Original Research Article

Research on the paths and strategies of artificial intelligence empowering the high-quality development of the elderly care industry

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Abstract: With the continuous deepening of China's aging population process, the elderly care industry is facing dilemmas such as supply imbalance, talent shortage and insufficient efficiency, and high-quality development has become an inevitable choice. As the core of the new generation of information technology, artificial intelligence, with its advantages of intelligence, high efficiency and personalization, provides a new driving force for the transformation and upgrading of the elderly care industry. Combining the current situation of China's elderly care industry and the practical application of artificial intelligence, this paper analyzes the core value and existing bottlenecks of its empowerment, explores feasible empowerment paths and optimization strategies, and provides theoretical and practical guidance for the transformation of the elderly care industry from "basic security" to"diversified quality".
Keywords: artificial intelligence; elderly care industry; high-quality development; empowerment paths

1. Introduction

At present, China has entered a deeply aging society. By the end of 2025, the population aged 60 and above had reached 320 million, accounting for 23% of the total population, and the number of disabled, semi-disabled elderly and elderly with dementia had exceeded 50 million, showing a trend of diversified and high-quality demand for elderly care services. The traditional elderly care model relies on manual labor, which has problems such as inefficient resource allocation, uneven supply and lack of talents, making it difficult to meet the multi-level needs of the elderly[1]. The rapid iteration of artificial intelligence technology has promoted the transformation of the elderly care industry towards"intelligent empowerment". Its application in scenarios such as health monitoring and precise care has effectively alleviated the pain points of the industry, but the integration of the two is still in the initial stage, with prominent problems such as supply-demand mismatch and insufficient technological aging adaptation. It is urgent to explore scientific empowerment paths and strategies.

2. Core value and existing bottlenecks of artificial intelligence empowering the high-quality development of the elderly care industry

The core of artificial intelligence empowering the high-quality development of the elderly care industry is to deeply embed intelligent technologies into all links of the industry, optimize the allocation of factors such as human resources, technology and funds, innovate service models, improve the professionalism and convenience of services, and help the industry get rid of traditional difficulties and achieve high-quality development. Its core value is reflected in three aspects: first, relying on intelligent care equipment and service robots to replace basic manual labor, alleviating the contradiction of shortage of caregivers, reducing operational errors, improving service efficiency and standardization level[2], and reducing the burden on caregivers. Second, with the help of big data and algorithm analysis, it accurately captures the health, care needs and consumption preferences of the elderly, promotes the transformation of services from"passive response" to "active prevention", breaks the limitation of "one-size-fits-all", realizes personalized and refined supply[3], and meets the differentiated needs of the elderly. Third, it promotes the cross-border integration of the elderly care industry with artificial intelligence, medical care, finance and other fields, cultivates new formats such as intelligent elderly care, breaks the development boundary, and expands the development and value-added space of the industry.

Although the integration of the two has significant advantages, the in-depth integration still faces many

bottlenecks, which restrict the release of empowerment effects. First, the supply-demand mismatch is prominent. Some intelligent elderly care products are seriously homogenized, lacking aging-adapted design, with complex operation and high price, which have low fit with the needs and consumption capacity of the elderly and are difficult to implement. Second, the application of technology is relatively shallow, mostly concentrated in basic scenarios such as health monitoring, and its application in high-end fields such as spiritual comfort and rehabilitation care is weak, so the core value of technology has not been fully exerted[4]. Third, the support system is imperfect. The shortage of compound talents, hidden dangers in the data security of the elderly, and inconsistent industry standards lead to uneven service quality. Fourth, the regional development is unbalanced. The development of intelligent elderly care is faster in urban areas, while the supply of intelligent elderly care products and services in rural and central and western regions is seriously insufficient due to the constraints of economic level and infrastructure, which widens the regional gap.

3. Exploration of paths for artificial intelligence to empower the high-quality development of the elderly care industry

To break the bottlenecks in the integration of artificial intelligence and the elderly care industry and fully release the value of technological empowerment, it is necessary to explore scientific and feasible empowerment paths from multiple dimensions, comprehensively promote the coordinated development of technology, services, factors and regions, and help the high-quality upgrading of the elderly care industry.

