

Chapter 2

Reviews of Literature and Related Research

The researcher has studied concepts, theories, and related research used to determine the research guidelines as follows:

- Digital and Digital Country
- The theoretical basis of the construction of digital countryside
- Lenin's thoughts on rural construction
- Related Research

Digital and Digital Country

The number is originally a kind of written symbol representing numbers, with various types and expressions. Arabic number is the most familiar and common type in our life, which originated in ancient India and was gradually created in People's Daily production and practice. With the development of human productivity and the deepening of people's understanding, the connotation of numbers is also constantly extending. Today, numbers are no longer limited to the simple expression of numbers and symbols, are often combined with science and technology (computer), with science and technology, economy, industry, and other words, and called "digital technology", "digital economy", "digital industry". Therefore, numbers are not only a written symbol used to represent numbers but also a synonym for some technologies, information technology, internet, and big data (Cruz-Jesus, F., et al., 2017, pp. 835-854).

In recent years, driven by the global information wave, along with the diffusion and embedding of digital technology into rural society, the inherent structure and form of traditional villages have been profoundly changed. The term digital countryside is gradually known to people. The new generation of digital technology has become an effective engine for rural revitalization and provides continuous power for rural construction. In 2019, the General Office of the CPC Central Committee and The General Office of the State Council issued the Outline of the Development Strategy for Digital Countryside, which specifically explained the concept of the digital countryside, namely, "Digital countryside is an endogenous process of agricultural and rural modernization development and transformation accompanied by the application

of networking, informatization, and digitalization in the economic and social development of agriculture and rural areas, as well as the improvement of farmers' modern information skills." The author believes that the digital countryside is another extension of digital connotation accompanied by a new round of information technology penetration and application in agriculture and rural areas. From the literal sense, it is "digital + rural", which combines digital technology with rural areas (Zhou, Y., Cai, Z., & Wang, J., 2023, p. 14219). From the deep can be generalized.

It refers to a form conceived by the combination of digital technology and various rural forms, namely, the construction and application of networking, information, digitalization, and intelligent technology and tools in various fields of rural politics, economy, culture, and so on, to realize the modern complex of agriculture, rural farmers led by digital technology and digital industry. In essence, the digital countryside is not only the simple superposition and application of digital technology in agriculture and rural areas but also the reshaping of rural social relations and social structure by using the concept of digital economy. Driven by the Internet, big data, artificial intelligence, and other new-generation digital technologies, it enables the development of agriculture and rural areas and realizes the quality change, power improvement and e, and efficiency acceleration of the overall development of rural areas. Open the rural information barriers, with information flow to drive the flow of technology, talent, capital, etc., stimulate the power of rural development, so astute the rural development toward the digital, intelligent, convenient, green direction, promote the comprehensive upgrading of agriculture, farmers, agriculture. The village made all-round progress.

1. Differences between digital countryside and traditional countryside

The digital countryside (Li, H., & Yang, S., 2023, p. 4020) is an advanced rural form facing future development and a rural type in the age of information civilization. It develops and evolves continuously from traditional rural areas, but it is fundamentally different from the traditional rural areas of industrial civilization and agricultural civilization. From the static point of view, the digital countryside is a kind of rural social order, which profoundly changes the inherent structure and form of traditional villages, thus bringing great changes to the rural production, life, and ecological space, showing the characteristics of intelligence, convenience, and wisdom. First, in terms of production, traditional rural areas generally take farming and trading of agricultural products as their main sources of income and adopt the agricultural operation mode facing the loess with the back to the air, which makes agricultural output and farmers' income low and farmers self-sufficient. In addition, the traditional

agricultural market operation is small, and the sale of agricultural products is difficult, resulting in the rural economy being relatively backward (Zhang, D., Shi, C., & Li, L., 2023, pp. 461-475). In the context of the continuous update and development of the new generation of digital technology, Itai Village applies digital to agricultural production and management, innovates the management mode of agricultural products, makes agriculture realize the industrialization of planting, improves agricultural output in terms of quality and quantity, and increases rural residents' income. In addition, the number of words township.

Villages also promote the development of rural secondary and tertiary industries, and enrich the connotation of rural areas, making rural areas not only a place where farmers live in compact communities and engage in agricultural production but also an integral part of economic life. Second, in terms of life, the traditional rural life is relatively monotonous, and the information is blocked. Due to the remote location of traditional rural areas, people's social circle is mostly limited to the local area, resulting in the formation of a relatively rigid psychological structure of farmers, engaged in relatively fixed behavior. Secondly, the social structure of traditional rural areas is relatively simple. Village committees and grass-roots governments manage the rural areas and exercise power on behalf of villagers. Most policies are propagated by word of mouth. Different from traditional rural areas, firstly, digital rural areas further enrich rural lifestyles based on improving rural information facilities. Villagers are no longer just engaged in the fixed behaviors of agricultural production and life but can watch short videos, online video chat, play games, and so on, after dinner. At the same time, online shopping, short videos, and other new forms of entertainment have also added color to the boring and monotonous life in the countryside. Secondly, from the spatial level, it strengthens the rural information circulation and expands the farmers' social circle. We can know what is going on in the world without leaving home. We can use computers and mobile phones to realize text and video communication and understand relevant policies and guidelines. Thirdly, it reshaped the governance structure and way of the countryside. Villagers can participate in village governance independently, and they can realize approval and know village affairs online, which brings great convenience to the life of rural residents. Finally, compared with traditional villages, digital villages are more conducive to the inheritance of rural culture. Villagers can use the Internet to publicize their rural culture on multiple platforms such as short videos and public accounts, strengthen cultural exchanges and communication, and further promote the development of rural culture-related industries. Thirdly, in terms of ecology, farmers in the past had a low awareness

of green life and production and ignored the overall rural ecological environment in production and life, which led to the deterioration of the rural ecological environment. The promotion of digital rural construction has greatly changed the previous rural living environment, including road hardening, water supply, centralized garbage collection and treatment, ecological environment, etc., creating a more beautiful living environment for rural residents. At the same time, digital technology provides a new driving force for green production and life in rural areas. It not only uses we-media to promote green life in daily life and emphasizes centralized and unified waste treatment, but also provides intelligent and refined production tools in terms of technology.

