

Research on High-Quality Integration of the Economy of Digit and Green Economy

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Abstract: With the continuous advancement of technology in China, the industrial landscape has been transformed by the economy of digit, which simultaneously provides sustained momentum for global economic growth. From the initial stages of cloud computing to big data technology, as well as artificial intelligence and the Internet of Things, these technologies have accelerated the transformation of the economic society. However, due to various objective factors, global environmental issues have become increasingly severe, with climate change, resource depletion, and environmental problems sounding alarms for humanity. Economic development and environmental protection should complement each other rather than oppose one another. Therefore, under such circumstances, relevant stakeholders should explore the convergence points between the green economy and the economy of digit, strategically combining them to fully leverage the advantages of digital technologies, harness the potential value of resources, and reduce environmental pollution. Hence, in the future development process, while improving economic efficiency, green concepts should also be integrated to ultimately achieve a win-win situation.

Keywords: Economy of Digit, Green Economy, Integrated Development.

1. Introduction

With the rapid development of science and technology, the economy of digit has gradually become an important engine of global economic growth. Driven by technologies such as cloud computing, big data, and artificial intelligence, the economy of digit not only promotes economic and social development but also sets new records for economic growth. However, in the specific development process, challenges such as resource depletion, environmental pollution, and climate change require a comprehensive examination of the economic development model. Therefore, integrating the economy of digit with the green economy is an inevitable trend for future development [1-4]. The rapid development of digital technology can provide new possibilities for the green economy. The application of intelligent and automated technologies can exploit resource advantages and promote sustainable economic development. Meanwhile, the green economy also offers new directions for the economy of digit, emphasizing ecological environment protection and sustainable development while pursuing economic benefits. Hence, exploring the integration of the economy of digit and the green economy holds significant theoretical value and profound practical significance.

2. Definitions of the Economy of Digit and Green Economy

2.1. Definition of the Economy of Digit

The economy of digit, as an emerging force in the modern economic system, is increasingly becoming a crucial driver of global economic growth. It relies on digital technologies, injecting new vitality into economic development through innovative and efficient means [5-7]. The economy of digit encompasses a wide range of fields, including digital media, e-commerce, and online education, as well as cutting-edge industries like internet finance and smart manufacturing. Its core characteristics include high efficiency, high speed, high added value, and low cost, which enable the economy of digit

to play a key role in enhancing industrial efficiency and promoting industrial upgrading. At the same time, the economy of digit provides consumers with more convenient and diverse products and services, greatly enriching people's lives.

2.2. Definition of the Green Economy

To achieve synchronized economic development and environmental protection, the green economy has emerged as a new economic model. Compared to traditional industrial economies, this economic model places greater emphasis on resource conservation, striving for resource-saving and environmentally friendly goals. It fully leverages market-oriented mechanisms to meet the objectives of harmonious and sustainable economic and environmental development. The green economy covers a broad range of content, which can be tailored to development needs by adopting scientific planting and breeding methods, reducing the use of fertilizers and pesticides, and protecting soil and water resources to the greatest extent possible. Circular industries, as the name suggests, aim to achieve waste reduction and harmlessness by optimizing production processes [8-9]. Fundamentally, the development of the green economy can achieve the goals of environmental improvement and protection while injecting new momentum into sustainable economic development.

3. Value Analysis of Integrating the Economy of Digit and Green Economy

3.1. Improving Resource Utilization Efficiency

To achieve organic integration of the green economy and the economy of digit, scientific measures should be adopted to improve resource utilization efficiency, providing necessary support for sustainable development. With the strong support of digital technologies, both resource management and resource allocation can move towards intelligence and precision. Through big data analysis, companies can dynamically obtain information and predict

future trends, fundamentally avoiding problems such as overcapacity and inventory backlog, and reducing energy and material waste. Additionally, intelligent production and supply can further optimize production processes, improve resource utilization efficiency, and reduce environmental pollution. Comparatively, the development of the economy of digit can support green energy by integrating smart grids, renewable energy technologies, and energy storage systems, enabling sustainable development in energy production, storage, and distribution. Integrated development can shift away from reliance on traditional high-pollution energy towards clean and renewable directions, laying the foundation for building a low-carbon, environmentally friendly society.

