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ARTIFICIAL INTELLIGENCE AS A TOOL FOR PROMOTING EMPLOYMENT INCLUSION OF PEOPLE WITH DISABILITIES

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Abstract. The rapid development of artificial intelligence (AI) is transforming labour markets, workplace practices, recruitment processes, and access to employment. For people with disabilities, these transformations present both significant opportunities and substantial risks. AI-powered assistive technologies can reduce communication, sensory, cognitive, and physical barriers, improve workplace accessibility, support skills development, facilitate job matching, and enable more flexible forms of employment. At the same time, algorithmic bias, inaccessible digital interfaces, inadequate training data, privacy concerns, and automated recruitment systems may reproduce or intensify existing forms of disability discrimination. This article examines the potential of artificial intelligence as a tool for promoting employment inclusion of people with disabilities. The study employs qualitative analysis, literature review, comparative analysis, and conceptual synthesis of recent research and policy documents published by international organisations. The findings demonstrate that AI can contribute to employment inclusion through five major mechanisms: AI-powered assistive technologies, accessible recruitment and job-matching systems, personalised workplace adaptation, AI-supported skills development, and flexible work arrangements. However, technological innovation alone cannot guarantee inclusion. Effective implementation requires human oversight, accessible design, anti-discrimination safeguards, data protection, digital skills development, and meaningful participation of people with disabilities in the design and evaluation of AI systems. The article concludes that AI should be understood not as a replacement for inclusive employment policies but as an enabling infrastructure capable of expanding equal participation in the labour market.

Keywords: artificial intelligence, disability inclusion, employment, labour market, assistive technology, accessible workplace, AI ethics, inclusive recruitment, digital accessibility, people with disabilities.

Introduction. Employment is one of the most important dimensions of social and economic inclusion. Access to decent and productive work provides individuals not only with income but also with social participation, professional identity, independence, and opportunities for personal development. Nevertheless, people with disabilities continue to experience significant disadvantages in labour markets. Employment gaps, limited access to skills development, inaccessible workplaces,

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discrimination in recruitment, and inadequate workplace accommodations remain persistent barriers to full participation. The labour market is currently undergoing another major transformation driven by digitalisation, automation, artificial intelligence, remote work, and algorithmic decision-making. These changes may substantially influence the employment prospects of people with disabilities. The OECD has noted that people with disabilities continue to face significant employment disadvantages and that technological development can either reduce or reinforce these inequalities depending on how technology is designed and implemented. Artificial intelligence is particularly important because, unlike many earlier digital technologies, it can adapt to individual users and perform complex functions involving language, speech, image recognition, prediction, translation, and personalised assistance. AI-powered speech recognition, automatic captioning, text simplification, computer vision, conversational assistants, and predictive systems can help people overcome barriers that previously limited their participation in employment. For example, AI-based speech-to-text systems can facilitate communication for people with hearing or speech-related disabilities. Real-time captioning can make meetings and training sessions more accessible. Computer-vision systems can convert visual information into audio descriptions for people with visual impairments. Generative AI can support workers with cognitive disabilities by simplifying complex instructions, organising tasks, summarising information, and providing personalised assistance. The OECD identified numerous AI-powered solutions capable of supporting people with disabilities in the labour market, including disability-centred technologies and systems designed to adapt workplaces and employment processes. However, AI is not automatically inclusive. AI systems used in recruitment and workplace management may reproduce biases contained in training data. Automated systems may disadvantage applicants whose speech, facial expressions, communication patterns, or work histories differ from the patterns represented in datasets. The International Labour Organization has specifically warned that AI can simultaneously empower and disadvantage people with disabilities depending on how it is developed and deployed. Therefore, the central research problem is not simply whether AI can support people with disabilities, but under what conditions AI can become a genuine instrument of employment inclusion rather than another source of exclusion. The aim of this article is to examine the potential of artificial intelligence to promote employment inclusion of people with disabilities and to identify the major opportunities, risks, and policy conditions associated with AI-supported inclusive employment.

