

Research on the Transformation Path of China's New Normal Economic Development Mode in the Age of Big Data

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Abstract: In the era of Internet economy, many new business models and commercial phenomena have emerged. The rapid development of the network has led to the rapid development of personal browsing behavior, search behavior, online transactions, social interaction, and huge amounts of data are stored on the Internet, bringing new business opportunities. Compared with the traditional small data era, the data of this era has shown an exponential growth in volume. Digital technology, as well as information and intelligence, have become the main driving force for economic growth. Under the development trend of big data, the traditional economic growth mode no longer meets the requirements of modern society. Therefore, based on the background of big data, this paper explores the challenges and opportunities facing China's new normal economic growth in the era of big data, and studies the path and policy transformation of China's new normal economic growth in the era of big data from the reality of China's new economic growth.

1. Introduction

Big data refers to the amount of data involved that cannot be processed and managed with regular software tools in a reasonable amount of time. The characteristics of big data are characterized by large data volume, fast processing time, strong diversity and diversity, and great value potential. At present, it mainly includes three types of government data, various industry data, and social data (including network). In 1980, the famous futurist Alvin Toffler called the big data "the cadenza of the third wave" in "The Third Wave." Due to the leap-forward development of massive information resource acquisition technology, Internet transmission technology, data storage and processing technology, "Big Data" has become a popular word. It is estimated that the current data on the Internet is growing by 40%-50% annually. The amount of new data generated worldwide in 2012 and 2013 is equal to the sum of the amount of data generated in history.

2. Big Data Industry Technology Revolution

2.1 Development characteristics

Relevant research believes that the future possession and control of data will become another national strategic advantage and core asset in addition to land rights, sea power and air rights. According to IBM, "data will be the fundamental factor in determining the outcome of all industries and becoming a vital natural resource for human beings. "It has abandoned PC and turned to development software and services, and will focus more on the business growth points brought by big data analytics. The German Ministry of Economic Affairs believes that it has entered a new round of industrial revolution. The first industrial revolution was led by a steam engine, the second was led by electrification, the third was led by information technology, and the fourth time was led by a virtual-natural fusion system (for example, with the support of 3d printing technology, custom

production has emerged, Innovative design, dynamic organization, collaborative production mode) The development of a new round of industrial revolution triggered by big data is:

1. Industrial manufacturing is digital, networked, intelligent, personalized, and green. Expressed as:

- a. New machines, new materials integration;
- b. New production methods, new formats, new business integration;
- c. New productivity, new industry personnel structure, new post integration;
- d. New power, new energy integration.

2. The trend of network organization, platformization and flattening in industrial organizations.

Expressed as:

a. Networked. The first is the vertical interconnection between upstream and downstream enterprises; the second is the horizontal interconnection of enterprises in the region; the third is the interconnection between producers and consumers.

b. Platformization. Through the research and development platform, service platform (such as production service industry), marketing platform (such as e-commerce, etc.), cooperation platform and information platform to achieve the connection with SMEs, "home" service.

c. Flat. Centralized vertical management is replaced by decentralized cooperation (such as custom production, crowdsourcing design, dynamic organization, collaborative manufacturing, etc.), and producers are more directly connected with consumers; this poses a challenge to traditional management systems.

3. The business model shifts from focusing on manufacturers, centralized production, and cost reduction to consumer-centric; network-based personalized services become a new source of competitiveness and profit.

4. Changes in the international industrial competition pattern will change the traditional international industrial division of labor system. Expressed as:

a. Emerging economies are more difficult to undertake industrial transfer and technology transfer according to traditional practices. Competition in industrial upgrading and value chain links is becoming more intense. Whoever has the information will occupy the high ground;

b. Digital manufacturing will make the scale benefits of some industries become less obvious, and personalized customization and decentralized production will become new features; thus affecting the international trade pattern;

c. In the future, the competition around the knowledge-based production factors, such as talents, innovative technologies, and brands, will become more intense.

2.2 Analysis of economic impacts

As an important strategic asset, big data has penetrated into every industry sector and department to varying degrees. Its in-depth application not only helps enterprises to operate, but also promotes the development of the national economy. McKinsey research shows that big data can increase labor productivity by 0.5-1 percentage points per year in healthcare, retail, and manufacturing.

