

The Future Development of the Electronic Technology Industry under the Trend of the Digital Economy

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Abstract: The digital economy has emerged as a prominent trend in contemporary society, reshaping various industries and sectors. This trend is primarily driven by the rapid advancement of technological innovations, particularly in the realm of electronics. At the heart of this digital revolution lies the development of the electronic technology industry. This industry, encompassing a vast array of technologies and applications, has been a key contributor to the development and expansion of the digital economy. To gain a deeper understanding of the development trends within the electronic technology industry, a methodical approach is adopted. This involves searching for relevant data, analyzing patterns and trends, and interpreting the information to draw meaningful insights. The electronic technology industry holds immense promise for future growth and development. However, it is also evident that there is still a considerable way to go before people can fully harness and utilize the potential of electronic technology. This underscores the need for continued research and innovation in this field to ensure that the benefits of electronic technology are fully realized.

Keywords: digital economy, prospect, advantages

1. Introduction

In this era, as the digital technology developing very quickly, more and more industries based on electronic devices and the internet, and the economy relies more on this digital economy, Tap-Scott put forward the concept of digital economy for the first time, the concept shows that Digital economy is a new type of economy which takes digital knowledge as the main factors of production, modern information network as the main carrier, and relies on the effective use of information and communication technology to improve economic efficiency and optimize economic structure.

The digital economy covers two aspects: digital industrialization and industry digitization. The information technology industry involves the electronic information manufacturing industry, the software and information industry, the information and communication industry, etc. Another thing, Industrial digitalization, refers to the use of a new form of information technology to carry out a comprehensive digital transformation of traditional industries, the digitalization, networking and intelligence of every link.

The rapid development of the digital economy and its wide range of influence have brought profound changes to modes of production, lifestyles and governance, and become an important force driving changes in the global economic structure and competitive landscape [1].

Nowadays, parents, teachers and many other elders boycott video games because they can distract the focus of their children. But today, analysis of this topic is still essential, for digital industries, video games, and electronic devices. How do such forms of digital economy integrate our lives, and whether video games are good or bad for the modern economy.

2. Digital Economy Based on the Condition of Technology

First, considering the source of the digital economy, technology's development is the most important one. Different regions have different developments of technology, so the development of the digital economy would vary widely from region to region. A report called The Consumer Barometer rolled out by Google, users in 46 countries worldwide. According to the report, researched users in Asia prefer to use mobile phones to surf on the internet rather than computers. Of the 10 countries that Neison chose, the highest rate of mobile phone use is in Korea and Singapore, with rates of 80% and 85% respectively. Other countries China 66%, Australia 65%, Italy 62%, The UK 61%, America 53%, Russia 37%, Brazil 36%, Turkey 19%, India 10%.

According to these data, it can be seen that the popularizing rate of mobile phones differs from country to country, in this case, the development of the digital economy in different countries is distinct since electric technologies like mobile phones are essential for the development of the digital economy.

Besides mobile phones, big data is another element, the experience humans got from the development of society in the past shows that every intense revolution of economic forms always generates and relies on new production factors. Just like labour and earth are the important elements in the period of agricultural economy, capital and technology are the essential production factors in the industrial economy period, when entering the digital economy era, data gradually becomes the new factor that drives the development of society and the economy [2].

Computer hardware is an important component for human beings to process operations and store data. Before it can effectively assist numerical operations, computer hardware has been of indispensable importance. At the earliest, humans used tools like runel to assist recording, such as the Phoenicians used clay to record the number of livestock or grain, and the Minoan civilization excavated artefacts are similar, and the users of the time were mostly traders, accountants, and government officials.

The auxiliary counting tools gradually developed into both recording and calculating functions, such as the abacus, slide rule, analogue computer and modern digital computer [3].

3. The Comparison of the Digital Economy in China and Abroad

The TIMG index measures the development level of the digital economy in the whole world.