Literature Review. The relationship between disability and employment has been extensively examined in labour economics, social policy, technology studies, and disability research. International evidence demonstrates that people with disabilities continue to experience lower employment rates, higher unemployment, and greater risks of labour-market exclusion than people without disabilities. The OECD has emphasised that disability employment gaps remain substantial across countries and that improving skills, workplace flexibility, social protection, and technological accessibility is necessary for greater inclusion. Recent research increasingly focuses on the role of artificial intelligence in reducing these barriers. Touzet's OECD study provides one of the most comprehensive

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examinations of AI and disability employment. Based on interviews with more than 70 stakeholders and the identification of numerous AI-enabled solutions, the study concludes that AI can create more inclusive and accommodating labour-market environments. It also stresses that AI may increase risks when systems are inaccessible, unreliable, discriminatory, or poorly governed. One important area of research concerns assistive technology. Traditional assistive technologies often perform specific functions, whereas AI-enabled systems can provide more personalised and multifunctional support. AI can dynamically adapt to users and support different types of impairments. Such technologies may facilitate communication, mobility, information access, task organisation, and workplace interaction. The OECD argues that AI-powered assistive technologies can improve accessibility for workers with visual, hearing, speech, and other disabilities. Examples include speech-recognition technologies for people with atypical speech and live-captioning systems for deaf and hard-of-hearing workers. Another important research direction concerns AI-supported recruitment. Automated recruitment tools can potentially reduce some forms of human bias and improve job matching by focusing on competencies and job requirements. However, they can also introduce algorithmic discrimination when historical employment data contain biases or when assessment systems are designed around non-inclusive assumptions. The International Labour Organization's 2025 policy brief on AI and employment specifically highlights the need for companies to understand both the opportunities and risks of AI for persons with disabilities and recommends measures for developing an inclusive and equitable future of work. Recent OECD work also demonstrates that AI policy increasingly intersects with issues of non-discrimination, privacy, transparency, accountability, skills, and inclusiveness. This indicates that employment inclusion cannot be separated from broader AI governance. The literature therefore reveals a dual character of AI. On one hand, it can increase accessibility, autonomy, productivity, and flexibility. On the other hand, poorly designed systems may reproduce existing inequalities. This duality forms the conceptual basis for the present study.

Research Methodology. The research adopts a qualitative and conceptual methodology based on the analysis of academic literature, international policy documents, and recent evidence concerning AI, disability, and employment.

The study applies the following methods:

Literature analysis. Scientific publications and reports from international organisations were analysed to identify major theoretical approaches to AI-enabled employment inclusion.

Comparative analysis. The study compares the potential benefits of AI with the risks associated with algorithmic employment systems. Particular attention is paid to the difference between AI as an assistive technology and AI as an automated decision-making mechanism.

Thematic analysis. The literature was categorised into five principal dimensions:

- assistive technologies;
- inclusive recruitment and job matching;
- workplace adaptation;

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- skills development;
- flexible and remote employment.

The findings were synthesised into a conceptual model explaining how AI can contribute to employment inclusion. The study does not claim to provide original statistical estimates of employment effects. Instead, it synthesises existing evidence to develop a theoretical and practical framework for understanding AI-supported disability inclusion.

Results. The first major finding is that AI can strengthen assistive technology by making it more adaptive and personalised. For people with visual impairments, AI-powered computer vision can identify objects, interpret text, describe environments, and provide auditory information. For people with hearing impairments, speech recognition and automatic captioning can facilitate communication. For people with speech-related disabilities, advanced speech-recognition systems may improve interaction with digital and workplace systems. For workers with cognitive disabilities, generative AI can simplify information, divide complex assignments into smaller tasks, summarise documents, support scheduling, and provide step-by-step guidance. Therefore, AI can function as a digital workplace intermediary between a person's abilities and environmental barriers.

AI and inclusive recruitment. Recruitment represents another important area in which AI can influence employment inclusion. AI-supported job-matching platforms can potentially analyse skills, qualifications, work preferences, and job requirements more systematically. Instead of focusing heavily on conventional employment histories, AI could support competency-based matching. However, this opportunity depends strongly on system design. If historical recruitment data reflect discrimination against people with disabilities, an AI system trained on those data may reproduce the same patterns. Similarly, facial recognition, voice analysis, or behavioural assessment systems may incorrectly interpret disability-related characteristics as indicators of lower competence.

Therefore, inclusive AI recruitment requires:

- disability-sensitive training datasets;
- accessible application interfaces;
- regular algorithmic audits;
- human review of automated decisions;
- transparent evaluation criteria;
- accessible alternatives to automated assessments.

The central principle should be that AI supports recruitment decisions but does not become an unchallengeable gatekeeper.

