

Article

# Legal Response to the Digital Rights Guarantees of the Elderly under the Background of "Digital Divide"

Haoran Xie <sup>1,\*</sup> and Danna Wu <sup>1</sup>

<sup>1</sup> Tianjin Normal University, Tianjin, China

\* Correspondence: Haoran Xie, Tianjin Normal University, Tianjin, China

**Abstract:** Under the background of accelerated advancement of digitalization and aggravated population aging, the elderly group faces a significant "digital divide", and their digital rights fall into multiple predicaments. The elderly face obstacles in digital access, use, and knowledge levels, including the absence of rights for "digital refugees", the amplified marginal effects experienced by the "digitally left-behind", and the infringement of consumer rights for "digital migrants". At the legal level, the lack of digital rights and imperfect relief mechanisms in age-friendly regulations, as well as the imbalance between legal updates and technological progress of age-friendly products, exacerbate the predicament. At the technical level, extreme approaches in digital technology R&D and the market's underestimation of the elderly's value further intensify these challenges. In response, it is necessary to improve the quality and efficiency of legal norms for the purpose of compensating for lag by improving the legal system, to improve legislation with the principle of preferential protection, and to enrich the content of legal guarantees through empowerment measures; at the same time, coordinate multi-stakeholder collaboration, improve judicial relief paths and age-friendly transformation, help the elderly cross the digital divide, and build age-friendly digital society.

**Keywords:** digital divide; digital rights and interests of the elderly; law guarantees; age-friendly

## 1. Introduction

With the accelerated advancement of digitalization and the rapid aging of the population, elderly groups face significant challenges in accessing, using, and benefiting from digital technologies, creating a pronounced "digital divide." This paper analyzes the dilemmas encountered by elderly individuals in the digital age, including the digital exclusion of "digital refugees," the marginalization of "digital left-behind" individuals, and the vulnerabilities of "digital immigrants." At both legal and technical levels, gaps in age-friendly legislation, imperfect relief mechanisms, and market- and technology-driven biases exacerbate these challenges. The study emphasizes the need for comprehensive approaches that combine legal reforms, technological inclusiveness, multi-stakeholder collaboration, and age-friendly digital transformation to safeguard and empower the digital rights of elderly populations.

## 2. The "Digital Divide" of the Rights and Interests Guarantees of the Elderly in the Digital Era

To comprehensively promote digitalization construction, promoting digitalization construction is not only a strategic development goal, but also a practical necessity to improve convenience and quality of life for the elderly population. Digital technology is increasingly integrating into all aspects of social, economic, and cultural life, and is having a significant impact on daily lifestyles, life views, and living standards. As of the end of 2023, the scale of Chinese netizens has reached 1.092 billion, and the Internet penetration

Published: 04 September 2025



**Copyright:** © 2025 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

rate has reached 77.5%. It can be seen that the Internet has truly entered the lives of the social public. At the same time, population aging has become a universal phenomenon in the whole world, and China's aging population is also showing an accelerating upward trend.

The in-depth development of digital technology has brought new social welfare to the public, but new social problems have also followed, namely the problem of the rights and interests of the elderly being infringed upon under the digital divide.

### *2.1. The Elderly Rights Protection's Digital Access Aspect*

According to data released by the National Health Commission, it is indicated that China is projected to enter the severe population aging stage in 2035, at which time the elderly aged 60 and above will account for more than 30% of the total population. However, a large number of elderly people still have not mastered or even understood digital technology and its related products.

### *2.2. The Elderly Rights Protection's Digital Usage Aspect*

During the Spring Festival travel rush in 2019, an elderly man from Suzhou, Anhui, did not understand online ticket booking and went to the manual service window six times without successfully buying a train ticket home. Each time, the response received after waiting in the long queue with hope was always that there were no more train tickets at the offline window. There are many similar cases, which prove that most elderly people have a low level of operation of digital products and cannot integrate well into the digital living era.

### *2.3. The Elderly Rights Protection Aspect of Digital Literacy*

Although the number of elderly people increases year by year, since they are not well integrated with the digital age, many enterprises are more willing to meet the needs of young people, and will not invest too much time, technology and capital in technological products suitable for the elderly. At the same time, the ability of elderly people to learn and use digital technology on their own is difficult. Specifically in daily life, it is reflected in problems of online medical appointment booking, and the phenomenon that insufficient ability to identify digital information easily leads to fraud, etc.