From a dynamic point of view, the digital countryside is a kind of social change, which has evolved in the soil other traditional countryside. The countryside is a regional complex with natural, economic, and economic characteristics. In terms of the scope of coverage, the countryside is composed of two kinds of regions, village and township are which is larger than the scope of the countryside. In terms of social functions, rural areas have multiple functions, such as production, living, ecology, and culture, and are more sound than traditional rural areas. At the same time, with the continuous update and development of information technology, digital technology is gradually sinking into the countryside, which not only promotes the concept, means and governance of rural social development to gradually become intelligent, digital, and technological but also subtly affects the way of thinking and practical activities of farmers. First of all, the farmers' concept of production and life has become more open and greener. With the embedding and development of digital technology in the countryside, farmers have become more open from the past solidified pologbegund begin to accept more new things through the network, and gradually use digital equipment and technology to provide convenience for themselves in life. At the same time, the development of digital countryside also accelerates the pace of rural green development, enabling people to use digital in production and life to implement real-time query and monitoring of the living environment, and the concept of green development is constantly integrated into the thoughts of farmers. Secondly, the means of production in the countryside have become more advanced. Digital technology has greatly improved the production efficiency of agriculture. Traditional sickles and hoes have been replaced by machines. Farmers no longer rely on traditional tools and agricultural planting to obtain income but start to make income for themselves through large-scale production and operation, network bro, podcast, and online selling. Third, the rural governance concept, becoming more enlightened.

Along with the modernization process of agriculture and rural areas, rural governance has undergone qualitative changes compared to the original, making the reconstruction of traditional rural social relations and power relations open up new channels for the political participation of rural residents, transforming the top-down vertical management into a two-way feedback mechanism, and opening up the bridge of communication between rural management subjects and rural residents. It has enhanced the interconnection between government and community in rural areas, injecting new impetus into rural governance (Bosworth, G., et al., 2023, pp. 550-559; Liu, Y., Zheng, L., & Qian, W., 2023, p. 3269; Huang, T., & Huang, Q., 2023, p. 7876).

2. Construction of digital countryside

The construction of a digital countryside is an important strategic deployment to promote the high-quality development of rural revitalization under the background of the rapid change of information technology (Li, H., & Yang, S., 2023, p. 4020). The Outline of the Strategy for the Development of the Digital Countryside defines a four-step strategic timetable for the development of the digital countryside, which aims to achieve initial, important, and substantial progress in the construction of the digital countryside by 2021, 2025, and 2035 respectively, and complete the construction of the digital countryside by the middle of the 21st century. In short, digital rural construction is the process of realizing rural digitalization. In the process of construction, it is necessary to clarify relevant elements and construction fields to accelerate the pace of digital rural construction and value presentation.

3. Elements of Digital Rural Construction

Digital rural construction is a systematic project, which needs to be driven and supported by network data, information technology, talent fund, and other resource elements to enable rural revitalization (Zhou, Y., Cai, Z., & Wang, J., 2023, p. 14219). First, construct a rural big data resource library with network data resources, create the rural virtual space, and build data also to provide data support for the concrete practice of digital rural construction. First of all, network data can use the collected rural data resources to build a public platform for communication and information acceptance and distribution, providing effective ways of expression and information receiving channels for all subjects in rural construction, and strengthening the communication of all subjects in the same network space. Secondly, through the collection and integration of data resources in various fields such as rural topography, economic condition, and population changes, network data resources can build a big data system for agriculture and rural areas, providing accurate data support for agricultural and rural construction practices and realizing efficient development. Finally,

network information resources can effectively strengthen the communication between urban and rural areas, break through the information barriers of urban and rural technology, epidemic prevention and control, relevant policies, bridge the digital divide between urban and rural areas, strengthen the integration of rural resources, avoid resource waste, and promote the integrated development of urban and rural areas. Second, the Internet, cloud computing, region chain, sain, and other generations of information technology resources as the driving forces, to provide technical support for the high-quality development of the digital countryside. Information technology connects the Internet with rural life, production, gove, dance, and ecology, providing a new concept and a new engine for rural development. On the one hand, information technology can promote the optimization and upgrading of traditional rural infrastructure such as water conservancy, elec, Tricity and roads, improve rural infrastructure conditions, optimize rural information facilities, smooth the channels of government, personal and social information, and bring convenience to rural production and life. On the other hand, the new generation of information technology is sinking into the countryside, providing new ideas and new possibilities for rural construction and development (Roth, M. A., et al., 2002, pp. 563-577). People can make use of digital technology and combine rural characteristics to innovate rural development, promote the revitalization of rural India, try and to improve the development of overall rural productivity through the development of e-commerce, smart tourism, smart logs, sticks, and other new rural business forms. Third, talent and capital resources are indispensable factors for the construction of a digital countryside. Firstly, talents are the main promoters of the construction of digital countryside. They can be divided into local talents and imported talents from the source, and technical talents and applied talents from the role. Local talents have the best understanding of rural landscape, village style, age, culture, and rural areas, and can maximize the combination of numbers and local characteristics to achieve maximum efficiency. At the same time, the introduction of talents can fill the gap in rural technical and application talents and provide the impetus for rural construction. Secondly, the capital elements can be divided into financial funds and investment funds from sources, both of which provide a strong material guarantee for the construction of a digital countryside. Enough money for a new generation of letters (Aiello, F., & Pupo, V., 2012, pp. 403-418). Information technology, new infrastructure, talents, and other factors flow to rural areas to provide strong support, which can accelerate the implementation of rural construction projects and boost rural digital construction.

4. The field of digital rural construction

Digital countryside construction is an important way to realize the comprehensive revitalization of rural areas. It is to promote the modernization development process of agriculture and rural areas through systematic planning and support and realize the comprehensive application of the new generation of digital technology in the economic and social development process of agriculture and rural areas. It can be summarized as the process of realizing digital transformation in various fields of rural areas. It can be further expanded to construct application scenarios of rural digital life, production, and governance with the help of rural information facilities and agricultural and rural big data systems, systems digital to empower rural life, production, ecology and so, and governance (Chen, W., Wang, Q., & Zhou, H., 2022, p. 11679).

First, digital enables rural life and builds a more intelligent rural service system. On the one hand, through the introduction of a new generation of digital technology, the rural information infrastructure, smooth online communication, intelligent logistics, etc. to achieve real-time monitoring, laying a digital foundation for intelligent life. On the other hand, the rural service system should be optimized to meet the individual needs of different groups. Through the construction of public intelligent facilities in rural areas, such as electronic reading rooms, online medical services, and on, in education systems, the Internet is combined with education, medical care and el, and elderly care to strengthen livelihood protection services and realize the comprehensive benefit of information to the people. Second, digital enables rural production, operation, and m, and management, builds digital rural industry, and develops new rural business forms and models. First of all, we will build smart agriculture with intensive, large-scale and, precise production, and digitize agricultural planting and breeding bases, agricultural operation tools and instruments, and agricultural production, operation and, management. Secondly, it should integrate information technology with the real economy to develop new rural business forms such as rural e-commerce, smart catering, and smart tourism. At the same time, according to the actual situation of rural areas, combined with their development advantages, the use of digital technology to form a characteristic industrial chain and value chain, exexploreshe the sustainable development of the rural economy. Third, technology enables rural ecology to build a sustainable green rural environment. With digital technology as the driving force, rural resources are saved and rural human settlements and ecological environment are optimized. First of all, a new generation of digital technology is introduced into all rural areas to replace the previous high

energy consumption of resource development mode, effectively saving rural construction resources and reducing environmental pollution.

