

Research on Collaborative Management Mechanism of Scientific and Technological Innovation and Green Development in The Era of Digital Economy

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Abstract: In the era of digital economy, about the internal relationship between scientific and technological innovation and green development, this study launched an in-depth discussion, and analyzed the rapid development of digital economy and as a new driving force to promote green development. This paper expounds the key role of scientific and technological innovation in promoting green development, and probes into the importance of innovation model in realizing environmental sustainability. At the same time, a theoretical framework of collaborative management is constructed, and corresponding management strategies are proposed to guide the effective integration of scientific and technological innovation and green development.

Keywords: Digital economy; scientific and technological innovation; green development; collaborative management

Introduction

In the current era of vigorous development of the digital economy, the synergy between the advancement of scientific and technological innovation and the sustainability of green development is undoubtedly one of the major themes of the current high-quality development of the global economy. The sustainable and high-quality development of social economy is influenced by the collaborative management mechanism of scientific and technological innovation and green development. First, we need to understand that the digital economy era presents new challenges and opportunities for scientific and

technological innovation and green development. With the rapid development of information technology, scientific and technological innovation has become the core force to promote the high-quality development of the digital economy. At the same time, the concept of green development has also received more attention, and how to achieve the coordinated development of scientific and technological innovation and green development in the era of digital economy has become an important issue. Second, we need to explore the collaborative management mechanism of scientific and technological innovation and green development. This requires the participation of various parties, including



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the government, enterprises and social organizations, to jointly formulate policies, promote scientific and technological innovation and green technology application, promote industrial transformation and upgrading, and achieve a more sustainable development model^[1]. Under the collaborative management mechanism, all parties need to fully cooperate and form a synergy to achieve a virtuous cycle of scientific and technological innovation and green development.

1. Background Analysis of Digital Economy

1.1 Development Trend of Digital Economy

The development trend of digital economy is an important direction of the current global economic development. In the context of the rapid development of information technology, digital economy has undoubtedly become an important engine for the economic growth of various countries. According to statistics, the huge scale of the global digital economy has exceeded 20 trillion US dollars, and the contribution rate of the digital economy in promoting global economic growth continues to rise. China's economic development has attracted worldwide attention and demonstrated the vitality of emerging economies, and the digital economy is also an important driving force for its sustained economic growth. The development of digital economy is of great significance to the establishment of a collaborative management mechanism for scientific and technological innovation and green development.

The development of the digital economy is reflected in the following aspects: First, the digital economy is showing a trend of rapid development in the world, and countries are competing to launch digital economy development strategies and increase investment to promote development; Second, the importance of digital economy in global economic development continues to increase, and its contribution to global economic growth continues to increase. Third, the digital economy has brought an important driving force to the innovation development of various industries, especially in the innovation management of enterprises has played an important role. Various industries have made use of digital technology to promote industrial upgrading, improve efficiency, innovate business models, and promote the digital transformation of the global economy. The digital economy has had a

profound impact on the global governance system, which has not only changed the industrial structure and business model, but also affected the way of global governance and rule-making.

1.2 Driving Factors of Green Development

The advent of the digital economy era has brought new opportunities and challenges for scientific and technological innovation and green development. The importance of sustainable development of human civilization is self-evident, among which green development is an important research focus of future sustainable development.

With the rapid development of global digital economy, green development has become the focus of global attention. With the continuous progress of digital technology, green development has ushered in many new opportunities, such as cloud computing and cloud services, intelligent manufacturing and big data analysis and other new technologies, which not only improve the level of work service and production management efficiency, but also bring more possibilities for green development in terms of environmental protection, energy conservation and emission reduction^[2].