## **3. The Realistic Dilemma of Digital Rights Protection for the Elderly in the Digital Age**

The popularity of the Internet has accelerated the arrival of the digital society, and the inverse proportional growth of elderly netizens and the aging population has spawned a large number of "digital left-behind". When digitalization encounters aging, the elderly's education level, economic status, social inclusion, network security, and the suitability of digital products have become important factors affecting the elderly's integration with the digital age. The main task at present is to help the elderly cross the digital divide, from "digital refugees" to "digital left-behind" and finally to "digital immigrants", and to build an elderly-friendly digital society.

### *3.1. The Dilemma of "Digital Refugees" Type Rights and Interests of the Elderly Guarantees*

First, facing age discrimination and the barrenness of spiritual and entertainment carriers. With the advent of the digital age, digital products emerge in endlessly, such as computers, mobile phones, electronic payments, digital medical treatment, etc., while most elderly people, due to their low level of education or conservative cognition, choose not to use the use of digital products and continue to stick to old products such as paper-based ones. Nowadays, digital products focus on the needs of young people, rather than directly targeting the needs of the elderly for product research and development, resulting in the situation that age-friendly digital products are not specialized, not precise, and not

adapted, making it impossible for "digital refugees" type elderly people to fully share the dividend of digital technology development, and thus it is also difficult to realize the beautiful vision of comprehensive development in the digital society.

Second, there is a lack of digital Salvage and digital literacy. The vast majority of the elderly do not have the ability to independently learn new things, and even if they want to access the Internet, there may be no guidance or fear of difficulties in the learning process. Thus, it can be seen that in the digital age, the elderly are not only difficult to fully enjoy the efficiency and convenience brought by networking and intelligence, but also are "generation gap" eliminated due to the shrinking of choice methods, which seriously reduces the basic quality of life [1]. Therefore, the most fundamental way is to establish a sound rule of law system for the Guarantees of rights and interests of the elderly. Simultaneously, in order to weaken the lag of Law, the "first trial" role of policy documentation shall also be actively exerted. Finally, the coordinated protection at the level of soft law shall be strengthened, the supervisory Liability and Salvage Obligations of public authorities, the digital reciprocal support Liability of society and family, and the social Liability of technology enterprises shall be reinforced.

Third, passive digitalization results in the subject's digital resistance. With the updating and upgrading of various digital products, various functional products emerge endlessly, and the elderly group passively enters the digitalization era. Due to age, education level, and cognitive factors, many elderly people find it difficult to understand how to use digital products, which leads to resistance toward digitalization [2].

### *3.2. The Predicament of "Digital Left-Behind" Type Rights and Interests of the Elderly Guarantees*

First, marginal effect magnifies the digital gap. In regions with higher economic development, digital technology tends to be more concentrated", and the higher the popularity of digital life will be. Data indicate that the main force of the elderly group is mainly concentrated in economically developed urban areas, where digital technology and digital life are more prevalent. Therefore, unbalanced development, polarization between the rich and the poor, and the concentration of digital information technology result in the popularization of digitalization products and the embodiment of digital life being mainly concentrated in towns with developed information technology and good economies, and Territories with wealthy families.

Second, digital literacy needs to be improved. With the deepening of digital life, the immaturity of network supervisory and the randomness of speech result in the network becoming a "lawless place" for many people. At the same time, the emergence of online trolls, low-quality short videos and other content leads to the situation that the elderly group themselves dare not use or their families do not allow them to use digital products.

Third, the "digital trap" is generalized. For commercial interests, unscrupulous merchants, through intentional or unintentional Fraudulent Practices, such as false marketing, selling Personal Information and other leakage of private information, provide ways for online fraud; the promotion of malware on digital products, may directly steal digital information and empty the pockets of the elderly, making the elderly and elderly families afraid of using digital products.

### *3.3. The Predicament of "Digital Immigrants" Type Rights and Interests of the Elderly Guarantees*

First, digital consumer rights are infringed. National strategies and long-term development plans emphasize accelerating the construction of digital economy and digital society, aiming to drive the transformation of production methods, lifestyles, and governance through digitalization [3]. This makes the issue of the elderly's digital rights directly cross the issue of whether the elderly choose digitalization lifestyle, but becomes how the

elderly integrate into digitalization society. For example, some supermarkets and convenience stores have cancelled cash payments, and adopted methods such as online payments, online appointments, and even self-checkout. This makes the elderly group only passively integrate into digital life, which essentially inhibits the elderly's right to independent choice.

