Challenges and Application Development of Industrial Big Data Software

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Abstract: Contemporarily, with the rapid development of science and technology, industrial big data software serves as an important content to realize artificial intelligence and improve the industrial Internet. However, there are enormous challenges confronted by industrial big data software in exorbitant cost for trial and error as well as in theoretical guidance for artificial intelligence. The goal of deep development of industrial big data software can be achieved only by steady development and mobilizing resources for key contents.
***Keywords*:** data software, challenges, application development

As the generic term of industrial data sets, industrial big data serves as the core content of intelligent manufacturing and industrial Internet in the future. Equipment control and business intelligence can be completed by data flow and conversion of different forms, so as to reduce the uncertainty in decision-making activities.

1. Challenges of industrial big data software

Industrial big data software serves as an important tool for effective management and in-depth development and utilization of industrial data. Especially in the current era of information development, industrial big data software also involves the further processing and analysis of data [1]in addition to the collection and management of original data. Industrial big data software is developed with additional contents in system design, source program development, project testing, data operation and performance optimization so as to finish its life cycle based on the software system and original analysis data as shown in Figure 1.

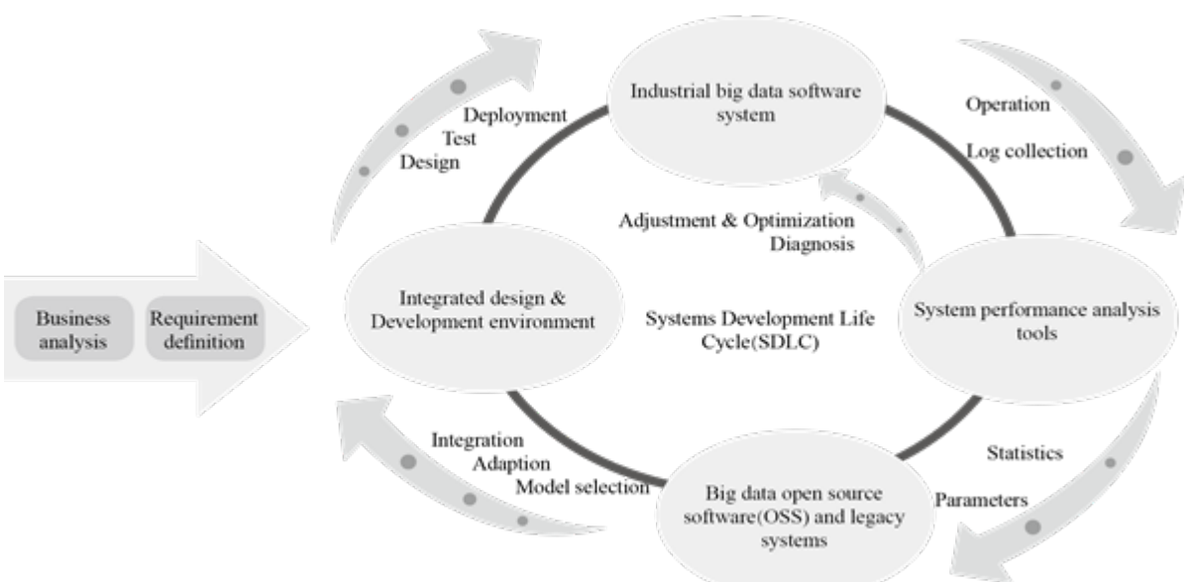

Figure 1. System life cycle of industrial big data software

The production line of industrial big data in processing includes five working procedures, including data collection, management, processing, analysis and application, which can be represented by Figure 2.

