Social Security and Public Policies: challenges and opportunities in Revolution 5.0

Previdência Social e Políticas Públicas: desafios e oportunidades na Revolução 5.0

Alana Cristina Martins Gomes Prado[1]
ORCID: 0000-0002-1038-631X

Submetido em 07.06.2025
Aceito em 21.10.2025

ABSTRACT: This article analyzes the challenges and opportunities faced by the Brazilian social security system in the context of the Fifth Industrial Revolution (Revolution 5.0). Using a socio-legal approach, it seeks to understand how the incorporation of emerging technologies, new financing models, and the inclusion of digital economy workers impact the pension system. Based on bibliographic and documentary research, the study highlights the need for public policies that reconcile innovation, economic sustainability, and social protection. It advocates for the development of a more inclusive social security system, adapted to new labor dynamics, and committed to promoting social justice and human dignity.

Keywords: Social Security. Public Policies. Revolution 5.0. Challenges. Opportunities.

RESUMO: O presente artigo analisa os desafios e as oportunidades enfrentados pela previdência social brasileira no contexto da Revolução 5.0. A partir da abordagem jurídico-

[1] Doutoranda pela Universidade de Fortaleza (CE). Mestre em Direito Constitucional pela Universidade de Fortaleza (CE). Graduada em Direito pela Universidade de Fortaleza.

social, busca-se compreender como a incorporação de tecnologias emergentes, novos modelos de financiamento e a inclusão de trabalhadores da economia digital impactam o sistema previdenciário. Com base em pesquisa bibliográfica e documental, o estudo evidencia a necessidade de políticas públicas que conciliem inovação, sustentabilidade econômica e proteção social. Defende-se a construção de uma previdência mais inclusiva, adaptada às novas dinâmicas laborais, que promova justiça social e dignidade humana.

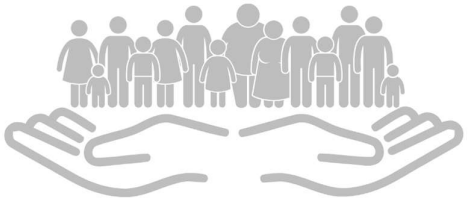
Palavras-chave: Previdência Social. Políticas Públicas. Revolução 5.0. Desafios. Oportunidades.

1 INTRODUCTION

Contemporary society is experiencing rapid digital transformation, propelled by Revolution 5.0. This stage integrates advanced technologies such as artificial intelligence, the Internet of Things, big data, and intelligent automation with a human-centered focus. Unlike previous industrial revolutions that emphasized productive efficiency, Revolution 5.0 balances technological innovation with collective well-being, sustainability, and social inclusion. This article contends that public policies, particularly those related to social security, must adapt to evolving work structures, demographic shifts, including declining birth rates[2], and population aging[3], and the growing demand for agile, personalized, and accessible services. The capacity to realign social security with these priorities constitutes both the principal challenge and opportunity presented by Revolution 5.0.

[2] The IBGE (Brazilian Institute of Geography and Statistics) estimates that the country's population will stop growing in 2041. In 2000, the fertility rate was 2.32 children per woman. In 2010, it reached 1.75 per woman living in the country. In 2023, the fertility rate fell again, reaching 1.57 children per woman in Brazil. (Brasil, 2024)

[3]In 2022, the total number of people aged 65 or over in Brazil (22,169,101) reached 10.9% of the population, an increase of 57.4% compared to 2010, according to data from the 2022 IBGE census. (Brasil,)



The central argument is that the primary challenge of Revolution 5.0 for Brazilian Social Security lies in the strategic integration of new technologies to promote inclusion, equity, and efficiency, while maintaining constitutional principles of social protection. Through an analysis of technological, demographic, and regulatory changes, this article underscores the necessity of adapting social security to remain resilient, especially in the face of population aging, declining birth rates, technological unemployment, informality, and diminishing public trust. Addressing these challenges through comprehensive policy reform can transform them into opportunities for systemic advancement.