At the technical application level, focus on the core of aging adaptation and diversification, simplify the operation of intelligent equipment and optimize interface design according to the physical and psychological characteristics of the elderly to lower the threshold for use. At the same time, strictly control costs and improve cost performance to make intelligent elderly care services benefit more elderly people. In addition, expand technical application scenarios, promote the in-depth integration of artificial intelligence with home-based, community-based and institutional elderly care, build a full-scenario intelligent elderly care service system, realize real-time monitoring of the elderly's health indicators through intelligent wearable devices, achieve disease early warning relying on AI algorithms, and link medical resources to carry out timely intervention.

At the service model level, break traditional barriers and restructure an efficient elderly care service system. Build a"AI + elderly care" multi-coordination model to integrate multiple resources for precise scheduling; promote the community-embedded intelligent elderly care model, rely on the platform to integrate various service resources to achieve high-quality elderly care"at the doorstep"; capture the elderly's health, care needs and consumption preferences through big data analysis, and provide personalized customized services to meet the differentiated needs of the elderly[5].

At the factor guarantee level, strengthen the three major supports of talents, data and standards. Build a "pyramid-shaped" intelligent elderly care talent system, strengthen the training of compound talents and special training, and improve the salary incentive mechanism; improve the data security guarantee system, standardize the process of data collection and use, and strengthen the privacy protection of the elderly; improve industry standards, clarify the quality specifications of products and services, and promote the standardized development of the industry.

At the regional coordination level, solve the problem of unbalanced development and promote the inclusive sharing of resources. Increase policy support and resource investment in rural and central and western regions, improve infrastructure, and promote the sinking of intelligent elderly care technologies and products; establish an inter-regional coordination mechanism to promote the transfer of technology, talents and funds from the eastern region to the central and western regions, and promote adaptive elderly care models according to local conditions in combination with regional reality to avoid "one-size-fits-all"and narrow the regional gap in elderly care services.

4. Optimization strategies for artificial intelligence to empower the high-quality development of the elderly care industry

First, strengthen policy guidance, improve the policies and regulations related to the elderly care industry,

and increase financial support and tax incentives to encourage enterprises to increase investment in R&D of intelligent elderly care technologies and products. Establish an inter-departmental coordination mechanism to comprehensively coordinate and solve key issues such as the application of intelligent technologies, the formulation of industry standards and the promotion of projects, and promote the expansion of coverage and quality improvement of the long-term care insurance system, so as to effectively reduce the consumption burden of the elderly and activate the market demand for intelligent elderly care services.

Second, promote enterprise innovation, focus on the actual needs of the elderly in terms of physical health, spiritual comfort and daily care, strengthen the R&D of aging-adapted technologies and products, and launch cost-effective, easy-to-operate intelligent elderly care products and services to avoid homogenized competition. Strengthen industry-university-research collaborative innovation, jointly tackle core technological bottlenecks with universities and research institutes, promote the cross-border integration of the elderly care industry with medical care, science and technology and other fields, and cultivate new formats such as"AI + medical care + elderly care"to enrich the connotation of the elderly care industry.

Third, improve the overall literacy of the whole people, rely on senior universities, community education platforms and other channels to carry out targeted digital skills training for the elderly, helping them master the basic operation of intelligent elderly care equipment and platforms. Encourage enterprises to cooperate with communities to carry out intelligent product experience activities, enhance the elderly's acceptance of intelligent technologies, promote the aging-adapted transformation of intelligent products and services, and fully take into account the physical and psychological characteristics and actual needs of the elderly.

Fourth, strengthen supervision, establish and improve a sound supervision system for the intelligent elderly care industry, strengthen the supervision of the quality of intelligent products and the level of elderly care services, and severely crack down on illegal acts such as false propaganda and shoddy products. Improve the industry credit evaluation system, guide enterprises to operate in good faith, and enhance the credibility of the industry. Strengthen the ethical supervision of artificial intelligence applications, effectively prevent risks such as algorithm discrimination and data leakage, and solidly protect the legitimate rights and interests of the elderly.

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