Big data can sharpen the economic direction and formulate and implement scientific economic policies. The facts show that the e-commerce group Alibaba has discovered the international financial crisis earlier from the large amount of transaction data it has, and its data analysis based on daily real-time transaction data also provides an important reference for the formulation and implementation of economic policies. The United Nations-sponsored Global Pulse project uses natural language decryption software to analyze information in social networking sites and text messages to help predict unemployment, spending cuts, or disease outbreaks in a region, with the goal of digital Early warning signals to guide aid projects in advance to prevent a region from falling back into poverty.

At the same time, big data can improve the level and efficiency of business decision-making, promote innovation, and bring value to enterprises and industries. The first is to increase income. Retailers can grasp the market dynamics and respond quickly through real-time analysis of massive data, increase operating income through precision marketing; second, improve efficiency. In

manufacturing, by integrating data from R&D, engineering and manufacturing to implement concurrent engineering, time to market can be significantly reduced and quality improved; in marketing and marketing, big data can help consumers find them at a more reasonable price range. More suitable products to meet their own needs and increase added value. The third is to promote innovation. Companies can find new sources of innovation from historical big data on product development, production and sales, find new partners from big data from customers and consumers, and discover additional value-added services from after-sales feedback big data to improve existing ones.

3. Big Data and Economic Growth Mechanism

According to Kuznets's national economic accounting equation, the traditional way to promote economic growth in the era of decimals is to expand domestic demand, investment and export. The economic growth mechanism studied by traditional economists is also a study of macroeconomics in the era of small data. In the era of big data, these methods have exposed some drawbacks: too much emphasis on macro growth, ignoring the impact of structural changes and factor demand and supply changes on micro-subjects. Although some scholars have analyzed the impact of economic restructuring and upgrading on economic growth, in the context of small data, it is impossible to conduct an in-depth analysis of structural problems. Under the premise of the complete and diverse data provided by the era of big data, sufficient analysis and calculation can be carried out. From the results of these analyses, the mechanism of economic growth is completely different from the previous one in the context of big data.

3.1 Impact on micro-factors, product supply and demand

In the era of small data, the supply and demand of factors and products cannot be accurate to each individual. The supply and demand of factors can only be priced according to the average price of the market. The requirements for the special elements of each manufacturer cannot be realized, thus causing waste of resources and profits. The loss of demand; the demand and supply of products have a "long tail effect" in marketing in the consumer market. There are a few large-scale needs in the short section, and there are many different needs in the long tail, but there are not many consumer groups for each demand. If the production is started according to this demand, the producer can only Producing large-scale homogenous products, and consumers with different preferences can only consume homogenized products, which can not maximize profits for producers, but for consumers, consumer surplus cannot Satisfaction, the consumer surplus will be greatly reduced.

In the era of big data, based on the existence of a large amount of data and superb data analysis technology, as well as the digitalization, intelligence, customization, interconnection and ecologicalization of the manufacturing industry caused by the third industrial revolution, traditional products Factor demand and supply structure have been broken. The emergence of 3D printing technology has completely overturned the "long tail theory". This product of the era of big data provides an opportunity to meet the long tail demand of consumers. The market will be able to provide the heterogeneous products that each consumer needs, which will result in maximizing the profit of the manufacturer, while the consumer's consumer demand will also be met, and consumers will also get the largest consumer surplus, the entire Society will achieve Pareto optimality and achieve optimal state of economic growth.

3.2 Impact on the transformation of the mid-view industrial structure

In the era of small data, industries are separated from each other. Industrialization and informatization are two different modes of production in the process of social and economic development. Moreover, in the era of small data, under the conditions of relatively high data acquisition cost and backward data analysis technology, the ability of industrial development to use data to create profits is very limited. The industrial output value accounts for a large proportion of the total output value of the national economy. The industrial structure still basically presents a

pattern of stratification of agriculture, industry and service industries. The integration between the three industries and the integration within the same industry are very low. The degree of informatization and intelligence of the industry is low, and the industrial structure has not changed much since the second industrial revolution.

