

Study on the Precision Supply Mechanism of Smart Community Elderly Care Services Empowered by Digital Technology

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ABSTRACT

The empowerment of digital technology injects new momentum into the digital supply of smart community elderly care services and facilitates the deep restructuring of service scenarios, technological embedding, and governance frameworks. The precision supply of smart community elderly care services enabled by digital technology follows a practical logic centered on "technology embedding-platform-based decision-making-data-driven operation-collaborative co-governance." The realization of such precision supply depends on the synergistic support among multiple elements, including governance coordination capacity, data resource foundations, user adaptability, scenario application infrastructure, and institutional safeguards. To enhance the effectiveness of digitally empowered precision supply in smart community elderly care, it is essential to continuously improve the mechanisms for collaborative governance, data governance, technological empowerment, integrative participation, and evaluative feedback.

KEYWORDS

Digital Technology; Smart Community; Elderly Care Services; Precision Supply.

1. INTRODUCTION

With the deep integration of digital technologies into grassroots governance practices, the paradigm of "technology + governance" has become an effective approach to overcoming rigid hierarchical structures and procedural inertia, promoting the evolution of community governance toward greater collaboration, intelligence, efficiency, and resilience. The Third Plenary Session of the 20th Central Committee of the Communist Party of China explicitly proposed "promoting the formation of a new system of smart and efficient governance for mega- and super-sized cities," emphasizing the imperative to "adhere to technological empowerment," while actively "guiding and advancing the innovation of governance models, the reshaping of governance approaches, and the reconstruction of governance systems" [1]. According to data released by the National Bureau of Statistics, as of December 2024, China's population aged 65 and above had reached 220 million, accounting for 15.6% of the total population. At present, the country's aging population is characterized by its vast scale, accelerating growth, and complex structure [2]. The precision supply of smart community elderly care services integrates data comparison, intelligent decision-making, and Internet of Things (IoT) sensing technologies to monitor the health status of older adults in real time and identify their service preferences in actual living scenarios, thereby achieving personalized and refined service provision. This model effectively alleviates issues in traditional elderly care systems such as fragmented resource allocation and poor service continuity. Pilot practices in cities like Shanghai and Guangzhou have shown that building unified information service platforms can enhance resource coordination,

strengthen emergency response capacities, expand services in emotional support and cultural engagement, and optimize the supply-side structure of community-based elderly care. However, challenges persist, including insufficient alignment between supply and demand, inadequate depth of technology integration, and lagging cross-departmental coordination mechanisms. These bottlenecks significantly constrain the spatial extension and systemic deepening of smart elderly care services.

To effectively address these challenges, it is essential to clarify the synergistic logic among technology, institutions, and services within the smart elderly care system, and to promote the systemic linkage of governance structure optimization, platform system reconstruction, and precision service delivery. The realization of precision in smart elderly care services depends on the coordinated evolution of governance structures, technological empowerment, and service effectiveness [3]. This study, based on the practical experience of smart community elderly care service provision in China, systematically investigates the practical logic and implementation mechanisms of precision service delivery empowered by digital technology.

2. THE PRACTICAL LOGIC OF DIGITAL TECHNOLOGY EMPOWERMENT FOR PRECISION SUPPLY OF SMART COMMUNITY ELDERLY CARE SERVICES

The deep integration of digital technology not only drives the restructuring of community governance structures but also reshapes the supply model and practical philosophy of community elderly care services. The precision supply of smart community elderly care services empowered by digital technology follows a practical logic centered on “technology embedding-platform-based decision-making-data-driven operation-collaborative co-governance,” which runs through the entire process of service scenario identification, institutional coordination and integration, and precise matching of supply and demand.

2.1. Embedding Logic: The Functional Starting Point of Integrating Technological Elements into Elderly Care Service Scenarios

With the continuous development of the digital society, smart elderly care—an extension of digital governance into grassroots practice—relies on the deep integration of technological systems and the precise adaptation to service scenarios for its effective advancement [4]. Amid the transformation of the technological paradigm from instrumental rationality to structural empowerment, the synergy among information networks, algorithmic logic, and intelligent governance platforms not only reshapes the organizational forms and service structures of communities but also accelerates the evolution of community governance mechanisms toward systemic and responsive models. This facilitates the gradual construction of a digital elderly care system characterized by “embeddedness–platformization–perception–responsiveness.”

