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AI Adoption and Its Challenges in the Japanese Labor Market

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Abstract

Given Japan's rapidly aging population, declining birth rate, and shrinking population, this paper examines the current state and challenges of artificial intelligence (AI) adoption in the Japanese labor market and considers its implications for employment and the nature of work based on the existing literature. The literature suggests that AI should not be understood simply as a technology that replaces human workers. Rather, AI may automate certain tasks while complementing human capabilities, transforming the content of work, and creating opportunities for new forms of value creation. In Japan, AI adoption has expanded across a wide range of industries; nevertheless, several challenges remain, including shortages of digitally skilled workers, disparities in AI adoption across firms, and ethical and institutional concerns associated with AI use. Effective AI adoption requires more than technological investment. Firms need to provide opportunities for reskilling, establish an appropriate division of tasks between humans and AI, and develop effective governance frameworks for AI use. At the individual level, workers need to continuously develop AI literacy, domain expertise, creativity, problem-solving skills, and other capabilities that enable effective human-AI collaboration. The paper argues that, for AI to contribute to sustainable growth in the Japanese labor market, it should be viewed not merely as a substitute for human labor but as a technology that augments human capabilities and facilitates collaboration between humans and machines. Coordinated efforts by firms, governments, educational institutions, and individuals to create an environment conducive to human–AI collaboration could contribute to higher productivity and the development of a more sustainable labor market.

Keywords

Artificial Intelligence, AI Adoption, Japanese Labor Market, Labor Shortages, Automation, Human-AI Collaboration, Reskilling, Productivity

1. Introduction

Artificial intelligence (AI) has developed rapidly in recent years and is transforming economic activity and society. Advances in machine learning and deep learning, together with the emergence of generative AI, have expanded the range of tasks in which AI can be applied. These include information processing, documenting, data analysis, software development, and decision-making support—activities that have traditionally relied heavily on human labor. AI is therefore increasingly viewed not merely as a technology for automating individual tasks, but as a potentially transformative technology capable of improving productivity and facilitating the development of new products and services.

Brynjolfsson and McAfee (2014) characterize this technological transformation as the advent of a "second machine age," in which digital technologies and AI have the potential to generate substantial productivity gains and new sources of value. At the same time, they warn that technological change may increase economic disparities between individuals and organizations that are able to effectively utilize new technologies and those that are not.

Japan provides a particularly important context in which to examine these issues. The country is experiencing a sustained decline in its working-age population as a consequence of population aging and a declining birth rate. Labor shortages have become a major structural challenge across a wide range of industries, including manufacturing, logistics, healthcare, nursing care, and services. As the supply of labor becomes increasingly constrained, there is a growing need to make more effective use of available human resources. In this context, AI has attracted attention as a potential means of augmenting labor, improving operational efficiency, and raising productivity.

The relationship between technological innovation and employment has been extensively examined in the economic literature. Autor (2015) argues that technological progress does not necessarily eliminate human employment. Instead, technology can complement human capabilities, alter the nature of existing occupations, and create new tasks and forms of employment. This perspective suggests that the impact of AI should not be evaluated solely in terms of whether jobs disappear, but also in terms of how the tasks and skills associated with existing jobs are transformed.

Similarly, Arntz et al. (2016) argue that the probability of an entire occupation becoming fully automated is considerably lower than estimates based on occupation-level analysis might suggest. In many cases, only particular tasks within an occupation are susceptible to automation. Consequently, the diffusion of AI may lead not only to employment displacement but also to substantial changes in job content and skill requirements.

