

Addressing the Digital Divide Among China's Elderly Workforce: Challenges and Strategies for Re-employment

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Abstract: The global ageing problem has become a heavy issue; this brings us to a question: how can such a huge group survive. Relying on the government, the company, or on their own. China has the worst ageing problem; most older people choose to re-employment. Using their remaining energy, they can not only reduce the financial burden of their family but also refresh the whole labor market. However, the re-employment of the elderly is quite difficult because their outdated skills cannot fit today's requirements, and the digital divide appears. The key to supporting older workers' re-employment lies in addressing the digital divide of them. Through collection and summary of the Chinese age structure, status of the Chinese elderly re-employment, and the digital divide of the Chinese elders, this paper analyzes these aspects and conclude that although the technological gap of China's elderly re-employed is obvious, with the joint efforts of the government, enterprises and society, this digital divide will continue to narrow and will be bridged in the future. This paper also aims to find the key of rapidly alleviating the digital divide of Chinese elderly re-employment, and excavate the new solutions to build the bridge.

Keywords: Digital divide, China's ageing workforce, elder re-employees, technology adoption

1. Introduction

The world's population has been ageing for centuries, but what is new over the past few decades is the rapidity of ageing. People are living longer, and more are older than ever before. Spectacular improvements in health and survival and reductions in fertility have driven this momentous shift, which has begun or is expected to begin soon in all countries and areas. The standard definition of old age is generally 60 years or older, as defined by the United Nations and the World Health Organization. In 2050, 80% of older people will be living in low- and middle-income countries [1]. Long living is great. However, it means that society has to give more financial aid to the elderly. Facing such a huge issue, the ageing people themselves try to re-employment, which leads to more old workers rushing into the labor market. About 80% of older workers are in emerging countries, 76% in developed countries, and 2.5% in developing countries [2].

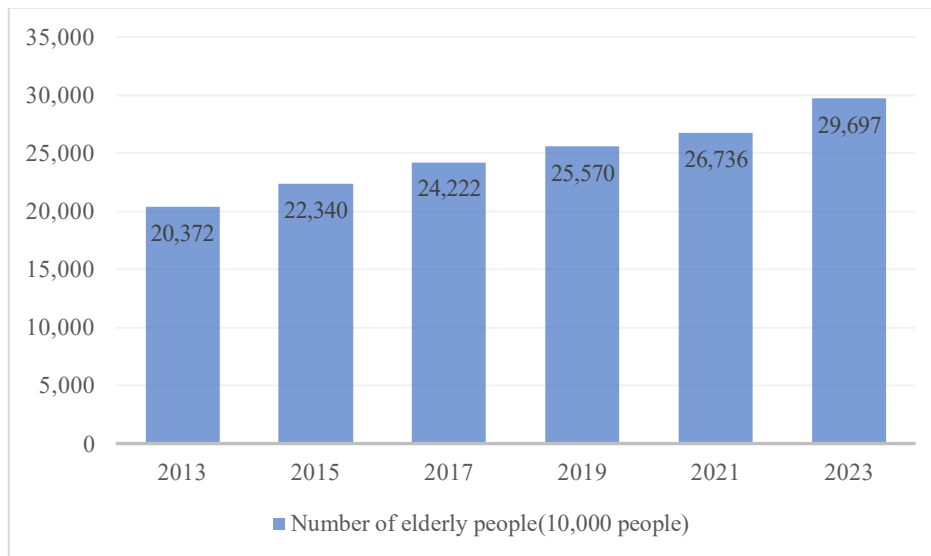


Figure 1: Number of elderly people in China (2013-2023) [3].

As one of the world's most rapidly aging societies, China faces significant challenges related to its growing elderly population. Over the past decade, the number of elderly people in China has continuously increased, rising from approximately 203.72 million in 2013 to 296.97 million in 2023 (see Figure 1). This trend reflects an annual growth rate that underscores the mounting pressures on social resources and family structures. Many older individuals seek re-employment opportunities to alleviate financial burdens and contribute to household incomes. They often engage in low-skill jobs, such as construction work or service-related roles. However, despite their willingness to work, they encounter numerous obstacles, including age discrimination, inadequate training opportunities, and a lack of supportive policies tailored to their needs [3]. This growing demographic highlights the urgency of addressing the digital divide. It underscores the importance of creating an inclusive labor market that supports the re-employment of older adults in the digital age.