Technological embedding drives the conceptual transformation of elderly care services. Compared with traditional family-based care, smart elderly care emphasizes a three-dimensional integration of the “information chain–system chain–service chain.” It relies on real-time data updates, institutional innovation, and modular responses to achieve precise coverage of core processes such as the identification of care needs, health condition perception, and service decision-making for the elderly. This enhances the alignment between supply and demand based on the triad of “individual-driven, data-supported, service-customized” principles.

As the technological hub of the smart elderly care system, the intelligent governance platform integrates digital technologies such as cloud computing and machine learning to build a four-tier interactive network comprising households, communities, professional institutions, and market entities. This network addresses service fragmentation and data silos, thereby improving the coordination of resource allocation and the efficiency of service delivery processes. While optimizing

the modes of resource provision in community-based elderly care, technological embedding also extends service focus from basic life support to quality-of-life enhancement and emotional well-being, significantly improving the sense of gain and satisfaction among elderly individuals.

The intelligent governance platform is undergoing a transformation from an experience-based, fragmented model to a more systematic and intelligent architecture. Through data-driven governance integration, it restructures the organization of service provision and shifts from back-end control to front-end perception, real-time feedback, and scenario-based responsiveness, forming a people-centered, demand-oriented intelligent community governance system. Furthermore, the data algorithms underpinning intelligent governance platforms can finely identify regional differences and characteristics of elderly groups, rendering elderly care services more precise and inclusive.

At the institutional and policy level, technological embedding continuously consolidates the institutional foundations of smart community elderly care services. National agencies such as the National Development and Reform Commission, Ministry of Civil Affairs, National Health Commission, and Ministry of Industry and Information Technology have successively issued policies including the “14th Five-Year Plan Implementation Scheme for Actively Responding to Population Aging and Childcare Development” and the “Action Plan for the Development of Smart Health and Elderly Care Industry (2021–2025)”, which clarify the governance orientation of technological empowerment in elderly care services and promote platform integration and the development of age-friendly technical standards through top-level design. At the implementation level, community governance actors are shifting from “passive information collection” to “real-time perception and personalized response,” which not only enables more accurate government service delivery but also creates institutional space for multi-actor collaborative governance in elderly care. This transition drives the elderly care system from a functionally supportive model toward an intelligent governance-oriented reconstruction.

2.2. Integration Logic: Systemic Reconstruction of Service Processes Supported by Platform Architecture

In the process of realizing the digital supply of smart elderly care services, service platforms serve as key hubs, and the improvement of their operational mechanisms has become a core lever for enhancing the efficiency of the overall service chain. Establishing a supply model based on "data collection–information processing–autonomous decision-making" clarifies how platforms can optimize the structure of elderly care service provision, thereby offering robust technical and operational support for the smart elderly care system ^[5].

From the perspective of value co-creation theory, platforms function not only as dispatching centers for services but also as interactive arenas where diverse actors can collaboratively participate and share benefits ^[6]. Platform governance follows a logic of technology-driven development and modular integration, systematically addressing structural issues such as fragmented services and functional disjunctions inherent in traditional elderly care models. Given that smart elderly care involves multiple functional departments—including civil affairs, health, and finance—and multilevel governance structures, the effectiveness of resource allocation is often constrained by information silos and lagging collaboration mechanisms.

By leveraging digital management platforms and relying on network-based architectures, seamless integration of information systems and deep incorporation of intelligent algorithms are achieved. This enables the efficient circulation and precise allocation of cross-level service resources, thus reshaping the organizational structure and operational logic of the elderly care service system. As the core of resource scheduling, platforms play a pivotal role in promoting horizontal coordination and comprehensive integration across the elderly care service ecosystem.

