



The impact of digital technology on economic growth and social development in developing countries

Yabo Cui*

Lingnan University, International Affairs, Hong Kong, 999077, China

*yabocui@ln.hk

Abstract. The impact of digital technology on economic growth and social development in developing countries is an important research field. This article first introduces the definition and scope of digital technology, and then analyzes the current situation of digital technology popularization in developing countries. Next, this article explores the impact of digital technology on economic growth and social development in developing countries, including the driving role of e-commerce and digital payments, the application of digital technology in education, the application of digital technology in cultural and entertainment fields, and the integration of social services and digital technology. Finally, this article proposes the challenges and countermeasures faced by digital technology, including the digital divide and inclusive development, data privacy and information security, etc. In the future, digital technology will continue to play an important role and make greater contributions to the economic and social development of developing countries.

Keywords: digital technology, developing countries, economic growth, social development, technological divide

1 Introduction

Digital technology refers to a series of technologies and applications that process, transmit, and store information through technological means such as computers and communication networks, based on digital signals. Digital technology has the characteristics of efficiency, accuracy, and traceability, and is an important foundation for the development of modern society's information technology.^[1] With the continuous innovation and development of information technology, the application scope of digital technology has become more and more extensive, including the Internet, Big data, artificial intelligence, the Internet of Things and other fields. The application of digital technology can improve productivity, optimize resource allocation, and improve efficiency, thereby promoting economic development and social progress. Digital technology can provide more convenient, efficient, and secure services to meet the growing needs of the people, improve the technological level and international competitiveness of developing countries, and expand their influence and discourse power. At the same time, the benign development of digital technology is conducive to accelerating eco-

© The Author(s) 2023

Z. Wang et al. (eds.), *Proceedings of the 2023 2nd International Conference on Public Service, Economic Management and Sustainable Development (PESD 2023)*, Advances in Economics, Business and Management Research 273,

https://doi.org/10.2991/978-94-6463-344-3_72

conomic development. The new industries and models derived from digital technology have to some extent enriched the connotation of national economic and social development, expanded the scope of economic and social life, and better met the development of personalized economy.^[2] This article aims to explore the current application status and development trends of digital technology in developing countries, analyze the significance and impact of digital technology on economic growth and social development in developing countries, and propose corresponding policy recommendations and measures. The relationship between economic development and social development is interrelated, interdependent, and mutually reinforcing. In the overall development of the economy and society, economic development has always been the prerequisite and foundation, while social development is the fundamental and ultimate goal.

2 The Definition and Application of Digital Technology in Developing Countries

Digital technology has the characteristics of efficiency, accuracy, and traceability, and is an important foundation for the development of modern society's information technology. In developing countries, the popularity of digital technology is relatively low.^[3] Although some countries have begun to promote the application of digital technology, the penetration rate of digital technology is still low due to factors such as inadequate infrastructure, talent shortage, and insufficient funds.

For example, in the African region, Kenya is a highly digitized country, but in rural areas, the penetration rate of digital technology is still very low. In the Asian region, the penetration rate of digital technology is relatively high. For example, China is a highly digitized country, and according to the data in Table 1, the government has taken a series of measures to promote the application of digital technology.

Table 1. Development Scale of China's Digital Economy from 2020 to 2022 (Unit: trillion yuan)^[4]

Time	Scale of digital economy
2020	15.63
2021	27.49
2022	40.83

The popularization and application of digital technology are of great significance for the economic development and social progress of developing countries. Governments of various countries should take measures to promote the popularization and application of digital technology, including strengthening infrastructure construction, cultivating talents, and increasing investment.

3 The Impact of Digital Technology on Economic Growth in Developing Countries

With the continuous development of digital technology, its impact on the economies of developing countries is becoming increasingly significant. This article illustrates the role of e-commerce and digital payments in promoting economic growth, as well as the role of e-commerce in driving domestic and international markets.

3.1 The driving role of e-commerce and digital payments

The development trend of e-commerce is showing a rapid growth trend in developing countries. With the continuous development and popularization of internet technology, more and more consumers are choosing to shop online. This trend not only changes people's consumption patterns, but also provides more sales channels and opportunities for enterprises. At the same time, the development of e-commerce has also driven the development of logistics, express delivery and other related industries, further promoting economic growth. The popularization and convenience of digital payments are also important driving forces for the economic growth of developing countries through digital technology.