3.2. Promoting the Development of Green Industries

To improve the efficiency of traditional industries and inject new vitality into the innovative development of green industries, integrating the economy of digit with the green economy can provide opportunities for subsequent applications. For instance, to more efficiently and accurately collect environmental data, intelligent environmental monitoring systems can be used to support the orderly conduct of environmental governance work. Leveraging the advantages of various clean energy sources, such as solar and wind energy, with the assistance of big data technology, can also promote the development of green industries. The circular economy model is currently widely applied, and with the support of big data technology, resource utilization can be maximized while minimizing waste emissions, further promoting the development of green industries. Finally, the

deep integration of digital technology with green industries has also spawned new business models. The sharing economy and blockchain technology in resource sharing and carbon emission trading have rapidly developed due to the existence of these new models. It is evident that integrated development can promote the prosperity of green industries and provide more green employment opportunities.

3.3. Enhancing Corporate Social Responsibility

While focusing on improving economic efficiency, enterprises should also shoulder their corresponding social responsibilities, as shown in Figure 1. With the continuous deepening of digital transformation, modern enterprises should emphasize sustainable operations and ecological environmental protection. Therefore, in the course of their work, modern enterprises can utilize advanced data analysis to comprehensively assess their environmental impact during production and supply chains, establishing a comprehensive evaluation system and thereby smoothly conducting various business management tasks [10-12]. Additionally, the existence of the economy of digit can guide enterprises to actively participate in various social and environmental protection activities through digital platforms, such as environmental initiatives, social charity, and green projects. By leveraging the advantages of these activities, companies can establish a good brand image and a positive social image. However, due to the quantifiable and traceable nature of digital data, corporate social responsibility practices are more easily accepted by the public, further promoting the enhancement of social responsibility.

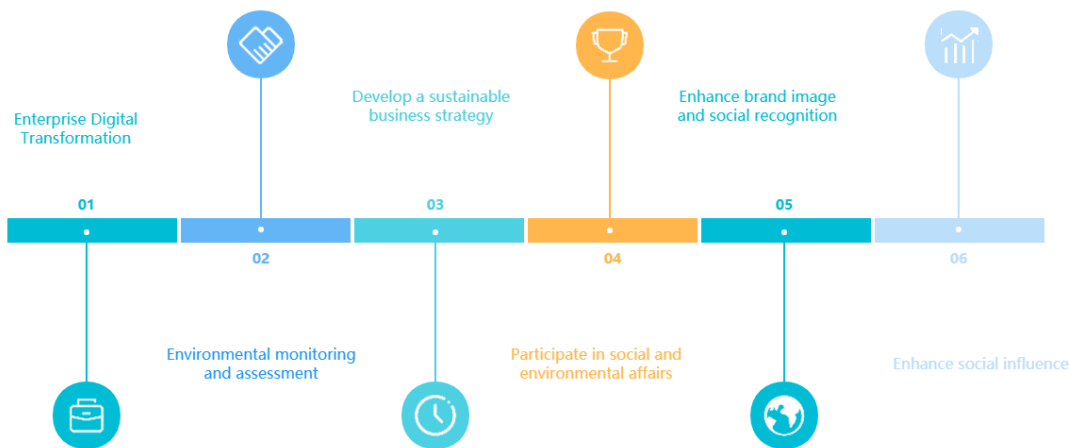


Figure 1. The Process of Promoting Corporate Social Responsibility

4. Advantages of High-Quality Integration of the Economy of Digit and Green Economy

4.1. Advanced Digital Infrastructure

Advanced digital infrastructure is a primary condition for the high-quality integration of the economy of digit and green economy. This infrastructure includes robust and reliable networks, cloud computing, big data processing systems, and Internet of Things (IoT) technologies, forming the core support for the development of the economy of digit. Advanced infrastructure provides strong support for the digital transformation of the green economy. In the clean energy sector, infrastructure enables monitoring and

management of the entire process of energy generation, transmission, and use, ensuring efficient energy use and reducing waste. Additionally, it helps improve energy utilization efficiency and promotes the development and application of green energy. Beyond the energy sector, advanced infrastructure also plays a crucial role in environmental monitoring and carbon emission tracking. For example, intelligent sensor networks can monitor air and water quality in real-time, and big data analysis can trace the environmental impact of product life cycles, helping companies optimize production processes and achieve efficient resource utilization [13-14].