The digital divide we talk about today is not just a kind of ability but digital technology using competence, many elderly people in China have failed to fully enjoy the fruits of development in the information age, which means they do not have these skills. The development of China is a very special progress; it missed the first and the second industrial revolutions, but it got into The Third Industrial Revolution, often called the Digital Revolution. Thus, its labor market development has huge span, labors not have much continuity in the transfer of skills, and the skills mastered by each generation of labors vary greatly. In that case, a profound digital divide had been created.

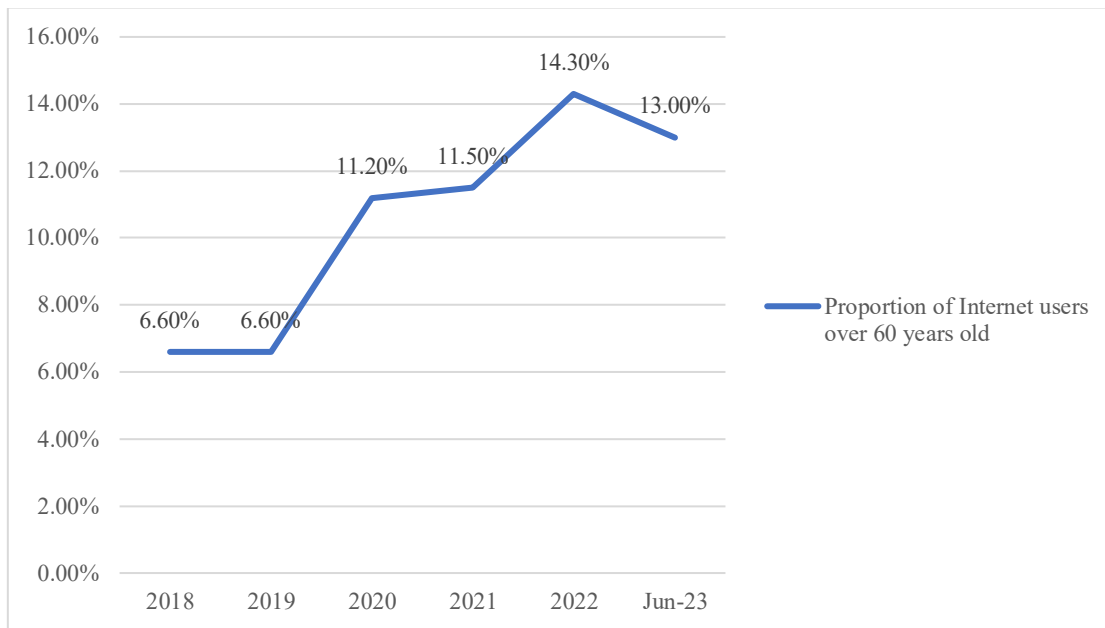


Figure 2: Changes in the proportion of Internet users aged 60 and above in China from 2018-2023 [4].

As of June 2023, the proportion of Internet users aged 60 and above in China has reached 13%, reflecting a steady increase from 6.6% in 2018 (see Figure 2). The number of Internet users in my country will reach nearly 1.1 billion, with those aged 0-59 and those aged 60 and above accounting for 15.2% and 20.8% of the new Internet users respectively, reflecting the growing integration of older adults into the digital landscape [4]. However, challenges persist in promoting digital literacy among this demographic. Many elderly individuals either rely on self-teaching to navigate smartphones or refrain from adopting digital tools entirely, citing accessibility and usability issues. Consequently, this segment of the workforce often lacks the motivation to enhance digital skills, opting instead to leverage their extensive experience in traditional industries. Unbeknownst to them, however, these industries are undergoing significant digital transformations, necessitating a reevaluation of their approach to staying competitive.

