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GB/T 23004-2020

**Reference architecture for integration of informatization and
industrialization ecosystem**

信息化和工业化融合生态系统参考架构

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1 Scope

GB/T 23004-2020 is the Chinese national standard on reference architecture for integration of informatization and industrialization ecosystem, in the field of information technology. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 29 September 2020 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 April 2021. Classification: ICS 35.240, CCS L67. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This standard provides the ecosystem reference architecture for the integration of

informatization and industrialization (hereinafter referred to as "the integration of industrialization and industrialization"). The basic connotation and main content of three analytical perspectives, four elements, and three development processes. This standard applies to governments at all levels, industry organizations and enterprises to carry out the top-level design of the integration of the two technologies and systematically promote the deep integration of the two technologies. Server machine It can refer to the development and provide system solutions.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

GB/T 23000-2017 Information and industrialization integration management system foundation and terminology ITU-TY.4906 Evaluation Framework for Digital Transformation of Smart Industry

3 Terms and definitions

The terms and definitions defined in GB/T 23000-2017 and ITU-TY.4906 apply to this document.

4 Overall framework

4.1 The two-information integration ecosystem reference architecture consists of three perspectives, four elements, and three processes, as shown in Figure 1. The connotation of different industry sub-perspectives is not the same. Organizations should promote the value innovation of the above sub-perspectives and the dynamic value grouping between the sub-perspectives. To achieve continuous innovation and transformation of value creation methods.

5.2.2 Organizations should establish a new concept of value creation where value is ubiquitous, promote comprehensive service-oriented transformation in all aspects of operation and management, and explore new Value growth point.

5.2.3 Organizations should transform from a relatively stable serial value chain cooperation relationship to a dynamic value network cooperation relationship, and respond quickly Increasingly personalized market demand constantly opens up new development space.

5.3 Cyber-physical space (space)

5.3.1 The cyber-physical space (spatial) perspective includes sub-perspectives such as hardware, software, network, and platform. Organizations should continue to deepen new

technology applications Use, promote the spiral upgrade and integration innovation of hardware, software, network, platform and other means, and build a mutual mapping, coordinated and interactive information space And physical space, support data-driven organizational management changes and value system changes.

5.3.2 The organization should play the important role of software definition, and promote the standardization, optimization and innovation of organizational behavior through softwareization of business management activities. New changes will improve the organization's ability to respond to uncertain changes.

5.3.3 Organizations should establish an intelligent Internet of Things network, through the intelligentization of physical objects, and the interaction between physical objects, people, behavior activities and other agents. Interconnection, intercommunication, and interoperability will consolidate the technical foundation of resource opening and dynamic configuration.

5.3.4 The organization should promote the platformization of capabilities, and promote the on-demand allocation and combination of resources through the digitization, modularization and onlineization of resources. Co-creation, sharing, and social collaboration that support ability.

6 Four elements

6.1 Overview Organizations should establish a systemic concept of integrated development, and continue to develop through the joint action of the four elements of data, technology, business processes and organizational structure. Create new capabilities in the information environment.

6.2 Data Organizations should tap the innovation-driven potential of data, and promote organizational management changes, value system changes and technological changes through data development and utilization.

6.3 Technology Organizations should grasp the opportunities for change brought about by technological progress, and adopt the integrated application of new generation information technology, management technology and professional field technology. Application and integration innovation provides new means and conditions for data development and utilization, business process optimization, and organizational structure adjustment, and creates opportunities for continuous improvement.

6.4 Business Process Organizations should play the fundamental role of technology, establish business processes with value and efficiency as the orientation and new capacity building as the main line, and use data Development and utilization promote continuous optimization of business processes, realize cross-department, cross-level business integration, and business collaboration between organizations.

6.5 Organizational structure Organizations should fully understand the arduousness of organizational structure adjustment, drive value system changes through technological progress, and create value system changes New development opportunities, with new development opportunities to promote the adjustment and optimization of the benefit distribution mechanism and organizational structure, and build an organizational ecology of multi-party win-win and common development.

6.6 Continuous iterative optimization of the four elements With the passage of time, the four elements themselves and their related interactions will continue to evolve. Organizations should keep pace with the times and keep using data The driving role of technology, the basic role of technology, the core key role of business processes and organizational structure, promote continuous organizational improvement, transformation and upgrading, and innovative development.

7 Three Courses

7.1 The Digital Process The main task of the digital process is to improve the ability and level of resource allocation within the organization. Organizations should adopt comprehensive management activities Digitization and softwareization can realize the standardization, flexibility and agility of the whole process of the organization's internal behavior. Organizations should improve data management and operations To promote the digital precipitation, learning and sharing of knowledge and realize the explicitness of organizational tacit knowledge. Organizations should promote products through digitalization And service innovation, and foster new digital business.

7.2 The Networking Process The main task of the network process is to improve the dynamic allocation ability and level of resources between organizations. Organizations should manage The online and platformization of management activities can realize the network configuration and dynamic optimization of resources between organizations. Organizations should continue to deepen the industrial chain and The network collaboration and open innovation of the group enhance the overall competitiveness of the industrial chain and industrial cluster. Organizations should grasp the development opportunities of the industrial Internet, Accelerate the cultivation of new network-based technologies, new products, new models, and new business forms.

7.3 Intelligent process The main task of the intelligent process is to improve the ability and level of accurate allocation of internal and external resources of the organization. Organizations should make full use of the new generation of Information technology promotes self-organization, adaptation, self-decision-making, and self-optimization of internal and external business management activities, and achieves the accuracy of internal and external resources and capabilities of the organization Docking, on-demand configuration and real-time optimization. Organizations should continue to deepen the ternary intelligent integration of people, information space, and physical space to realize the