Table 2. Scale of Digital Payments in China from 2020 to 2022 (Unit: trillion yuan)^[5]

Time	Digital payment scale
2020	11.54
2021	18.37
2022	24.69

According to the data in Table 2, it can be seen that the scale of digital payments in China has shown an annual growth trend from 2020 to 2022. This trend of annual growth can be attributed to several factors: the popularization and application of digital technology, policy support and promotion, consumption upgrading, and changes in demand. In developing countries, many people still use cash for transactions, which not only limits economic development but also increases the risks and costs of transactions. The emergence of digital payment has solved these problems, not only improving transaction efficiency, but also reducing transaction costs and risks. In addition, digital payments can also help small and medium-sized enterprises in developing countries enter the global market, expand overseas business, and further promote economic growth.

3.2 The role of e-commerce in expanding domestic and foreign market space

Through digital technology, access to supply and demand information, reduce transaction costs and risks, promote regional integration and global trade facilitation, and

become an important means for electronic Business development to expand domestic and foreign markets.

Firstly, by utilizing digital technology to connect supply and demand information, transaction costs and risks can be reduced. In the traditional real economy, the supply and demand information of goods needs to be transmitted through intermediaries, which increases transaction costs and risks. E-commerce, through digital technologies such as the Internet, directly connects supply and demand information, eliminating intermediaries and reducing transaction costs and risks.^[6] This approach not only improves transaction efficiency, but also provides consumers with more choices and lower prices.

Secondly, promote regional integration and global trade facilitation. With the development of globalization, international trade is becoming increasingly frequent. The emergence of e-commerce has broken national boundaries and allowed enterprises from different countries and regions to conduct business globally. At the same time, e-commerce has also promoted the development of regional integration, connecting supply and demand information between different regions through digital technology, promoting the optimal allocation of resources and coordinated economic development.

4 The Impact of Digital Technology on Social Development in Developing Countries

The impact of digital technology on the social development of developing countries is also very profound, especially in education, entertainment, and social services. This article discusses the changes that digital technology has made to social development from these three aspects.

4.1 Application of digital technology in the field of education

Firstly, the popularization of online learning and distance education is one of the important applications of digital technology in the field of education. With the continuous development and popularization of internet technology, more and more people are choosing online learning. This trend not only changes people's learning methods, but also provides more teaching resources and opportunities for educational institutions.^[7] At the same time, the application of digital technology can also help students better master knowledge and skills, improve learning efficiency and quality.

Secondly, the application of digital technology has also brought challenges and opportunities to improve the quality and popularity of education. On the one hand, the application of digital technology can improve the quality and popularity of education, such as through digital textbooks, online assessments, and other methods to improve teaching quality and effectiveness. On the other hand, the application of digital technology also faces some challenges, such as how to ensure the security and reliability of digital technology, and how to prevent the abuse of digital technology.

4.2 Application of digital technology in the field of culture and entertainment

Firstly, utilizing digital cultural platforms to provide services such as live streaming, video music, and online games has become one of the important applications of digital technology in the field of culture and entertainment. With the continuous development and popularization of internet technology, more and more people are choosing to access cultural and entertainment content through digital cultural platforms.^[8] This trend not only changes people's cultural and entertainment methods, but also provides more business opportunities and innovation space for the cultural industry. At the same time, the application of digital technology can also help the cultural industry better meet people's needs and improve the quality of cultural products.

Secondly, utilizing digital tourism platforms to provide virtual tourism, smart tour guides, and other services is also one of the important applications of digital technology in the field of culture and entertainment. With the development of the tourism industry and the increasing demand for tourism, the emergence of digital tourism platforms has provided people with more convenient and rich tourism experiences. Digital tourism platforms can provide users with more intelligent and personalized tourism services through virtual reality technology, artificial intelligence, and other means.

4.3 Integration of social services and digital technology

Firstly, the provision of government digital services is one of the important applications of digital technology in the field of social services. With the continuous development and popularization of internet technology, more and more governments are adopting digital methods to provide public services. This trend not only improves the efficiency and quality of government services, but also provides more convenient and efficient service channels for the public.^[9] For example, the government can provide online services, electronic licenses, and other services through digital platforms, making it convenient for the public to handle various government affairs.

Secondly, the combination of social welfare and digital technology is also one of the important applications of digital technology in the field of social services. With the progress and development of society, more and more public welfare organizations and charitable organizations are using digital technology to carry out public welfare activities. For example, using digital platforms to raise funds, promote public welfare projects, and provide volunteer services can better leverage the advantages of digital technology and improve the efficiency and influence of public welfare undertakings.

