Research on Empowering High Quality Development of Elderly Care Service Industry with Digital Economy

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Abstract: The digital age wave is sweeping the globe, coinciding with the challenge of an aging population. Precisely in this context, digital technology serves as a refreshing spring, injecting new vitality into the conventional elderly care service model. The emerging digital economy, rooted in digital knowledge and information, is driving the transformation of traditional elderly care models through its innovative power. This economy leverages digital knowledge, information, and technological innovation as a driving force. Utilizing technologies like big data, cloud computing, the Internet of Things, and artificial intelligence, the elderly care industry can allocate resources more efficiently and precisely with limited resources. This not only mitigates the scarcity of elderly care resources but also elevates service quality and efficiency, bringing unprecedented growth opportunities to the industry. This integration not only addresses resource scarcity and low efficiency issues but also offers more intelligent and personalized experiences for the elderly, realizing the vision of caring for, relying on, and enjoying one's later years.

1. Introduction

Given the rapid advancements in information technology and the increasing trend of population aging, the seamless blend of the digital economy with the elderly care service industry is pivotal for driving its high-quality progress [1]. As an emerging economic paradigm, the digital economy relies heavily on digital knowledge and information, with digital technology innovations at its forefront, leading to profound global industrial shifts [2]. By leveraging advanced technologies, such as big data, cloud computing, the Internet of Things, and artificial intelligence, it has greatly enhanced resource allocation and service standards, presenting unprecedented growth prospects for various sectors.

Within the sphere of elderly care, this integration not only streamlines service delivery and operational costs but also offers more refined and seamless experiences for seniors. In China, the aging demographic is consistently growing, leading to a decline in traditional family-based elderly care and a subsequent surge in demand for professional services among older adults [3]. These services are crucial for safeguarding the daily lives and health of seniors. Delivering high-quality elderly care demands significant funding and a well-structured service system. Despite China's established social pension security system, further enhancements are needed in the pension service sphere. Therefore, it's vital to harness digital economic technologies as catalysts for unleashing the full potential of the elderly care industry, providing comprehensive, efficient, and high-quality

services tailored to the growing senior population.

2. The foundation of empowering the elderly care service industry with the digital economy

The foundation of empowering the elderly care service industry with the digital economy is multifaceted. Firstly, the rapid development of information technology, especially the application of advanced technologies such as big data, cloud computing, the Internet of Things, and artificial intelligence, has provided strong data collection, analysis, and application capabilities for the elderly care service industry, significantly improving service efficiency and quality. Secondly, government support policies have played a crucial role in promoting the integration of the digital economy and elderly care service industry. Through preferential policies and financial support, enterprises are encouraged to participate in digital transformation, and supervision is strengthened to ensure service quality and the rights and interests of the elderly. In addition, industrial collaboration is also an important foundation for empowerment. Through organic integration in fields such as healthcare, education, tourism, and culture, resource sharing and complementary advantages can be achieved, providing more comprehensive and high-quality elderly care services for the elderly. Talent cultivation and team building are imperative. Universities and vocational institutions must cultivate professionals with digital skills and knowledge in elderly care to meet industrial integration demands. Innovation is crucial for integrated development. By fostering technological, model, and service innovation, we enhance the quality and efficiency of elderly care, creating a superior experience for seniors [4].These conditions lay a solid foundation for empowering the elderly care industry with the digital economy. The foundation lies in reshaping service models and comprehending consumer demand. With digital technology's increasing application, the industry can offer more personalized and precise services, fulfilling diverse elderly needs. This transformation boosts efficiency, enhances satisfaction, and fosters a sense of belonging among the elderly. Moreover, the digital economy fosters the industry's sustainable development. Through intelligent management and resource optimization, energy consumption and waste are reduced, promoting green elderly care. Lastly, digital technology introduces new business models and innovation opportunities, injecting vitality into the industry's long-term growth.