To substantiate this central argument, the article first explores the concept of Revolution 5.0 and its implications for the labor market and pension systems. Subsequently, it addresses the challenges facing Social Security, including evolving worker profiles, technological unemployment, alternative pension financing models, the digital divide, and data protection issues. The concluding section outlines how Revolution 5.0 technologies can create opportunities for Brazilian pension management by leveraging automation, personalized services, and improved quality of life for citizens. Throughout, the analysis emphasizes that adapting public policy in these areas is crucial for the success of social security in the 5.0 era.

2 THE 5.0 REVOLUTION AND MAJOR ISSUES IN SOCIAL SECURITY

Social Security has historically served as a fundamental mechanism for worker protection and economic security in instances of old age, disability, or incapacity for work. The integration of advanced technologies and the humanization of labor relations characteristic of the 5.0 Revolution, however, introduces additional complexities for social security systems.

The First Industrial Revolution is important for today's society because it gave rise to capitalism, promoting the transition from a trade-based economy to one focused on industry, such as the use of steam engines. The Second Industrial Revolution was characterized by electricity, the combustion engine, and the production of aluminum and steel (Sakurai; Zuchi, 2018). All of these innovations aimed to reduce costs and increase efficiency in the production of goods (Da Silva, Gasparin, 2006).

The Third Industrial Revolution focused on technology, with notable advances in telecommunications, computer science, robotics, and related fields, playing a crucial role in consolidating the phenomenon of globalization. The Fourth Industrial Revolution integrates the latest technologies to drive industrialization at local and global levels. Industry 4.0 encompasses several pillars, including: i) Internet of Things (IoT): the relationship between people and objects (services, products); ii) Big Data Analytics: processing complex data through new ways of capturing, analyzing, and managing information; iii) Cybersecurity: ensuring effective security for information systems; iv) Cloud computing: accessing data over the internet from anywhere (Silveira, 2016). As we move beyond Industry 5.0, the future envisions an era where technological and human elements coexist harmoniously, driving unprecedented levels of personalization, resilience, and sustainability in industrial processes (Balamurugan; Surva, 2025).

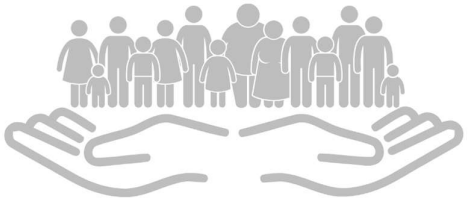
Revolution 5.0, also called Society 5.0, represents the latest phase of industrial evolution and emerged as a concept in Japan in 2017. Society 5.0 refers to a vision of society that integrates advanced technology with solutions for social issues, creating a human-centered community. The country faces numerous social challenges, including a declining birth rate, a growing elderly population, a declining workforce, and rising social security costs. The current workforce, which exceeds 77 million people, is expected to shrink by about 70% by 2050. Meanwhile, the cost of social security is expected to increase due to the aging population, rising

from 120 trillion yen in fiscal 2015 to 150 trillion yen in fiscal 2025. The goal of Society 5.0 is to create a human-centered society in which both economic development and the resolution of social challenges are achieved, and people can enjoy a high quality of life that is fully active and comfortable. (Fukuyama, 2018).

3 CHALLENGES OF THE 5.0 REVOLUTION: CHANGING WORKER PROFILES, PENSION FINANCING, TECHNOLOGICAL EXCLUSION AND DATA PROTECTION

Revolution 5.0 poses significant challenges to the Social Security structure, necessitating a reformulation of the State's role in guaranteeing social protection amid accelerated technological transformations and profound demographic shifts. The emergence of new forms of work, many of them unrelated to formal employment (such as gig work or platform-based labor), weakens the traditional contributory model and demands the creation of more flexible and inclusive systems.

In addition to financial sustainability, which is compromised by population aging and the decline in the economically active population, the intensification of digital inequalities stands out. Digital inequality refers to unequal access to digital technology, leaving some workers without opportunities for digital education and putting them at risk of social security exclusion, thereby widening existing disparities. Another sensitive issue concerns the protection of insured data. The increasing digitalization of social security services requires innovative information security practices. The use of artificial intelligence, blockchain, and advanced cryptography presents itself as a response to the growing risks of privacy breaches and the need to ensure trust in digital public management systems.



