

Evolutionary Trends of Digital Technology Research Themes in China in the Context of New Quality Productive Forces (Postprint)

Authors: Zhang Tao, Zhai Mengting, Ma Haiqun

Date: 2025-06-24T17:01:48+00:00

Abstract

[Purpose/Significance] Digital technology constitutes the core driving force and a vital component of new quality productive forces. Analyzing the evolutionary trends of research themes in China's digital technology domain aims to enhance the interdisciplinary convergence between digital technology and information resource management, thereby providing insights and references for accelerating the formation of new quality productive forces through digital technology. [Methodology/Process] This study systematically reviews core literature on digital technology research spanning from 2005 to 2024, utilizing TF-IDF term frequency analysis to investigate the thematic evolution trends of digital technology research in China from both holistic trend and evolutionary dimension perspectives. [Results/Conclusion] Research on digital technology in China can be categorized into five developmental stages, progressing from initial exploratory applications of digital technology to innovation-driven research under the new quality productive forces framework. Overall, it demonstrates characteristics and trends of interdisciplinary integration, thematic and technological diversification, extensive digital applications, and sustainable industrial development.

Full Text

Evolution Trend of Digital Technology Research Topics in China under the Context of New Quality Productive Forces

Zhang Tao, Zhai Mengting, Ma Haiqun

(School of Information Management, Heilongjiang University, Harbin 150080, China)

Abstract

[Purpose/Significance] Digital technology serves as the core driving force and a crucial component of new quality productive forces. Analyzing the thematic evolution trends of digital technology research in China aims to strengthen the interdisciplinary integration between digital technology and information resource management, providing insights and references for accelerating the formation of new quality productive forces through digital technology. **[Method/Process]** This study systematically reviewed core literature on digital technology research from 2005 to 2024 in CNKI, employing TF-IDF word frequency analysis to examine the thematic evolution trends of digital technology research in China from both overall trends and evolutionary dimensions. **[Result/Conclusion]** Digital technology research in China can be divided into five developmental stages, progressing from initial exploratory applications of digital technology to innovation-driven research under the context of new quality productive forces. Overall, it demonstrates characteristics and trends of interdisciplinary integration, diversification of research topics and technologies, broad application of digital technologies, and sustainable industrial development.

Keywords: Digital technology; New quality productive forces; Research topics; Evolutionary trends

In September 2023, General Secretary Xi Jinping introduced the concept of “new quality productive forces” at the symposium on promoting the comprehensive revitalization of Northeast China in the new era. This concept fully embodies the contemporary connotation of scientific and technological innovation led by digital technology. As a new form of production, new quality productive forces involve novel fields, rapid technological innovation, and high-quality requirements—characteristics that are fully reflected in digital technology. Due to its synergistic, permeable, and substitutive properties [1], digital technology holds broad development prospects. In recent years, with the implementation of digital technology innovation initiatives, China has continuously achieved breakthroughs in key core digital technologies, deepened the application of digital technology innovations, fostered positive development of the digital economy, and expanded the scale of both digital industrialization and industrial digitalization [2]. Against the backdrop of rapid technological development, digital technology has effectively integrated with other production factors, meeting the needs of social production and daily life while enhancing market competition levels. Efficient, innovative, and high-quality digital technology has become representative of new quality productive forces and a hot topic in manufacturing, new media, and other fields.

Digital technology is a technology that evolved from electronic computers, primarily encompassing big data, artificial intelligence, cloud computing, and other innovations that serve as powerful drivers for development [3]. Currently, do-

mestic scholars have analyzed research hotspots and evolution trends regarding big data, artificial intelligence, and cloud computing from various perspectives. Tong Ziyi [4] identified research hotspots on big data in China using high-frequency keywords from relevant papers. Xia Junhui et al. [5] analyzed and organized the research status, hotspots, primary methods, and development trends of big data in the library and information science field. Yu Qiuyu et al. [6] explored research hotspots on big data themes in China's library and information science field from 2014 to 2019 using SPSS and other software. Qiu Junping et al. [7] employed LDA topic clustering to study big data-related papers, finding that domestic big data research themes would gradually shift from data information management and analysis to the impacts of big data. Xu Yanmin et al. [8] analyzed domestic artificial intelligence research, discovering that AI studies were continuously breaking disciplinary boundaries and strengthening integration between engineering technology and humanities. Zhu Dongyun et al. [9] collected CSSCI database literature on artificial intelligence from Nanjing University between 2017 and 2023, identifying research hotspots in the AI field. Wang Xintian et al. [10] analyzed research dynamics of cloud computing in China's informatics field, finding that research hotspots focused on library information services, e-government, and intelligent services. In recent years, digital technologies such as the internet, artificial intelligence, and big data have entered an integrated development stage, driving transformation of productive forces. New quality productive forces represent a leap in productive forces under the new round of technological revolution and industrial transformation, differing significantly from traditional productive forces in terms of elements, business forms, and technologies [11], with scientific and technological innovation as its basic connotation [12]. In the current technological and economic environment, as the most disruptive general-purpose technology, digital technology continuously plays a key role in generating new quality productive forces by empowering workers, improving labor tools, and optimizing labor objects [13-14].