Second, the digital literacy understanding ability remains to be improved. Under the policy promotion, although China's digital "age-friendly transformation" has achieved results, the problem of insufficient digital literacy understanding ability of the elderly group is still prominent. The "elder mode" of some enterprises makes it difficult for the elderly to find it due to the hidden setting of the entrance, reflecting that age-friendly transformation has not truly conformed to the usage habits of the elderly; a special age-appropriate digital market has not yet been formed, which makes it difficult to provide personalized products, and also limits the elderly's access to digital culture [4]. More importantly, the existing measures focus more on technological age-friendly transformation and skill improvement, but ignore the needs of the elderly for a friendly digital social and cultural environment and the desire to integrate into digital life. Therefore, the government and society need to understand the diverse digital needs of the elderly group more deeply, and help them improve their digital literacy and better integrate into digital life.

Third, indulging in digital life. Driven by the profitability of the elderly digital market, some Internet enterprises may engage in exploitative practices, using big data algorithms to collect information on the interests and behaviors of elderly users. On the one hand, low-quality content is provided for elderly users to meet the entertainment needs of the majority of the elderly, attracting the elderly to go online excessively and indulge in the network. Additionally, factors such as physical condition and education level mean that many elderly people lack awareness of protecting personal information. Coupled with insufficient platform security mechanisms, this makes them vulnerable to privacy breaches and violations of personal rights. Furthermore, their limited ability to discern information and unfamiliarity with digital products increases the risk of falling victim to online scams, thereby affecting their property rights [5].

#### **4. Analysis of the Dilemma of Digital Age Elderly in Digital Rights Protection**

##### *4.1. Legal Level—Challenges Faced by Statutes in the Context of the "Digital Divide"*

First, the digital absence of rights and related mechanisms in age-friendly regulations are imperfect. The core dilemma of the current age-friendly regulations system lies in the substantial absence of the 'digital rights' of the elderly and the imperfection of related relief mechanisms. Although general civil and personal information protection laws provide basic guarantees for the rights and interests of the elderly, these provisions are not specifically designed for the special needs of the elderly in the digital age, resulting in a lack of clear and strong legal support for their digital enjoyment Rights. This absence is specifically manifested in two points: First, the lack of targeted specification; existing policies (such as the "Implementation Scheme on Effectively Solving the Difficulties of the Elderly in Using Intelligent Technology") are mostly guiding "soft law", lacking mandatory binding effect and unable to effectively regulate enterprises; second, the obstruction of judicial relief channels; although the elderly enjoy statutory Rights, they face the dilemma that "statutory Rights" are difficult to transform into "actual Rights" due to insufficient digital literacy, poor product adaptability, and lack of information resource integration [6]. Even though some explorations already exist in public action and Action, judicial practice still lacks acknowledgement and clear guidance for cases of digital harm, resulting in elderly individuals having limited access to legal protection for their digital rights. At its root, the current system still remains at "formal equality", failing to compensate for the shortcomings of the digital capabilities of the elderly through differentiated and inclined resource supply based on the "substantive equality" framework, ultimately making current protections appear inadequate in the face of the digital wave. There is an

urgent need to transform abstract principles concerning the digital rights of the elderly into specific, actionable rights that can be claimed and enforced through legislation and detailed regulations.

Second, the imbalance between age-friendly products technological progress and updates. In the field of age-friendly, the rapid advancement of technology and the slower pace of legal regulation create an imbalance that restricts the effective benefits of technology reaching the elderly [7]. On the one hand, enterprises rely on technologies such as artificial intelligence, big data, and the Internet to rapidly launch various age-friendly products and services, but their development and design are mainly driven by market interests, rather than guided by legal mandatory obligations. Although the "Companies Act", "E-commerce Law" and other laws have established the principled requirements of corporate social Liability, the regulatory system has a triple dilemma of "insufficient specification, vague Liability, and unclear Standards"; in addition, the Law is naturally lagging behind technological iteration, resulting in its weak ex ante preventive effect, and it can often only be passively remedied after infringing occurs. On the other hand, the existing national Standards (such as GB/T36000-2015 "Guidance on Social Responsibility") are only recommended Standards, and the Binding Effect is limited, and enterprises can interpret or even circumvent them elastically, resulting in many "age-friendly" products being superficial and failing to truly solve the deep-seated problems faced by the elderly, such as the digital divide, information leakage, and algorithmic discrimination. This "time difference" and "Binding Effect gap" between technology and Law make technological progress not effectively incorporated into the rule of Law track, ultimately leading to a structural mismatch between the supply quality of age-friendly products and the actual needs of the elderly, urgently requiring the Law to impose necessary legal compliance guidance and mandatory constraints on technology applications through forward-looking legislation and dynamic Standards updates.