For instance, the "One Network Unified Governance" big data platform in Shanghai’s Pudong New District integrates multiple data sources, such as the "Community Cloud" and the "Smart Governance

Hub," to construct multidimensional elderly profiles. With the support of intelligent algorithms, the platform identifies risk levels and collaborates with neighborhood committees, social work institutions, and medical units to deliver targeted and customized services^[7]. Platform governance exhibits a two-way embedded mechanism of "top-level design guidance–grassroots practice feedback," which enhances cross-departmental collaboration under demand-oriented principles and promotes dynamic scheduling and closed-loop connection of service processes^[8].

Moreover, the platform governance approach significantly enhances the resilience of the elderly care service system in the face of dynamic and complex scenarios. Supported by standardized data structures, information flows and business processes achieve high connectivity and intelligent matching, breaking administrative boundaries and constructing a coordinated operation network that spans the entire service lifecycle. Based on intelligent analysis modules-such as "policy matching," "scenario recognition," and "event triggering"-platforms can autonomously identify potential service recipients, enabling a shift from "passive application" to "proactive discovery–precise response" and providing data support and decision-making basis for tiered and categorized assistance.

The platform integration mechanism demonstrates a characteristic of multidimensional data convergence, drawing on information collected from IoT devices, administrative databases, and service activity records to construct a panoramic elderly care service map tailored to different contexts. This allows for accurate alignment of service provision scenarios, resource allocation pathways, and individual needs. Real-time data collected via smart terminals supports the organic integration of service modules such as home-based care, institutional care, and health interventions, facilitating closed-loop service management and full-process traceability. Ultimately, it drives the evolution of the elderly care supply system toward a multidimensional and composite configuration.

2.3. Matching Logic: Mechanism Restructuring for Data-Driven Precision Alignment of Supply and Demand

The supply system of smart community elderly care services is underpinned by data-driven frameworks that construct a functional support structure. By integrating all stages of the data process-information collection, intelligent analysis, dynamic transmission, and precise application-the system not only transforms data into actionable value but also significantly enhances the efficiency of resource allocation. Moreover, it improves the alignment accuracy between service provision and the actual needs of elderly individuals, further strengthening the system's intelligent responsiveness^[9].

The processing mechanism of structured data forms the foundational technological base of digitalized elderly care services. From the perspective of the service value chain, data related to elderly care-collected, processed, transmitted, and applied-establishes a closed-loop cycle. This cycle encompasses real-time analysis of multidimensional information such as health indicators, service feedback, and behavioral characteristics of older adults, thereby improving the accuracy of demand identification and promoting the dynamic optimization of service content and delivery methods.

The practical efficacy of digital-driven models depends on the effective coordination of a multi-stakeholder collaborative network. Within this framework, government agencies, technology firms, community actors, nonprofit organizations, and elderly users jointly participate in the full life cycle of data collection, maintenance, and application. Through resource integration and collaborative engagement, these stakeholders promote information interoperability and data sharing, facilitating intelligent generation and real-time adjustment of service solutions. This contributes to the gradual formation of a multidirectional interactive mechanism centered on the axis of "information–service–feedback."

Such a multidimensional collaborative service environment provides systemic support for data-driven elderly care. At the physical level, intelligent terminals enable real-time sensing of elderly individuals' behaviors and health conditions. At the interactive level, digital platforms ensure precise matching between service demands and resource supply. At the informational level, standardized frameworks,

algorithmic models, and governance rules establish unified protocols that ensure technological compatibility and system adaptability across processes.

A standardized data governance mechanism plays a critical role in ensuring the stable operation of digital elderly care systems. Currently, the data systems for elderly care services face structural challenges such as fragmentation, heterogeneity, and decentralization. There is an urgent need to construct a collaborative mechanism involving diverse stakeholders to break down information silos among governments, social organizations, and enterprises. Establishing a three-tier data architecture-comprising foundational data, core data, and reference data-can enhance data resource matching efficiency and improve the precision level of service provision ^[10].