In short, the rapid integrated development of digital technology has promoted scientific and technological innovation, driven industrial optimization and upgrading, comprehensively improved economic and social efficiency, and thereby facilitated the development of new quality productive forces [15]. Currently, vigorously promoting the deep integration of digital and real economies, strengthening the penetration and application of digital technology, and emphasizing self-reliance in digital technology are crucial for accelerating the development of new quality productive forces [16-17].

At present, most domestic research focuses on analyzing specific digital technologies such as big data, artificial intelligence, or cloud computing from different dimensions, while comprehensive studies on digital technology as a whole remain scarce, particularly lacking analysis of the overall trajectory of digital technology research under the context of new quality productive forces. In view of this, this paper conducts statistical and thematic analysis of Chinese digital technology research literature published from 2005 to 2024, attempting to dissect hot topics and evolution trends in China's digital technology research field from multiple

perspectives under the context of new quality productive forces. The aim is to approach digital technology-related research in China from the perspective of information resource management, providing innovative ideas and references for how digital technology can empower new quality productive forces.

1 Overview of Digital Technology Research

This study uses journal papers indexed in CNKI as the data source, employing advanced search functions with coverage including Peking University Core Journals, Nanjing University CSSCI, Chinese Academy of Sciences CSCD, and Chinese Academy of Social Sciences AMI, spanning from 2005 to 2024. Given the broad scope of digital technology research, to further clarify the search range, we adopted precise matching with the search format: (Keyword = “digital technology”) OR (Title = “digital technology”). The initial search yielded 3,178 papers. After screening each paper as an analysis unit and removing literature unrelated or weakly related to the research theme as well as duplicate literature, we obtained 2,970 valid papers. First, these documents were exported in “Refworks” format to extract titles, keywords, and abstracts for constructing a keyword table. Second, an invalid word list was constructed to remove invalid and stop words from the table. Third, TF-IDF word frequency analysis was used to calculate keyword frequency in abstracts and rank them. Finally, Citespace was employed for visual analysis of keyword timelines.

1.1 Publication Volume Statistics

By statistically analyzing the annual publication volume of digital technology research in China, we can understand the overall development and research trends in this field (Figure 1 [Figure 1: see original paper]). From 2005 to 2019, digital technology developed slowly, with relatively few domestic studies and stable publication numbers. In 2018, China first proposed the construction of “Digital China” and subsequently issued relevant plans and outlines over the next two years to expand the digital economy and advance digital technology, achieving innovative breakthroughs in 2020. Since then, the number of publications has grown explosively. From 2021 to 2024, domestic research interest in digital technology has gradually increased, especially after the concept of “new quality productive forces” was proposed, with the number of publications approaching nearly 1,000. It is foreseeable that future domestic research publications on digital technology will continue to show an upward trend.

1.2 Timeline Analysis

Keyword timelines can intuitively demonstrate knowledge evolution from a temporal dimension and reflect the updating and mutual influence of literature in a given field [18]. This study uses Citespace to present a timeline view of keywords in digital technology literature from the past 20 years, revealing the mainstream development 脉络 (Figure 2 [Figure 2: see original paper]).

As shown in Figure 2, over the past two decades, digital technology research in China has progressed toward digital applications, technology empowerment, and innovation-driven development. In the early stages, society was in the initial phase of digitalization, with digital technology slowly penetrating various fields and the real economy yet to transform into a digital economy. In recent years, the interdisciplinary nature of digital technology has strengthened, with scientific and technological innovation research leading the mainstream, and technology empowerment driving industrial transformation and rural revitalization, gradually becoming the theme of the era.

2 Thematic Evolution Analysis of Digital Technology Research

Through statistical analysis of literature data and keywords from the past 20 years, this section examines the thematic evolution of digital technology research in China from both overall trends and thematic evolution perspectives, aiming to reflect how digital technology empowers the development of new quality productive forces in China.