#### *4.2. Technical Level—the Two-Sided Effect of Technological Development in the Context of the "Digital Divide"*

First, digital technology R&D is extremized. The current research and development of digital technology shows a tendency to focus on market-driven and youth-oriented trends rather than inclusivity, which leads to structural deficiencies in age-friendly digital supply, which directly leads to the structural deficiency of age-friendly supply. This extremization is first reflected in the "generational discrimination" hidden in the research and development process. Driven by market logic, technology development is extremely biased towards younger groups with stronger consumption power and higher technology acceptance. The core functions of Internet applications are constructed around the entertainment and social needs of young people, while the daily life services and spiritual and cultural demands urgently needed by the elderly are ignored, making them marginalized in the digital culture [8]. Secondly, the "youth-oriented" ideology of technological design is deeply ingrained, and the interface design of electronic products such as smartphones prides itself on complexity, multifunctionality, and high precision. Although it facilitates young users, it constitutes an insurmountable obstacle to use for the elderly with weak operational abilities. The fundamental reason lies in the fact that the concept of technological innovation seriously lacks in-depth adaptation considerations for the behavioral preferences, physiological characteristics, and learning abilities of the elderly, and the pursuit of technological "cutting-edge" far outweighs "accessibility," resulting in what should be universally beneficial digital technology becoming a "deterrent" tool for many elderly people. This extreme bias in research and development not only widens the intergenerational digital divide, but also weakens the foundation for the realization of the digital rights of the elderly from the source, reflecting the widespread lack of technological ethics and social liability.

Second, the market environment underestimates the value of the elderly. The market environment and social concepts systematically underestimate the value of the elderly group, which is another key factor exacerbating their digital predicament, which forms a vicious circle of "social discrimination-resource deprivation - ability weakening." In terms of concepts, universal age discrimination negates the social value and ability of the elderly [2]. Digital product design tends to focus on younger consumer groups, assuming that older users have lower purchasing power and slower technology adoption, which may lead to their needs being overlooked, thus ignoring their broad and diverse needs. This market bias directly leads to the tilt of resource Distributions: on the one hand, Economic difficulties are a primary barrier for the elderly to integrate digitally. Many older adults have limited income, and the costs of smart devices and communication further hinder their access, which further reduces their "visibility" in the digital market; on the other hand, the supply of age-friendly products is seriously insufficient and mostly superficial, lacking health, entertainment, and social application content that meets their needs, because the market believes that investing in research and development for this purpose is "not cost-effective." On a deeper level, the "Matthew effect" of the platform economy reinforces this exclusion, and elderly users with weak access to information capabilities find it difficult to generate new demands, gradually lose confidence and fall into "digital isolation", and the market is even less willing to serve them, in a vicious circle. Ultimately, it is not that the market truly lacks the potential of the "silver economy", but that its short-sighted valuation system systematically underestimates the diversified needs and social value of the elderly, thus choosing a development path of exclusion rather than inclusion [9].

## **5. Legal Response to Digital Age Elderly's Digital Rights Protection**

### *5.1. To Improve the Construction of Digital Legal System for the Elderly*

First, improving the quality and efficiency of legal norms for the purpose of compensating for lag. In order to overcome the inherent lag of codified law and improve the quality and efficiency of legal norms in the digital age, it is imperative to construct a forward-looking, collaborative, and dynamically responsive legislative system. Firstly, legislative activities shall be based on in-depth research and scientific legislative practices. This signifies that it is imperative to transcend superficial technical convenience and delve into the structural predicaments faced by the elderly population in the digitalization environment, such as the impairment of data, the absence of emotional interaction, and the high incidence of fraud, as indicated in a recent industry report, 77.7% of elderly people have experienced fraud. Legislators need to combine technological development trends and prospectively define the of such as the right to informed, the right to data, and the right to be forgotten, so as to realize technological safeguards and legal protections, balancing the risks to privacy and the right to personal dignity, as highlighted by a United Nations report.