2. Current Situation

Currently, population aging and social digitalization are intertwined. However, while digitalization has brought convenience to people, it has also caused the elderly to be troubled by digitalization to a certain extent. China has wholly entered an aging society, and many want to re-employ. 68% of the elderly have a strong desire to work after retirement. 46.7% of the elderly return to the job market to seek personal and social value; 19% of job seekers hope to use their skills and continue to pursue career development; 34.3% of job seekers seek re-employment to supplement their family expenses and increase their income to meet higher-level consumption needs [5]. However, the digital divide has become a barrier, and it has two significant ways to influence the elders to re-employ. On the one hand, the digital divide can make it difficult for elder re-employees to adapt to the increased demands of the modern workplace, increasing the challenges they face when re-employing.

On the other hand, since the elderly often lack understanding and mastery of digital technology and Internet application knowledge, they cannot meet the requirements of the modern work environment, which may lead to employers being biased during the recruitment process and excluding older re-employees. Furthermore, it has developed from applied technology to digital information

technology. In recent years, the digital divide among Chinese elder re-employees has become huge and is still developing; the elder re-employees are constantly catching up with the changing and evolving digital divide. Such a condition worsens the digital divide between young employees and elder re-employees, and elder re-employees still think they need more skills to adapt to modern work [6].

In China, the digital divide between older and younger generations is particularly pronounced. Many elder re-employees express an interest in digital technologies but often face significant barriers when using them. These barriers include a lack of basic technical knowledge, fear of complex interfaces, and difficulty keeping up with the rapidly evolving digital landscape. Additionally, linguistic and cultural factors exacerbate the gap. For instance, affected by the digital economy, the traditional real economy, like clothing stores, is declining daily. With the rise of online shopping and the popularity of online retail platforms, more and more consumers shop online instead of going to stores. However, the elderly re-employers who want to open a clothing store are very frustrated because of the digital divide; they might have fewer opportunities to work or operate in these physical stores and not be able to run an online store or their physical store with few customers.

First, the elderly re-employees do not have a strong hospital to learn new technology, and second, the lack of accessible, elder-friendly learning platforms means there are no places that can provide related courses or give some guidelines to help them enhance their competence and correct job-seeking concepts. Third, age discrimination in the workplace further discourages the elderly from pursuing new skills or seeking re-employment opportunities. Many companies prioritize younger workers due to stereotypes that older employees are less adaptable or less productive. This creates a cycle where the elderly are excluded from opportunities to upskill or reskill, perpetuating the digital divide.

The younger employees not have a huge digital divide, and they can master these technologies because their growth coincided with the development of technology, the same reason elder workers can master the technology of their time. Therefore, as time goes by, the digital divide will become bigger, and the bigger the digital divide, the wider the age gap. Research shows that many Chinese elders interested in re-entering the workforce struggle to navigate online job application processes, participate in virtual interviews, or leverage digital tools for remote work. This limitation often results in their exclusion from sectors like online retail, customer service, and digital marketing, where flexible and part-time positions are abundant.

2.1. Digital Divides

In the primary industry, agriculture and the digital divide are generally manifested as two phenomena [7]. First, there is insufficient popularization of technical equipment, and elder re-employees lack the knowledge or ability to use emerging technologies such as the agricultural internet of things, drones, and precision agriculture. Second, with poor data management capabilities, digital agriculture requires the mastery of big data analysis, such as soil monitoring and climate forecasting.

In the secondary industry, the digital divide is clear in manufacturing. Difficulty in adapting to intelligent equipment will lead elder re-employs to a dilemma because they may be eliminated due to a lack of skills like controlling industrial robots and intelligent production lines. Changes and new requirements brought by technological upgrades are also big problems in the digital divide. It is difficult for older practitioners to meet the new technical requirements, and ignoring the needs of older employees exacerbates the digital gap.

The tertiary industry is the most digitalized sector, and the digital divide faced by the elderly is particularly prominent. Many service jobs, such as online customer service and food delivery, require proficiency in the use of digital tools, and the elderly often find it difficult to perform these tasks due to their lack of skills, not to mention finance and other high-end service jobs.

The digital divide can be divided into five parts, and these divisions can directly affect the re-employment of the elderly and will continue to deepen with the development of science and technology (see table 1).

Table 1: Types of the digital divide [8].