3.1 Change in worker profile and technological unemployment

The advent of Society 5.0 establishes a new paradigm for industrial development globally, including in Brazil. Research indicates that collaboration between humans and intelligent systems will significantly transform labor markets and economic development. Certain companies have already implemented collaborative robots to enhance production efficiency.

According to forecasts made by the World Economic Forum in its Future of Jobs Report 2025, changes in the global labor market will amount to 22% of current jobs: approximately 170 million new jobs are expected to be created by 2030, while 92 million others are displaced due to technological developments. Based on this study, technological skills in artificial intelligence (AI), big data, and cybersecurity are expected to grow rapidly, while human skills such as creativity, resilience, flexibility, and agility will continue to be in demand. A combination of both types of skills will be increasingly crucial in a rapidly changing labor market. (World Economic Forum, 2025).

According to the same report, in Brazil, it is estimated that 37% of the country's professional skills will be directed toward technology over the next five years. According to the survey, 58% of companies in the country intend to hire employees with up-to-date skills, and nine out of ten of the organizations surveyed plan to develop their technological capabilities, reallocating employees from declining positions to positions in growth. Among the shrinking occupations cited in the study are roles such as typists, cashiers, attendants, postal workers, accountants, and transportation drivers (World Economic Forum, 2025).

The transformations in the work environment brought about by the 5.0 Revolution challenge traditional social security models, which rely on formal employment relationships, to innovate and incorporate new contributors amid increasing structural unemployment, expanding informality, and evolving work patterns. Consequently, the development of new contributory mechanisms is vital for the sustainability of the social security system. As

independent work expands, policies must be designed to encourage social security contributions from self-employed individuals, freelancers, and digital platform workers, thereby ensuring a minimum level of social protection.

.

3.2 Sustainability and Financing of Social Security in the 5.0 Revolution

According to Wagner Balera (2015, p. 14), the General Social Security Regime is structured to "provide coverage for basic social contingencies," which reinforces its protective nature and justifies the need for its readjustment to the new realities of work and the digital economy. The rise of the 5.0 Revolution, marked by intensified automation, robotization, and digitalization of labor relations, poses significant structural challenges to the sustainability and financing of Social Security in Brazil. One of the main impacts is on the social security revenue base, which is still heavily tied to payroll taxes and formal employment income. The replacement of traditional jobs by disruptive technologies and the growth of informality on digital platforms weaken this model, requiring robust and innovative institutional responses. The difficulty of adapting the social security system to the growing informality and heterogeneity of contemporary employment relationships reveals the urgent need to rethink intergenerational solidarity in a context of demographic and technological change.

Several alternative proposals have been put forward to address the challenge of social security financing and reduce the reliance on contributions based solely on formal employment relationships. One proposal involves shifting the basis for social security contributions from payroll to companies' gross revenue. The Social Security Contribution on Gross Revenue (CPRB) was established as an alternative to the traditional employer contribution on payroll, with the aim of reducing labor costs and stimulating the competitiveness of the national industry. This measure replaced the calculation basis for employers' social security

contributions, provided for in items I and III of the article. 22 of Law No. 8,212/1991—with a rate applied to companies' monthly gross revenue, varying between 1% and 2% depending on the sector and economic activity. In addition to encouraging exports by exempting them from the contribution, the CPRB aims to promote the formalization of the labor market by decoupling the contribution from formal hiring, and to combat unfair competition between domestic and imported products by establishing an additional Cofins-Import tax equivalent to the CPRB rate paid on domestic production (Texeira; De Paula, 2024).