Secondly, cross-departmental Cooperation and coordination must be strengthened to break down Information silos in the legislative process. Through the establishment of a collaborative mechanism among lawmakers, technology companies, community organizations, and academic institutions, the integration of technological rationality and legal values ensures that the legislative framework is both technically feasible and practically relevant, avoiding the failure of rights and interests guarantees due to supervisory gaps or legislative mismatches. Finally, the key lies in establishing and improving a dynamic Amendment mechanism. The mechanism shall include procedures such as regular Assessment, expert consultation, and public participation [10]. Through continuous monitoring and feedback on the implementation effect of laws, flexible introduction of elastic Terms ensures that the legal system can make timely and effective responses to the iteration of emerging technologies such as artificial intelligence and big data and the social and ethical issues they cause, and ultimately enhance the inherent ability of laws to adapt to digital environmental changes. Second, improve relevant legislative specification with

preferential protection as the principle. Given that the elderly have structural disadvantages in digital access, use, and abilities, it is imperative to uphold the principle of preferential protection to improve relevant legislative specification, so as to realize fairness and justice in a substantial sense. The law-based of this principle firstly needs to establish the legal basis of digital rights protection, so as to provide the foundation for the formulation of subsequent special laws., so as to provide the basis of higher Law for the formulation of subsequent special Law. In terms of legislative strategy, a progressive path can be adopted, prioritizing the most urgent areas at present, such as mobile payments security, age-friendly products Standards, Personal Information protection, etc., to formulate separate regulation and Standards, and gradually construct a specialized legal protection framework, and then be upgraded to a systematic "Elderly digital rights protection Law" when conditions are ripe [11]. In terms of the content of the specification, the inclination is reflected in imposing higher legal Obligations on digital products and service providers through a combination of mandatory specification and incentive policies. For example, enterprises are required to embed inclusive Standards of "elderly-friendly" in their product design, data management, and privacy policies, develop age-friendly interfaces, and provide accessible technical support. Simultaneously, the Law should be good at utilizing technological tools to enhance its own effectiveness, such as using big data analysis to accurately identify protection pain points and constructing a national digital Rights Salvage database. This database can not only provide convenient public service access for the elderly, but also provide accurate data support for government supervisory and judicial relief, such as government authorities dynamically monitoring and addressing infringements in advance, thereby forming a technology-enabled, systematic, and inclusive legal Guarantees network to respond to the urgent needs of the elderly digital vulnerable groups.

Thirdly, adding content to digital rights protection in an empowerment manner. The fundamental path to guarantee the digital Rights of the elderly lies in shifting from "passive protection" to "active empowerment", endowing them with substantive Rights and capabilities sufficient to cope with digital life through legislation, thereby enriching the connotation of digital rights protection. The core of empowerment is to start from the perspective of "data human rights", clearly confirming a series of emerging digital Rights in Law, and transforming them into operable legal Terms. This includes clarifying the elderly's right to self-determination of information (derived from personhood, endowing them with complete control over the scope of collection, use, and disclosure of their personal information), the right to be forgotten, and the right to receive digital literacy education, making them active subjects of digital Rights rather than passive objects of protection. Legislative empowerment is not limited to declaring Rights, but more crucial in setting up supporting implementation Guarantees mechanism [12]. It requires simultaneously stipulating the corresponding positive Obligations of the government and enterprises: the government needs to be responsible for organizing and providing universal digital skills training, while enterprises bear the Obligations of developing age-friendly digital products, providing clear and understandable privacy policies and technical support. Through this corresponding design of "rights-obligations", the elderly can obtain the ability and confidence to independently choose and effectively participate in the digital society. Ultimately, this empowerment-type legislation not only effectively makes up for the insufficient response and lag of traditional Law due to rapid technological changes, but also strives to promote the paradigm shift from formal equality to substantive equality, laying a solid rule of law foundation for building an inclusive digital society.