In this paper, "AI adoption" refers to the introduction and use of AI technologies by firms, organizations, and workers in work-related activities and processes. AI adoption is already progressing in a variety of sectors in Japan. In manufacturing, for example, AI is being used for quality inspection, predictive maintenance,

anomaly detection, and production planning. In logistics, AI can be used to optimize delivery routes and warehouse operations. Retailers increasingly rely on AI-based demand forecasting and customer analytics, while healthcare organizations are exploring AI applications for diagnostic support and other clinical tasks. Financial institutions are using AI for fraud detection, customer analysis, and automated customer support. More recently, the emergence of generative AI has expanded AI applications into knowledge-intensive activities such as document preparation, information retrieval, and software development (OECD, 2025). Gmyrek et al. (2023) suggest that generative AI is more likely, in many occupations, to augment or transform specific tasks than to completely replace human workers. This highlights the importance of understanding how workers and organizations adapt to changing task structures and skill requirements.

At the same time, the diffusion of AI creates several potential challenges for labor markets. First, automation may reduce labor demand for certain routine and repetitive tasks. Second, differences in workers' ability to use AI may contribute to disparities in productivity, wages, and employment opportunities. Third, differences in firms' financial resources, technological capabilities, and access to skilled personnel may generate disparities in AI adoption between large corporations and small and medium-sized enterprises (SMEs). Acemoglu and Restrepo (2018) emphasize that automation involves both a displacement effect, through which technology substitutes for human labor, and a reinstatement or creation effect, through which new tasks and forms of work emerge. The ultimate effects of AI therefore depend not only on the technology itself but also on how firms and societies organize and deploy it.

These considerations suggest that AI should not be conceptualized solely as a substitute for human labor. Rather, it should also be examined as a technology capable of complementing human capabilities and enabling workers to devote greater attention to tasks that require judgment, creativity, problem-solving, and interpersonal interaction. Achieving such complementarity, however, requires more than technological adoption. Firms must create appropriate organizational structures and training opportunities, while workers must acquire the knowledge and skills necessary to work effectively with AI.

Against this background, this paper examines the current state and challenges of AI adoption in the Japanese labor market and reviews the existing literature on its implications for employment and the nature of work. It then considers the institutional and organizational conditions necessary for effective AI adoption, as well as the capabilities that individual workers need to develop. The paper ultimately seeks to identify a pathway toward a sustainable Japanese labor market in which AI and human workers complement one another.

The remainder of this paper is organized as follows. Section 2 reviews the existing literature on AI and automation, with a particular focus on Japan as well as relevant international evidence. Section 3 examines the current state and challenges of AI adoption in the Japanese labor market. Section 4 discusses the condi-

tions for effective human-AI collaboration, focusing on how AI can complement human capabilities in the workplace. Finally, Section 5 concludes the paper and summarizes the main findings and implications.

2. Literature Review

Research on the effects of AI and automation on labor markets has expanded considerably over the past several decades. The literature has primarily focused on four interrelated questions: the potential for technological substitution of labor, changes in the content of work, the complementarity between technology and human labor, and the implications of technological change for skills, human capital, and inequality. This section reviews literature mainly on Japan, as well as literature on other countries, to provide evidence and insights into the current state of AI adoption in Japan.

2.1. Automation and the Potential for Employment Displacement

Early research on computerization emphasized the possibility that technological advances could automate a substantial proportion of existing occupations. Frey and Osborne (2017), for example, analyzed occupational data in the United States and estimated that a significant share of occupations could potentially be automated as computer technology advanced. Their study became influential in discussions about the potential effects of technological progress on future employment structures.

Subsequent research, however, questioned the appropriateness of evaluating automation risk at the level of entire occupations. Arntz et al. (2016) argued that occupations generally consist of multiple tasks, only some of which are technically automatable. Their task-based analysis produced substantially lower estimates of automation risk than occupation-level estimates. This perspective is particularly relevant to AI because many applications are designed to automate specific activities rather than entire occupations. The task-based approach therefore shifts the analytical focus from whether a job will disappear to how the composition of tasks within a job may change.

2.2. Technological Complementarity and the Transformation of Work

Autor (2015) provides an important theoretical foundation for understanding technological change as a process that can complement rather than simply substitute for human labor. Drawing on the historical experience of technological development, he argues that technological innovation has often eliminated certain tasks while simultaneously increasing demand for other tasks in which humans retain a comparative advantage. These include activities requiring problem-solving, flexibility, creativity, judgment, and interpersonal interaction.