2.1 Overall Trend Analysis

Using four-year time slices, we divided digital technology research in China into five developmental stages: Stage 1 (2005–2008), Stage 2 (2009–2012), Stage 3 (2013–2016), Stage 4 (2017–2020), and Stage 5 (2021–2024). Using Python, we extracted the top 15 keywords and their frequencies for each stage (Table 1).

Based on the continuous appearance of keywords across different stages in Table 1, we selected four significant keywords— “digital technology,” “digitalization,” “digital economy,” and “digital era” —to analyze the overall trends of digital technology research in China from a macro perspective.

2.1.1 Digital Technology As the central term of this study, “digital technology” has consistently ranked first in word frequency across different developmental stages. However, the focus and trends of development have varied significantly between stages. From Stage 1 (2005–2008) to Stage 3 (2013–2016), digital technology gradually gained attention, with the concept of digitalization initially taking shape and research focusing on the intersection of digital technology with film, television, and new media fields. In Stage 4 (2017–2020), the deep integration of digital technology with economy and the internet became a research hotspot. In Stage 5 (2021–2024), researchers have conducted more in-depth thinking and exploration of digital technology, with keywords such as “high-quality development,” “digital transformation,” and “new quality productive forces” emerging, indicating that digital technology is developing toward higher levels and broader fields, accelerating the transformation of cultural and agricultural productive forces and promoting comprehensive economic and social progress. Meanwhile, the emergence of cutting-edge keywords such as “meta-

verse” and “big data” also signals future development directions and evolution paths for digital technology.

2.1.2 Digitalization Throughout the 20-year development of digital technology, “digitalization” has consistently attracted academic attention. In Stage 1 (2005–2008), research focused on the digitalization of film and television arts. By Stage 2 (2009–2012) and Stage 3 (2013–2016), digitalization in education, information, and cultural heritage protection gradually emerged. The digital transformation of information technology and the emergence of digital tools marked the arrival of the digital era and powerfully propelled digital transformation [19]. In Stage 4 (2017–2020) and Stage 5 (2021–2024), digitalization became more prominent at the economic level. Especially in Stage 5 (2021–2024), the emergence of new quality productive forces has driven digital transformation. This period places greater emphasis on digital platform construction and the integrated utilization of digital resources. Digital empowerment for industrial structure optimization and upgrading has become a core driving force for economic growth and efficiency improvement [20]. Overall, digitalization development will exhibit significant trends of multi-integration and intelligence in the foreseeable future.

2.1.3 Digital Economy The development of digital technology has driven industrial transformation, with the wave of transformation sweeping through the economic sector [21]. The frequency of the keyword “digital economy” grew rapidly in Stage 4 (2017–2020), indicating increased attention to the digital economy, including inclusive finance. This stage coincided with China’s 13th Five-Year Plan period, a critical time for deeply implementing digital economy development strategies. In Stage 5 (2021–2024), the keyword frequency of “digital economy” rapidly rose to second place, demonstrating that the digital economy has become a key factor driving national economic development due to its rapid growth, wide radiation range, and profound impact. This shows that the digital economy, supported by digital technology, injects momentum into the development of new quality productive forces by changing production methods [22]. During the 14th Five-Year Plan period, the digital economy continues to penetrate and transform the manufacturing and internet industries, accelerating national high-quality development by fully exploiting digital resources. In this context, the digital economy promoting industrial transformation and upgrading to achieve comprehensive development in culture, education, sports, and other fields will become the main trend [23].

2.1.4 Digital Era The digital era is characterized by digital technology integrating into and transforming all aspects of people’s production and lifestyles with new concepts, new trends, and new methods, representing an age of both industrial digitalization and digital industrialization. From Stage 1 (2005–2008) to Stage 3 (2013–2016), the research theme of “digital era” maintained consistent popularity as a hot topic in academic discussions, focusing primarily on

virtual character production in digital-era films, aesthetic arts, and film processing technologies, exploring the deep integration of digital technology in the film and television field. As digital technology developed into Stage 4 (2017-2020), the concept of the digital era continuously deepened, with new keywords such as “digital transformation,” “digital governance,” and “digital empowerment” emerging. Especially entering Stage 5 (2021-2024), digital technologies including the metaverse, artificial intelligence, and big data continue to iterate and upgrade, endowing the digital era with new connotations, while “intelligent era” and “digital-intelligent era” have also become research hotspots.