2.4. Governance Logic: Synergistic Evolution of Service Structures Driven by Multi-Stakeholder Participation

At present, as intelligent community-based elderly care systems progress toward a more refined stage of development, the prevailing governance paradigm is transitioning from traditional one-way service provision to a collaborative governance structure involving multiple stakeholders. The deep embedding of information technology not only facilitates the reorganization and integration of service elements but also drives the evolution of supply systems toward cross-level, cross-functional, and multi-stakeholder collaboration. Multi-actor coordination has become an intrinsic feature of modern smart elderly care governance, with the key lying in the construction of efficient collaborative mechanisms based on data-sharing platforms and institutional innovations to optimize resource allocation. This promotes a transformation of service models from element aggregation to systemic linkage and holistic operation.

Under the framework of multi-stakeholder collaboration, the construction of a smart elderly care system involves diverse actors, including government agencies, commercial platforms, medical institutions, grassroots organizations, family caregivers, and elderly users. Together, they co-develop a three-dimensional collaborative network centered on platform-based architecture. Information resources are distributed across individual, organizational, and virtual layers, presenting a multidimensional structure that reflects the system's heterogeneity and complexity. This also underscores the integrative trend and dynamic evolution of smart elderly care supply models. To achieve precise implementation of community-based smart elderly care services, it is necessary to overcome structural barriers among data elements through institutional coordination, and to establish a closed-loop operational mechanism spanning demand identification, resource allocation, and service response.

Within this context, the realization of collaborative governance depends on the normative development of institutional systems. Especially in an environment where elderly care services rely heavily on data interoperability and resource sharing, platform-based governance is gradually evolving into a new institutional core. Collaborative governance in smart elderly care should not be limited to the formal aggregation of stakeholders, but must establish a dynamic and adaptive interaction mechanism that aligns practical needs with strategic objectives. Service platforms, by integrating information flows, service chains, and feedback mechanisms, as well as supporting rule-making, interface design, and operational maintenance, have become essential hubs for maintaining system stability and service continuity.

From a systemic supply perspective, the key to fostering deep participation of multiple stakeholders in the collaborative governance of smart elderly care lies in institutional reconstruction of existing governance structures and the upgrading of performance mechanisms. Given the persistent issues of administrative segmentation, data silos, and resource misallocation in traditional elderly care services, collaborative governance is viewed as a crucial entry point for breaking fragmented management patterns and advancing institutional innovation. Enabled by digital technologies, stakeholders reduce coordination costs through information sharing, enhance resource integration efficiency via

mechanism interlinkage, and strengthen continuity and credibility of collaboration through intelligent platform analytics. This gradually leads to the formation of a co-governance network based on institutional norms and trust mechanisms.

Regional practices indicate that the effective implementation of smart elderly care governance schemes relies heavily on the alignment between institutional design and real-world application scenarios. In pilot regions such as Shanghai, a preliminary three-tiered interactive structure has been established, comprising government data platforms, community service systems, and elderly-end devices. This framework bridges service interfaces across public, community, and household units, enabling integrated resource management and shared responsibility. Empirical studies suggest that the effectiveness of collaborative governance is not determined by the sheer number of participating entities but by the clarity of role delineation and continuous optimization of collaborative efficiency achieved through a unified institutional framework and platform operational mechanism. Ultimately, this enhances the coordination and execution capacity of the overall service system.

3. IMPLEMENTATION MECHANISMS OF DIGITAL TECHNOLOGY EMPOWERMENT FOR THE PRECISION SUPPLY OF SMART COMMUNITY ELDERLY CARE SERVICES

The implementation mechanisms of digital technology empowerment for the precision supply of smart community elderly care services essentially reflect the interactive evolution of institutional frameworks, structural configurations, and procedural operations in the digital provision of smart elderly care. Investigating these mechanisms provides a systematic analysis of both the underlying logic of digital empowerment and the enabling conditions for constructing a smart community elderly care service supply system.

3.1. Collaborative Governance Mechanism: Building a Multi-Stakeholder Operational System with Clearly Defined Responsibilities

To realize the precision supply of smart community elderly care services, it is necessary to move beyond the traditional government-dominated provision model and establish a collaborative governance system that embodies co-construction, co-governance, and shared benefits among diverse actors, including government agencies, platform enterprises, social organizations, family members, and elderly individuals. However, in actual practice, insufficient stakeholder participation, ambiguous role boundaries, and the absence of effective cooperation mechanisms have constrained service coverage, disrupted resource allocation balance, and diminished overall service effectiveness.