From this perspective, the central question is not whether technology will replace humans in a binary sense, but how technology will alter the division of labor

between humans and machines. AI may perform routine information-processing tasks while allowing human workers to concentrate on activities that require contextual understanding, social interaction, and complex judgment. This form of complementarity can potentially increase productivity without necessarily reducing overall employment.

Acemoglu and Restrepo (2018) further develop this perspective by distinguishing between the displacement effect of automation and the creation of new tasks. Automation can reduce demand for labor in tasks that machines can perform, but technological progress can also create new tasks in which human labor remains valuable. The net effect on employment therefore depends on the balance between these opposing forces.

Their subsequent empirical work also illustrates that the consequences of automation can vary considerably across regions and industries. Acemoglu and Restrepo (2020), for example, found evidence that the adoption of industrial robots can have negative effects on employment and wages in certain local labor markets. These findings indicate that the benefits and costs of technological innovation are not necessarily distributed evenly across workers, occupations, or regions.

2.3. AI, Skills, and Inequality

The implications of technological change extend beyond employment levels to the distribution of economic opportunities. Brynjolfsson and McAfee (2014) argue that the "second machine age" may generate significant productivity gains while simultaneously increasing inequality between individuals and organizations with different capacities to utilize digital technologies.

This observation highlights the importance of investment in human capital. If workers are unable to adapt to changing technological requirements, the productivity gains associated with AI may be accompanied by growing disparities in wages and employment opportunities. Education, vocational training, and reskilling are therefore central to ensuring that the benefits of technological progress are broadly shared.

Research has also begun to examine the implications of AI specifically for white-collar and knowledge-intensive occupations. Felten et al. (2019) developed measures of occupational exposure to AI and examined their relationship with wages, employment, and labor-market polarization. Their findings suggest that the relationship between AI exposure and labor-market outcomes is complex. Occupations with greater exposure to AI exhibited modest positive effects on wages on average, while clear effects on employment were not consistently observed. This suggests that AI exposure alone does not determine labor-market outcomes; the effects depend on the characteristics of occupations and the skills involved.

Gmyrek et al. (2023) similarly argue that generative AI is more likely to transform and complement specific tasks than to fully automate entire occupations. Their findings reinforce the importance of focusing on changes in task composition and skill requirements rather than treating technological change simply as a

process of job destruction.

2.4. Recent Evidence on Generative AI

In recent years, empirical research has increasingly examined the actual labor-market effects of generative AI. Hampole et al. (2025), using firm- and occupation-level data covering the period from 2010 to 2023, examined the relationship between task-level exposure to AI and labor demand. Their findings suggest that labor demand tends to decline in tasks with high AI exposure. However, when AI exposure is concentrated in only a subset of tasks within an occupation, workers may reallocate their effort toward tasks that are less susceptible to automation, thereby mitigating the negative effects on employment. The study also suggests that AI adoption can increase productivity and potentially raise labor demand at the firm level. These findings indicate that the labor-market effects of AI cannot be adequately understood solely in terms of substitution; task reallocation and productivity effects must also be considered.

Humlum and Vestergaard (2025) examined the effects of generative AI following the introduction of ChatGPT using Danish AI adoption surveys linked to matched employer–employee administrative data. They found that many employers had begun implementing AI-related initiatives and that new AI-related tasks had emerged. Nevertheless, using a difference-in-differences approach, they found no statistically significant changes in wages or recorded working hours during the first two years following the introduction of ChatGPT. At the same time, new activities related to content generation, AI supervision, and the integration of AI into business processes emerged. These findings suggest that the initial effects of generative AI may appear primarily through changes in task composition and organizational processes rather than through immediate changes in employment levels or wages.