2.2 Thematic Evolution Analysis

Based on Table 1 and building upon the above macro-level analysis, this section conducts thematic evolution analysis of digital technology research in China to identify new changes and trends. Since 2005, digital technology research in China has generally demonstrated a development trend driven by technological innovation at its core, supported by empowering domain applications, deepening thematic research, and underpinning industrial upgrading. Therefore, we attempt to analyze the new changes and trends at each developmental stage from four dimensions: technology, domain, theme, and industry.

2.2.1 Technology Dimension From Stage 1 (2005-2008) to Stage 3 (2013-2016), digital technology was typically defined as the technological sum primarily using electronic computers and modern communications to achieve information acquisition, processing, transmission, and utilization [24]. In Stage 1 (2005-2008), virtual reality and network technologies were mainly applied in film production, while sensor and multimedia technologies were primarily used in public information infrastructure platforms. In Stage 2 (2009-2012), technologies originating from computer fields such as microfilm and digital technologies began to be applied. With the rapid development of digital technology, its research scope continuously expanded and application types became increasingly diverse. The proposal of the “new quality productive forces” concept in 2023 led to explosive growth in the literature frequency of “digital technology,” fully demonstrating extremely high research enthusiasm and broad application prospects. Currently, the scope of digital technology continues to expand, already encompassing blockchain technology and its encryption algorithms, consensus mechanisms, and distributed ledger technology; big data technology has expanded to cloud computing, databases, data mining, and machine learning; artificial intelligence technology, as a branch of computer science, involves robotics, language recognition, and natural language processing. Digital technology continues to advance, with increasing interdisciplinary characteristics and expanding technological scope, evolving from basic sensor and multimedia technologies to big data, blockchain, metaverse, and artificial intelligence technologies. Digital technology innovation not only drives sustained growth of the digital economy but has also become the core driving force of new quality productive forces [25].

2.2.2 Domain Dimension As digital technology gradually emerged, the film and television industry attracted attention beginning in Stage 1 (2005–2008). Subsequently, the digital technology industry continued to gain momentum, with the cross-integration of cultural fields and digital technology receiving increasing emphasis, accelerating the digital transformation process of the cultural industry. By Stage 3 (2013–2016), digital technology deeply empowered the cultural entertainment industry, providing more diversified means for film, documentary, and other creative works. In the first three developmental stages, digital technology was mainly applied in two domains: first, the film and television arts domain, covering art forms such as movies, animation, and design; second, the education and culture domain, including pillar industries of the cultural field such as education and publishing, all undergoing transformation under the influence of digital technology. Entering Stage 4 (2017–2020) and Stage 5 (2021–2024), hot terms such as artificial intelligence and metaverse have been mentioned with increasing frequency, opening more possibilities for digital economy development and stimulating infinite imagination about its future. At this point, the main applications of digital technology have gradually shifted to the economic domain and urban-rural construction domain. (1) Economic domain: In the wave of digitalization development, digital technology has advanced rapidly, and digital applications have quickly become popular, driving China's economic domain to embark on a new transformation journey, with the digital economy emerging as a new economic form. The application of digital technology has made production, transaction, distribution, and other economic links more efficient, spawned new business models and formats, and injected new momentum into economic growth. (2) Urban-rural construction domain: Rural construction and governance are important measures for China to achieve comprehensive modernization and build a modern socialist power. Currently, digital technology is empowering the modernization of urban-rural construction by promoting the development of new quality productive forces [26]. Characterized by efficiency, innovation, and high quality, new quality productive forces highly align with the construction goals and internal driving logic of digital villages, powerfully promoting high-quality development of rural productive forces [27]. Digital technology plays important roles in rural industrial development, rural governance, and public services, such as e-commerce assisting agricultural product sales, digital management improving rural governance efficiency, and remote education and healthcare improving public service levels in rural areas. Digital technology is gradually shifting from arts and culture domains to economic domains and rural governance directions. The deep integration of digital technology with culture, manufacturing, finance, and other fields clearly indicates that cross-boundary integration has become an important trend.