To overcome these challenges, it is essential to build a multi-layered and diversified network that connects government bodies, platform enterprises, social organizations, community residents, and elderly individuals. Within this network, the division of roles and responsibilities must be clearly defined: the government, as the institutional guarantor, is responsible for policy formulation, resource coordination, and the design of incentive mechanisms; platform enterprises, as technological cores, undertake product development, system maintenance, and platform support; social organizations and community entities provide emotional support and care services; while families and elderly individuals serve as active participants in feedback loops and service adaptation, helping to refine personalized response mechanisms and establish a governance framework characterized by clear responsibilities and orderly collaboration.

In this multi-actor system, a horizontally connected information-sharing mechanism should be established to enable data interoperability and communication among stakeholders. Through dual mechanisms of contractualization and platformization, the roles and responsibilities of participating actors can be proceduralized and institutionalized, thereby avoiding institutional friction caused by information asymmetry or redundant operations. Only by building a co-responsibility and co-

governance structure grounded in shared understanding can the supply system for smart elderly care services achieve high operational efficiency, dynamic responsiveness, and sustainable development.

3.2. Data Governance Mechanism: Ensuring Full-Process Security, Controllability, and Standardized Management

Data serve as a core resource for enabling personalized services and inter-platform interoperability, constituting an indispensable element in the supply system of smart community elderly care services. However, current data management practices in this domain are plagued by issues such as a lack of unified standards and poor interface compatibility, resulting in frequent occurrences of “data silos” that hinder the release of synergistic platform potential. Moreover, during data transmission and sharing, challenges such as personal privacy breaches and excessive authorization reflect the problem of “information disorder,” directly threatening the sustainability of service provision and the overall security of the platform.

To address these concerns, it is essential to establish a secure, controllable, and multi-scenario-adaptive data lifecycle management framework that systematically mitigates key risks in elderly care data governance. First, a standardized data governance system should be developed to encompass the entire process from data collection, storage, and cleansing to interaction and application, thereby promoting data collaboration and system integration among governments, platform enterprises, communities, and elderly individuals. Second, a tiered and categorized management strategy should be implemented based on data sensitivity and usage scenarios, refining access permissions and usage scopes to prevent data misuse and unauthorized dissemination.

From a technical standpoint, encryption protocols, access control models, behavior auditing systems, and traceability mechanisms must be enhanced to ensure the integrity, controllability, and confidentiality of data throughout collection, transmission, processing, and storage stages. Concurrently, platforms should improve their capacity for intelligent anomaly detection, risk forecasting, and incident response, thereby strengthening their technical resilience against data tampering and spoofing attacks.

From an institutional perspective, a sound informed consent mechanism for elderly users should be established, along with robust privacy protection policies and feedback channels to enhance the transparency and explainability of platform governance processes. Through the construction of multi-stakeholder coordination mechanisms, a compliant and resilient data ecosystem can be fostered, ultimately enhancing the credibility of elderly care service platforms and reinforcing trust among the elderly population.

3.3. Technological Empowerment Mechanism: Strengthening Enterprise Innovation and Scenario-Based Service Transformation

The key to realizing the precision supply of smart community elderly care services lies in leveraging digital technology as a core driving force to build an endogenous momentum mechanism essential for the transformation of elderly care service delivery into a digital model. As the needs of the elderly become increasingly diversified and service scenarios grow in complexity, traditional elderly care models can no longer meet the breadth and depth required for intelligent development. This necessitates the synergistic empowerment of digital technologies and institutional incentives to construct a new, collaborative architecture for smart elderly care services.

First, a strategic development plan for the smart elderly care industry should be formulated, accompanied by the establishment of dedicated funding channels to support enterprises in product development and technological breakthroughs in key areas such as artificial intelligence, wearable devices, and emotional interaction. Through policy instruments such as tax incentives and financial

subsidies, enterprises can be guided to focus their R&D efforts on critical areas including cognitive impairment detection, health early warning systems, and personalized service integration.