As for the standard set for people to assess the TIMG index, there are three levels of indicators. The first level index includes four aspects, digital technology, digital infrastructure, digital marketplace and digital governance, and these four aspects each accounted for 25%. The secondary indicators are the branches of the first level indicators, digital technology derives from 3 parts, the output of research and development, labour capital, level of innovation, and the infrastructure, inclusion, convenience and security. The demand side, supply side and international markets are the three included by the first level indicator digital marketplace. And the last one, digital governance, derives government, economic and social environment, political and legal environment. These secondary indexes all take 1/3 of the whole part [4]. The same as the secondary indicators, the third-level indexes are the branches of the secondary indexes. There are two extra parts for the third-level indexes. For R&D output, including digital patent size, and number of mathematical and computer-published papers. For labour capital, higher education enrollment and national digital literacy are

considered. For the level of innovation, innovation activity and the level of industry-university-research cooperation are needed. The second part, inclusion includes active fixed broadband users and mobile phone subscriptions. The convenience derives from mobile tariffs and cell phone prices. The third part, the demand side includes digital consumer size and mobile social media penetration. The supply side includes several digital businesses, and the amount of financing secured by digital businesses. International markets mean digital services export scale. The last part, the digital government presents the E-government index, and the economic and social environment stands for ease of doing, business index, and degree of intellectual property protection. The political and legal environment includes the construction of digital-related legal regulations. ICT regulation tracking index, degree of government support [5].

Secondly, the TIMG index takes into account the comprehensiveness of the indicator and the breadth of sample coverage. The indicator reflects the development of the digital economy in 106 economies in the world from 2013 to 2021.

According to the research made by Google, the average goal of the TIMG index increased from 45.33 in 2013 to 57.01 in 2021, with a proportion of 26%.

In the era that the digital economy developed quickly, the Chinese government showed their attitude towards the prospect of a digital economy.

First, the economy in the whole world is constantly developing. Second, North America, Asia and Western Europe are three regions that have higher development of the digital economy by comparison, the other countries in regions like Asia and Middle and Eastern Europe have moderate development while the development in the African areas is relevantly low. Third, in terms of the total index, the TIMG index in America Singapore and the UK is the highest, and China ranks eighth. Urth, the digital Silk Road in China has already made up a significant part of the Belt and Road and is a port of international cooperation in the future. Fifth, the digital economy will become a new field and a new competition trail in the future. In the aspect of selection of time, this graphic is between 2013 and 2021, and the data is from ITU, GSMA, UNCTAD, WEF, WIPO, and CrunchBase. As far as China is concerned, in 2021, China has advantages in the competitive market, but still has a certain gap compared with the countries like America in the aspects like digital technology, and the management of digital information.

From these data, it can be seen that America is at the top of the list in the digital technology index. In 2021, the index in America is 91.83, leading other countries significantly. The second to fifth on the ranking list are Finland, Switzerland, Germany, and the Netherlands, the data of the four countries are adjacent, all between 82 and 84. The sixth to the 10th in this list are Singapore, Switzerland, Japan, Korea and Israel. The 11th to the 20th in the list are almost developed countries like the UK, Canada, France, and Australia. In the burgeoning market and developing countries, China is the only one entering the top 20 in the ranking list. In 2021, China is 15th in the digital technology ranking list, rising 4 places compared to 2013, showing a trend of increasing dramatically, the score China got had also risen from 65.16 in 2013 to 74.17 [5].

The rank of major countries in the TIMG index, is broadly similar to the rank of the technology index, with America on top of the list, the second place to the 13th place, and the last several places are occupied by Australia, Denmark, Belgium and so on. From the ranking change column, it can be seen that China had the most significant progress, with its rank increased to 14 places, and the UAE increased to 9, Ireland rose to 6. Relatively, the most significant decrease is the figure for Australia, falling 8 places compared with the previous year, and Finland closely following, decreasing 6 places [6].