2.2.3 Theme Dimension In Stage 1 (2005–2008), digital technology research primarily focused on preliminary exploration and the introduction of digitalization concepts, laying the foundation for subsequent development. By Stage 2 (2009–2012) and Stage 3 (2013–2016), digital publishing and film arts became

new research hotspots. In the highly anticipated film industry, researchers deeply analyzed how digital technology transformed production and distribution processes in film arts from perspectives such as digital media technology and virtual reality technology, promoting industrial transformation and creating new development models. As cross-boundary integration between digital technology and culture and new media industries deepened, strong involvement from technology, organization, and capital [28] shaped interdisciplinary characteristics distinct from traditional disciplines. Entering Stage 4 (2017–2020) and Stage 5 (2021–2024), digital transformation and new quality productive forces became core research themes. Digital technology plays an empowering role in management, investment, operation, and labor, helping enterprises enhance their position in the global value chain [29]. Meanwhile, new quality productive forces are highly compatible with digital village construction, and the effectiveness of digital technology in rural governance, urban governance, and even global governance continues to strengthen, with digital governance becoming an important support for modernizing the national governance system and capabilities [30]. Research themes at each stage of digital technology closely follow the trajectory of technological development, continuously expanding and deepening from early technology research and integration to digital empowerment and digital governance, forming a diversified and frontier-oriented research landscape.

2.2.4 Industry Dimension In Stage 1 (2005–2008), digital technology was still in the preliminary exploration stage, yet the digitalization trend had already begun influencing traditional cultural industries. Over time, entering Stage 2 (2009–2012), the digital cultural industry developed based on digital technology had become a new development field and important trend for the cultural industry, with digital technology becoming a key force supporting cultural industry development. Entering Stage 3 (2013–2016), structural system transformation and industrial transformation led by digital technology powerfully propelled the computer industry toward better and faster development. The cross-integration of the computer industry, cultural industry, and arts industry not only drove progress in other industries but also had a nurturing effect on their own development. Particularly, the widespread application of digital technology in the arts industry opened new possibilities for film production, endowed characters with emotions, helped establish industry standards for the film industry, and accelerated the vigorous development of film and its derivative industries. By Stage 4 (2017–2020), integrated innovation became the main theme, with the information industry, digital industry, and rural industry accelerating development and continuously expanding scale. In Stage 5 (2021–2024), diversified development gradually became mainstream, with digital technology deeply empowering rural industries and playing key roles in upgrading industrial foundations, leading industrial structure transformation, and promoting the construction of urban-rural community destinies [31]. Meanwhile, fully tapping the potential of new quality productive forces contained in digital technology is significant for im-

proving public service quality and building digital government [32]. Therefore, advances in digital technology have injected new vitality and momentum into industrial development, steadily driving various industries toward sustainable development.

3 Research Implications

Based on the above analysis, digital technology, as the core driving force for developing new quality productive forces, has played an important role in reshaping all aspects of the social economy. This yields implications from four perspectives: the intersectionality of disciplinary fields, the diversity of research topics and digital technologies, the broad applicability of digital technology, and the sustainability of comprehensive development.

3.1 Intersectionality of Disciplinary Fields

The proposal of new quality productive forces represents a terminological revolution, and its development is a complex social systems engineering project that relies on mutual collaboration among multiple systems and interdisciplinary integration of knowledge [33]. Currently, research on digital technology empowering new quality productive forces has penetrated various disciplinary fields, showing obvious interdisciplinary characteristics. First, research domain intersection: research topics have expanded from covering cultural, artistic, and new media domains in Stage 1 (2005–2008) to encompassing economic, urban-rural construction, and enterprise management domains in Stage 5 (2021–2024), all demonstrating interdisciplinary characteristics. For example, new quality productive forces are significant for rural revitalization and promoting Digital China construction, while digital technology has long been applied in rural revitalization work [34]. Second, research theme intersection: emerging research themes in Stage 5 (2021–2024) such as digital empowerment and digital governance demonstrate deep integration between digital technology and various research themes. For instance, digital technology empowering art education involves both technology research and digital empowerment, where digital empowerment itself has strong interdisciplinary characteristics requiring sufficient understanding of digital technology disciplines and involving art and education studies, necessitating synergistic effects from various disciplines.

3.2 Diversity of Research Topics and Digital Technologies

First, research topic diversity: after experiencing various developmental stages, research topics have continuously expanded and deepened, gradually forming a diversified and frontier-oriented research landscape. From “film and television art research” to “film and television production research” to “film and television aesthetics analysis” in the cultural domain, and from “coordinated development analysis of foreign trade” to “promoting common prosperity” to “economic value chain connotation and mechanism analysis” in the economic domain, all

demonstrate the diversity of research topics. Second, digital technology diversity: digital technology has evolved from basic sensors and multimedia technologies to big data and blockchain technologies, not only promoting scientific and technological innovation and industrial upgrading but also profoundly influencing social culture and economic patterns. From film special effects technology, digital intermediate technology, digital non-linear editing, digital compositing technology, and CG animation technology in Stage 1 (2005–2008) to artificial intelligence technology, blockchain technology, big data technology, quantum computing technology, and Internet of Things technology in Stage 5 (2021–2024), the variety is extensive, the fields are broad, and development is rapid. In summary, revolutionary breakthroughs in digital technology will provide new momentum and direction for enhancing new quality productive forces [35].