Another suggestion is micro-contributions, integrated with job placement platforms, which would allow social security inclusion without compromising the system's financial sustainability. However, these proposals appear to fall short of solving the problem. Mechanisms such as micro-contributions, while promoting inclusion, may be insufficient to ensure the system's financial sustainability, considering that existing simplified regimes, such as the MEI (Individual Micro-Institutional System) and the optional plan, have failed to balance social security accounts. Taxation on gross revenue, while intended to reduce payroll taxes, can place an excessive burden on employers, discouraging formalization and negatively impacting the creation of formal jobs.

In the context of technological transformations and structural challenges to social security financing, the debate over implementing alternative social protection mechanisms is gaining relevance, with the proposal for a basic income as a social protection instrument standing out. Pierdoná, Leitão, and Furtado Filho (2019) argue that implementing a sufficient basic income can be an essential preliminary measure to address scarcity and promote social equality. This approach aims not only to mitigate the effects of automation and informality in the labor market but also to strengthen solidarity and citizenship, decoupling social protection exclusively from formal labor contributions.

The adoption of a basic income, even if partial or targeted, demands reflection on its articulation with other social protection systems and their financing methods. The proposal can be understood not as a replacement for contributory Social Security, but as a complement capable of expanding coverage and reducing structural inequalities. This approach reconciles the principles of universality and solidarity with the challenges posed by the 5.0 Revolution, highlighting the need for an institutional redesign that recognizes the limits of the traditional model and promotes the active inclusion of all citizens in the social safety net in the face of structural technological unemployment.

In this regard, several countries have adopted innovative approaches to guarantee social security coverage for workers in non-traditional jobs. Taxation of digital platforms is emerging as a strategy to ensure that companies that benefit from the work of self-employed professionals contribute adequately to social security systems. The implementation of digital collection systems, such as the "Golden Tax Project Phase III" in China, has proven effective in promoting the exchange of tax information and hindering tax evasion (Yu, C.; Li, Y. 2024).

Digital social security accounts have also been explored as a means of facilitating access and eligibility for atypical workers. These accounts, adaptable to multiple income streams, promote a more inclusive approach to social security. However, it is imperative that careful policies be designed to avoid simply digitizing obsolete systems. (Vallistu, 2023)

In summary, ensuring the sustainability of Social Security in the context of Revolution 5.0 necessitates an innovative and comprehensive strategy that addresses structural challenges rather than relying on incremental adjustments. The adoption of policies that integrate inclusion, equity, and fiscal efficiency is essential to guarantee social protection for future generations.

After addressing financial sustainability, a critical consideration is the digital governance of social security to ensure that technological advancements do not exacerbate technological inequality or digital exclusion.

3.3 Technological Inequality and Digital Exclusion

A significant barrier to the 5.0 Revolution in pension activities is the risk of social security exclusion for workers, retirees, and pensioners who lack access to technology and digital literacy. Ensuring universal access to social security benefits remains a substantial challenge.

Regarding the use of digital devices, it is correct to state that the elderly still represent a minority of users. According to a 2021 survey by the Internet Steering Committee in Brazil, approximately 50% of the elderly Brazilian population (60 years or older) has regular access to the internet. This figure is low when compared to the younger population: 92% of those between 25 and 32 years old, or 96% of those between 16 and 24 years old, made regular use of the internet (CGI.br, 2021).

Over time, all social security services and benefits will tend to be provided digitally, adopting a model similar to that already observed within the Judiciary. Despite this, it is necessary to evaluate certain relevant aspects. In the case of lawsuits, representation by a lawyer regularly registered with the Brazilian Bar Association is generally required, as established in the 2015 Code of Civil Procedure (art. 103, art. 1, item I, and art. 3 of the OAB Statute), so that qualified professionals act on behalf of the parties. Thus, even if citizens are not integrated into the digital world, they continue to have access to justice through their legal representatives. On the other hand, regarding administrative requests to Social Security, there is no requirement for a lawyer, since insured individuals and their dependents have the right to directly request the benefits and services provided for in Law No. 8,213/1991. In this context, these individuals may face significant obstacles, particularly due to inadequate access to digital technologies like computers and internet connections, which can hinder the exercise of their rights.