Digital access gap	Inadequate infrastructure, economic constraints, and devices unsuitable for older users
Usage gap	Lack of digital skills, fear of technology, and difficulty understanding online interfaces, limiting their ability to use essential workplace tools.
Supply gap	The scarcity of elder-friendly digital resources
Capability gap	The disparity in educational backgrounds and learning speeds between older and younger workers
Results gap	The inability to translate acquired digital skills

2.2. The Development of the Digital Divide

In the digital age, mastering and effectively using digital technology is the basic prerequisite for the elderly to participate in social affairs, reflect their independence and autonomy, and actively respond to the aging population. From 2010 to 2015, the Chinese aging of the workforce has been increasing, which means the elderly re-employees are trying to get back into the labor market [9]. More and more Chinese elderly can use smartphones and apps on mobile devices, which means they are learning and improving the digital divide. However, the decline in the elderly labor force participation rate shows that more of the working elderly labor force is about to retire or delay retirement, not re-employ. This shows that the number of elder re-employs is reducing. Is it because there are fewer and fewer elder re-employs. No, it is because the digital divide is developing too fast.

We can see that since the late 1990s, my China's labor participation rate has been declining at an accelerated rate, and its changing trend is generally negatively correlated with the level of labor force aging [10]. Chinese society increasingly recognizes the digital divide's impact on elder re-employment. In response, the government and companies are implementing tailored digital literacy programs, simplified tools, and supportive policies. Local governments, for example, offer free workshops teaching elderly citizens practical skills like smartphone use, job platform navigation, and workplace applications. At the same time, private companies are exploring opportunities to integrate elder-friendly technologies into their operations [11]. Businesses in industries like e-commerce, customer service, and logistics are adapting their systems to accommodate older employees, offering user-friendly interfaces and reducing technological barriers in daily tasks. These changes enable older workers to remain productive and encourage businesses to tap into the valuable experience and dedication this group brings to the labor market.

Since the 2000s, the digital divide has grown rapidly, with significant expansion starting in 2008, though it initially went unnoticed. By 2020, COVID-19 highlighted the issue as many elderly lacked smartphone skills, bringing the digital divide to public attention. Post-pandemic, as the economy recovers, elderly re-employees still face challenges due to the shift from applied to digital information technology. While more elderly individuals have begun using smartphones and apps, their labor force participation has declined, not due to reduced numbers but because the digital divide is evolving too quickly for them to keep pace. Mastering digital technology remains essential for elderly participation in social and economic activities.

2.3. Society's Respond

Today, Chinese society increasingly recognizes the widening digital divide and its impact on elder re-employment. In response, the government and private companies seek effective ways to help older workers bridge the gap. Initiatives include tailored digital literacy programs, simplified technological tools, and targeted policy measures to promote inclusion in the digital workforce. For example, some local governments have introduced free technology training workshops for elderly citizens, focusing on practical skills like using smartphones, navigating job-seeking platforms, and understanding workplace applications [12].

At the same time, private companies are exploring opportunities to integrate elder-friendly technologies into their operations. Businesses in industries like e-commerce, customer service, and logistics are adapting their systems to accommodate older employees, offering user-friendly interfaces and reducing technological barriers in daily tasks. These changes enable older workers to remain productive and encourage businesses to tap into the valuable experience and dedication this group brings to the labor market.

3. Digital Gaps

Chinese society has noticed the digital divide among elderly re-employees, and the government and the company have put a lot of effort into filling the digital divide; they are trying to find an efficient way to help the elderly catch up with the evolving technology. The digital integration of elderly re-employees is mainly affected by economic ability, physical function, and psychological cognitive level. Faced with the vast and complex amount of information on the Internet, the elderly group has a weak ability to obtain information actively, and some elderly groups lack awareness of network security and personal information protection.

China is counting on government investment, enterprise development to adapt to aging, and family descendants' education to fulfill the digital divide among elderly re-employees. With the synergy of these three entities, the digital divide among elderly re-employees is gradually narrowing.

3.1. Relevant policy support

Currently, some scholars propose that based on the exclusion theory, a bridging path composed of policy support, technical support, social support and the persistence of the elderly is proposed. Although, there are relatively few studies that focus on and explore measures to bridge the digital divide for the elderly based on the national strategic level. Although there are fewer intuitive policies, as a socialist country, Chinese government gives some policies to support elderly re-employees catch up on the digital divide (see Table 2).