### *5.2. To Promote in a Coordinated Manner the Integrated Construction of Multiple Subjects*

First, the advantages of each subject shall be effectively brought into play. In addressing the challenges of the intersection of aging and digitalization, effectively bringing into play the advantages of each subject becomes a key path to promote the development of

age-friendly technology. Technology research and development needs to be based on the heterogeneous needs of the elderly, including multi-dimensional differences in age, health status, cultural background, etc., to avoid technical discrimination problems caused by algorithm bias. Biased data sets, if applied to decision-making processes such as medical treatment or services, may exacerbate inequalities among the elderly population. Therefore, enterprises, as the core subject of technological innovation, should adhere to the principle of "technology for good", embed ethical considerations into product design, and develop easy-to-use and practical age-friendly products. The government shall provide support to guide resources towards the age-friendly field, and create a favorable market environment. Simultaneously, universities and research institutions shall, through university-enterprise cooperation mechanisms, participate in technology research and development and talent cultivation, and promote the deep integration of basic research and application practice. This kind of multi-subject cooperation can not only stimulate technological innovation, but also enhance the accessibility and inclusiveness of products, and then enhance the technological experience of the elderly group, and truly realize the comprehensive development of science and technology serving people.

Second, construct a diversified cooperation mechanism. Constructing a diversified cooperation mechanism is a systematic scheme for solving the digital divide problem of the elderly, and its core lies in integrating the forces of Parties such as the government, enterprises, society, and families to form a joint force of collaborative governance. The government shall play a leading role, increase supervisory efforts and improve the framework of the law, especially strengthening regulation in network security, standards setting and enterprise Legal Compliance, for example, enhancing the coverage of digital infrastructure and addressing online fraud targeting the elderly. Simultaneously, the community, as a crucial node for policy performance, shall undertake the functions of popularizing legal education and digital support, and enhance the digital literacy and Rights awareness of the elderly through organizing digital classrooms, network security lectures and other activities. Enterprises need to actively fulfill social Liability on the basis of Legal Compliance operation, develop age-friendly products and establish user feedback mechanisms. Families and social organizations further enhance intergenerational support through "digital reverse feeding" to alleviate the elderly's anxiety about technology use. This kind of multi-dimensional collaboration model of strict government supervision supervisory, active community legal popularization, enterprise self-discipline innovation, and broad social participation, not only contributes to constructing an inclusive digital society, but also provides institutional Guarantees for long-term governance.

### *5.3. Perfecting the Remedies Path of the Elderly's Rights*

First, improve the path of judicial relief. Under the background of the interweaving of digitalization and aging, the judicial authorities, as an important mechanism for guaranteeing the rights of the elderly, urgently need to provide effective, fair, and convenient judicial relief" for the vulnerable elderly in the digital age through systematic system improvement and service optimization. First of all, the refinement of the relief system and the comprehensive construction of the digital court system shall be promoted. Since the elderly are in a relatively disadvantaged position in terms of knowledge structure, Access to Information and awareness of Rights, the judicial authorities shall implement preferential protection policies, clarify the Proceedings of the realization and Variation of digital Rights, and strengthen the Judge's Obligations of explanation, so as to enhance judicial credibility and the elderly's sense of judicial gain. For example, the " digital court supervision and management platform " launched by Shanghai courts in 2023, relying on functions such as "data-assisted case handling" and "data-assisted convenience for the people," has significantly improved trial efficiency and service accessibility, enabling the elderly to truly enjoy the convenience brought by "digital justice." Secondly, the normative guiding function of judicial Interpretation and guiding cases shall be fully exerted, and stable and

predictable adjudication basis shall be provided for the elderly to protect their Rights by clarifying the protection Standards of digital Rights. In addition, the scope of application of legal aid shall also be expanded, the public interest Action mechanism shall be improved, the threshold for safeguarding Rights shall be lowered, and drawing on the "drawing on experiences of community-based governance", the participation of base governance units in Rights Guarantees shall be promoted to construct a full-chain protection system covering prevention, intervention, and relief, thereby achieving the substantive fairness of judicial relief.

Second, deeply advance the rights relief paths age-friendly transformation. Rights relief mechanism must respond to the practical limitations of the elderly in terms of digital literacy, mobility, etc., and effectively reduce their cost of safeguarding rights through comprehensive age-friendly transformation. First, the concept of "age-friendliness" should be embedded in the digitalization construction of judicial and Legal Services platforms, and age-appropriate interface design and process optimization should be promoted. Specifically, this includes simplifying operation steps, providing voice assistance functions, and setting up one-on-one manual guidance, etc., to ensure that the elderly can use online mediation proceedings, claim registration, and consultation systems without obstacles. Second, it is necessary to improve the offline auxiliary relief mechanism.

Some elderly people still rely on physical channels", "digital rights service stations" should be generally established in communities, courts and other places to provide face-to-face legal advice, material filling and transfer services, and make up for the obstacles to the exercise of rights caused by the digital divide.