3.3 Broad Applicability of Digital Technology

Digital technology applications have permeated various fields, including the financial industry, new media industry, and arts industry. The widespread application of artificial intelligence and big data in the economic domain has spawned keywords such as “digital economy,” enabling financial management to step out of traditional institutional frameworks and enter the digital governance stage. The emergence of ChatGPT-like technologies provides a powerful driving force for accelerating the formation of new quality productive forces [36–37]. If embedded in rural governance and applied to improving public service quality and effective incentives at the grassroots level, it will become a new direction for digital technology application. The full application of virtual reality technology and digital compositing technology in film post-production has provided new expression methods for science fiction and animated films, delivering rich visual feasts. The development of digital technology in cloud collaboration, CAD, and virtual reality has accelerated transformation and innovation in the art and design industry, where the organic combination of virtual reality technology and visual communication design fully expresses designers’ ideas and brings consumers highly expressive virtual aesthetic experiences.

3.4 Sustainability of Comprehensive Development

In Stage 5 (2021–2024) mentioned above, the emergence of keywords such as “high-quality development,” “digital transformation,” and “digital technology innovation” demonstrates how the digital economy empowers traditional industries and promotes industrial transformation and comprehensive sustainable development through digital technology innovations like big data and artificial intelligence [38–39]. The sustainability of digital technology in promoting comprehensive development is mainly manifested in three aspects. First, conceptual sustainability: for example, comprehensively implementing advanced concepts and technologies of sustainable construction in urban development, fully grasping the planning of urban spatial construction and resource integration. Second, goal sustainability: for example, the innovative development of digital

technology in the publishing industry has brought challenges and opportunities to traditional publishing, making sustainability a continuous goal pursued by the publishing industry during digital development. Third, path sustainability: for example, China's digital technology empowers the whole-process people's democracy, realizing operational forms of electoral democracy, consultative democracy, and supervisory democracy [40]; enterprises use digital technology to follow low-carbon and robust sustainable development paths, enhancing economic benefits and promoting enterprise transformation [41].

With the vigorous rise of cutting-edge technologies such as big data, cloud computing, and artificial intelligence, digital technology has become the core force leading new quality productive forces. To win future competitive advantages, China must develop new quality productive forces, using scientific and technological innovation as an inexhaustible driving force to build core competitiveness [42]. Therefore, the information resource management discipline must also contribute in this context, promoting integration with big data, artificial intelligence, cloud computing, and other technologies to drive disciplinary innovation and development to meet national strategic needs [43].

This paper conducted thematic analysis of digital technology research literature from 2005 to 2024, dividing China's digital technology research into five developmental stages. By analyzing core keywords "digital technology," "digitalization," "digital economy," and "digital era" from technology, domain, theme, and industry dimensions, the study reflects new changes and trends in China's digital technology research, revealing characteristics of interdisciplinary integration, diversity of research topics and digital technologies, broad applicability of digital technology, and sustainability of comprehensive development. Notably, digital technology has demonstrated strong application potential in key fields such as economy, education, and rural governance, directly driving industrial upgrading and economic prosperity. Digital technology is achieving scientific and technological self-reliance through digital economy, innovation-driven development, and productivity transformation, becoming the core driving force of new quality productive forces. Strengthening research on digital technology innovation and application will help promote high-quality digital technology development, accelerate the formation of new quality productive forces in China, and build competitive advantages for major powers.

This study has some limitations in sample selection. First, research data collection is limited to Chinese literature, not considering foreign journal papers published by Chinese scholars. Second, due to the extremely broad scope of digital technology, specific technologies such as "artificial intelligence," "big data," "blockchain," and "quantum computing" were not used as keywords for retrieval and analysis, which may have resulted in the omission of some literature on specific technologies.