2.5. Evidence from Japan

The Japanese case is particularly important because AI adoption is taking place against the backdrop of persistent labor shortages. OECD (2025) provides a comprehensive analysis of AI use and its potential effects on employment in Japan. According to the study, 8.4% of employees across all sectors in Japan report using AI at work, including both conventional AI and generative AI, while 6.4% report using generative AI specifically. This estimate is based on a large-scale 2024 survey of 22,000 workers across all sectors in Japan conducted by the Japan Institute for Labour Policy and Training. At the same time, workers who use AI tend to report relatively positive assessments of their job performance and working conditions. We note that findings from studies conducted in the United States, Denmark, and other countries should be applied to Japan with caution, given differences in employment practices, firm structures, and labor-market conditions, including persistent labor shortages. Nevertheless, these findings are highly suggestive and provide useful insights for considering AI adoption in the Japanese labor market.

Importantly, the OECD study does not find evidence of large-scale employment losses attributable to AI at present. Instead, AI may contribute to addressing labor shortages, augmenting workers' skills, and supporting decision-making. Nevertheless, AI adoption is likely to change the skills required in many occupations, highlighting the importance of expanding access to training and lifelong learning.

Recent research in 2026 has further emphasized that the effects of AI may emerge through changes in the allocation and composition of labor rather than through aggregate employment declines alone. Baslandze et al. (2026), using survey data from nearly 750 corporate executives on firms' AI adoption, productivity, and workforce decisions, found limited evidence of substantial short-term reductions in aggregate employment associated with AI adoption. However, they also identified differences across firm sizes and industries. The composition of labor within firms may change as demand for routine clerical work declines while demand for workers with technical and specialized skills increases.

Gmyrek et al. (2026) examined the occupational and task-level exposure to generative AI across 135 countries. Their analysis indicates that the effects of AI differ substantially according to digital infrastructure, industrial structure, and the task composition of occupations. Developed economies tend to have relatively high exposure to automation through generative AI, whereas developing economies may face constraints in realizing productivity gains because of inadequate digital infrastructure and limited access to complementary technologies and skills.

These findings have important implications for Japan. The existing literature suggests that AI should not be understood simply as a technology that destroys employment. Rather, AI can transform task structures, complement human capabilities, and automate selected activities simultaneously. Recent research has increasingly shifted from examining changes in aggregate employment toward analyzing task reorganization, changes in skill requirements, and shifts in the allocation of labor within firms.

For Japan, this perspective is particularly relevant because demographic change has created persistent labor shortages. AI may therefore serve not only as a source of automation but also as a means of augmenting scarce human resources and improving productivity. However, this potential cannot be realized automatically. If access to AI and the skills required to use it effectively are distributed unevenly, technological adoption could exacerbate existing inequalities. Investment in reskilling, education, and human capital development is therefore essential to ensuring that AI contributes to inclusive productivity growth.

3. Current State and Challenges of AI Adoption in the Japanese Labor Market

Japan's declining and aging population has created persistent labor shortages across a wide range of industries (OECD, 2025). Against this demographic background, AI is increasingly viewed as a potentially important means of augmenting the available labor force. By automating or streamlining data analysis, routine ad-

ministrative activities, forecasting, and other time-intensive tasks, AI may allow workers to devote more time to higher-value activities.

The Japanese government has also identified digital transformation as an important policy priority, and the adoption of digital technologies, including AI, is regarded as an important means of improving the productivity and competitiveness of Japanese firms (Ministry of Economy, Trade and Industry, 2018).

3.1. AI Adoption across Industries

AI adoption is progressing across a broad range of industries in Japan, although the pace and scale of adoption vary considerably (OECD, 2025). In manufacturing, AI-based image recognition is being used for product inspection, while machine-learning systems can be employed to detect anomalies in production equipment and support predictive maintenance. AI-based demand forecasting can also improve production planning and inventory management. Such applications can allow firms to incorporate the experience and judgment of skilled workers into data-driven processes and thereby improve quality and operational efficiency.