Current technological development is hindered by insufficient government initiatives targeting digital inclusion, particularly for socially vulnerable and under-resourced populations. Establishing policies that ensure equitable internet access across regions and fostering forums

to address digital literacy gaps are essential. Merely providing devices and connectivity is inadequate if the necessary knowledge to utilize them remains inaccessible. This situation perpetuates a digitally excluded segment of the population, which, beyond lacking access to computers, is also deprived of the means to fully exercise citizenship (Almeida Filho, 2015).

In addition to the challenges related to digital inclusion, it is necessary to consider the risks linked to data protection and the security of information of Social Security beneficiaries

3.4 Security and data protection

The 5.0 Revolution, by combining technological advances with the centrality of the human being, poses new challenges to the data protection of INSS beneficiaries. The digitalization of social security services increases the volume and sensitivity of the information processed, which requires robust governance to guarantee the privacy and security of this data. Therefore, the General Personal Data Protection Law (LGPD) establishes fundamental guidelines for the appropriate processing of personal data, especially sensitive data[4] (Brasil, 2018), such as the health and financial data of retirees.

The INSS's adaptation to the LGPD requirements entailed the implementation of compliance and information security mechanisms, such as the Information Security Policy (POSIN-INSS)[5], the definition of access profiles, operator control, and risk mapping. Furthermore, interoperability between public systems, such as those that comprise the National

[4] General Data Protection Law deals with sensitive data in its article 11.

[5] The Information Security Policy of the National Institute of Social Security-POSIN-INSS was created by RESOLUTION No. 9/CEGOV/INSS, OF AUGUST 31, 2020. Available at:https://www.gov.br/inss/pt-br/acesso-a-informacao/acoes-e-programas/governanca/sistema-de-governanca/rs9CEGOVINSS.pdf . Accessed on: May 12, 2025.

Social Information Registry (CNIS), requires technical and legal standards that guarantee the integrity and confidentiality of shared information.

In this context, technological solutions based on blockchain and advanced cryptography have been identified as promising ways to ensure traceability, immutability, and transparent consent in the use of data in highly connected digital environments. The use of these technologies allows for the decentralization of information control, reducing the risk of fraud, unauthorized access, and leaks, while strengthening the informational self-determination of data subjects.

Recent cases of social security data leaks demonstrate that systemic or human failures are still a reality, and that the civil liability of the State is a legitimate instrument for protecting policyholders. The enforcement of the rights provided for in Article 18 of the LGPD, such as access, correction, and deletion of data, is essential to ensure trust in the social security system, especially for a more digitally vulnerable population, such as retirees (Brasil, 2018).

Therefore, data protection in Social Security must be understood as a central element of digital citizenship and the dignity of older adults. In an era driven by data intelligence, respect for privacy and information security is a necessary condition for the sustainability and legitimacy of the Brazilian social security system (Meireles Filho; Meireles, 2023).

Once the primary legal and operational barriers are addressed, tangible opportunities arise to transform Social Security into a system that is more accessible, transparent, and inclusive.

4 OPPORTUNITIES: PROCESS AUTOMATION AND ADMINISTRATIVE EFFICIENCY, PERSONALIZATION AND PREDICTABILITY OF RETIREMENT, AND IMPROVED HEALTH AND QUALITY OF LIFE

Fukuyama identified five strategic areas in Revolution 5.0 that can leverage Japan: extending healthy life expectancy; realizing the mobility revolution; creating next-generation supply chains; building and developing infrastructure and attractive cities; and "Fintech[6]" (Fukuyama, 2018).

The strategic priorities identified in Japan can be adapted to the Brazilian context and the pension sector, as the 5.0 Revolution presents opportunities to enhance pension management through the application of artificial intelligence for process automation, increased transparency, and improved security for beneficiaries. Additionally, these advancements can contribute to better health outcomes and quality of life.

4.1 Process Automation and Administrative Efficiency

The use of artificial intelligence and big data has proven crucial for optimizing administrative management and granting social security benefits. Digitization enables greater efficiency in public administration, reducing fraud and errors through the use of technologies such as blockchain, which ensures security and traceability in operations. As Osorio (2021) points out, the adoption of technological solutions in public administration, especially in social security, represents a strategic path to promoting greater effectiveness, cost-effectiveness, and social control over public resources.