References

- [1] Tian Xiujuan, Li Rui. Digital Technology Empowering the Transformation and Development of the Real Economy—An Analytical Framework Based on Schumpeter's Endogenous Growth Theory [J]. *Management World*, 2022, 38(5): 56-73.
- [2] Qi Yudong, Shen Tianyang. Achievements, Experience, and Prospects of China's Digital Technology Innovation Since the 18th CPC National Congress [J]. *Study & Exploration*, 2023(4): 76-87, 2.
- [3] Chen Jin, Ye Weiwei. Core Mechanisms and Key Features of the Theory of Building a Chinese-style Innovative Country in the New Era [J]. *Innovation Science and Technology*, 2022, 22(1): 1-8.
- [4] Tong Ziyi. Analysis of Hotspots in Domestic Big Data Research [J]. *Information Research*, 2015(7): 38-41, 46.
- [5] Xia Junhui, Hu Guihong. Analysis of Hotspots in Big Data Research in the Library and Information Science Field [J]. *Resource Information and Engineering*, 2021, 36(1): 120-122.
- [6] Yu Qiuyu, Xu Yuequan. Analysis of Hotspots in Big Data Research in China's Library and Information Science Field in the Past Five Years [J]. *Library Science Research*, 2020(8): 13-19.
- [7] Qiu Junping, Shen Chao. Analysis of Hotspot Themes in Domestic Big Data Research Based on the LDA Model [J]. *Modern Information*, 2021, 41(9): 22-31.
- [8] Xu Yanmin, Li Deming. Knowledge Mapping Analysis of Domestic Artificial Intelligence Research [J]. *Science and Technology Management Research*, 2021, 41(5): 112-119.
- [9] Zhu Dongyun, Chu Jianxun. Hotspots and Trends of Artificial Intelligence Research in China—An Analysis Based on CSSCI Papers [J]. *Science and Technology Management Research*, 2024, 44(10): 1-12.
- [10] Wang Xintian, Wang Lei. Analysis of Development Trends of Cloud Computing Research in China's Informatics Field [J]. *Information Studies: Theory & Application*, 2018, 41(6): 82-86, 69.
- [11] Du Chuazhong, Shu Shuang, Li Zehao. Mechanism Analysis and Implementation Path of New Quality Productive Forces Promoting High-quality Economic Development [J]. *Economic Review Journal*, 2023(12): 20-28.
- [12] Cui Yun. Analysis of Digital Technology Promoting the Development of New Quality Productive Forces [J]. *World Socialism Studies*, 2023, 8(12): 97-109, 120.
- [13] Li Zuojun, Huang Jin. Giving Full Play to the Key Role of Digital Technology in Cultivating New Quality Productive Forces [J]. *New Economy Weekly*, 2024(6): 9-13.
- [14] Pang Ruizhi, Li Qiannan. Super-large-scale Market, Digital Technology, and New Quality Productive Forces [J]. *Academics*, 2024(4): 25-40.
- [15] Cui Yun. Analysis of the Mechanism of Digital Technology Promoting the Development of New Quality Productive Forces [J]. *China Industry & Information Technology*, 2024(6): 14-19.
- [16] Qi Yudong. Developing New Quality Productive Forces Requires Giving

- Play to the Role of Digital Technology [J]. China Newspaper Industry, 2024(11): 5.
- [17] Dai Xiang. Promoting High-quality Development with New Quality Productive Forces [J]. Tianjin Social Sciences, 2023(6): 103-110.
- [18] Wang Chuanlei, Wang Jingjuan, Wu Juanhua. Knowledge Mapping, Stage Characteristics, and Evolution Trends of Logistics Finance Research [J]. Journal of Chongqing Technology and Business University (Social Sciences Edition), 2019, 36(3): 38-46.
- [19] Ma Jie, Hao Zhiyuan, Li Lihua, et al. A Review of Data Value Research from the Perspective of Digital Transformation: Connotation Elaboration, Mechanism of Action, Scenario Application, and Data Innovation [J]. Library and Information Service, 2023, 67(15): 4-13.
- [20] Cui Huibin, Liu Yanfeng. New Quality Productive Forces in Digital Transformation—Connotation, Opportunities, Challenges, and Practical Focus [J]. Journal of Technical Economics & Management, 2024(10): 123-127.
- [21] Zhou Qingshan, Luo Rong. Trends, Challenges, and Regulatory Strategies of China's Digital Culture Industry Development [J]. Library and Information Service, 2014, 58(10): 6-10, 18.
- [22] Hou Meiyue, Zhang Dongxiang. Digital Economy Empowering New Quality Productive Forces: Internal Relations and Implementation Paths [J]. Journal of Chongqing University of Technology (Social Science), 2024, 38(12): 55-66.
- [23] Wang Yongzhen, Wang Xianwen. Research on Born-digital Resources at Home and Abroad: Review and Prospect [J]. Journal of Literature and Data, 2023, 5(2): 4-14.
- [24] Wu Qi, Lu Dongming, Yuan Qingshu. Reflections on Digital Technology Assisting Museum Exhibitions [J]. Southeast Culture, 2009(3): 99-104.
- [25] Xia Jiechang, Ma Huijie. Digital Technology and Institutional Change: Endogenous Driving Force for Developing and Strengthening New Quality Productive Forces [J]. Scientific Management Research, 2024, 42(6): 12-20.
- [26] Zhang Yiyuan, Liu Xiaoyu, Sun Yao. Digital Technology, New Quality Productive Forces, and Chinese-style Industrial Chain Modernization [J]. Modern Management Science, 2024(6): 32-41.
- [27] Wei Jun. The Mechanism, Constraints, and Promotion Path of New Quality Productive Forces Empowering Digital Village Construction [J]. Journal of Chongqing University of Technology (Social Science), 2024, 38(11): 31-42.
- [28] Zhao Peng. The Wide Application of Digital Technology and the Transformation of Legal Systems [J]. China Science and Technology Forum, 2018(11): 18-25.
- [29] Huang Bo, Li Haitong, Liu Junqi, et al. Digital Technology Innovation and High-quality Development of Chinese Enterprises—Evidence from Enterprise Digital Patents [J]. Economic Research Journal, 2023, 58(3): 97-115.
- [30] Yan Xueyan, Wang Maofu. New Quality Productive Forces Driving High-quality Development of Digital Village Construction: Theoretical Logic and Practical Path [J]. Journal of Xi'an Jiaotong University (Social Sciences), 2024, 44(5): 27-38.
- [31] Fan Jianhua, Deng Zixuan. Compound Context, Practical Logic, and Op-