Table 2: China's policies to bridge the digital divide in elderly re-employment [13].

Policy Name	Policy Content	Release Time
Article 4 of the Individual Income Tax Law of the People's Republic of China.	Retired seniors can enjoy certain tax benefits on their re-employment income.	2024.1.1 revision
Article 5 of Notice on strengthening support measures to help the development and growth of the silver economy.	Support independent entrepreneurship in the silver economy	2024.5.30
Article 7 of Notice on strengthening support measures to help the development and growth of the silver economy.	Expand income-increasing channels for senior citizens.	2024.5.30

Table 2: (continued).

Article 8 of Notice on strengthening support measures to help the development and growth of the silver economy.	Protect the labor rights and interests of older workers.	2024.5.30
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As shown from the table above, China has introduced a new law and four policies to protect and promote the elder re-employment. Although there are no policies directly aimed at reducing the digital divide, we can notice that Chinese government try to incent the elder re-employees find job positions they fit in.

At the legal level, legal protection and tax relief benefits for the elderly who are re-employed should be provided. This law reduces the tax burden on retired elderly people for re-employment and encourages them to continue participating in social work. This means they can improve their digital capabilities by participating in simple labor, receiving wages, and using their wages to learn new technologies. This not only gives the re-employed elderly the capital to learn new technologies but also promotes social and economic development. At the policy level, the second and the fourth policies call on companies to open their doors to older people who want to be re-employed. These methods encourage companies to reduce digital prerequisites to welcome elderly re-employees.

In addition, the third policy in the table claims that the government will support human resource service organizations in developing employment positions, technological products, and service models tailored to senior human resources, fully tapping into the potential and value of the aging workforce [14]. The signals that the government will put effort into uniting companies and organizations to help elderly re-employees and fill the digital gap, which is the most vital step.

3.2. Business Helping

In order to help the elderly re-employ or to absorb elderly talents, many companies in China formulate series of measures to help elderly re-employed people bridge the technology gap.

Table 3: Chinese companies' measures to bridge the digital divide in elderly re-employment [15,16].

Company name	Regulation content	Release Time
China Mobile Communications Group	China Mobile holds smart classroom activities in many provinces across the country to explain how to use commonly used APPs for the elderly, and provides technical support through remote video customer service and offline experience centers.	2023
Tencent	Tencent has developed an elderly-friendly version of the "Care Mode", such as a voice news function and a simplified operating interface, to facilitate elderly users to obtain information. Help elderly re-employed people to increase their familiarity with digital tools and improve their re-employment skills.	2023
Bank of Shanghai	The Bank of Shanghai organizes public welfare services for the elderly and provides training on the application of smart technology to the elderly.	2022

Table 3: (continued).

China United Network Communications Group & Bank of China	CUCC and Bank of China have opened special learning areas for the elderly on their respective apps and released aging-friendly digital teaching videos.	2022
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These regulations were all recently released by companies because, stimulated by the epidemic, domestic research on the digital divide among the elderly reached a peak in 2020 (see Table 3). These studies focus on the impact of the digital divide among the elderly, and then the companies follow these studies to regulate their stipulations to help and attract elderly re-employment; most companies want to recruit elder talents or experienced technicians. All these regulations focus on influencing factors, governance, digital survival of the elderly, and aging-friendly transformation, which significantly enriches the research system on the digital divide in older people. However, the elderly without special skills and advanced knowledge can only learn digital technology through these welfare measures and cannot successfully enter these large companies. This means that their re-employment scope may still be limited to simple labor.