5 Challenges and Countermeasures Faced by Digital Technology in Developing Countries

5.1 The digital divide and inclusive development

The digital divide refers to the inequality in information acquisition, knowledge transfer, and social interaction caused by differences in digital literacy and digital technology application capabilities among different regions and populations in the

digital era. The existence of the digital divide not only exacerbates the wealth gap in society, but also limits the development and progress of the digital age.

In some developing countries, due to insufficient infrastructure, talent, funding, and other aspects, the penetration rate of digital technology applications is low, forming a digital divide. This phenomenon not only limits the development and application of digital technology, but also exacerbates the wealth gap and social inequality.

The inclusive development of digital technology requires the joint participation and support of the entire society, and the existence of the digital divide will prevent some people from enjoying the convenience and advantages brought by digital technology, thereby affecting the inclusive development of digital technology. In order to promote policies and measures for digital inclusivity, the government can take the following measures: strengthen infrastructure construction, improve the popularity and quality of digital technology. The government can promote the popularization and development of digital technology by investing in the construction of network infrastructure and providing digital equipment; Strengthen talent cultivation and introduction, and improve the quantity and quality of digital technology talents.^[10] The government can cultivate and introduce digital technology talents by formulating relevant policies and plans, providing training and education, etc; Promote Digital transformation and promote the application of digital technology in various fields. The government can promote Digital transformation by formulating relevant policies and plans and encouraging enterprises and social organizations to use digital technology; Strengthen international cooperation and jointly address the issue of the digital divide. The government can strengthen cooperation with other countries, jointly address the issue of the digital divide, share experience and technology, and promote the global popularization and development of digital technology.

5.2 Data Privacy and Information Security

With the advent of the digital age, people's personal information and privacy are becoming increasingly vulnerable to leakage and abuse. The application scope of digital technology is becoming increasingly widespread, involving various fields such as individuals, enterprises, and governments. If the privacy protection measures of digital technology are not in place, it will have a serious impact on personal rights and social stability. Firstly, the leakage of personal information may pose a threat to personal property and security. In the digital age, personal information has become an important asset. If personal information is leaked, it may pose a threat to personal property and security, such as bank account theft, credit card theft, etc. Secondly, the leakage of personal information can also affect the dignity and privacy of individuals. In the digital age, personal information has become an important social resource.^[11] If personal information is leaked, it may affect personal dignity and privacy, such as the illegal use or dissemination of personal photos, videos, etc. Finally, the leakage of personal information can also have an impact on social stability. If personal information is leaked, it may lead to an increase in social instability factors, such as criminals using personal information for criminal activities.

With the arrival of the digital era, it is also necessary to strengthen the technology and management measures of information security, which has become a necessary condition for the application of digital technology. The frequent occurrence of network attacks and Data breach events has brought great challenges to the application of digital technology. In order to ensure the security and reliability of digital technology, governments and enterprises should take a series of technical and management measures. Firstly, strengthen the research and development of network security technology.^[12] Network security technology is an important means to ensure the security of digital technology. The government and enterprises should increase their research and development efforts on network security technology, and improve the level and reliability of network security technology. Secondly, establish a comprehensive information security management system. The information security management system is an important guarantee for ensuring the security of digital technology. Governments and enterprises should establish a comprehensive information security management system, including the development of information security management systems and the establishment of information security management institutions. Once again, strengthen information security training and education. Information security training and education are effective ways to enhance the information security awareness of digital technology users. The government and enterprises should strengthen information security training and education for digital technology users, and improve their information security awareness and skill level.

Moreover, it is necessary to propose countermeasures and suggestions to strengthen digital technology policy support, capacity building, and international cooperation. Firstly, the government should strengthen policy support for digital technology. Policy support is an important guarantee for the development of digital technology. The government can regulate the application and development of digital technology by formulating relevant regulations and policies, encourage enterprises to increase research and development investment, and promote the development of the digital economy. At the same time, the government can also increase investment in the cultivation of digital technology talents, establish a training system for digital technology talents, and improve the quality and quantity of digital technology talents. Secondly, the government should strengthen the construction of digital technology capabilities. The construction of digital technology capabilities is an important foundation for the development of the digital economy. The government can improve the coverage and availability of digital technology by investing in the construction of digital technology infrastructure, providing strong support for the development of the digital economy. At the same time, the government can also stimulate the innovation vitality of enterprises and individuals and promote the development of digital technology through activities such as digital technology innovation competitions. Finally, the government should strengthen international cooperation. Digital technology is a global industry, and countries need to strengthen cooperation and exchange to jointly address the challenges and problems faced by the development of digital technology.^[13] The government can promote the internationalization process of digital technology and promote the global development of the digital economy by establishing an international organization for digital technology and strengthening the formulation of digital technology standards.