- timization Path of Digital Culture Industry Empowering Rural Revitalization [J]. Journal of Shandong University (Philosophy and Social Sciences), 2023(1): 67-79.
- [32] Guo Zhao, Hao Baoquan. Research Hotspots and Future Prospects of China's Digital Government Construction [J]. Journal of Literature and Data, 2023, 5(1): 114-128.
- [33] Xia Yikun, Jiang Jie, Zhang Xiaheng, et al. The Response and Reflection of the Information Resource Management Discipline to the Development of New Quality Productive Forces [J]. Journal of Library and Information Science in Agriculture, 2024, 36(1): 4-32.
- [34] Jin Rui, Zhang Jiliang. Practical Path of New Quality Productive Forces Empowering Rural Industrial Revitalization [J]. Contemporary Rural Finance and Economics, 2024(9): 13-20.
- [35] Li Guangjian, Pan Jiali. Strengthening Information Resource Management to Assist New Quality Productive Forces [J]. Library and Information Knowledge, 2024, 41(6): 14-27.
- [36] Zheng Huangjie. Data Risks of AIGC Empowering New Quality Productive Forces and Its Agile Governance [J]. Journal of Hohai University (Philosophy and Social Sciences), 2024, 26(4): 89-102.
- [37] Zhang Xiaheng. Possible Social Changes Triggered by New Generation AI Technology (ChatGPT) [J]. Industrial Economic Review, 2023(3): 1-8.
- [38] Svahn F, Lars M, Rikard L. Embracing digital innovation in incumbent firms: how Volvo cars managed competing concerns [J]. MIS Quarterly, 2017, 41(1): 239-253.
- [39] Liu Yang, Dong Jiuyu, Wei Jiang. Digital Innovation Management: Theoretical Framework and Future Research [J]. Management World, 2020, 36(7): 198-217, 219.
- [40] Qin Guomin, Du Yibing. The Motivation and Manifestation of Digital Technology Empowering Whole-process People's Democracy [J]. Henan Social Sciences, 2023, 31(7): 40-46.
- [41] He Mengfan, Xiong Lejia, Ding Ying, et al. Research on Countermeasures for Digital Technology Empowering the Development and Utilization of Agricultural Cultural Heritage [J]. Journal of Library and Information Science in Agriculture, 2023, 35(3): 71-80.
- [42] Li Zheng, Liao Xiaodong. The Theoretical, Historical, and Practical "Three-fold" Logic of Developing "New Quality Productive Forces" [J]. China Review of Political Economy, 2023(6): 146-159.
- [43] Chu Jingli. New Challenges in the Construction of Information Resource Management Discipline After First-level Discipline Renaming [J]. Journal of Literature and Data, 2022, 4(4): 7-10.

Note: Figure translations are in progress. See original paper for figures.

Source: ChinaXiv – Machine translation. Verify with original.