Finally, strengthening cross-departmental collaboration is the key to enhancing the effectiveness of Remedies. The government, judicial institutions, community organizations, and social organizations shall jointly construct a linkage response mechanism to realize Information sharing and resource integration, so as to ensure that the elderly population can obtain timely, accurate, and multi-level support when Rights are damaged. This systematic transformation not only contributes to Guarantees of their lawful rights and interests, but also is an important practice for building an inclusive digital society.

## 6. Conclusion

In conclusion, ensuring the digital rights of the elderly requires coordinated efforts across legal, technological, and social domains. Strengthening the legal framework with preferential protection, dynamically updating age-friendly standards, and establishing empowerment-focused rights are critical. Simultaneously, technology developers, governments, communities, and families must collaborate to provide accessible, inclusive, and secure digital environments. Judicial relief and age-friendly service mechanisms further ensure that elderly individuals can effectively exercise their digital rights. By integrating these measures, it is possible to bridge the digital divide, enhance elderly participation in the digital society, and promote an inclusive digital environment that respects and empowers older generations.

## References

1. L. Royakkers, J. Timmer, L. Kool, and R. van Est, "Societal and ethical issues of digitization," *Ethics Inf. Technol.*, vol. 20, no. 2, pp. 127–142, 2018, doi: 10.1007/s10676-018-9452-x.
2. R. Susło, M. Paplicki, K. Dopierała, and J. Drobniak, "Fostering digital literacy in the elderly as a means to secure their health needs and human rights in the reality of the twenty-first century," *Fam. Med. Prim. Care Rev.*, vol. 20, no. 3, pp. 271–275, 2018, doi: 10.5114/fmPCR.2018.78273.
3. C. Chen, S. Ding, and J. Wang, "Digital health for aging populations," *Nat. Med.*, vol. 29, no. 7, pp. 1623–1630, 2023, doi: 10.1038/s41591-023-02391-8.
4. J. van Houwelingen-Snippe, S. Ben Allouch, and T. J. van Rompay, "Designing digital nature for older adults: A mixed method approach," *Digit. Health*, vol. 9, p. 20552076231218504, 2023, doi: 10.1177/20552076231218504.
5. T. Jahnke, H.-H. Dassow, A. Gerhardus, and B. Schüz, "The digital rainbow: Digital determinants of health inequities," *Digit. Health*, vol. 8, p. 20552076221129093, 2022, doi: 10.1177/20552076221129093.

6. N. Ajrun, "Bridging the digital divide affecting persons with disabilities in Malaysia," *Int. J. Disabil. Dev. Educ.*, vol. 70, no. 4, pp. 562-574, 2023, doi: 10.1080/1034912X.2021.1901860.
7. P. K. Yu, "Bridging the digital divide: Equality in the information age," *Cardozo Arts & Entertain. Law J.*, vol. 20, pp. 1-52, 2002, doi: 10.2139/ssrn.309841.
8. T. Guan, "The practical dilemmas and optimization paths for protecting the personal information rights of digitally disadvantaged groups," SSRN, 2024, doi: 10.2139/ssrn.4973101.
9. Y. Li, Y. Yang, S. Shi, B. Wang, and G. Chen, "Seniors' knowledge-based digital marginalization in the era of information technology advancements," *J. Knowl. Econ.*, vol. 15, no. 3, pp. 12622-12650, 2024, doi: 10.1007/s13132-023-01600-6
10. D. Meng, "Crossing the Digital Divide: The 'Digital Dilemma' of the Elderly and the Way to Bridge It," *Cognition*, vol. 5, no. 13, pp. 32-36, 2023, doi: 10.25236/FSST.2023.051306.
11. F. Mubarak and R. Suomi, "Elderly forgotten? Digital exclusion in the information age and the rising grey digital divide," *Inquiry: J. Health Care Org., Provision, and Financing*, vol. 59, pp. 00469580221096272, 2022, doi: 10.1177/00469580221096272.
12. S. Afroj, T. Bashir, P. Vishnu, and K. A. Khan, "Digital inclusion and economic participation of the elderly: challenges and strategies," in *Perspectives on the Economics of Aging*, IGI Global Scientific Publishing, 2025, pp. 49-78, doi: 10.4018/979-8-3693-7753-6.ch003.

**Disclaimer/Publisher's Note:** The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of SOAP and/or the editor(s). SOAP and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.