[6] Fintech is short for "financial technology" and refers to companies that use technology to innovate and optimize financial services

In this sense, the integration of technology into social security is not only timely but essential. In addition to modernizing services, automation contributes to greater transparency and agility, ensuring that policyholders have faster and more secure access to their rights. Technology also makes the system more resilient and adaptable to demographic and economic changes, a crucial aspect given the aging population. According to Prado Garcia (2022), the digitalization of social security can be understood as a tool for institutional strengthening, capable of enabling public policies based on concrete and up-to-date data.

Process automation has also simplified the granting and review of benefits, significantly reducing bureaucracy. Computerized systems enable rapid document analysis and automated application approval, saving time and human resources. Transparency and access to information through digital platforms provide policyholders with detailed monitoring of their contributions, the status of their applications, and effective communication channels to clarify doubts.

Additionally, technology can enable personalized service. Tools such as chatbots, virtual assistants, and CRM (Customer Relationship Management) systems offer immediate responses to recurring requests and organize the history of user interactions, promoting a more efficient and targeted experience. The 5.0 Revolution, by combining technological innovation with a focus on citizen well-being, redefines the role of the State and social security in promoting social justice and digital inclusion.

4.2 Personalization and Predictability of Retirement in the 5.0 Era

The 5.0 Revolution, characterized by the integration of advanced technologies and human-centered values, initiates a new era in the relationship between individuals and social protection systems, particularly in the realm of pensions. A key opportunity in this context is the personalization of pension systems, facilitated by technologies such as artificial intelligence,

big data, and blockchain. These tools enable the continuous collection and analysis of data related to the work and financial histories of insured individuals, allowing retirement plans to be tailored to actual contribution records, risk profiles, personal retirement objectives, and projected health and longevity. This approach departs from traditional standardized models and can promote greater distributive justice and social engagement with the system. Additionally, retirement predictability is enhanced through predictive algorithms and real-time simulation tools, enabling policyholders to visualize future income projections and understand the implications of career decisions, such as periods of informality or changes in employment status. This not only strengthens individual planning capacity but also increases system transparency, which is vital for legitimacy. The combination of predictability and personalization empowers citizens and enables the State to formulate more effective public policies based on dynamic data. Thus, Revolution 5.0 offers social security the opportunity to become more inclusive, responsive, and sustainable.

4.3 Improved Health and Quality of Life

The application of Revolution 5.0 technologies in healthcare has transformative potential for social security systems. The use of wearable devices, smart sensors, the Internet of Things (IoT), and Artificial Intelligence (AI) facilitates continuous health monitoring, disease prevention, and early diagnosis, contributing to active longevity and a reduction in disability retirement. Such advances allow diseases to be identified at an early stage, especially in vulnerable population groups, which positively impacts the maintenance of work capacity and pension sustainability (Dimitri, 2019; Sandhya; James, 2022).

Furthermore, innovations such as biosensors, artificial neural networks, and neuro-fuzzy systems support large-scale diagnosis and clinical decision-making, improving the quality of

medical services and promoting greater efficiency in care (Verma, Agarwal, Gupta, 2022; Meiryani et al., 2022). Despite the challenges related to data privacy and interoperability between systems, digital solutions show promise for expanding access to preventive healthcare and improving the government's response to the new demands of the economically active population (Debnath, 2023).

5 FINAL CONSIDERATIONS

The 5.0 Revolution marks a pivotal moment, merging technological progress with human-centered values to envision a society that integrates innovation, well-being, and sustainability. Within the sphere of social security, this era introduces substantial challenges, including the necessity to reformulate public policies in response to diversified work arrangements, increasing informal labor, technological unemployment, and demographic aging.