The rapid development of the digital economy has also led to an expanding consumer demand for green products and services. In stark contrast to the lack of environmental awareness in the past, in the new network information era, consumers' environmental awareness is gradually increasing, green concepts are rising, and the market demand for green products/services is becoming more and more vigorous. In the era of digital economy, consumers pay more and more attention to the green characteristics of products while paying attention to the quality and price of products. Therefore, the change in consumer demand has inspired enterprises to increase investment in green technology innovation in order to comply with the green development concept of social digital economy.

However, green development cannot be achieved without the support of government policies. In the era of digital economy, governments have introduced a series of environmental protection subsidy measures and related policies to improve the enthusiasm of enterprises to promote green production and green development. At the same time, the relevant government departments also through a series of

measures such as tax policies and financial support, effectively incentivize enterprises to increase the research and development and application of green technologies. The introduction of these policies has effectively promoted the process of green development.

2. Technological Innovation and Green Development

2.1 Impact of Scientific and Technological Innovation on Green Development

In the era of digital economy, scientific and technological innovation has had a profound impact on green development. First, scientific and technological innovation provides technical support and innovation impetus for green development. With the continuous progress of science and technology, green energy and clean production technology have been rapidly developed and applied, which has greatly promoted the improvement of environmental protection and resource utilization efficiency^[3]. Second, under the influence of scientific and technological innovation, the mode of production and lifestyle have undergone major changes, and green development has also ushered in transformation and upgrading. Third, emerging science and technology industries such as artificial intelligence and Internet technology provide new ideas and new ways for energy conservation, emission reduction and resource recycling.

In addition, scientific and technological innovation also has a positive reference and leading role in green development. Thanks to the continuous innovation and application of science and technology, we have obtained more important data and information about the ecological environment and climate change, and then formulated more scientific and reasonable environmental protection policies and measures. At the same time, scientific and technological innovation has also promoted global green technology exchanges and cooperation, and promoted the common progress of international green development.

However, scientific and technological innovation has also brought some negative effects and challenges to green development. The rapid development of science and technology has also led to excessive consumption of resources and environmental damage, and the development of some high-tech industries will also bring certain adverse environmental impacts. Therefore,

in the current digital economy environment, while promoting scientific and technological innovation, it is also necessary to pay attention to the sustainability and balance of green development, and strive to avoid environmental damage.

2.2 Scientific and Technological Innovation Model in Green Development

In the era of digital economy, the collaborative management mechanism of scientific and technological innovation and green development has become a topic of great concern. In the process of green development, the mode of scientific and technological innovation undoubtedly plays a vital role. This model can not only promote the sustainable development of the economy, but also realize the efficient use of resources and environmental protection.

In green development, the scientific and technological innovation model fully demonstrates its emphasis on environmentally friendly technologies and sustainable development. On the one hand, scientific and technological innovation can promote the development and growth of green industries, mainly because it can provide advanced and powerful technical support, for example, scientific and technological innovation in the field of energy can promote the breakthrough of clean energy technology, so as to achieve energy conservation and emission reduction of energy resources; On the other hand, scientific and technological innovation also promotes the green transformation of traditional industries, realizes the optimization and upgrading of technologies, and promotes the transformation of traditional industries to the direction of green and low-carbon^[4]. Under the positive guidance of the scientific and technological innovation mode, the green industry can be effectively developed, and then the balanced development of economic growth and environmental protection can be achieved.

In addition, the scientific and technological innovation model in green development also needs to cooperate with government policies, market demand and industrial development, and build a sound collaborative management mechanism. The government needs to guide enterprises to increase investment in green technology research and development and application through industrial policies and financial support, and promote the deep integration of scientific

and technological innovation and green development. At the same time, market demand is also one of the important driving forces to promote the continuous upgrading of scientific and technological innovation model, enterprises need to increase investment in green technology innovation according to market demand, and promote the commercial application of green products and technologies. Finally, cooperation and win-win in industrial development is also an important part of building a collaborative management mechanism for scientific and technological innovation and green development.