Secondly, digital technology is used to realize real-time monitoring, updating, and early warning of rural climate, environment, water quality, and garbage, providing a greener living environment for rural residents. Finally, realize the informatization of rural ecological protection. Using digital technology, dynamic monitoring, and intelligent research are carried out on rural mountains, lakes, forests, wetlands, as well as agricultural environments including soil, farm, and breeding environments to effectively prevent ecological damage in the countryside, and timely release corresponding measures when problems are found. Fourth, digital empowerment of rural governance, the construction of governance digital, intelligent rural. Specifically, it includes building smart Party buildings and realizing digital management of party affairs, Party members, and Party building. Use digital technology to build a government affairs service platform, realize the rural government affairs service "one network", and pen up the "last kilometer" of rural government affairs service. Construction of online village management, the realization of online disclosure of village affairs, financial, villagers autonomy digital. It will be developed at the grassroots level for comprehensive governance, and IT will be realized at the rural grassroots level for grid governance and for comprehensive governance of social security. We will develop smart emergency management in rural areas, promptly monitor and prevent natural disasters, and prevent and control public health safety in rural areas (Li, J., et al., 2022, p. 16470; Vij, N., & Gil-Garcia, J. R., 2017, pp. 136-139).

5. Principles of digital rural construction

The construction of a digital countryside should follow the following basic principles. First, adhere to the leadership of the Party. The construction of a digital countryside needs to strengthen the Party's overall promotion and coordination of rural work and also needs to give play to the leading role of rural grassroots Party organizations. Second, we need to pursue all-round revitalization. The construction of a digital countryside should abide by the law of rural development and the law of information development in all localities, and use next-generation digital technologies as the engine to boost the all-round revitalization of rural areas. Third, we need to integrate urban and rural areas. In the construction of digital countryside, it is necessary to guide high-quality urban resources to intone to the countryside, narrow the long-standing digital divide between urban and rural areas, and promote the sharing of urban and rural resources. Fourth, we need to pursue reform and innovation. Give full play to the role of network, data, tech, technology, and knowledge, maximize the

development of rural resources, expand the rural market, and deepen the reform of rural areas. Fifth, we need to pursue safe development. Security and development are the two wings of a whole and the two wheels that drive it. They reinforce each other and achieve common development. The construction of a digital countryside should take rural security as the premise, strengthen the construction of rural network security, and ensure the healthy and sustainable development of a digital countryside. Sixth, we need to put the people first. The original intention of the other construction of digital countryside is to meet the needs of rural people for a better life. Therefore, in the construction process, it is necessary to effectively understand the needs and thoughts of the people, focus on solving the most, concerned, direct, and realistic interests of farmers, activate the enthusiasm of rural residents through the release of digital dividends, and constantly promote the endogenous impetus of rural development. Enhance the sense of gain, happiness, and security of rural residents (Wang, Z., et al., 2022, p. 1723; Xiong, M., et al., 2022, p. 16984).

The theoretical basis of the construction of digital countryside

Rural construction and development is an important part of the whole social construction and development. The discussion of rural construction by Marxist classic writers has laid a profound theoretical foundation for the study of rural construction and the formation of scientific thought on rural construction (Arce, A., et al., 1994, p. 202).

Marx and Engels paid great attention to the development of rural society with agriculture, countryside, and farmers as the core and its future development direction. With the scientific method of Marxism, this paper probes deeply into the basic position of agriculture in rural social development, the driving force of rural social development and the direction of rural development under communist social conditions (Van der Ploeg, J. D., 2000, pp. 497-511). Firstly, Marx and Engels attached great importance to the position of agriculture in rural social development. Marx highly affirmed the basic position of agricultural production and proposed that the first historical activity of mankind was to rely on agriculture to provide people with clothing, food, shelter, and other material means of life. Engels pointed out that "agriculture was the decisive producer of the whole ancient world, and it is even more so now." It follows that agriculture is not only the basis for the development of traditional societies but also the basis for the development of human beings to a higher level of society. At the same time, Marx and Engels also emphasized that food is the foundation of agriculture,

the producer is the primary condition for survival and development and then pointed out that agriculture determines all other social labor. Secondly, Marx and Engels deeply studied the driving force of rural social development. Marx attached great importance to the role of science and technology in the development of agriculture and rural society, holding that the application of science and technology is conducive to improving the productivity of the whole society and that the application of science and technology is the general trend and will be popularized in the future. In particular, the Industrial Revolution greatly improved the production efficiency of the bourgeoisie and promoted the development of capitalist productive forces. Marx analyzed: "In this era, not only scientific agriculture but also the newly invented agricultural machinery, increasingly make small-scale operation an outdated and no longer viable mode of operation." At this time, Marx saw that advanced machinery and equipment not only triggered the revolution of bourgeois industry, but also triggered the "revolution" in the field of agriculture, which was mainly manifested as the mechanization of agricultural production, the cultivation of better varieties, and the replacement of small agriculture by large agriculture. Moreover, Marx sharply criticized the defects of small land ownership in Britain and exposed the disadvantages of private ownership. He talked about the lack of a large-scale land system in Britain, which led to the failure of timely application of science and technology to agriculture and seriously hindered the development of productive forces at that time. Engels suggested that the vast number of laborers should be united to jointly manage large-scale agriculture and believed that only when the scale of agriculture was larger, modern tools and modern machines could be "put to use", that is, to change the relations of production to adapt to the development of productive forces and form scale management to make better use of modern tools and improve the development level of agricultural productivity. Thirdly, Marx and Engels believed that rural social development was a part of the development of communist society and made the following elaboration on the development of socialist society under the condition of communism in the future. First, abolish private ownership, implement agricultural cooperatives in rural areas, and establish free peasant associations; Second, the proletariat after seizing political power to carry out the socialist transformation of rural ownership, peasant ideology, and the achievements of civilization created by capitalism; Third, eliminate the confrontation between urban and rural areas and realize the integrated development of urban and rural areas; Fourth, to realize the liberation and free development of farmers, Marx pointed out that based on abolishing the capitalist mode of production, the use of

modern science and technology to free the rural population from the state of ignorance.