Simultaneously, Revolution 5.0 presents opportunities to strengthen and modernize the pension system, emphasizing process automation, personalized services, expanded coverage, and data-driven management for greater efficiency and transparency. Emerging technologies, including artificial intelligence, big data, and blockchain, facilitate the development of a more inclusive system that is responsive to the evolving nature of digital work and attuned to technological disparities.

Achieving these objectives will require investment in digital inclusion, re-evaluation of financing mechanisms, enhancement of data protection, and promotion of interoperability among public systems. The future of social security in Brazil relies on coordinated efforts among the State, society, and the market, prioritizing social justice, sustainability, and respect for human dignity. Society 5.0 thus represents not only a technological challenge but also a historic opportunity to reimagine social protection on more equitable and resilient foundations.

REFERENCES

ALMEIDA FILHO, José Carlos de. **Processo eletrônico e teoria geral do processo eletrônico: a informatização judicial no Brasil.** 5. ed. rev. e atual. Rio de Janeiro: Forense, 2015.

BALAMURUGAN, S.; SURYA, B. **Evolution of industrial revolution in smart factories for Industry 5.0 transformation.** 21 fev. 2025. Disponível em: https://onlinelibrary.wiley.com/doi/abs/10.1002/9781394200467.ch1. Acesso em: 9 maio 2025.

BALERA, Wagner. **Sistema de seguridade social.** 8. ed. São Paulo: LTr, 2016.

BRASIL. Agência Gov. **População do país vai parar de crescer em 2041, diz IBGE.** Brasília, 25 ago. 2024. Disponível em: https://agenciagov.ebc.com.br/noticias/202408/populacao-do-pais-vai-parar-de-crescer-em-2041. Acesso em: 25 maio 2025.

BRASIL. **Constituição (1988).** Constituição da República Federativa do Brasil. Brasília, DF: Senado Federal, 1988.

BRASIL. Instituto Brasileiro de Geografia e Estatística. **Censo 2022: número de pessoas com 65 anos ou mais de idade cresceu 57,4% em 12 anos.** Rio de Janeiro, 27 out. 2023. Disponível em: https://agenciadenoticias.ibge.gov.br/agencia-noticias/2012-agencia-de-noticias/noticias/38186-censo-2022-numero-de-pessoas-com-65-anos-ou-mais-de-idade-cresceu-57-4-em-12-anos. Acesso em: 25 maio 2025.

BRASIL. **Lei nº 13.709, de 14 de agosto de 2018**. Lei Geral de Proteção de Dados Pessoais. Brasília, DF: Presidência da República. Disponível em: https://www.planalto.gov.br/ccivil_03/_ato2015-2018/2018/lei/l13709.htm. Acesso em: 3 maio 2025.

CGI.BR – COMITÊ GESTOR DA INTERNET NO BRASIL. **Pesquisa sobre o uso das tecnologias de informação e comunicação nos domicílios brasileiros: TIC Domicílios 2020**. São Paulo: NIC.br, 2021.

Revista ANPPREV de Seguridade Social – RASS – v. 2, n. 2, 2025, pp:17-19.
ISSN 2966-330X DOI: https://doi.org/10.70444/2966-330X.v2.n2.004

DA SILVA, Márcia Cristina Amaral; GASPARIN, João Luiz. **A segunda revolução industrial e suas influências sobre a educação escolar brasileira.** Maringá: Universidade Estadual de Maringá, 2006.

DEBNATH, S. Integrating information technology in healthcare: recent developments, challenges, and future prospects for urban and regional health. **World Journal of Advanced Research and Reviews**, v. 19, n. 1, p. 455–463, 2023. Disponível em: https://doi.org/10.30574/wjarr.2023.19.1.1335. Acesso em: 6 maio 2025.

DIMITRI, P. Child health technology: shaping the future of pediatrics and child health and improving NHS productivity. **Archives of Disease in Childhood**, v. 104, n. 2, 2019. Disponível em: http://dx.doi.org/10.1136/archdischild-2017-314309. Acesso em: 6 maio 2025.