Second, multi-stakeholder collaboration among government, industry, academia, and end-users (“government–industry–research–application”) should be strengthened. This involves establishing cross-industry joint experimental platforms, improving responsive mechanisms for technological innovation needs, shortening the cycle of research-to-application transformation, and enhancing the scenario adaptability and scalability of technological products.

On the one hand, platforms for experience sharing and interaction around intelligent health technologies for the elderly should be built to promote the replication and dissemination of high-quality technological products at the community level. Drawing on pilot experiences, efforts should be made to align enterprise technology commercialization mechanisms with public service procurement frameworks, thereby upgrading supply through demand-driven innovation.

On the other hand, the evaluation and standard certification system for elderly-oriented technological products should be improved to steer technology development toward greater applicability, user-friendly interaction, and environmental adaptability. By leveraging multi-stakeholder collaboration and institutional innovation, the vitality of technological innovation in the market can be stimulated, driving continuous product iteration and providing sustained technological momentum for the advancement of smart elderly care.

3.4. Integrated Participation Mechanism: Improving the Rights Protection System for Deep Inclusion of the Elderly Population

Within the smart community elderly care service delivery system, the elderly population serves not only as the ultimate recipients of services but also as the core actors whose participation determines the effective implementation and impact of digital technologies. The efficient promotion of digital elderly care products hinges on older adults’ cognitive acceptance of technology, their operational capabilities, and their level of initiative and responsiveness to service demands. In practice, however, older adults often face adaptive challenges such as “technological anxiety” and insufficient information acquisition abilities. The widening digital divide has thus become a critical barrier in the process of delivering smart elderly care services.

First, it is essential to formulate a systematic strategy for digital inclusion and rights protection tailored to the elderly population, thereby enabling a transition from passive "digital recipients" to active "digital participants." Second, the interface design, operational pathways, and functional presentation of digital products should be optimized to enhance accessibility, recognizability, user-friendliness, and ease of use. This would reduce operational barriers and trust gaps, ultimately improving elderly users’ satisfaction and experience. Third, efforts should be made to build digital literacy among older adults through age-segmented digital education programs and scenario-based simulation training, thereby enhancing their technical competence and digital confidence. At the institutional level, mechanisms for protecting elderly privacy and defining the boundaries of data usage should be embedded in system design, clearly stipulating the scope of personal data collection, processing, and authorization, thus ensuring the fundamental rights of older adults in the digital environment. Finally, product design and service operations should incorporate a “co-creation with users” model, encouraging elderly participation in service innovation and technological iteration through feedback mechanisms and user evaluations. This approach fosters the development and implementation of product systems that are truly centered on the needs of older adults. By integrating technological empowerment, emotional care, and legal regulation into a comprehensive governance framework, the adaptive capacity of the elderly to intelligent services can be systematically enhanced, laying a solid institutional and capability foundation for the long-term development of smart community elderly care.

3.5. Evaluation and Feedback Mechanism: Building a Full-Cycle Closed-Loop System for Optimizing the Quality of Smart Elderly Care Services

Smart community elderly care is a technology-integrated service system whose refined operation depends on the early-stage deployment of technologies and the integration of functional elements, and more crucially, on the synergy generated by the continuous optimization of service processes and the improvement of evaluation mechanisms during the operational phase. Currently, practical implementation of smart elderly care services faces several core barriers, including inconsistent evaluation standards, ineffective user feedback mechanisms, and a lack of systematic validation of technology adaptability-factors that constrain service efficiency and reduce user satisfaction among the elderly population.