In the era of big data, due to the integration of information technology, big data and industrialization, the intelligent era of industrial manufacturing has arrived. The continuous integration of informationization, intelligence and industrial development has made the industry show a convergence trend, and the industrial structure has been continuously optimized. Xi Xiaoli: "Industrial Integration and Industrial Structure Upgrading in the Process of Informatization", "Industrial Economy", February 2007. Informatization can use advanced information technology and intelligent technology to promote the development of information resources, promote the full use of information resources, promote knowledge sharing, and ultimately improve the quality of economic growth and promote economic restructuring. According to the basic theory of industrial economics, industrial structure optimization is achieved by transforming traditional industries with modern emerging technologies and replacing the recession industry sector with advantageous industrial sectors. The dominant position of an industrial sector is characterized by demand-driven external factors; while the internal factors are characterized by enhanced industrial competitiveness and lower factor costs, especially industrial competitiveness is driven by technological innovation as a driving force to promote efficiency. Through the combination of technological innovation and business, the integration between industries is promoted, the industrial sharing is strengthened, the industrial boundary is blurred, the related industries are integrated into the industrial sector with high technical level, and industrial innovation and integration are promoted to make the industrial structure. Optimized and upgraded, and further improved industrial competitiveness.

Industrial integration not only enhances the competitiveness of the industry, but also changes the way of production in society. The performance of industrial integration in the era of big data is 3D printers. The digital manufacturing consisting of the integration of 3D printing technology and big data will impact the manufacture of traditional products. Production and manufacturing will be transformed from the factory to the society, and there will be countless micro-manufacturing centers throughout the society.

3.3 Impact on the driving force of macroeconomic growth

The production of traditional society will be completely transformed into social manufacturing, each individual is providing information, and each individual participates in the production process. The future production model first determines the ratio of the short and long tail manufacturing modes, and determines the equilibrium point between the long tail demand and the short tail demand. The short tail demand for the production of homogenized products is still determined by professional large-scale manufacturers. Manufactured to reduce costs, and differentiated products that face long tail demand are manufactured by individuals. The determination of the balance between the two depends on the support of big data technology. In the context of Moore's Law and the exponential growth of data, data will become more and more important in social production. The arrival of the era of big data has brought about the full rise of the data analysis industry. The development of digital technology has brought innovation to data analysis methods. Traditional consumption, investment and export will be based on accurate data analysis. Data serves as a bridge between the traditional industrial civilization and the modern intelligent society. The intelligence and informationization caused by big data analysis will be integrated with industrial development. The extensive and profound application of information technology has continuously promoted the progress of social productivity and promoted the improvement of industrialization level and the quality of economic growth. Therefore, the development of digital, intelligent and informational industries will be a new driving force for China's new normal economic growth under the background of big data.

4. China's New Normal Economic Development Mode Transformation Path

Big data is not just a technological change, but more of a technology application service. This technological change and technology application service has changed the way the economy develops. At present, China's economy is in the new normal background. The core issues of the new normal are economic restructuring, economic development mode transformation and technological innovation. Therefore, in the context of the new normal, we must do a good job of transforming the path of economic development according to the characteristics of the era of big data.

4.1 Strengthen the application of big data technology

At present, the application of big data technology is still in the initial stage in many industries, and the role of data productivity has not been exerted. Therefore, it is necessary to strengthen all aspects from the aspects of data collection, storage, processing, and application. First, in terms of data collection, the Internet of Things and various types of information equipment data are attached with time and space signs, to falsify the truth, collect heterogeneous or even heterogeneous data as much as possible, and if necessary, compare with historical data to verify the comprehensiveness of data from multiple angles. Sex and credibility. Second, in terms of data storage, data should be sorted and classified according to certain rules. By filtering and deduplicating, the amount of storage is reduced, and tags that are easy to retrieve in the future are added to achieve the goal of low cost, low energy consumption, and high reliability. Third, in the aspect of data analysis, we constantly explore new data mining technologies, such as the technology of cross-analysis of heterogeneous data sets composed of multiple data types, to solve the problem of data value. Fourth, in the application of data, better use of big data technology to serve the government's macroeconomic regulation, corporate decision-making and residential life services.