FÓRUM ECONÔMICO MUNDIAL. **Relatório sobre o futuro dos empregos 2025.** Disponível em: https://reports.weforum.org/docs/WEF_Future_of_Jobs_2025_Press_Release_PTBR.pdf. Acesso em: 30 abr. 2025.

FUKUYAMA, Mayumi. Society 5.0: aiming for a new human-centered society. **Japan Spotlight**, July/August 2018, p. 48. Disponível em: https://www.jef.or.jp/journal/pdf/220th_Special_Article_02.pdf. Acesso em: 21 mar. 2025.

KLEIN, A. D.; SANTOS, E. R. A utilização das tecnologias da informação no âmbito da previdência social: a inclusão excludente da internet aos segurados previdenciários. **Brazilian Journal of Development**, v. 5, n. 2, p. 1692–1701, 2019. Disponível em: https://doi.org/10.34117/bjdv5n2-1164. Acesso em: 6 maio 2025.

MEIRELES FILHO, M. R. G.; MEIRELES, J. D. G. A proteção e o tratamento dos dados pessoais da previdência social: uma análise da Lei Geral de Proteção de Dados (LGPD). **Revista Arte, Ciência e Tecnologia da Faculdade CET.** Disponível em: https://cet.edu.br/files/pages/126/artigo.pdf. Acesso em: 29 abr. 2025.

MEIRYANI, M. et al. Benefits of information technology in improving the quality of health services. In: **6th International Conference on E-Education, E-Business and E-Technology,** Beijing, China, 2022. p. 97–101. Disponível em: https://doi.org/10.1145/3549843.3549858. Acesso em: 7 maio 2025.

OSORIO, Fábio. Tecnologia e transformação digital na administração pública: desafios e perspectivas. **Revista de Direito Administrativo Digital**, v. 2, n. 1, 2021.

PRADO GARCIA, Marcelo. Previdência social digital: desafios e possibilidades da transformação digital no INSS. **Revista de Direito Social**, v. 54, 2022.

SANDHYA, B. K. V.; JAMES, J. J. Prognosis and diagnosis of disease using AI/ML techniques. In: **Disruptive Developments in Biomedical Applications**. 1. ed. Boca Raton: CRC Press, 2022.

SAKURAI, Ruudi; ZUCHI, Jederson Donizete. As revoluções industriais até a Indústria 4.0. **Revista Interface Tecnológica**, v. 15, n. 2, p. 480–491, 2018.

SILVEIRA, Cristiano Bertulucci. **Indústria 4.0: o que é, e como ela vai impactar o mundo**. [S. l.], 11 fev. 2016. Disponível em: https://www.citisystems.com.br/industria-4-0/. Acesso em: 26 abr. 2025.

TEXEIRA, G.; DE PAULA, S. F. Contribuição previdenciária sobre a receita bruta em substituição à contribuição sobre a folha de pagamento: reflexos no orçamento previdenciário. **Revista ANPPREV de Seguridade Social – RASS**, v. 1, n. 1, p. 1–30, 2024. Disponível em: https://rass.anpprev.org.br/index.php/RASS/article/view/12/12. Acesso em: 1 maio 2025.

VALLISTU, J. Digital social security accounts for platform workers: the case of Estonia's entrepreneur account**. International Social Security Review**, [S. l.], 2023. Disponível em: https://doi.org/10.1111/issr.12337. Acesso em: 9 maio 2025.

VERMA, A.; VERMA, H.; MISHRA, A. A review of artificial intelligence and its application in the future medical field. **International Journal of Scientific Research in Engineering and Management**, v. 6, n. 12, 2022. Disponível em: https://doi.org/10.55041/IJSREM17329. Acesso em: 7 maio 2025.

YU, C.; LI, Y. Digitalization of tax collection and enterprises' social security compliance. **International Tax and Public Finance**, 2024. Disponível em: https://doi.org/10.1007/s10797-024-09867-4. Acesso em: 9 maio 2025.

Revista ANPPREV de Seguridade Social – RASS – v. 2, n. 2, 2025, pp:19-19.
ISSN 2966-330X DOI: https://doi.org/10.70444/2966-330X.v2.n2.004