These statements on the development of the communist countryside in the future are summarized as follows: after the proletariat takes control of the political power, the landlords and the agricultural capitalist class should be eliminated; agricultural workers should use science and technology to free themselves from the oppression and the bondage of the land, eliminate the opposition between urban and rural areas, promote the equal and integrated development of urban and rural areas so that all members of the society can achieve comprehensive and free development.

Lenin's thoughts on rural construction

Lenin's rural construction thought (Lonesu, G., 1970, pp. 131-165) was deeply influenced by Marx and Engels and combined with the actual situation of Russia at that time, he applied the socialist theory to the practice of building socialism for the first time in human history, and carried out the first rural reform in the history of socialism, forming Lenin's rural construction thought.

First of all, Lenin emphasized many times: "agriculture is the foundation of the Russian national economy," held that agriculture is an important part of Russian rural construction, and in the process of socialist construction should pay attention to agricultural development. At the same time, food should be put in the first place in rural construction, pointing out that food is the foundation of socialist construction, the development of agriculture and the recovery of industry need food supply, only guarantee the supply of food, can stabilize the socialist regime and guarantee the stable development of socialist construction. Therefore, it is necessary to continuously increase the output of food. To this end, Lenin proposed to apply the latest science and technology to agricultural products to improve production efficiency and introduce backward agriculture into a new track.

Secondly, Lenin attached great importance to the role of peasants in the process of socialist construction and put forward: "Whoever thinks that putting peasants in the first place is equivalent to" giving up "or similar to giving up the dictatorship of the proletariat, he is simply not thinking, only talking." It is pointed out that in socialist construction, we should closely rely on the people and safeguard the interests of farmers. Therefore, after the end of the Civil War, to reduce the living burden of farmers, the agricultural tax policy replaced the surplus grain collection system with grain tax. At the same time, Lenin attached great importance to the

political rights and freedom of peasants and proposed to safeguard the basic political rights of peasants and strengthen the democratic supervision and system construction of rural grassroots. Moreover, Lenin advocated improving the quality of peasants. He believed that the low knowledge level of peasants would hinder the popularization of science and technology and reduce the efficiency of new machines in agriculture. Therefore, Lenin took some measures to improve the overall quality of peasants. First, to carry out cultural work in rural areas. Through the campaign of literacy and cultural revolution, improve the literacy rate of farmers, and improve the cultural quality of farmers. The second is to increase the human, material, and financial input in rural education, improve the backward state of rural culture by strengthening the construction of rural talents and teachers, raising the funds for rural education, innovating the forms of cultural transmission, strengthening the ideological and political education of farmers and so on. Finally, Lenin advocated the use of electrification, industrialization, and other advanced technological means to promote agricultural and rural development. He believes that electrification can improve the overall productivity of rural areas and has a strong driving force for agricultural modernization. On the one hand, the application of electrification can get rid of the traditional production mode of small farmers, realize agricultural scale production, and improve agricultural integrity (Cook, P., 2011, pp. 304-313).

Volume production efficiency. On the other hand, it can connect urban and rural development, promote rural modernization, change the state of long-term poverty in rural areas, and narrow the gap between urban and rural development. It is pointed out that agricultural mechanization is the concrete manifestation of agricultural electrification. Marx, Engels, and Lenin's theoretical exploration and practice of rural construction pointed out the direction for Chinese Communists to solve agricultural and rural problems and form the thought of rural construction with Chinese characteristics and also laid the theoretical foundation for digital rural construction in the current perspective of rural revitalization.

Related Research

1. National Research

1.1 Research on rural construction by the main leaders of the Communist Party of China before the 18th National Congress (Konstantin, S., 2013, pp. 102-121). The number is originally a kind of written symbol representing numbers, with various types and expressions. Arabic number is the most familiar and common type in our

life, which originated in ancient India and was gradually created in People's Daily production and practice. With the development of human productivity and the deepening of people's understanding, the connotation of numbers is also constantly extending. Today, numbers are no longer limited to the simple expression of numbers and symbols, are often combined with science and technology (computer), with science and technology, economy, industry, and other words, and called "digital technology", "digital economy", "digital industry". Therefore, numbers are not only a written symbol used to represent numbers but also a synonym for some technologies, information the knowledge, the Internet, and big data. In recent years, driven by the global information wave, along with the diffusion and embedding of digital technology into rural society, the inherent structure and form of traditional villages have been profoundly changed. The term digital countryside is gradually becoming known to people. The new generation of digital technology has become an effective engine for rural revitalization and provides continuous power for rural construction. In 2019, the General Office of the CPC Central Committee and The General Office of the State Council issued the Outline of the Development Strategy for Digital Countryside, (Li, H., & Yang, S., 2023, p. 4020) which specifically explained the concept of digital countryside, namely, "Digital countryside is an endogenous process of agricultural and rural modernization development and transformation accompanied by the application of networking, informatization and digitalization in the economic and social development of agriculture and rural areas, as well as the improvement of farmers' modern information skills." The author believes that the digital countryside is another extension of digital connotation accompanied by a new round of information technology penetration and application in agriculture and rural areas. From the literal sense, it is "digital + rural", which combines digital technology with rural areas. From the deep can be generalized. He proposed that the construction of socialism cannot be separated from the strength of farmers, the modernization of agriculture and rural areas, and the modernization of the main body of farmers. He stressed that the work of farmers should be done well, and organized farmers to learn and strengthen the popularization of cultural knowledge and science and technology to farmers. It is proposed to combine farmers' technical learning with the eradication of illiteracy, organize young people to carry out technical learning, stimulate farmers' enthusiasm for learning, improve the overall technical level of farmers, and promote farmers to gradually master scientific and cultural knowledge and planting technology through doing while learning, leading novices by old hands, and organizing regular technical inspection and evaluation. We will

promote the popularization and application of science and technology in agriculture and rural areas.