Next, there are four different indexes for us to measure the level of development of a country. Firstly, the TIMG index, as this paper mentioned above, TIMG index is the most professional when comparing the levels. As for the four countries China, United States, Britain and Singapore, the rank

is that the first is the United States, and Singapore followed behind, Britain took up the third place and China still needed to work hard. Then the NRI index, the total ranking is the same as the TIMG index but the difference between the two countries is bigger and will be larger. Next is the IMD World digital competitiveness ranking, this also has the overall trend with the two indexes mentioned above, but with the range in the middle. The last one is the Shanghai Academy of Social Sciences digital economy competitiveness index, which shows that Britain is the last of the four countries and the United States still occupy the first place. The TIMG index is based on 2021, while the NRI Index and IMD World Digital Competitiveness Ranking select 2021 results from the latest report; The Shanghai Academy of Social Sciences Digital Economy Competitiveness Index is derived from the 2020 annual report [6].

The NRI index(Network Readiness Index)is a standard which measures the level a country prepares for digital transformation. It considers many factors, including infrastructure, technology adoption, digitalization ability and the policy pushed out by the government [7].

From this graph, America holds the highest indexes all the time, and one kind of index can't show comprehensively the specific development of one country's digital economy and the technology of its electric devices, different standards measure different aspects, take China for example, high TIMG index not represents well preparation and high competitiveness, and the data of the UK shows that too. But to some degree, America and Singapore have overall high digital economy levels, so all the indexes are high, this condition shows that the two countries have real strength in the field, and for China and the UK, their overall strength could be enhanced.

Finally, the digital infrastructure index's ranking is shown, and the United States is undoubtedly the first one on the list, and the overall ranking is the same as the TIMG index ranking and the digital technology index ranking. During 2021, the score of the index of digital infrastructure in America rose from 79.79 in 2013 to 93.07, closely following Singapore and China, with figures of 90.53 and 89.33 respectively. The special one is China, it took the third place in this list with its figure only 0.67 below 90 in 2021, raising its rank from 21st place to third place between 2013 and 2021. The UK, Luxembourg, Japan, India, Germany, Russia and Italy rank the 4th to the 10th, and their score are all between 85-89. Besides those developed countries like Australia, France, and Canada, some developing countries like Turkey, and Indonesia have their new market and digital industries are on the list too. Analysis of the trend of changes in the digital infrastructure, the changing range of this aspect grew bigger from 2013. Similar to China, many countries had great progress like Singapore, Luxembourg, and Indonesia, which had risen to ten-odd places. But the most significant one is the UAE, rising total of 38 places during 8 years, and took the 17th place in 2021. The countries that had retrogressed are Australia and Canada, falling for 10 places both. All the data considered, it can be analyzed that the overall trend is rising and many latecomers are improving their performance in the field of digital economy [7].

4. Digital Economy's Contribution to Economy

The key factor of production in the digital economy is data. Whether it is intelligent manufacturing that revolves around data information collection, storage, processing, transmission, and tracking, or big data, artificial intelligence, edge computing and other technologies that rely on data calculation and application, data is an important raw material and key input. In the traditional industrial economy, capital, labour and land are the main factors of production, and data has not yet become the key factor to enable value creation [8]. But nowadays, in China, the government hold the opinion to integrate the digital economy with the traditional forms of economy. The fusion of digital economy and production fields has some features below. One is the unprecedented increase in information density. The premise of the emergence of the digital economy is the improvement of data information or data resources by several orders of magnitude. The increase in data has been accompanied by the formation

of network-like connections between nodes, which has greatly increased the connectivity of the entire world. After the entity is mirrored, artificial intelligence technology can be used to optimize it from space and time. The increase in information density, network connectivity, and optimization of space and time may be the key variables to be grasped after digital technology is applied to the real economy and transformed into the digital economy. The second is from the consumption to the production field in turn. The integration of the digital economy and the real economy (hereinafter referred to as "digital and real integration") began in the consumer sector, especially in the consumer-facing retail sector. It started with retail because of the simplicity of the individual transaction process, especially the decision-making process. After the trust problem is solved through the payment platform, the transaction cost problem of merchants to consumers is solved. This form of digital and real integration develops rapidly and has a great impact on the entire retail business organization. The original organizational structure is deconstructed or reorganized, and a new business form is formed. If entering the consumer field is the first half of the integration of data and reality, then the second half is to enter the production field, that is, for businesses. Compared with the "to the consumer" model, the "to the merchant" model will have great changes in transaction costs and transaction links, for example, the transaction costs will be greatly increased and the transaction links will be more complex. The integration of data and reality in the field of production is worthy of deep cultivation and can create greater value.

