

EDITORIAL

Citation: Lăzăroiu, G., & Rogalska, E. (2023). How generative artificial intelligence technologies shape partial job displacement and labor productivity growth. *Oeconomia Copernicana*, 14(3), 703–706. doi: 10.24136/oc.2023.020

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Article history: Received: 3.08.2023; Accepted: 3.09.2023; Published online: 30.09.2023

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How generative artificial intelligence technologies shape partial job displacement and labor productivity growth

By computational processes, immersive reality and digital twin technologies, generative artificial intelligence tools can automate artistic creative production and labor, transforming and redefining employment, tasks, and jobs by use of synthetic media and data. Machine and deep learning industrialization can augment decision-making by using a real-time, trustworthy, accurate data fabric architecture, and can achieve operational excellence through cloud and edge computing tools, demand sensing and forecasting, and computer vision and natural language processing algorithms.

Machines can perform tasks autonomously by use of deep learning and augmented reality technologies, computer vision algorithms, and natural language processing tools, elevating productivity on factory floors through

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Internet of Things-based automation, industrial monitoring systems, and surveillance networks. Generative artificial intelligence-based cognitive, emotional, and social processes (Peters *et al.*, 2023) bolster engagement patterns, decisions, and behaviors by customer data collection, management, and analysis and past purchasing activity, targeted and personalized marketing messages and time-sensitive offers, and brand value proposition, driving operational interaction, efficiency, sales, and business growth.

Deep learning neural networks are pivotal in content creation and synthesis, product engineering, development, personalization, and design by leveraging 3D modeling and simulation technologies, supply chain and inventory management automation, and extended reality-based product and service augmentation. Artificial neural networks can further coherent maintenance, process production, organizational performance, and engineering operation automation and monitoring by handling massive volumes of unstructured manufacturing data, thus achieving operational goals and maximizing business performance.

Generative artificial intelligence and automation technologies reconfigure managerial and professional roles, career paths, job mismatches, losses, and transitions, workforce skill demands, and hiring practices, enhancing quantifiable employee productivity, customer service, and competitive advantage. By forecasting job displacement, streamlining organizational workflows and data-driven decision-making processes, optimizing talent progression and promotion operations, enhancing worker productivity and job reallocation mechanisms, and shaping talent surplus, scarcity, demand, and acquisition, generative artificial intelligence influence labour market outcomes significantly.

Effective job creation and displacement in terms of categories and industries, predictive analytics and decision modeling development, automated workplace tasks, tailored job requirement and upskilling, shared cognitive and spatial computing technologies, and 3D virtual digital twin simulation algorithms configure the business value of generative artificial intelligence. Algorithmic knowledge and adaptive self-organizing systems, collective action coordination, governance decision-making processes, and coherent talent acquisition and onboarding articulate Web3 technology-based immersive remote work experiences (Zvarikova *et al.*, 2023), resulting in meaningful productivity growth and performance management.

Generative artificial intelligence algorithms drive operational efficiency and productivity gains, augment and replace massive volumes of workforce, analyze employee sentiment and performance data, and configure

extensive retraining programs and suitable job-matching systems, enhancing knowledge acquisition and increasing labor productivity. Generative artificial intelligence technologies are pivotal in partial job displacement, employee reskilling and upskilling, talent attraction, development, retention, and availability, organizational norms and practices, increasing personnel productivity through efficient workforce development, labor market participation, and talent management.

Businesses can develop competitive advantage by integrating coherent operational decisions, and can build long-term trust and brand loyalty by improving customer behavior, retention, and satisfaction, while reducing friction and influencing purchase decisions due to artificial intelligence customer service and intuitive e-commerce chatbots. Customer engagement process automation integrates products and services tailored to consumer expectations, interests, preferences, attitudes, and needs, to visual and sensory experiences, and to thorough purchase histories and past behaviors.

Building brand credibility and reputation, shopper behavior, product discovery journey, spending habits, informed purchasing decisions, and stimulating repeat purchases, generative artificial intelligence tools can drive consumer engagement and sales in terms of values, appeal, lifestyles, priorities, and affordability. By deploying realistic metaverse avatars, Web3-enabled generative artificial intelligence technologies can foster long-term consumer decision-making, behavior, and loyalty (Valaskova *et al.*, 2022), customer service workflows and journey mapping automation, sales forecasting, and merchandising and selling tools across decentralized multimodal deep learning- and digital twin-based marketplaces.

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Ministry of Education and Science
Republic of Poland

The journal is co-financed in the years 2022–2024 by the Ministry of Education and Science of the Republic of Poland in the framework of the ministerial programme “Development of Scientific Journals” (RCN) on the basis of contract no. RCN/SN/0697/2021/1 concluded on 29 September 2022 and being in force until 28 September 2024.