1.2. Deng Xiaoping's Thoughts on Rural Construction put forward that "the development of agriculture depends on policy and science." (Naughton, B., 1993, pp. 491-514) He thinks that the modernization of science and technology is the key factor to realizing the modernization of agriculture and puts forward that the role of science and technology in the development of agriculture should be emphasized. He also elaborated that increasing crop yields, solving rural energy problems, and developing diversified management all require the participation of science and technology "The Third Generation of the Leadership the Urgent" Total Gain stressed the need to use science to solve the problem of agriculture (Feldmann-Jensen, S., Jensen, S. J., Smith, S. M., & Vigneaux, G., 2019, pp. 17-25). At the same time, the promotion and application of agricultural technology and scientific and technological achievements have been emphasized many times in practice to speed up the process of agricultural and rural modernization. In summarizing the rural reform, he proposed to respect the dominant position of farmers, and farmers and grassroots autonomy to stimulate the enthusiasm of farmers to participate in rural reform, change, and the face of the countryside. At the same time, in the formulation of agricultural reform measures, always put the will and interests of farmers in the first place, respect the practical results of farmers, through the practice experience of the then rural contract production, such as the summary and processing, rise to the national guidance of the household contract responsibility system, in tofeguard the fundamental interests of farmers, and then mobilize the enthusiasm of farmers. Not only that, but he also attached great importance to the technical training of farmers, stressed the need to improve the scientific and cultural quality of farmers, and vigorously cultivated science and technology talents.

1.3 Jiang Zemin's Thoughts on Rural Construction (Dynton, N., 2014, pp. 22-42). In the course of rural construction and development, the problems of agricultural and rural modernization construction are emphasized. It is pointed out that advanced science and technology can not only supplement agricultural resources but also increase material input and output. At the same time, put forward to let agriculture and rural market-oriented direction reform. Under the guidance of the state, the socialized service system should be established to provide a series of guarantees for agricultural production, and the agricultural product market system should be established under the national macro-control and market mechanism, to open up multiple channels for the circulation of agricultural products and improve the

comprehensive benefits of agriculture through agricultural industrialization. Secondly, it proposed to pay close attention to the development of agriculture through science and education and pointed out that "the growth of agriculture should scientific and technological progress and improve the quality of laborers." We should combine science and technology with rural reform, use science and technology and education to arm farmers, improve their quality, train farmers to meet the needs of The Times, and promote the development of agricultural modernization. And emphasized that the broad peasantry cadres should learn advanced agricultural knowledge and agriculture together with farmers. Thirdly, Jiang stressed the need to stabilize the rural environment and promote the overall progress of rural areas. He pointed out that the stability of the countryside is a prerequisite for the stability of the whole country, and only when we have a good grasp of the rural area can we have a better grasp of the overall situation. At the same time, it emphasizes the importance and coordination of the economic environment gap between East and West in the process of rural Westlopment, to promote the all-roundtopment of rural economy. Finally, for the further al ecological environment, it is proposed to achieve sustainable development in the development and utilization of agricultural resources and protect the rural ecological environment.

1.4 Hu Jintao's Thoughts on Rural Construction (Li, C., 2009, pp. 1-22) In the 17th National Congress of the Communist Party of China again emphasized that the problems of agriculture, rural areas, and farmers concern the overall situation of building a well-off society. At the same time, several central documents have put forward corresponding policies and measures to solve the problems of agriculture, rural areas, and farmers, proposing to reduce or cancel the agricultural tax and provide policy support in such areas as subsidies for farm tools and improved seed varieties to reduce the burden on farmers. In line with the development trend of The Times, it proposes to use modern science and technology to promote the transformation of agricultural modernization and realize agricultural industrialization management. The total requirement of and discusses the importance of new farmers, points out that new farmers can better play the main role of farmers, promote the development of angrite cultural economy, and then promote the development of the whole national economy. To sum up, four generations of leaders of the party central committee have put the issues of agriculture, countryside, and farmers inane important position in the process of socialist construction, combined with the actual rural situation of our country put forward important views and discussions have great guiding significance for today's rural revitalization and digital rural construction.

1.5 Xi Jinping's Important Discussion (Zhao, S., 2016, p. 83) on Digital Construction As early as 2000, he put forward the strategic decision to build a "digital Fujian" and personally acted as the team leader, setting the construction goal of "digitalization, networking, visualization and intelligence". On different occasions, he has repeatedly emphasized the importance of digital and big data for China's development. In 2017, when presiding over the second collective learning of the Political Bureau of the CPC Central Committee, he pointed out: "Accelerate the construction of digital China, build a digital economy with data as the key element, and promote the integrated development of digital economy and real economy." At the 2018 Central Economic Work Conference, he proposed to accelerate the construction of new infrastructure. In the congratulatory letter to the World Internet Conference Wuzhen Summit in 2021, it was further pointed out that "we should stimulate the vitality of the digital economy, build a pattern of digital cooperation, and make digital benefit the people of the world". In 2022, the paper "Constantly Strengthening, Optimizing and Expanding China's Digital Economy" clarifies the importance of developing digital technology and the digital economy, and also puts forward more specific and clear requirements for the development of China's digital economy in terms of technology, infrastructure, digital industry, digital economy, digital governance, etc. In the political field, it is proposed to strengthen the digital construction of government governance, improve the ability of government service, and promote the modernization of national governance. In the economic field, it is proposed to develop and strengthen the digital economy, thereby promoting the intelligent production mode. In terms of people's livelihood, it is emphasized to use figures to make up for the shortcomings of people's livelihood, promote the popularization and application of figures in education, medical care, employment, and other fields, and build a digital society that the whole people imagine. In the field of "agriculture, rural area, as and farmers", it is emphasized to give priority to agricultural and rural development and promote agricultural and rural modernization. At the same time, it is also proposed to improve the digital literacy and ability of the whole people and society, enhance digital skills, and strengthen security awareness.

1.6 How digital platform capability affects the innovation performance of SMEs—Evidence from China. *Technology in Society* (Jiang, H., Yang, J., & Gai, J., 2023, p. 102187), Acknowledge Today, more and more enterprises are achieving co-innovation across borders by joining digital platforms. However, many SMEs face difficulties in developing and benefiting from strong digital platform capability (DPC) due to limited experience, resources, and funds, which hinders innovation

opportunities. This study constructs a model to explore how SMEs can enhance their innovation performance (IP) by adopting digital platforms based on resource orchestration theory. We then introduce ecological institutional norms (EIN) as the moderating variable to observe whether effective platform governance impacts enterprises' value co-creation (VCC) and IP. We conducted a questionnaire survey on 346 SMEs in China's manufacturing industry that participate in digital platforms, and the regression analysis and the bootstrap test results indicate that (1) DPC has a significantly positive impact on IP; (2) DPC has a significantly positive impact on VCC; (3) VCC partially mediates DPC and IP; (4) EIN positively moderate the relationship between DPC and VCC and positively moderate the mediating effect of VCC. These findings add to the literature on digital platforms theoretically and fill the gap in research on how participation in digital platforms can enhance enterprises' innovation and development from the perspective of SMEs. Finally, the study has important managerial implications for SMEs to cultivate DPC, carry out VCC, and participate in platform governance.