4.2. Policy and Regulatory Support

When carrying out various tasks, government departments

should fully leverage their guiding role by developing comprehensive policies based on practical needs. In the process of integrating the economy of digit and green economy, achieving coordinated development of related industries requires government measures such as tax incentives, green innovation funds, emission reduction targets, and environmental regulations to ensure orderly progress. Because these policies are predictable and stable, they provide clear guidance for companies during the integration process, helping them form long-term, sustainable integration models. Additionally, in supervising and managing green industries, government departments can reasonably apply digital technologies and use policy tools such as municipal regulation and carbon markets to encourage companies to actively adopt digital technologies, thereby improving resource utilization efficiency. Over time, ensuring positive interactions between the economy of digit and the green economy injects strong momentum into achieving sustainable development goals.

4.3. Public Participation and Awareness

Public environmental awareness directly impacts the formulation and implementation of environmental policies and can significantly influence corporate environmental behavior. Only when the public accepts and supports the green economy of digit can related policies and business models be smoothly implemented and promoted. Regular outreach and education efforts should be conducted to enhance the public's recognition of the green economy of digit, gradually forming widespread social awareness and stimulating public enthusiasm for participation. These efforts can also increase companies' willingness to adopt digital technologies, achieving transparency and environmental friendliness in production processes. More time and effort invested in production stages can help meet sustainable development goals. Therefore, establishing mechanisms for public participation and raising public awareness of the integration of the economy of digit and green economy are necessary conditions for achieving high-quality integration [15].

5. Pathways for High-Quality Integration of the Economy of Digit and Green Economy

5.1. Application of Digital Technologies in the Green Economy

The role of digital technologies in the green economy has gained widespread recognition from all sectors of society. By combining advanced sensor technology, big data analytics, artificial intelligence, and IoT, digital technologies can be extensively applied in green industries to achieve intelligent resource management and precise environmental monitoring. The application of digital technologies not only improves the operational efficiency of the green economy but also provides strong technical support for the deep integration of the economy of digit and the green economy. In the field of green energy, the combination of smart grids, renewable energy technologies, and energy storage systems makes energy production and distribution more flexible, efficient, and sustainable. Additionally, the development of the economy of digit offers new opportunities for the promotion of green energy. Through digital energy trading platforms, energy

producers and consumers can interact more conveniently and efficiently, facilitating the widespread use of clean energy. This integration promotes the development of green energy and accelerates the transformation and upgrading of the economy of digit, collectively building a new model of green, intelligent, and sustainable economic development.

5.2. Formation of Innovative Business Models

During the integration of the economy of digit and the green economy, new business models can emerge, bringing opportunities for the flourishing development of green industries, as shown in Table 1. Among many emerging business models, the sharing economy plays an important role, leveraging digital platforms to enable efficient sharing and recycling of resources, reducing waste, and injecting new vitality into the green economy. Blockchain technology is also effectively applied in resource sharing and carbon emission trading, creating a secure and transparent trading environment for the development of green industries and accelerating the growth of the green economy. Fully utilizing the transparency and traceability advantages of green technologies provides new solutions for green supply chain management, leveraging digital technology to track product life cycles, enhance the environmental friendliness and sustainability of supply chains, and increase the environmental value of products while meeting consumers' personalized demands. The proper application of blockchain technology enhances the transparency and security of green bonds and environmental investments, attracting more investors to the environmental sector and driving funds toward green industries.

Table 1. Formation of Innovative Business Models

Modules	Key Steps
Technological innovation	Introducing and applying advanced digital technologies such as big data, artificial intelligence, Internet of Things, blockchain, etc
	Promote technological innovation in green industries, such as smart grids and renewable energy technologies
Business model Innovation	New business models such as sharing economy will be developed to promote efficient sharing and recycling of resources
	Blockchain technology is used to optimize the process of carbon emission rights trading and resource sharing
Green Supply Chain Management	Transparency and traceability of supply chain with digital technology
	Real-time tracking of product life cycle to ensure the environmental protection and sustainability of the supply chain