3. Strategies for Empowering the Elderly Care Service Industry with Digital Economy

3.1. Create a core "Internet plus endowment" brand to promote high-quality development of the elderly care industry

The theory of industrial integration proposes that two seemingly unrelated industries can evolve into emerging forms through the cross-fertilization of resources and markets. The elderly care industry holds the key to addressing China's aging demographic. However, traditional care methods - such as self-care at home, institutionalized care, and community-based care - fall short of meeting the evolving needs of the modern era, particularly in terms of personalized and intelligent care [5].In the age of the big data economy, the growth of the Internet has provided technical backing to the traditional pension industry. The widespread adoption of mobile intelligent devices has laid the groundwork for the "Internet Plus Pension" system, while the improvement of supporting infrastructure has offered a robust platform for its implementation. Therefore, the development of the "Internet Plus Pension" brand model not only addresses the challenges of aging but aligns with economic and social development goals. The Internet new media industry boasts innovative technologies. With the progress of science and technology, 5G technology is gradually entering commercial use, significantly propelling the advancement of new media and affiliated industries [6].The integration and interactive development of the new media industry with various industries

has further generated a series of emerging formats such as short videos, live streaming, and social e-commerce, giving the new media industry a new format. Therefore, the new media industry continues to produce new models in its development, making it possible to brand "Internet plus+Pension". At present, new media has become one of the most commonly used platforms for the public to obtain daily information. Under the catalysis of various new media, the real economy has generated effective links with many industries. The links between industries enable them to actively integrate and interact, and promote the birth of new industries and models.

3.2. Building a smart elderly care service platform and empowering the new engine of the elderly care industry

Table 1: Main functions of smart elderly care service platform.

Function	Describe
Data analysis	Provide personalized service suggestions for the elderly through big data analysis and processing
Personalization	Meeting the diverse needs of the elderly and improving service targeting and effectiveness
Convenient service process	Provide various functions such as health management and social entertainment, making it convenient for elderly people to enjoy comprehensive services at home
Industrial Collaboration and Innovation	Deeply cooperate with other related industries, integrate resources, and provide diversified elderly care service products

The integration of the digital economy with the elderly care service industry hinges on the smart elderly care service platform. This platform leverages cutting-edge information technologies, including big data, cloud computing, the Internet of Things, and artificial intelligence, to offer comprehensive and tailored elderly care services [7]. Its establishment not only elevates the efficiency and quality of elderly care services but also enhances the life experiences of the elderly, thereby facilitating the transformation and upgrading of the industry.The essence of a smart elderly care service platform lies in its ability to gather and analyze data. IoT devices, such as smart wristbands and smart mattresses, enable the platform to capture real-time information on the elderly's living habits, health status, and other relevant aspects. After big data analysis and processing, these data can provide personalized service suggestions for the elderly, such as customized dietary, exercise, medical and other plans. This personalized service approach not only meets the diverse needs of the elderly, but also improves the targeting and effectiveness of services. In addition to personalized services, the smart elderly care service platform also provides convenient service processes. Elderly people can easily enjoy various elderly care services through online appointments, online payments, and other methods. At the same time, the platform also provides various functions such as health management and social entertainment, allowing elderly people to enjoy comprehensive elderly care services at home. This one-stop service model greatly improves service efficiency and brings more convenient living experiences to the elderly. In addition, the smart elderly care service platform has also promoted industry collaboration and innovation. Through deep cooperation with other related industries, the platform can integrate various resources and provide more diversified elderly care service products for the elderly.Simultaneously, the platform fosters the growth of innovative enterprises, driving the advancement and development of the elderly care service industry through technological and model innovation. This collaborative approach not only diversifies the offering of the elderly care services market but also ensures the overall healthy development of the industry. A crucial aspect of the

smart elderly care service platform lies in harnessing advanced technology to deliver comprehensive and tailored elderly care services, while promoting industrial transformation and upgrading. The key functionalities of this platform are outlined in Table 1.

3.3. Promoting Industry Collaboration and Innovation: Building a New Ecological Environment for the Elderly Care Service Industry

In the era of the digital economy, collaboration and innovation across industries have become pivotal for enhancing the quality of elderly care services. By cultivating strong partnerships and driving technological progress, we can create a more diverse, intelligent, and personalized ecosystem that effectively responds to evolving care needs [8].The elderly care sector is not a siloed industry; it intersects with various fields like healthcare, education, tourism, and culture. Promoting industry collaboration entails seamlessly integrating these domains to create synergies and deliver comprehensive, high-quality care for seniors. For instance, medical facilities can provide regular screenings and specialized treatments, educational institutions can offer lifelong learning platforms, and tourism and cultural organizations can enrich leisure and entertainment options. Innovation is a continuous driver for the sustainable growth of elderly care services. By fostering technological advancements, model refreshes, and service improvements, we can continually raise the bar on quality and efficiency. Technologies like the Internet of Things and big data, for example, enable real-time health monitoring and data-driven insights, leading to personalized health management solutions. Simultaneously, innovation spurs the emergence of new business models tailored to the diverse needs of seniors, such as integrated smart care and medical services.