2. International Research

Can Digital Finance Improve the Total Factor Productivity of SMEs? Evidence from Listed SMEs (Bai, W. P., Sun, R. M., & Bai, G., 2021, pp. 53-62). In this research, the authors investigate whether digital finance can enhance the overall productivity of Small and Medium Enterprises (SMEs). Their findings indicate a significant positive correlation between the use of digital finance tools and the overall productivity of SMEs. The authors recommend wider adoption of digital finance tools among SMEs as a strategy for improving their productivity.

The Development of Finance and Firms' Transformation from Virtual to Real. This study explores the impact of financial development on businesses' transition from virtual to tangible practices (Chen, C. H., Cao, W., Cao, Y. N., & Shao, X. J., 2021, pp. 78-92). The researchers found that financially well-developed firms are more likely to transition successfully to tangible operations. The study concludes by suggesting that further financial development could encourage this transformation.

How Digital Finance Can Help SMEs Get Financing? (He, J., Wei, T., & Ni, C. J., 2021, pp. 36-45). This paper examines how digital finance can assist SMEs in securing financing. The study found a significant relationship between the use of digital finance and the ease of obtaining financing for SMEs. The paper recommends the further integration of digital finance strategies in SMEs as a means to improve their ability to secure the necessary funding.

Has Digital Finance Promoted the Upgrading of Household Consumption? This research investigates whether digital finance has led to the upgrading of household consumption (Huang, K. N., & Hao, X. R., 2021, pp. 117–125). The results show a positive correlation between digital finance and increased household consumption. The authors conclude that digital finance has potential benefits for households and should be further explored as a means to improve consumption habits.

Digital Financial Inclusion, Financial Constraints and Financial Sustainability of SMEs (Li, B., Gong, S., & Zeng, Y. T., 2022, pp. 126–142). This paper examines the relationship between digital financial inclusion, financial constraints, and the financial sustainability of SMEs. The findings suggest that digital financial inclusion can help alleviate financial constraints and enhance the financial sustainability of SMEs. The authors recommend that policies should be formulated to encourage digital financial inclusion as a means to enhance SMEs' financial sustainability.

Research on the statistical measure and spatiotemporal trend of the development level of the digital economy (Liu, C. K., Jiang, Y., Zhang, Q. H., & Zhu, X. F., 2022, pp. 129–136) The study, in its findings, demonstrated that the digital economy's development level is on the rise, and the spatial differences are slowly decreasing. The authors used big data analysis and geographic information systems to reach these conclusions. This research could serve as a basis for future studies and policy development regarding the digital economy's growth.

Digital Finance, Financing Constraints and Technological Innovation of Small-sized Enterprises: An Empirical Study Based on the Data of New OTC Market (Liu, L., & Yang, H. R., 2022, pp. 15-23). The research's outcome underscored that digital finance alleviates the financing constraints of small-sized enterprises, thereby promoting their technological innovation. The empirical data from the new OTC market was the basis for these findings. The study suggests strategies for enhancing the role of digital finance for SMEs, including leveraging digital technologies and policy support.

Inclusive digital finance and the efficiency of finance in supporting the real economy (Lu, F. Z., & Wang, Q. Y., 2022, pp. 34-47). The study concluded that inclusive digital finance significantly contributes to the efficiency of finance in supporting the real economy. The mathematical and econometric models used in the research led to these findings. The results could be applied to the development of financial policies that boost the real economy through inclusive digital finance.

Can Digital Inclusion Finance Promote Green Innovation of Enterprises? According to the study, digital inclusive finance is indeed capable of promoting green innovation among enterprises (Qiao, B., Zhao, G. T., & Shen, S. H., 2022, pp. 14-27). This

conclusion was reached via multiple linear regression models based on sampled enterprise data. The findings may guide the formulation of financial policies promoting green innovation through digital inclusion finance.

Digital economy, financial efficiency, and high-quality economic development of China (Shi, D., & Sun, G. L., 2022, 5-16). The research showed that the digital economy and financial efficiency significantly contribute to the high-quality economic development of China. The structural equation model used to analyze the data led to these findings. These insights can inform the development of policies and strategies that leverage the digital economy and financial efficiency for high-quality economic growth.

An empirical analysis of rural farmers' financing intention of inclusive finance in China: financing intention of inclusive finance, and it examines related drivers like knowledge of inclusive finance, perceived benefits and perceived risks of ordering finance. Besides, the social enterprise embeddedness and digital finance are integrated into the conceptual model to further investigate their moderating impact (Aisaiti, G., Liu, L., Xie, J., & Yang, J., 2019, pp. 1535-1563). Design/methodology/approach The authors designed an inclusive finance intention model to examine the relations between dependent variable knowledge of inclusive finance, intermediary variables perceived benefits and perceived risks of ordering finance and the independent variable financing intention of inclusive finance. The embeddedness of social enterprise and digital finance were identified as modifying factors. Both exploratory and conclusive research strategies were applied. A structured questionnaire was developed to collect empirical data from the rural areas of China.

Digital finance and green growth in China: This study examines the influence of digital finance on green growth using China's city-level data from 2008 to 2019 (Razzaq, A., & Yang, X., 2023, p. 122262). Web crawler technology and a super-efficiency SBM model are employed to measure inclusive digital finance and green growth. For mechanism analysis, it innovatively quantifies the enterprise digital transformation using Big Data text and factor analysis techniques from the unique perspective of disclosing textual information about "enterprise digital transformation". The results exhibit that inclusive digital finance significantly promotes green growth, and these results are consistent using robust standard error estimation, bootstrap sampling, endogenous estimators, and alternative proxies. The regional samples demonstrate heterogeneous outcomes, suggesting that the influence of digital finance is more pronounced in eastern and central regions than in the western region. Moreover, the asymmetric effect of digital finance is documented through panel quantile regression.

It displays that the influence of digital finance turns stronger from the 3rd to 7th quantile and decreases hereafter. Manifestly, the mechanism analysis discovers that digital finance encourages green growth by supporting the digital transformation of enterprises and addressing energy poverty. These findings offer valuable policy recommendations for legislators.