3.3. Other Social Forces

China's education for the elderly originated in the 1980s. A series of important documents on national life put forward precise requirements for expanding investment in educational resources for the elderly and innovatively developing education for the elderly. Our country has built the National University for the Elderly, the Elderly Education Learning Experience Base, and the Elderly Education Experience Base [16]. The school accepts nearly 80,000 universities (schools) for the elderly of various types and actively carries out education and teaching for the elderly, with more than 10 million students enrolled (Figure 3). Elderly education and training mainly focus on interests and skills, with health, entertainment, communication, legal education, and other project content as the core. As we can see in the chart below, at the end of 2019, the number of universities (schools) for the elderly in China was approximately 76,296, an increase of 14,135 from 2017, a year-on-year increase of 22.7%; in the past five years, the number of universities (schools) for the elderly in China has increased by 15,790. The average annual growth rate is 4.7 percentage points. There is excellent potential to be explored in expanding skilled job training supported by professional skills, such as health management, posture management, cultural communication, rural tourism, family photography care, psychological counseling, and other fields.

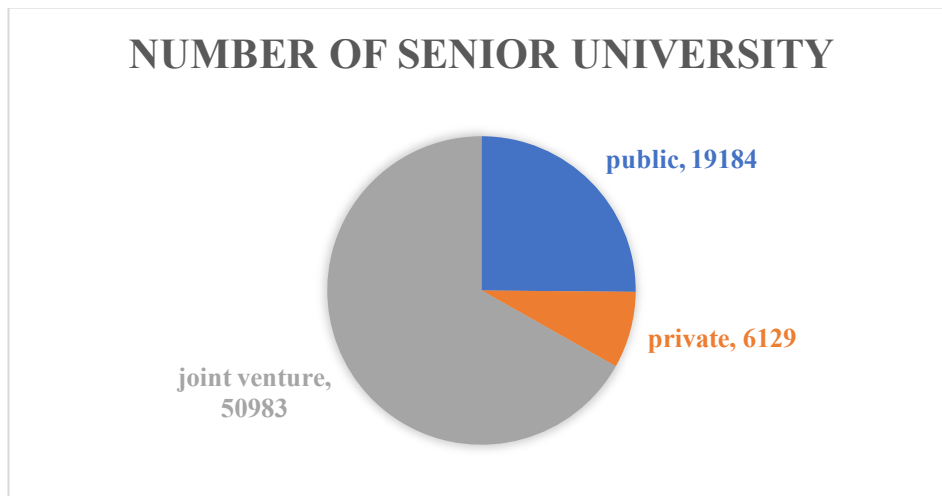


Figure 3: Number of universities (schools) for the elderly in China (2024) [15].

Now, based on the Chinese National Bureau of Statistics, there are 41000 service institutions for the elderly and the disabled, and the University for the Elderly mentioned above is targeted at helping the re-employed elderly to bridge the digital divide [16]. However, many of these service institutions and universities do not focus on the function of the elderly employment information platform and have not yet established extensive linkage relationships with employers or companies [17]. Therefore, it is necessary to improve the institutional mechanisms of elderly service and education institutions, effectively play their role in serving the elderly re-employment group in employment guidance and vocational training, and work hard to smoothen employment channels for older people.

4. Prospects

Although China has only discovered and studied the digital divide problem for a short period, for the current Chinese society, its inherent development momentum can support its timely remedial measures to address the digital divide problem. At the same time, Chinese society has begun to focus on the elderly this year. Academic research on reemployment and the digital divide has been proliferating, and the government is encouraging reemployment for the elderly. As a socialist country, by giving full play to its institutional characteristics, it can implement a series of measures to help the elderly re-employ. This will encourage them to cross the technological gap and return to an equal and abundant labor market [18,19].

Moreover, we cannot underestimate the power of family, especially since Chinese traditional culture requires children to be filial to their parents. Therefore, as time goes on, more and more young generations will teach their parents to use digital devices; even if it is not for them to be re-employed, it is also for them to adapt to society. In that case, the digital divide will be slowly narrowed. With joint effort from the government, companies, and society, the digital divide of the elderly re-employees will be reduced to a minimum.

5. Conclusion

In the context of China's aging population and the diminishing demographic dividend, elderly re-employment presents a crucial opportunity to sustain economic and social vitality. Despite the significant challenges the digital divide poses, joint efforts from the government, businesses, and society offer a path forward. Government policies provide essential legal and financial support, while companies develop elder-friendly technologies and create accessible learning platforms. Additionally, the rising culture of lifelong learning, supported by educational institutions and family initiatives,

empowers the elderly to acquire necessary digital skills. These initiatives gain momentum, the barriers of the digital divide will gradually erode, allowing elderly workers to re-integrate into the labor market and contribute their experience and knowledge. With sustained effort, the silver-haired generation will bridge the digital divide and redefine its role in a rapidly evolving, technology-driven society.