3. Discussion on Collaborative Management Mechanism

3.1 Theoretical Framework of Collaborative Management

In the era of digital economy, scientific and technological innovation and green development have become important forces to promote economic growth and social progress. In order to effectively manage and coordinate the relationship between the two, it is particularly important to study the mechanism of collaborative management.

First of all, the main core elements such as information synergy, resource synergy, decision synergy and action synergy interact together to form the theoretical framework of collaborative management. Information coordination focuses on the transmission and sharing of information, which can improve the accuracy and efficiency of decision-making. Resource coordination focuses on the integration and sharing of resources, which can effectively improve the efficiency of resource utilization^[5]. Decision-making coordination emphasizes the need for all parties to participate in decision-making, so that the scientific and democratic nature of decision-making can be effectively guaranteed; Action synergy emphasizes that all parties act together to maximize overall performance.

Second, in the era of digital economy, scientific and technological innovation and green development need to be managed more closely. Scientific and technological innovation can provide technical support and new momentum for green development, and green development also provides new markets and opportunities for scientific and technological innovation. Collaborative management requires all

parties to strengthen communication and cooperation, promote the integration and sharing of resources, improve the scientific and democratic decision-making, and maximize the overall performance.

3.2 Collaborative Management Strategies in Practice

In the era of digital economy, the coordinated management strategy of scientific and technological innovation and green development is the key to the sustainable development of global economy. The implementation of collaborative management is conducive to the positive interaction between scientific and technological innovation and green development, which can better promote the integration and development of interdisciplinary fields.

First of all, the collaborative management strategy in practice needs to be based on cross-departmental and cross-field cooperation. Different sectors and departments should cross boundaries and jointly participate in the decision-making and implementation of scientific and technological innovation and green development. Only through in-depth cooperation across departments and fields can a comprehensive collaborative management mechanism be formed, so as to realize the organic combination of scientific and technological innovation and green development.

Second, collaborative management strategies need to focus on information sharing and open innovation in practice. On the one hand, information sharing can promote the parties to fully understand each other's needs and resources in the decision-making process, and help form resource sharing and complementary advantages; On the other hand, more and more participants began to invest in open innovation, stimulate innovative thinking, and promote the deep integration of scientific and technological innovation and green development.

In addition, the key role of collaborative management strategy in practice requires the establishment of effective communication mechanism and decision-making mechanism. On the one hand, a good communication mechanism can promote all parties to fully communicate, clarify ideas, coordinate resource allocation, and implement decisions. On the other hand, an effective decision-making mechanism can ensure the smooth implementation of collaborative management strategies and avoid decision-making

errors and resource waste.

Conclusion

Regarding the collaborative management mechanism of scientific and technological innovation and green development in the era of digital economy, the following conclusions are summarized.

First of all, the era of digital economy offers great opportunities for scientific and technological innovation and green development. Emerging digital technologies have brought more efficient production methods to various industries, while also providing more room to practice green development.

Second, scientific and technological innovation and green development require closer collaborative management. The collaborative management mechanism of scientific and technological innovation and green development in the era of digital economy has abandoned the traditional economic development model of "at the expense of the environment" and ushered in a win-win situation of economic growth and environmental protection.

Third, the establishment of a collaborative management mechanism for scientific and technological innovation and green development requires the joint efforts of society, enterprises and governments. All parties in society need to reach consensus and actively participate in promoting the implementation of the coordinated management mechanism of scientific and technological innovation and green development; Enterprises should actively explore new paths of scientific and technological innovation in production and operation, and also assume the major responsibility of green development, improve production methods, and reduce environmental damage^[6]. The government plays an important role in promoting the coordinated management of scientific and technological innovation and green development through policy guidance and financial support.

Finally, the collaborative management mechanism of scientific and technological innovation and green development still needs more in-depth research and exploration, so as to better play the role of scientific and technological innovation and green development in the era of digital economy, further improve the collaborative management mechanism, and achieve sustained economic growth and sustainable environmental development.

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