5.3. Cross-Sector Collaboration and Industrial Synergy

Achieving cross-sector collaboration and industrial synergy provides opportunities for the high-quality development of the economy of digit and the green economy. As modern society evolves rapidly, interactions between different industries have intensified, and boundaries have become relatively blurred, allowing various industries to collaborate and form synergies to explore the best cooperative relationships. Through digital collaboration, companies can more easily share information resources and obtain greater economic and social benefits at the lowest cost. For example,

companies in intelligent manufacturing and intelligent transportation can jointly develop new technologies through digital platforms, driving industrial transformation and upgrading. However, in the process of the coordinated development of the economy of digit and the green economy, cross-sector collaboration among the government, enterprises, and research institutions is necessary. The government can formulate relevant policies to support integration; enterprises can leverage their respective strengths to jointly promote technological innovation and industrial upgrading; research institutions can provide theoretical support and technical guidance for integration. This cross-sector collaboration helps create a more favorable ecosystem for integration, promoting the deep integration of the economy of digit and the green economy [16].

6. Conclusion

In conclusion, under the current societal context, achieving the integration of the green economy and the economy of digit requires fully leveraging the potential value of science and technology to meet the needs of sustainable development as much as possible. Therefore, in the future development process, relevant personnel should fully exploit the potential value of digital technologies to further improve production efficiency, realize industrial upgrading, and use automated means to optimize resource allocation and reduce energy consumption. Additionally, in the pursuit of maximizing economic benefits, attention should also be paid to environmental protection, building on previous work concepts to improve and systematically conduct ecological environment protection and restoration, promoting the transition of economic models toward green, low-carbon, and circular directions, and providing a better and cleaner development environment and space for future generations.

References

- [1] Huang, X.; Xiao, H.; Wang, X. High-quality development of state-owned enterprises. *China Ind. Econ.* 2018, 3, 25–35.
- [2] Tapscott, D. *The Digital Economy: Promise and Peril in the Age of Networked Intelligence*; McGraw Hill: New York, NY, USA, 1996.
- [3] Benkler, Y. The wealth of networks: How social production transforms markets and freedom. *Inf. Econ. Policy* 2006, 19, 278–282.
- [4] Chen, X.; Yang, X. The influence of digital economy development on industrial structure upgrading. *Reform* 2021, 7, 32–46.
- [5] Satbyulek, H.O.; Yeorac, K. A new approach to measuring green growth: Application to the OECD and Korea. *Futures* 2014, 15, 75–91.
- [6] Zhao, T. Digital economy, entrepreneurial activity and quality development. *Manag. World* 2020, 9, 65–75.
- [7] Ordieres-Meré, J.; Prieto, R.T.; Rubio, J. Digitalization: An opportunity for contributing to sustainability from knowledge creation. *Sustainability* 2020, 12, 1460.
- [8] Hylving, L.; Ola, H.; Lisen, S. The role of dominant design in a product developing firm's digital innovation. *J. Inf. Technol. Theory Appl.* 2012, 13, 5–21.
- [9] Toshiyukis, S. Damage store turn with a possible occurrence of eco-technology innovation measured by DEA environmental assessment. *J. Econ. Struct.* 2017, 35, 69–93.
- [10] Michael, E.; Raynor, C.; Cotteleer, M. The more things change. *Deloitte Rev.* 2015, 17, 50–65.
- [11] Chen, X. The direction and path of the digital economy affecting industrial structure evolution. *Econ. Dly.* 2021, 5, 21.
- [12] Santarius, T.; Pohl, J.; Lange, S. Digitization and the decoupling debate: Can ICT help to reduce environmental impacts while the economy keeps growing. *Sustainability* 2020, 12, 7496–7515.
- [13] Basu, S.; Fernald, J. Information and communications technology as a general purpose technology: Evidence from US industry data. *Ger. Econ. Rev.* 2007, 8, 146–173.
- [14] Jorgenson, D.W.; Jon, M.S.; Stiroh, K.J. Industry origins of the American productivity resurgence. *Econ. Syst. Res.* 2007, 19, 79–98.
- [15] Zhu, J.; Yang, Z. The connotation and evaluation of high-quality development in regional industries. *Soc. Sci. Rev.* 2020, 15, 50–59.
- [16] Zhao, Y.; Chen, G. The green development path of industry. *Southwest Financ.* 2021, 10, 85–96.