References

- [1] Khan, H. T., Addo, K. M., & Findlay, H. (2024). *Public health challenges and responses to the growing ageing populations: A review of literature*. *essopenarchive.org*.
- [2] Jarzebski, M. P., Elmqvist, T., Gasparatos, A., Fukushi, K., Eckersten, S., Haase, D., ... & Pu, J. (2021). *Ageing and population shrinking: Implications for sustainability in the urban century*. *Npj Urban Sustainability*, 1(1), 17.
- [3] Akimov, A. V., Gemueva, K. A., & Semenova, N. K. (2021). *The seventh population census in the PRC: results and prospects of the country's demographic development*. *Herald of the Russian Academy of Sciences*, 91(6), 724-735.
- [4] Zhou, M., Liu, L., Zhang, J., & Feng, Y. (2024). *Exploring the role of chatbots in enhancing citizen E-participation in governance: scenario-based experiments in China*. *Journal of Chinese Governance*, 1-32.
- [5] Nacrelli, T. (2025). *Understanding Organizational Culture: Foundational and Manifest Culture*. In *Building Inclusive Leadership Beyond the Gender Binary* (pp. 165-186). IGI Global Scientific Publishing.
- [6] Pinn, A. B. (Ed.). (2021). *The Oxford handbook of humanism*. Oxford University Press.
- [7] Michael, K., Carvalko, J. R., Andrews, C. J., & Batley, L. (2024). *In the Special Issues: GenAI, Ingenuity, the Law, and Unintended Consequences*. *IEEE Transactions on Technology and Society*, 5(2), 149-155.
- [8] Zhu, L. (2022). *Research on the Employment Relationship of Retired Workers*. *International Journal of Education and Humanities*, 4(2), 82-84.
- [9] YANG, Z., WEI, X., & QIU, S. (2023). *The impact of the digital divide on the re-employment of the elderly and its policies*. *Modern Business Trade Industry*, 45(20), 91-93.
- [10] LU, J., & WEI, X. (2022). *The Mechanism of Labor Force Aging on Economic Development and Its Strategic Responses*. *Studies on Socialism with Chinese Characteristics*, 03, 18-30.
- [11] LI, J., XUE, K., & ZHAO, J. (2024) (n.d.). *Research on the impact of the digital divide on the re-employment of urban younger elderly people*. *China Soft Science*, 2024(08), 189-199.
- [12] XU, Q. (2025). *Path to bridge the digital divide under the national strategy of actively responding to population aging*. *CHUANBO YU BANQUAN*, 16(13).
- [13] HUANG, D. (2024). *The value implications, obstacles and innovative paths for the elderly to cross the digital divide*. *CHUANBO YU BANQUAN*, 22, 72-76.
- [14] ZHANG, W. (2021). *Research on the path to bridging the digital divide among the elderly*. *Journalism & Media Studies*, 08, 78-80.
- [15] SUN, W. (2023). *Analysis on the feasibility Path of re-employment of Young Elderly Human Resources development*. *Fortune Today*, 36, 7-9.
- [16] *Press Conference on the Main Data Results of the Seventh National Population Census and Answers to Journalists' Questions*. (2021). National Bureau of Statistics.
- [17] *Notice of the Ministry of Human Resources and Social Security on strengthening support measures to help the development and growth of the Silver Economy*. (2024). Ministry of Human Resources and Social Security of the People's Republic of China.
- [18] Ting, X. U., Youhua, M. O., Shidi, M. E. N. G., & Xiaojun, Z. H. U. (2023). *Trend and prediction of fatality due to occupational injuries in China*. *Journal of Environmental and Occupational Medicine*, 40(10), 1128-1134.
- [19] Thomassen, K., Sundstrup, E., Vinstrup, J., Seeberg, K. G. V., & Andersen, L. L. (2022). *Barriers and Facilitators of Re-Employment among Senior Workers: Prospective Cohort Study*. *International journal of environmental research and public health*, 19(18), 11536.