In logistics, AI can be applied to route optimization, demand forecasting, warehouse management, and the automation of certain warehouse operations. These applications are particularly relevant in Japan because the logistics sector faces both a shortage of drivers and growing demand for delivery services. AI adoption has also expanded in retail and financial services. Retailers can analyze purchasing histories and demand data to improve inventory management, product recommendations, and sales forecasting. Financial institutions use AI for fraud detection, customer analytics, credit assessment, and automated customer support.

The emergence of generative AI has further expanded the use of AI in white-collar occupations (OECD, 2025). Employees increasingly use generative AI for drafting documents, summarizing information, preparing presentations, conducting information searches, and supporting software development. Ministry of Internal Affairs and Communications (2024) emphasizes the growing importance of organizational structures, internal rules, and human-resource development to facilitate the appropriate use of generative AI.

3.2. Shortages of Digital Talent

One of the most significant barriers to AI adoption in Japan is the shortage of workers with the skills required to implement and utilize digital technologies effectively (OECD, 2025). AI adoption requires more than simply purchasing or installing an AI system. Firms also need employees who understand data, digital technologies, business processes, and the limitations of AI-generated outputs.

Japan has faced a persistent shortage of digitally skilled workers, and this problem is particularly acute among SMEs, which may have limited financial resources and fewer opportunities to recruit specialized personnel (Information-Technology Promotion Agency, 2025). Consequently, disparities in digital capabilities may contribute to disparities in AI adoption and, ultimately, productivity across

firms.

3.3. Changes in Jobs and Skill Requirements

A second challenge concerns the transformation of jobs and skill requirements resulting from AI adoption. AI can automate routine activities such as data entry, basic administrative processing, and standardized customer inquiries. However, the automation of these tasks does not necessarily imply the elimination of entire occupations (Autor, 2015; Arntz et al., 2016).

Instead, workers may increasingly be required to perform tasks involving judgment, creativity, communication, relationship management, and problem-solving. The ability to work effectively with AI may itself become an important component of occupational competence. In this sense, AI adoption may transform the composition of jobs rather than simply reduce the number of jobs (Autor, 2015; Gmyrek et al., 2023). This observation is consistent with Autor's (2015) argument that technological innovation can simultaneously automate certain tasks and increase the importance of other activities in which human capabilities remain valuable.

3.4. Differences in AI Adoption across Firms

A third challenge is the disparity in AI adoption between firms of different sizes. Large corporations generally have greater access to financial resources, data, IT infrastructure, and specialized personnel, allowing them to invest more readily in AI technologies. SMEs, by contrast, may face substantial barriers related to adoption costs, data availability, cybersecurity, and human-resource constraints (OECD, 2025).

Ministry of Internal Affairs and Communications (2024) identifies differences in the adoption of digital technologies according to firm size in Japan. Addressing these disparities will require policies that facilitate access to digital technologies, technical expertise, and training opportunities for SMEs. Given Japan's fiscal constraints, such policies will also need to be designed with careful consideration of the sustainability and efficiency of public expenditure.

3.5. Ethical and Institutional Challenges

The increasing use of AI also raises important ethical and institutional questions. AI-based systems may influence recruitment, employee evaluation, lending decisions, medical decision-making, and other high-stakes processes. In such contexts, transparency, accountability, fairness, and the protection of personal information are essential (OECD, 2025).

Generative AI introduces additional concerns, including the production of inaccurate or misleading information, the leakage of confidential data, copyright-related issues, and uncertainty regarding accountability for AI-generated outputs. Firms therefore need clear internal policies governing the appropriate use of AI and mechanisms for monitoring compliance.

Overall, AI adoption in the Japanese labor market presents both significant opportunities and substantial challenges. AI may help address labor shortages and improve productivity, but its benefits cannot be taken for granted. Shortages of digital talent, differences in firms' technological capabilities, changes in occupational structures, and ethical concerns all need to be addressed.

