capital, are mentioned to support industrial Big Data companies and start-ups.
- ➔ The draft was accompanied by an explanatory document. According to the explanatory document, the drafting committee was led by the China Academy of Information and Communications Technology (CAICT) and consisted of the China Industrial Control Systems Cyber Emergency Response Team (CIC), the China Electronics Standardization Institute (CESI), the China Center for Information Industry Development (CCID), and the China Industrial Internet Research Institute. The drafting process consulted local authorities as well as around 50 industrial, internet and industrial software companies in areas including Beijing, Guangdong, Zhejiang and Jiangsu.

Summary of the Content

In the following section, we provide a detailed summary of the content, which focuses on data resources, analysis, industry and governance.

1. Data Resources: Collection, Aggregation and Sharing

The first area focuses on how to collect, aggregate, circulate and manage data resources as a foundation to realise the value of data. Two projects are proposed in the draft.

The first project is to construct a national platform for basic industrial data resources. The platform includes a Big Data centre for Industrial Internet, a set of databases for key industries and projects, and a database to monitor the operation of the industrial economy.

The second project is to improve companies' capabilities on managing industrial Big Data resources. Large enterprises are encouraged to incorporate data management into their strategic planning and to appoint Chief Data Officers and other specialized data management personnel; SMEs are encouraged to start from their business needs and make use of third-party solutions for data resource management.

The following technologies, instruments and objectives are also mentioned and could expect promotion.

- Data collection capacities: digital tools and equipment such as sensors, radio frequency identification, CNC machine tools, robots, gateways, etc.
- Data transmission and interoperability: 5G, NarrowBand IoT (NB-IoT), IPv6, a unified data exchange architecture and data interface standards.

[3] https://www.ibisworld.com/china/market-research-reports/policy-banks-industry/

- Data quality: to achieve data accuracy, integrity, consistency, visibility, manageability, usability, as well as the fusion and storage of multi-source heterogeneous data.
- Data cooperation mechanisms: strategic alliances between enterprises and third parties to co-establish secure, reliable and user-friendly industrial data space, business models such as free sharing or pay for service.
- Market mechanism: value evaluation, cataloguing and mapping for data assets, establishing a fair, open and transparent data transaction and circulation mechanism, clearing data ownership and accountability mechanism, enhancing market supervision and industry self-regulation.

2. Data Application and Analysis

The second focal point – data application and analysis – aims to achieve full potential and value from industrial Big Data resources. It proposes an industrial Big Data application project to promote new business models and solutions. Specifically, the project aims to:

- Organise pilot and demonstration projects for industrial Big Data applications in key industries and companies. An industrial Big Data application guidebook will be compiled.
- Improve public service capacities in industrial Big Data applications through programs such as building a public service platform, organizing innovation competitions, collecting best practices, and conducting trainings.
- Establish assessment standards and indices to evaluate the implementation status and publish the evaluation results.

Other objectives and instruments include:

- Apply a data-driven approach throughout the full production process from research and development to design, manufacturing and management.
- Cultivate data-driven new manufacturing models such as using Big Data technologies for accurate user profiles and a flexible and customized production based on user needs, collaborative design, networked manufacturing, agile supply chain and shared manufacturing.
- Enhance data service capacities of Industrial Internet platforms from which SMEs and other companies can benefit.
- Cultivate industrial Big Data solution providers; establish an evaluation system for those providers; regularly publish a directory of solution providers and a list of key products.

3. Data Technology and Industry Ecology

The third area focuses on key technologies and the industrial Big Data industry ecology.

- On technologies, the goal is to achieve breakthroughs in key technologies in data collection, management, aggregation, analysis and security. Further, the goal is to promote the deployment of innovative technologies such as Edge Computing and Artificial Intelligence.
- Regarding the industry ecology, the goal is to develop a sound product system for both hardware (e.g. sensors, servers, storage devices and gateway devices) and software products (e.g. solutions for data management, mining, analysis and visualisation). Infrastructure (e.g. industrial clouds, third party data resource suppliers, application suppliers and services providers) in data standards, assessment, consulting and research should also be developed.

- Cooperation between research institutes and the industry is encouraged; open source projects and communities should be promoted.

4. Data Governance and Security

Key words in this area include data regulation, security and data classification management systems. Details include:

- Conduct research regarding laws and regulations on data ownership and rights, data circulation, data security; improve the legal environment for industrial Big Data.
- Promote the development of standards in data classification and lifecycle management.
- Conduct a top-level design for industrial Big Data classification; develop an industrial data categorisation and classification guide to manage data based on its classification.
- Establish a security management system safeguarding data generated from the entire industrial chain. Companies should increase their investment in security, establish Big Data security risk prevention and control systems, and ensure the security of important and sensitive data regarding business secrets, public interests, and national security. Data security related technologies and products should be developed and industrialized.

5. Organisational Leadership

To achieve the outlined objectives, the draft proposes to establish these organisational measures:

- An industrial Big Data management office for the overall coordination and implementation.
- A provincial leadership group to promote industrial Big Data in each province.
- An industrial Big Data expert advisory committee to conduct research on strategic development, policy assessment and consultation, as well as innovation.

Closing Remarks

The draft of a *Guidance on Developing Industrial Big Data* provides a comprehensive overview of China's plan and determination to harness the power of industrial Big Data. We suggest that our readers closely follow the release of the official version and associated implementation plans; meanwhile, the Sino-German Cooperation on Industrie 4.0 Project will keep you updated with the latest regulatory news in this area.

We look forward to learning insights from your perspective on the draft of a Guidance on Developing Industrial Big Data. If you have any questions or comments on this Policy Update, or if you do not want to receive such policy updates in the future, please let us know via email at info@i40-china.org.

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