6 Conclusion

This article mainly explores the impact of digital technology on economic growth and social development in developing countries, as well as the challenges and countermeasures faced by digital technology development. Firstly, the development of digital technology faces issues such as the digital divide, privacy protection, and information security. Secondly, policy support, capacity building, and international cooperation for digital technology also need to be strengthened. Finally, the government, enterprises, and all sectors of society need to work together to promote the healthy development and application of digital technology. In response to the problems and challenges faced by the development of digital technology, this article proposes a series of countermeasures, such as strengthening the popularization and promotion of digital technology, formulating relevant regulations and policies, and improving the cultivation of digital technology talents. These countermeasures can to some extent promote the development and application of digital technology, making greater contributions to the progress and development of human society.

In the future, digital technology will continue to play an important role and have a profound impact on economic, social, cultural and other fields. With the continuous emergence of artificial intelligence, the Internet of Things, blockchain and other emerging technologies, the application scenarios of digital technology will be more extensive, and the digital economy will also usher in a faster development. At the same time, digital technology is also facing new challenges and problems, such as data security, privacy protection, and other issues that need to be better addressed.

Therefore, the government, enterprises, and all sectors of society need to continue to strengthen the research and application of digital technology, and promote the healthy development and application of digital technology. At the same time, it is also necessary to strengthen the formulation and improvement of regulations and policies related to digital technology, to ensure the legitimate and compliant application of digital technology. Only in this way can we better leverage the role of digital technology and make greater contributions to the progress and development of human society.

References

1. Peng Xiaolian. Mechanism and Risk Analysis of the Impact of Digital Economy on the High Quality Development of China's Economy [J]. Science and Technology Economy Market, 2023, (03): 73-75.
2. Liu Jianping. Empirical Study on the Impact of Digital Economy on the Technological Path of Economic Development [J]. China Price Journal, 2022, (11): 12-17.
3. Ge Liyu, Mo Longjiong, Huang Nianbing. Digital economy development, industrial structure upgrading and urban carbon emissions [J]. Modern Finance and Economics (Journal of Tianjin University of Finance and Economics), 2022, (10): 20-37.
4. Li Qinghua, He Aiping. Research on the Impact and Mechanism of Digital Economy on Coordinated Development of Regional Economy [J]. Exploration of Economic Issues, 2022, (08): 1-13.

5. Chen Binkai, Ma Yanlai. Different impacts of digital economy on labor markets in developing and developed countries: an analysis from the perspective of skill substitution [J]. *Journal of Beijing Jiaotong University (Social Sciences Edition)*, 2021, (02): 1-12.
6. Wang Man. Research on the Impact of Digital Economy on Global Value Chain Participation [J]. *Bohai Rim Economic Outlook*, 2022 (9): 3.
7. Xi Mingming, Liang Qing, Fu Yu. Research on the Impact of Digital Economy on Urban Economic Growth [J]. *Contemporary Finance and Economics*, 2022 (9): 13.
8. Zhang Yinghao, Wang Mingfeng, Liu Tingting. The spatial effects and impact paths of the digital economy on the high-quality development of China's economy [J]. *Geography Research*, 2022,41 (7): 19.
9. Liu Cuihua. The impact of digital economy on industrial structure upgrading and entrepreneurial growth [J]. *China Population Science*, 2022 (2): 15.
10. Liu Jiaqi, Ru Shaofeng. How the Digital Economy Affects High Quality Economic Development: From an International Comparative Perspective [J]. *Economic System Reform*, 2022 (1): 7.
11. Soluk J, Kammerlander N, Darwin S. Digital entrepreneurship in developing countries: The role of institutional voids[J]. *Technological Forecasting and Social Change*, 2021, 170: 120876.
12. Kalolo J F. Digital revolution and its impact on education systems in developing countries[J]. *Education and Information Technologies*, 2019, 24: 345-358.
13. Khalil A, Abdelli M E A, Mogaji E. Do digital technologies influence the relationship between the COVID-19 crisis and SMEs' resilience in developing countries? [J]. *Journal of Open Innovation: Technology, Market, and Complexity*, 2022, 8(2): 100.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