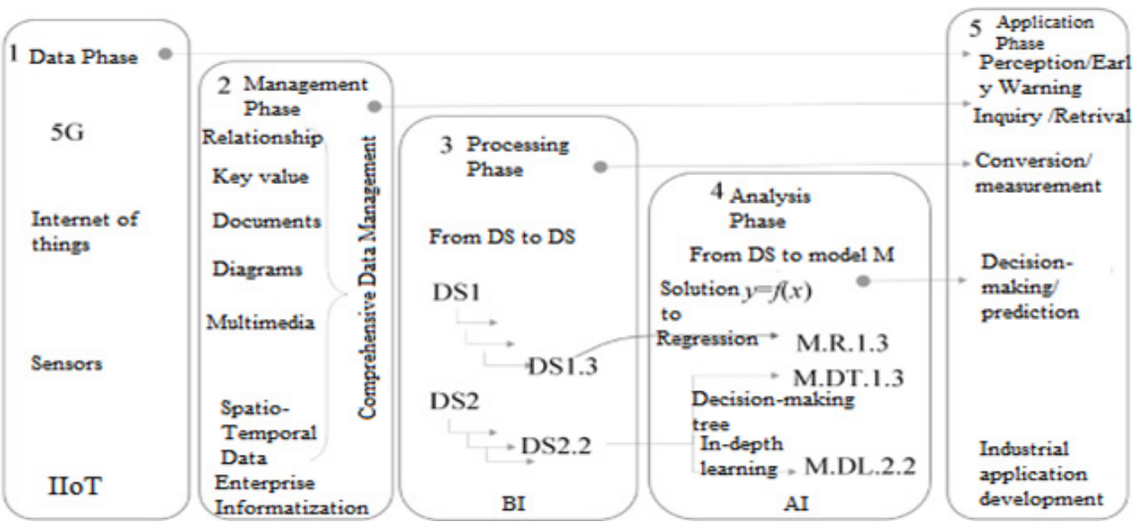

Figure 2. Industrial big data processing line

Specific enterprises are only involved in some of these links, which determine the scope and depth of their requirements for system functions, and the infrastructure of enterprise industrial big data software. In the processing line of industrial big data, industrial material network, enterprise informatization, business intelligence, industrial application development are well developed in both theory and practice, with typical cases. However, uncertain demand contents can be generated by artificial intelligence in light of the needs of different enterprises and industries, and thus failing to effectively build modular content. In the future, the development of artificial intelligence will be characterized by collaborative and in-depth development beyond disciplines and fields. In this case, the challenge confronted by the industry big data is the equivocal theoretical guidance and lack of reference in practical cases. While artificial intelligence is still at exploratory stage. In the future, researchers who want to further develop artificial intelligence will find out a feasible path in the process of trial and error, which, will, however, bring additional trial and error costs to enterprises and industries.

As all data on enterprise operation is stored by industrial big data in a centralized manner, it is very easy to be attacked by criminals, resulting in damage and leakage of important data, which brings serious risks for industrial big data on information security. In light of the total data leakage, the future strategic development of enterprises is vulnerable to leakage, resulting in the loss of some industry competitiveness, and thus the profitability of enterprises can be reduced. It is also possible to maliciously smear the enterprise, resulting in social distrust of the enterprise, loss of public support ability of the enterprise, making the decline in business ability, which seriously affect the healthy operation of the enterprises.

2. Application development of industrial big data software

2.1 Development history of industrial big data software in China

Since the 1960s, the three historical technological developments of industrial informatization, networking and intelligence have provided sufficient foundation for the development of industrial big data, and industrial big data software is the concrete embodiment of this historical process. For a long period of time, China's enterprise structure is very unhealthy, and rapid economic growth is achieved by low added value of the foundry and assembly factories. But with the change of the international financial situation, the United States put forward the plan of industrial reflux and tried to block the development of high-tech in China. In this context, how to achieve industrial transformation in the shortest time has become the focus of the Chinese government, various enterprises and industries. Industrial big data software has quickly become the research object of industries and enterprises due to its excellent performance, wide application range and excessive job contents. In the early studies, many enterprises still adopt the conventional thinking to study the industrial big data software. Although there are some achievements, it still causes a large waste of data resources from the overall perspective. In 2010 and 2015, it became popular for Chinese enterprises to invest enormous funds to carry out special research on industrial big data software. However, the service objects of industrial big data software were ignored, and the research direction was based on the scientific research position, and the application of industrial big data software was not examined from the perspective of the actual development of enterprises, so the results were not obtained. Currently, it is made based on the development of enterprises with focus on industrial big data software applications.

2.2 Application prospects of industrial big data software

At present, it is difficult for industrial big data software to achieve the goal of rapid iteration, and the speed of data evolution fails to meet the development needs of the current industry and enterprises, and the heterogeneous dynamic integration of industrial digitization in the field of physical and information is not fully matched[2]. Therefore, the value of industrial big data is taken as the guiding content, and the self-construction methods of some knowledge software under the open source environment are studied, so as to construct the sustainable fireworks theory for industrial big data software from the macro perspective. Against the background of the rapid development of the intelligent Internet of Things, model optimization and algorithm upgrading of industrial big data software be adopted to truly realize the multi-level and in-depth development of industrial big data software.

As for construction system of industrial big data software, it is necessary to make a breakthrough in resource mobilization of key contents by taking actual benefits as the benefit drive, and implementing the method of each step and gradually implementing the content, so as to avoid the wrong development of enterprises by just taking advanced technology as the content. The big data depth development industry is considered as the core research target, the current key contents of the enterprise are taken as the research enterprise, such as electricity, so as to effectively grasp the source of real data generation and build a perfect database system on the basis of clarifying all kinds of basic contents of enterprise software and business data stock. In addition, the data content is taken as the research focus to build a database for the future development of the enterprise.

Moreover, many enterprises in anti-virus software have started to study the security problems of industrial big data software. For example, 360 anti-virus software achieved the targeted attack with the offline public security department by precisely identifying IP address so as to improve the reliability of industrial big data application.In the future development of industrial big data, issues on data information security will be the focus to provide a safe and reliable service environment for enterprises.

3. Conclusion

Although the lack of explicit theoretical guidance of industrial big data software domestically, which caused the huge investment by enterprises in the exploration of research and application, industrial big data software has a promising future, and China has been focusing on domestic high-tech development since January 2021. This is a clear direction for enterprises to develop industrial big data software in depth in the future. With the help of policy preference, enterprises can complete industrial big data software system in line with the core interests of enterprises according to their actual needs.

References

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