Third, the rapid development of digital technology. Prediction technology and blockchain technology are playing an increasingly important role in the integration of data and reality. Time series prediction has shifted from traditional machine learning methods to deep learning based on neural networks, which has great potential in performance optimization. For example, the use of deep learning for high-frequency simulation can more accurately predict and grasp the operation of the external world. Based on the characteristics of decentralization, blockchain technology can play a large role in preventing fraud, providing a favourable means to reduce transaction costs and reduce opportunistic behaviour.

The next point is how to integrate the digital economy with other industries. First, to realize the integration of digital and real, this paper should consider the problem of digital cost. Digital technology has developed rapidly in the application of e-commerce, logistics, advertising and other fields, and has achieved great results, and now the digital manufacturing industry is lagging. There are many specific problems in this, on the one hand, digital transformation requires hardware support, infrastructure construction requires cost investment, and this investment is often not one-time, and the benefit is uncertain. On the other hand, in a certain sense, digital transformation is the direction of digitalization and refinement, and it is the reconstruction of the entire enterprise framework and organizational form. This transformation also requires costs.

Second, this paper should vigorously develop producer services. The application of digital technology can be said to be a service for production enterprises, in this process, there should be specialized enterprises to carry out professional services, starting from the needs of physical enterprises, to find a variety of reasonable solutions. Manufacturing enterprises originally had some departments engaged in productive services, but due to the development of digital technology, the original service industries such as industrial design, logistics, transportation, warehousing and information services were gradually separated from the enterprise and existed in the form of professional productive services. This division of labour can promote the development of enterprises, and improve the overall output value, which is a beneficial improvement.

Third, this paper should give full play to the role of large enterprises. Large enterprises have more advantages in innovation investment and innovation ability, which is conducive to the development of new products and new functions. In the digital economy, economies of scale are the key to competitive advantage. In addition, large companies are better able to offer integrated services.

Encouraging the further development of platform enterprises is conducive to a bigger and stronger digital economy. Of course, there should also be various regulatory measures for large enterprises, and the supervision should be equal to all types of enterprises, and promote the healthy and sustainable development of platform economy norms [8].

Another method to improve the development of the digital economy is to drive the industrialization of the digital economy. The industrialization of the digital economy means a new digital technology represented by Artificial Intelligence, Blockchain, Cloud computing, and Data. Producing digital products including pure digital products like APPs, the digital economy industrializes intelligent connected products through the transformation of achievements.

In the time dimension, industrialization improves the efficiency of every step through matching and intelligent effects, driving the advancement of the structure of industries. In the aspect of the matching effect, trading platforms use a “big database” to seek data, form digital products, provide accurate market predictions for companies, improve their design, and produce, commercial applications to meet customers’ demands. As for innovating, companies decline the cost of research and development through digital simulation, and digital twin technology. At the same time, the digital economy has strong technical support, digital support and algorithms enabling, giving more accurate orientation [9].

Developing online shopping methods can also make distribution for the development of the digital economy. Consumers in online shopping always play a role in the sustainable development of the market, their decisions help build a fair and safe shopping environment [10].

5. Conclusion

This essay analyses the situation in different countries in the field of the digital economy, through their basic conditions like the level of development of technology, the policies and so on, and also shows an expectation of the prospects of the digital economy. The disadvantages of the essay: the quality of the references into high, the analysis is sometimes short of logic, and the depth of the ideas and thinking are not that mature. Further research may focus on: the benefits of the digital economy and find approaches to enhance the status of the digital economy. All in all, digital development in the world is still in a period of development, and it is expected that the digital economy can better integrate with traditional industries.

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