First, a comprehensive, quantifiable, and traceable service evaluation and monitoring system should be established, focusing on dimensions such as service accessibility, response speed, technological adaptability, user experience, and risk prevention, in order to improve the overall quality of smart community elderly care services. Second, a systematic evaluation index framework should be developed. By leveraging intelligent devices and data platforms to dynamically perceive and quantitatively analyze service performance, the evaluation system can achieve both real-time responsiveness and precision. Evaluation results should serve as a critical basis for process reengineering, resource allocation, and service optimization, thereby enhancing the feedback-driven functionality of the evaluation mechanism. Third, elderly individuals and their families should be encouraged to actively participate in service evaluation through means such as questionnaires, community interviews, and public opinion solicitation, improving the system's responsiveness to personalized and diversified needs. Finally, the introduction of third-party evaluation or cooperative oversight mechanisms is necessary to ensure the independence of the evaluation process and the fairness and credibility of its outcomes. Establishing a normalized, periodic evaluation system and a service optimization feedback loop can facilitate the shift of smart elderly care from mere availability to perceived high-quality service. This contributes to the development of an open, transparent, and orderly feedback-based service ecosystem and continuously advances elderly care services toward higher standards of quality.

4. CONCLUSION

This study focuses on the digital technology empowerment of precision supply in smart community elderly care services and systematically explores the practical logic, enabling conditions, and implementation mechanisms of such service provision. The research findings indicate that the precision supply of smart community elderly care hinges on the embedding of digital technology elements, the integrated reconstruction of platform systems, data-driven matching mechanisms, and the collaborative governance of multiple stakeholders. On this basis, establishing a condition framework centered on governance coordination capacity, data resource infrastructure, user adaptability, scenario application foundation, and institutional safeguards is a key prerequisite for the effective empowerment of digital technologies. Finally, by continuously improving the mechanisms of collaborative governance, data governance, technological empowerment, integrated participation, and evaluation feedback, the responsiveness and quality of smart community elderly care service provision can be significantly enhanced.

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REFERENCES

- [1] Gong Zheng. Fully Practicing the Key Concept of the People’s City to Build a New System of Smart and Efficient Governance for Mega Cities [J]. *Party Building Research*, 2024(11): 8–10.
- [2] Liu Zhenguo. Key Measures for Actively Responding to the National Strategy of Population Aging [J]. *Red Flag Manuscript*, 2024(19): 9–12.
- [3] Du Chunlin, Zang Luheng. From “Fragmented Operations” to “Holistic Governance”: A Study on Innovative Pathways for Smart Elderly Care Service Provision [J]. *Study and Practice*, 2020(7): 92–101.
- [4] Chen Li, Wei Jiansong. Digital Technology Empowering Precision Supply of Community Public Services: Key Elements, Practical Constraints, and Optimization Paths [J]. *Journal of Nanchang Normal University*, 2025, 46(2): 129–135.
- [5] Sun Qing, Hao Gang, Ding Yingying. Digital Platforms Driving Structural Optimization of Smart Elderly Care Service Supply: A Game-Theoretical Analysis from the Perspective of Value Co-Creation Theory [J]. *Commercial Research*, 2023(3): 58–69.
- [6] Lu Yingchun, Xu Yumei. Technical Services: Innovation in Data-Driven Models for Elderly Care Service Provision [J]. *Administrative Forum*, 2020, 27(3): 143–148.
- [7] Shanghai’s “One Network Unified Governance” Creating a New Model of Platform Governance in the Digital Era [EB/OL]. <https://zwdsj.anyang.gov.cn/2021/10-15/2249069.html>
- [8] Xu Xiaoling. The Core Driving Logic and Policy Implications of Age-Friendly Community Policies: A Grounded Theory-Based Analysis of Policy Texts [J]. *Lanzhou Academic Journal*, 2023(10): 112–122.
- [9] Chen Si, Li Jinhao, Zhao Yuxiang, Zhu Qinghua. The “Data Factor ×” Effect in the Digital-Intelligent Transformation of Smart Elderly Care Services: Features, Connotations, and Pathways [J/OL]. *Information Theory and Practice*, <http://kns.cnki.net/kcms/detail/11.1762.G3.20250401.1640.002>.
- [10] Zuo Meiyun, Duan Ruirui, Lin Lin. Research on the Data Resource Governance System for Smart Elderly Care: Based on the Perspective of Activity Theory [J]. *Journal of Xi’an Jiaotong University (Social Science Edition)*, 2024, 44(3): 40–51.