AI and skills development. Another significant result is the potential of AI to support education, vocational training, and lifelong learning. AI-based learning systems can adapt instructional materials to individual learning needs. They can provide explanations at different levels of complexity, generate practice tasks, provide feedback, and support communication. This is particularly relevant because skills gaps remain one of the important barriers to employment inclusion. OECD research emphasises

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that people with disabilities need opportunities to develop and update skills in rapidly changing labour markets. Generative AI may therefore support a more personalised approach to vocational education and professional development. Recent OECD research has specifically examined the use of AI to support neurodivergent learners in vocational education and training, indicating the growing importance of AI-supported personalised learning for employment pathways.

AI, remote work and employment flexibility. AI may also strengthen flexible employment arrangements. Remote work can reduce some physical barriers associated with commuting and inaccessible workplaces. AI-powered communication tools, automatic transcription, digital collaboration platforms, and virtual assistants can further facilitate participation. However, remote employment should not be treated as a universal solution. Digital exclusion, inaccessible software, inadequate internet access, and lack of digital skills can create new barriers. Thus, the inclusion potential of AI-supported remote work depends on accessibility of the entire digital ecosystem.

Discussion. The findings demonstrate that AI has the potential to transform employment inclusion from a model based primarily on individual accommodation toward a more adaptive and technology-supported model. Traditional workplace accommodation often requires an employee to request a specific adjustment. AI can potentially provide continuous and personalised adaptation without requiring every workplace process to be redesigned manually.

This represents an important conceptual shift:

Traditional model:

Person with disability → identifies barrier → requests accommodation → employer provides adjustment.

AI-supported model:

Person with disability → AI identifies or receives accessibility preferences → workplace information/tasks are dynamically adapted.

Nevertheless, this model must be implemented carefully. AI should not be used to classify individuals according to perceived productivity or disability-related characteristics without appropriate safeguards.

The major challenge is therefore to distinguish between AI for inclusion and

The ILO describes AI as having a “double-edged” character in disability employment: individual use of accessible AI tools can be highly beneficial, while institutional AI systems may disadvantage people with disabilities if they rely on inaccessible or discriminatory assessment mechanisms.

This distinction is crucial because technological neutrality cannot be assumed. The same AI system may be empowering for one user and exclusionary for another.

Another important issue is participatory design. People with disabilities should not merely be considered beneficiaries of AI systems; they should participate in their design, testing, evaluation, and governance.

Inclusive design should therefore follow a principle of:

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"Nothing about people with disabilities without meaningful participation of people with disabilities."

This principle is consistent with a broader rights-based approach to disability inclusion.

The United Nations has also examined AI as a tool for strengthening the participation and inclusion of persons with disabilities, recognising both the transformative possibilities of AI and the need to address associated risks.

Based on the findings, several recommendations can be proposed.

First, governments should develop policies promoting accessible and trustworthy AI in employment. Second, employers should conduct regular algorithmic accessibility and bias audits. Third, AI recruitment systems should provide accessible alternatives and meaningful opportunities for human review. Fourth, people with disabilities should receive digital and AI literacy training. Fifth, governments and employers should expand financial mechanisms that make assistive technologies affordable. Sixth, AI developers should incorporate accessibility from the earliest stages of product development rather than treating it as an additional feature. Seventh, organisations should involve people with disabilities in the testing and evaluation of AI-powered workplace technologies. Finally, AI should complement rather than replace existing disability employment policies, reasonable accommodation measures, vocational rehabilitation, and anti-discrimination legislation.

Conclusion. Artificial intelligence represents an important technological opportunity for promoting employment inclusion of people with disabilities. Its potential extends beyond traditional assistive technologies and includes accessible recruitment, personalised workplace adaptation, skills development, job matching, communication support, and flexible employment. The research demonstrates that AI can reduce environmental and technological barriers that restrict participation in the labour market. In particular, AI-powered speech recognition, real-time captioning, computer vision, generative AI assistants, personalised learning systems, and adaptive interfaces can increase autonomy and productivity. However, AI should not be considered inherently inclusive. Algorithmic bias, inaccessible interfaces, privacy risks, inadequate datasets, digital exclusion, and excessive automation can reproduce or intensify existing inequalities. The central conclusion is therefore that the employment inclusion potential of AI depends not only on technological sophistication but also on governance, accessibility, participation, ethics, and human oversight.

A genuinely inclusive AI ecosystem should be based on five interconnected principles:

Accessibility → Participation → Fairness → Transparency → Human oversight.

When these principles are integrated into the development and implementation of AI, artificial intelligence can become more than a productivity-enhancing technology. It can serve as an important instrument for expanding equal opportunities, strengthening labour-market participation, and supporting the economic independence and social inclusion of people with disabilities.

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