Effects of the digital economy on carbon emissions in China: Carbon emission reduction is an important issue for sustainable development around the world, and the digital economy is an important driver of carbon emission reduction (Chang, X., & Li, J. (2022, p. 16624). Hence, using panel data from 282 Chinese cities collected during 2011–2019, this study empirically explores the impact of the digital economy on carbon emissions based on the spatial Durbin econometric model. The findings show that there is a positive spatial correlation in carbon emissions among regions. That is, the reduction in carbon emissions in one region can lead to a reduction in carbon emissions in neighboring regions. Meanwhile, the digital economy has significant negative local and spillover effects on carbon emissions. However, the spatial-spillover effect of the digital economy on carbon emission reduction has a regional boundary. It is only significant within a range of 750 km and decreases with increasing geographical distance within this range. As China is a major carbon-emitting country, the findings of this study provide empirical strategies for achieving China's "double carbon" target and have some reference value for other countries' sustainable-development strategies.

Research on the effect of the digital economy on carbon emissions under the background of "double carbon" (Cheng, S., & Qu, G., 2023, p. 4931). In the context of Industry 4.0, a variety of advanced technologies such as big data, artificial intelligence, cloud computing, and mobile technology have integrated design, supply, manufacturing, and sales. Interconnection and collaborative work provide efficient and high-quality overall solutions for the manufacturing industry, realizing intelligent, precise, personalized and customized products or services. Mobile technology plays an important role in the development of industrial enterprises, which can implement intelligent enterprise management, enhance the operation efficiency, improve the standardization of operation and management, and promote core competitiveness. The digital economy's ideas and methods centered on mobile technologies such as the fifth generation (5G) are integrated into all aspects of the manufacturing process, running through the entire manufacturing system and traditional production. By analyzing the significance and value of mobile technology for the development of industrial enterprises, this study discusses the strategic path of mobile technology to

advance the digital transformation of enterprises in industrially developed, developing, and backward regions.

Can the digital economy be a “new engine” for urban green economy development? An empirical analysis of Chinese cities (Yan, J., Zhao, J., Yang, X., Zhu, Z., & Ran, Q., 2023, pp. 1-27). Digitization and greening are the vital driving forces of China’s economic transformation. Whether they can drive collaboratively China’s economy is the key to realizing sustainable development. In this study, a super efficiency EBM model is applied to calculate the urban green economy development (UGED) level of 266 Chinese cities between 2011 and 2020, and then the dynamic SDM and intermediary effect models are employed to explore the impact and transmission mechanism of the digital economy on UGED. Furthermore, it is also investigated whether digital economy and UGED have a nonlinear relationship. According to the findings, digital economy is capable of significantly boosting UGED in the local city and its neighborhood, but significant differences exist in different regions and economic development stages. As a result of the transmission mechanism test, it may be found that digital economy could indirectly boost UGED through technology, structure, and allocation effects. The impact of digital economy on UGED has a double threshold due to the significant difference in the urban economic development level. The digital economy is increasingly contributing to UGED as the local economy develops. Therefore, local governments should develop a digital economy in line with the local conditions so that its engine role in driving UGED can be given full play.

Morphology for circular economy business models in the electrical and electronic equipment sector of Singapore and South Korea: Moving to a circular economy requires manufacturers and producers to rethink their business model for a stronger value proposition and delivery (Kim, C. H., Kuah, A. T., & Thirumaran, K., 2022, pp. 829-850). Many businesses have implemented circular economy business models (CEBMs) with different design options to accomplish sustainable business goals and economic prosperity. However, the unexplored options in the design of CEBMs can be a significant obstacle in the transition to a circular society. This paper seeks to investigate the CEBM design options currently reported in the Electrical and Electronic Equipment (EEE) sector of Singapore and South Korea, proposing a research agenda to advance circular economy research in both countries. In this systematic review, we follow four basic dimensions of a business model, value proposition, value delivery, value creation, and value capture, in a morphological analysis of 119 publications to identify business model design options in the Electrical and Electronic Equipment sector of Singapore and South Korea. Our findings showed that producers in both

countries were similar in their intentions yet adopted different approaches regarding the four dimensions. In Singapore, result-oriented CEBMs and cooperation with the local government and community emerged as major design options. On the other hand, in the South Korean context, rental or leasing business models using the membership system with personalized home visiting services and the use of digital capabilities were rampant. These findings are expected to help producers and practitioners understand and adopt better design options to drive their business models, highlighting the agenda to further investigate digital servitization and consumer acceptance in CEBMs.

The Chinese urban-rural Digital Divide and the development of E-commerce in rural China (Yu, N., & Wang, Y., 2021, p. 6427). Despite years of unprecedented economic development, China is still characterised by a deep urban-rural economic disparity. The urban-rural Digital Divide has contributed to increasing the income inequality caused by decades of urban-oriented policies. This affects the E-commerce industry, which has become a cornerstone of Chinese economy. The urban-rural gap also exists in the E-commerce sector, as the biggest portion of sales and revenues is concentrated in cities. Nevertheless, in recent times, rural China underwent a vigorous growth in Internet penetration and has entered the E-commerce industry as an important player. E-commerce gave great contribution to the local economy, also thanks to policies by both the Government and the private sector aiming at alleviating poverty in rural regions. Furthermore, rural areas witnessed the birth of Taobao Villages, which have gained growing importance in the sector in recent years and have contributed to lifting millions of people from poverty. The present work analyses the E-commerce industry in China and how the Digital Divide issue affected economic development. The purpose of this work is to investigate on the expansion of E-commerce in rural China and the opportunities it represents for the economy of impoverished areas. As a final point, the work will examine the birth of new E-business models tailored to the needs of poorer areas by taking into analysis the case of Pendulous and its growth in low-tier cities.

Strategic planning for virtual exhibitions and visitors' experience: The research objectives of this paper are the recognition of the fundamental- and frequently ignored - principles of what it entails to be 'digital' in cultural background and conclusions on the strategic planning for the growth of digital museums. In this paper current history of cultural heritage are divided into two broad parts - digital technology and digital strategy and transformation (Kamariotou, V., Kamariotou, M., & Kitsios, F., 2021, p. e00183). The digital technology aspect reveals that current

technological developments have opened a completely new phase of understanding and innovation potentials in the cultural subject. Digital strategy and transformation aspect reveals that technology has constantly played a significant role in forward-looking visions about the museums of the future. The ever-increasing development in technology creates a thriving market for digital museum services and solutions. There is a push for museums that tries to solve the problems of interaction and engagement, thereby creating a conducive environment for a digital heritage economy.