The key policy and organizational challenge is therefore not simply how to increase the rate of AI adoption, but how to ensure that AI is deployed in ways that complement human capabilities. Reskilling, education, organizational redesign, and appropriate AI governance will be essential to achieving this objective.

4. Discussion: Toward Effective Human-AI Collaboration

The preceding analysis suggests that effective AI adoption requires more than technological investment. It requires organizational, institutional, and human-capital development that enables workers and firms to adapt to changing task structures. AI should therefore be regarded not simply as a substitute for human labor but as a technology that can augment human capabilities, improve productivity, and facilitate new forms of work.

4.1. Creating an Enabling Environment for AI Adoption

Companies, governments, and educational institutions all have important roles to play in creating an environment in which AI can be used effectively and responsibly. First, firms should provide workers with opportunities for reskilling and upskilling. Effective AI use requires more than technical familiarity with AI systems. Workers need to understand data, assess the reliability of AI-generated outputs, identify appropriate use cases, and determine how AI can be integrated into existing workflows. Internal training programs and continuing education can therefore help workers across different occupational groups develop the capabilities necessary for effective human–AI collaboration. As Brynjolfsson and McAfee (2014) argue, technological investment needs to be accompanied by investment in human capital if the benefits of digital transformation are to be broadly realized.

Second, firms should establish an appropriate division of labor between humans and AI. AI is particularly effective at processing large volumes of information, recognizing patterns, and performing repetitive analytical tasks. Humans, by contrast, remain particularly important in areas involving contextual judgment, creativity, interpersonal relationships, ethical reasoning, and complex decision-making. The objective should therefore not be to maximize automation at all costs. Instead, organizations should identify which tasks are most effectively performed by AI and which require human involvement. Such task allocation can allow workers to focus on activities where human capabilities generate the greatest value.

Third, appropriate governance frameworks are essential. Organizations should establish clear policies concerning the use of generative AI and other AI systems, including rules regarding confidential information, personal data, verification of

AI-generated content, accountability, and acceptable use. Government policy can complement these organizational efforts by providing regulatory guidance, supporting SME adoption, and promoting the development of digital skills. Given the financial and human-resource constraints faced by many SMEs, public policy may play an important role in ensuring that the benefits of AI are not concentrated among large corporations alone. At the same time, policy interventions should take Japan's fiscal position into account and focus on measures that generate sustainable long-term benefits.

4.2. Human Capital and Individual Adaptation

Organizational and institutional measures alone are insufficient. Workers themselves must also adapt to changing technological conditions. First, basic AI literacy and digital literacy are likely to become increasingly important across occupations. Most workers do not need to become AI developers or data scientists. However, they increasingly need to understand the basic principles and limitations of AI, recognize appropriate applications, critically evaluate AI-generated outputs, and use AI responsibly. This is particularly important in the context of generative AI. As tools capable of producing text, images, code, and summaries become increasingly accessible, the ability to formulate appropriate instructions, evaluate outputs, and integrate AI-generated information into professional work may become a basic component of occupational competence.

Second, workers need to develop and maintain domain-specific expertise. As AI becomes increasingly capable of performing routine information-processing tasks, the relative value of human expertise may shift toward the ability to interpret information, apply specialized knowledge to specific contexts, and make judgments under uncertainty. Continuous learning will therefore be necessary not only to acquire new technical skills but also to deepen professional expertise.

Third, workers should approach AI as a collaborative tool rather than simply as a source of competition. The adoption of AI inevitably changes the composition of tasks, but it can also reduce the time required for routine activities and allow workers to concentrate on higher-value work. For example, AI can assist with document preparation, information organization, and preliminary analysis, allowing human workers to devote more time to strategic decision-making, planning, customer relationships, and creative problem-solving. The ability to identify such opportunities for complementarity may become an important source of individual productivity in the AI era.