4.2 Establish a secure big data network

The chain is the infrastructure of big data. Through link construction, cloud-to-cloud, cloud-to-end and end-to-end interconnection and interoperability are realized, which makes data sharing and efficient utilization of different application areas at different levels possible. The big data link is used as a carrier to link information collection, processing and application to maximize the potential role of data. Therefore, the transformation of the big data era must be based on the construction of big data chains, effectively integrating “information islands” and “application silos” to achieve the positive effects of big data. First, in the process of construction, focusing on long-term sustainable development, it is necessary to formulate interoperability standards, achieve coordinated development of various facilities, and reserve interfaces in a forward-looking manner for future upgrading and expansion. The second is to establish a data risk management and control concept, support the construction and development of domestic big data technology and platform, actively support and guide enterprises to increase research and development efforts, strive to break through core technologies, and gradually improve the autonomy and controllability of key facilities. The third is to speed up the introduction of laws and regulations related to big data, and to establish laws or standards on “data ownership” and “data privacy” to protect citizens and countries' data security through laws.

4.3 Building a multi-win and win-win ecosystem in the era of big data

In the era of big data, the Internet has effectively promoted industrial integration, and the gap between different industries has continued to shrink.

Industry integration has become a trend. In this context, the key to the success of the business model is whether it can build a platform. Through the implementation of the platform strategy, the establishment of a symbiotic mechanism, connecting more than two groups, bending and breaking the existing industrial chain, effectively stimulating the interaction between multiple groups, to provide conditions for achieving multi-party win-win. The necessary condition for the full implementation of the platform strategy is to create a multi-winning ecological environment and grow in balance. The first is to establish a multi-service concept, positioning the platform business as

a mechanism that can serve the “variable” group, connecting the cross-edge network effects between groups, and enhancing the peer-to-peer network effect between the same groups. The second is to develop an effective pricing strategy, including well-known users and ordinary users into the service system, breaking through the critical mass and promoting positive circulation. The third is to clarify positioning, enhance their own capabilities, and ensure that “the ability to provide the most benefits to the users on each side and to meet the needs of users on all sides”.

4.4 Fully integrated into the development trend of the big data era

For the main players in the market, the most important thing is to grasp the trend of big data, focus on promoting its own data-driven innovation, accelerate the application of big data in the business level, and win the competitive advantage of the new era. Such as the use of data mining and text mining technology, innovation in customer relationship management, consumption patterns, etc., so that enterprises gain competitive advantage. For the regulation of the market, the government should recognize the trend of big data development and put big data on the national strategic level to understand. First, plan ahead in the public domain to promote experimental and exemplary applications of big data; second, focus on strategic and fundamental long-term policy innovations to create conditions for the promotion of big data applications. At the same time, we strive to build rules that adapt to the era of big data, actively promote data disclosure, establish a new information order in the era of big data, and achieve the dual goals of encouraging openness and taking into account security and personal privacy.

4.5 Deepening the transformation of the development mode of the big data era

The arrival of the era of big data has changed the traditional business thinking, objectively requiring new cultures to adapt to the changes of the times, and the importance of cultural innovation has become increasingly prominent. Through cultural innovation, it is possible to effectively establish the spiritual leadership and wisdom support for accelerating the transformation of the economic development mode. Taking cultural innovation as a carrier and implementing a cultural innovation-driven strategy has not only deepened the understanding of accelerating the transformation of economic development mode, but also conformed to the evolutionary direction of accelerating the transformation of economic development mode. The first is to combine traditional culture with Internet culture, innovate the cultural system, and adapt the culture.

The requirements of the generation, to promote the transformation of the economic development mode. The second is to accelerate the development of the cultural industry. With the deepening of the integration of technology and culture, the status of cultural consumption and cultural industries will continue to increase in the consumption structure and industrial structure of the era of big data.

5. Conclusion

At present, big data has penetrated into all levels of government, all walks of life, and thousands of households, and has become a basic element of government governance and production. Big data mining and utilization has become a source of new economic growth points and quality benefits. How to revitalize data assets and serve the country's economic, social, ecological, cultural and people's livelihood development is the core and potential value of big data, and it is also the connotation and vitality of cloud computing. From the data layer to the information layer to the knowledge layer to the intelligent decision-making layer, the process of data is sublimated, and the data layer is the foundation. The data is upgraded to the information layer through data mining technology; And the extraction technology is upgraded into the knowledge layer, and finally the intelligent decision-making layer is formed through the expert system decision support technology and verification. Starting from the background of big data, this paper explores the challenges and opportunities for China's new normal economic growth in the era of big data, and studies the path of China's new normal economic growth and the orientation of policy transformation in the era of big data from the reality of China's new economic growth.

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