Digitization planning for museum exhibition the learning museum of Universitas Negeri Malang (Sapto, A., Nafi'ah, U., Suprpta, B., Sayono, J., Renalia, H., & Alfahmi, M. N., 2020, p. 012115). The digitization design of the Learning Museum of Universitas Negeri Malang aims to realize the achievement of the Learning Museum's vision so that it becomes a reference in terms of learning development. The Learning Museum as a source of learning is expected to provide a concrete picture of the development of learning from the past and present. This museum is present as a place for conservation, education, and recreation. For this reason, the museum is equipped with several story lines that illustrate the long journey of Universitas Negeri Malang from 1954-present. As part of educational and recreational tourism, the museum management team also designed the digitization of museum collections following the needs of the industrial revolution 4.0 era, the goal is that visitors feel comfortable and enjoy learning through the museum. This study uses qualitative research and data collection techniques through observation, comparative studies and literature studies. This research resulted in digitizing the UM Learning Museum design with Augmented Reality technology, Virtual Reality, Touchscreen, Flash, Green screen, Video Animation, Games and also resulted in a visitor flow plan of the Learning Museum of Universitas Negeri Malang.

From the big screen to the small ones: From its very inception, the history of the movie industry has been closely linked to the history of technological development (Pardo, A., 2015, pp. 23-45). However, the changes caused by the digital revolution are transforming the film industry at a more fast-paced and more far-reaching scale than anything that came before. Producers, distributors and exhibitors are being forced to respond to the popularity of the Internet and the success of digital platforms. As a consequence the ways of consuming movies are dramatically changing and the film industry is desperately trying to readapt itself to this new scenario.

'Coming to a cinema near you?': Australia is on the path to achieving a full-scale conversion to digital cinema exhibition probably within the next five to ten years (Aveyard, K., 2009, p. 191). Despite early optimism that digitization could provide a

catalyst for greater democratization of the Australian exhibition market by creating more opportunities for audiences to see independent and alternate films, this outcome now appears far from certain. The launch and ongoing roll-out of the international standard for digital exhibition, which is now firmly controlled by the major American studios, is intensifying, rather than diminishing, the market dominance of these media conglomerates and their local allies, the major Australian exhibition chains. Independent film exhibition and alternative presentation formats, on the other hand, are being pushed even further to the periphery by these increasingly centralized market forces. While independent and major exhibitors have historically coexisted, although at times in a somewhat uneasy relationship, the financial imperatives of digital cinema now threaten to drive many independent cinemas to the edge, and with them the ongoing diversity of cinema culture in Australia. Of particular concern is the fate of independent theatres in regional and rural locations where many provide the only public screening opportunities within large geographic areas.

Meorient: a pioneer of the digital exhibition industry (Bai, O., Yang, X., Hunter, K. O., & Wang, B., 2022, pp. 1-27). This paper aims to first, identify the external and internal factors that a company needs to analyze when formulating its digital platform strategy. Based on the framework of PESTNPG (political economic social and culture technological population and globalization) and internal analysis a company should analyze both internal and external factors to formulate its digital platform strategy. For companies from emerging markets the institutional-based market created by national or local governments is important for digital platform strategy. Second dynamic capability theory and its linkages to digital platform strategy. The dynamic capabilities view is considered as a primary theoretical lens in the strategy literature to analyze a company's strategies to achieve sustainable competitive advantages. To carry out a successful digital platform strategy companies need to build strong dynamic capabilities to capture or create opportunities and reconfigure their resources simultaneously. Third the advantages and disadvantages of different digital platform strategies (i.e. an independent digital platform and online-offline integration platform) and the possible consequences and risks of different strategies. It is important to evaluate different types of digital platform strategies that require different capabilities in terms of business structure product structure revenue structure organizational structure and technology architecture. A company needs to link these capabilities to a digital platform strategy to enable the integration (or separation) of online business with offline business. It also increases the accuracy and efficiency of online business. Fourth key points of digital platform strategy implementation. Companies need to

identify key profit models for their digital platform to promote business growth and financial returns. It is equally important to increase customer value by leveraging its digital exhibition platform and to learn to use digital technology to foster organizational dematerialization.

Content management for digital museum exhibitions. An online exhibition of a digital museum often consists of a variety of multimedia objects such as webpages, animation, and video clips. Ideally, there should be different exhibitions on the same topic for users with different needs (Hong, J. S., Chen, B. H., Hsiang, J., & Hsu, T. Y., 2001, pp. 450-450). The difficulty is that it is time-consuming to produce illustrative and intriguing online exhibitions. In this paper, we present a content management system for producing exhibitions. This framework is a novel approach for organizing digital collections and for quickly selecting, integrating, and composing objects from the collection to produce exhibitions of different presentation styles, one for each user group. A prototype based on our framework has been implemented and successfully used in the production of a Lanyu digital museum. Using our method, the Lanyu Digital Museum online exhibition has several features: (1) It provides an easy way to compose artifacts extracted from the digital collection into exhibitions. (2) It provides an easy way to create different presentations of the same exhibition content that are catered to users with different needs. (3) It provides an easy-to-use film-editing capability to re-arrange an exhibition and to produce new exhibitions from existing ones.

Digitalization and environment: how does ICT affect enterprise environmental performance? (Wen, H., Lee, C. C., & Song, Z., 2021, pp. 54826-54841). Despite the increasing use of digital technology in industrial production, how industrial digitalization affects the environmental performance of production activities remains unclear. This research contributes to the literature on the relationship between industrial digitalization and enterprise environmental performance by employing a large sample of Chinese manufacturing enterprises. Results indicate that the environmental performance of manufacturing enterprises has been significantly improved in the process of industrial digital transformation. Structural and technology effects are the transmission channels; additionally, structural effect is the main contributor to the positive environmental effects of information and communications technology (ICT) penetration. Industrial digitalization reduces the production scale of heavy-polluting enterprises and improves product innovation and green total factor productivity, but it has an insignificant effect on total factor productivity. Moreover, industrial digitalization improves enterprise environmental performance by introducing

front-end cleaner production technologies, rather than by increasing pipe-end pollutant treatment facilities.

The costs of reproduction in plants. This review reports on the processes associated with costs of reproduction, including some theoretical considerations, definitions and methodological aspects, followed by a list of the situations where costs are difficult to find (Obeso, J. R., 2002, pp. 321-348). Despite some exceptions, case studies, examined by trade-offs between reproduction and other life-history traits, generally support the predictions of the cost of reproduction hypothesis. The cost of reproduction as an evolutionary determinant of sexual dimorphism in life history traits in dioecious species was specifically tested, considering that the higher cost of reproduction in females has driven the life history traits related to sexual dimorphism. Females of woody dioecious species were consistently smaller than males supporting the costs of reproduction hypothesis. By contrast, females of herbaceous perennials were generally the larger sex, which did not fit the expectations of the hypothesis. Finally, the mechanisms that enable the compensation of the reproductive costs are detailed, including the plastic responses of photosynthesis and growth, the effects of the timing of investment, plant architecture and plant physiological integration.