4. The role of digital economy in the elderly care service industry

4.1. Promoted innovation and efficiency improvement in elderly care service models

The digital economy has sparked innovation in the service delivery model of the elderly care industry. Traditionally, elderly care services primarily centered on basic life support and healthcare; however, the digital economy revolutionizes this approach. Leveraging technologies like big data and the Internet of Things, real-time data collection and analysis of the elderly's health status and lifestyle habits become feasible [9]. This shift enables providers to offer more tailored and personalized services, aligned with the unique needs of the elderly. For instance, smart home systems can automatically adjust indoor temperature, lighting, and other amenities based on the elderly's living habits, enhancing their overall quality of life. Additionally, the integration of big data and cloud computing technology optimizes resource allocation, leading to improved service efficiency and quality. In summary, the emergence of the digital economy has markedlyboosted the efficiency of the elderly care service industry. Traditional elderly care services often face issues such as insufficient manpower and resource waste, while the digital economy achieves optimized allocation and efficient utilization of service resources through intelligent management. For example, through an intelligent scheduling system, nursing staff's work time and tasks can be arranged reasonably to avoid wasting human resources. At the same time, by utilizing IoT technology, real-time monitoring and early warning of the health status of the elderly can be achieved, health problems can be identified and dealt with in a timely manner, and service efficiency and quality can be improved.

4.2. Improved consumer experience

The role of the digital economy in the elderly care service industry is also reflected in the

improvement of consumer experience. With the continuous development of digital technology, the use of digital products and services by the elderly is becoming increasingly common. Through digital technology, more convenient and efficient service experiences can be provided for the elderly [10]. For example, through mobile applications or online platforms, elderly people can query service information and schedule service times anytime and anywhere, greatly improving the convenience of services. Utilizing technologies like virtual reality and augmented reality can enrich the entertainment and life experiences of the elderly, thereby elevating their quality of life. Digital technology's integration into elderly care services facilitates convenient, personalized, and diverse offerings, enhancing their satisfaction and quality of life. Furthermore, the influence of the digital economy on consumer experience within the elderly care service industry is presented in Table 2.

Table 2: Illustrates the influence of the digital economy on consumer experience within the elderly care service industry

In terms of impact	Describe
Service convenience	Digital technology enables elderly people to access service information and schedule service times anytime, anywhere
Personalized service	Digital technology enables service providers to provide personalized services based on the needs and preferences of the elderly
Entertainment and Life Experience	Utilizing technologies such as virtual reality and augmented reality to provide rich and diverse entertainment and life experiences for the elderly
Information transparency	Digital platforms provide transparent service information, enabling elderly people to better understand service content and prices
Interaction and Socialization	Digital platforms provide opportunities for elderly people to interact and socialize, reducing loneliness

4.3. Promoted the sustainable development of the elderly care service industry

The digital economy has actively contributed to sustainable development in the elderly care service industry. Traditionally, the industry has struggled with escalating labor costs and resource constraints. However, the digital economy effectively mitigates these challenges by enabling intelligent management and optimizing resource allocation, thus fostering green elderly care. For instance, an intelligent energy management system real-time monitors and controls energy consumption in elderly care service institutions, leading to improved energy efficiency. Additionally, digital technology stimulates innovation and progress in the industry, endowing it with renewed vitality for sustained growth.

5. Conclusions

With the swift progress of the digital economy and the intensification of the aging population trend, the integration of the two has emerged as the linchpin for propelling the elderly care service industry towards high-quality development. The digital economy's empowerment has not only ushered in technological innovation in the industry but also elevated service quality and efficiency, offering more intelligent and personalized care to the elderly. The utilization of digital technology has made elderly care services more precise and efficient, bridging the gaps and shortcomings of traditional care models. By leveraging smart elderly care service platforms, diverse care resources are aggregated to provide comprehensive services such as healthcare, lifestyle support, medical

attention, and entertainment, fully respecting the elderly's autonomy in choosing their lifestyle. Supported by advancing digital technology, the industry is building an innovative, penetrative, and inclusive elderly care service system that enhances the social engagement and experience of the elderly in the new care landscape.

Acknowledgements

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