4.3. Implications for the Japanese Labor Market

The Japanese case presents a distinctive opportunity. In many countries, concerns about AI center on potential employment displacement. In Japan, however, these concerns arise alongside a structural shortage of labor caused by demographic change. This means that the social value of AI may lie not only in replacing labor but also in augmenting scarce human resources.

Nevertheless, this does not imply that AI adoption will automatically resolve Japan's labor shortages. AI may reduce demand for certain routine tasks while increasing demand for workers with technical, professional, and interpersonal skills. The challenge is therefore one of transition: workers need to move toward tasks in which human capabilities remain valuable, while firms need to redesign jobs and organizational processes accordingly.

This transition also creates a potential risk of inequality. Workers and firms with greater access to AI, data, training, and digital infrastructure may capture a disproportionate share of the productivity gains. Ensuring broad access to education, reskilling, and digital infrastructure is therefore essential if AI is to contribute to inclusive growth. The central policy objective should consequently be to create conditions under which AI-driven productivity gains translate into improvements in the quality of work and living standards rather than merely into labor cost reductions.

5. Conclusion

This paper has examined the current state and challenges of AI adoption in the Japanese labor market and considered the conditions necessary for AI to contribute to sustainable economic growth. AI technologies are increasingly being adopted across manufacturing, logistics, healthcare, finance, retail, and service industries. In Japan, where population aging and a declining birth rate have generated persistent labor shortages, AI has particular potential to augment scarce human resources and improve productivity.

At the same time, AI adoption is likely to transform the structure of employment and the nature of work. The literature reviewed in this paper indicates that automation can substitute for certain tasks while simultaneously complementing human capabilities and generating new tasks and forms of value creation. Consequently, the effects of AI cannot be adequately assessed by examining employment levels alone. Changes in task composition, occupational structures, skill requirements, and the allocation of labor within firms must also be taken into account.

This perspective is particularly important for Japan. Rather than viewing AI primarily as a technology for reducing employment, Japan can potentially use AI to address labor shortages and enhance the productivity of its existing workforce. However, realizing this potential requires appropriate institutional and organizational conditions.

First, firms need to invest not only in AI technologies but also in human capital. Reskilling and upskilling opportunities should be provided so that workers can acquire the skills necessary to work effectively with AI. Firms should also redesign work processes to establish an appropriate division of labor between humans and AI, allowing each to perform the tasks for which they are best suited.

Second, governments and educational institutions play an important role in creating an inclusive environment for AI adoption. Policies supporting digital skills development, lifelong learning, and access to AI technologies can help re-

duce disparities between large corporations and SMEs as well as between workers with different levels of digital competence.

Third, individual workers must engage in continuous learning. Basic AI literacy, the ability to critically evaluate AI outputs, domain expertise, creativity, problem-solving skills, and communication abilities are likely to become increasingly important in the labor market of the future. The ability to collaborate effectively with AI may itself become a fundamental component of professional competence.

Ultimately, the central issue is not whether AI will replace humans, but how the division of labor between humans and AI will be designed. If AI is deployed primarily to reduce labor costs, technological progress could exacerbate inequality and weaken employment opportunities for some groups. If, by contrast, AI is used to augment human capabilities and enable workers to concentrate on higher-value activities, it can become a powerful source of productivity growth and improved quality of work.

For Japan, this distinction is particularly significant. The country's experience of rapid population aging, declining birth rate, and shrinking population represents one of the most advanced examples of demographic change among major economies. Japan therefore faces both a challenge and an opportunity: it must develop ways of using AI to compensate for declining labor supply while ensuring that technological progress benefits workers and society as a whole.

Japan's experience may also offer broader lessons for other countries that will increasingly confront similar demographic and labor-market pressures. The future of work should therefore not be understood as a choice between humans and AI. Rather, the more important challenge is to build institutions, organizations, and skills that enable humans and AI to complement one another. Achieving this will require sustained efforts by firms, governments, educational institutions, and individuals. Through such coordinated efforts, AI can contribute not only to productivity growth but also to the development of a more resilient, inclusive, and sustainable labor market.

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Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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