

Artificial intelligence and its influence on 21st-century professions: a documentary analysis

La inteligencia artificial y su influencia en las profesiones del siglo XXI: un análisis documental

Juan Eduardo Alvarado Castro, Itzel Esmeralda Sánchez Reyes, Leonel Castillo Galván, Estefany Lizeth Hernández Hernández, MTI. Daniel Arturo Maupomé Rosales, Ing. Sara Isela Sifuentes Moreno*

Abstract

Artificial intelligence (AI) has become one of the most influential technological transformations of the 21st century, with a profound impact on the configuration of human work, education, and the ethical frameworks of professions. Its progressive incorporation has generated significant changes in productive processes, particularly through the automation of routine tasks, which has altered job profiles and the competencies required across multiple sectors. In this context, it is necessary to systematically analyze how AI is redefining professional practice and the emerging challenges associated with its adoption. The objective of this study was to analyze the impact of artificial intelligence on 21st-century professions, considering labor changes, emerging professional competencies, and ethical, social, and educational challenges. A documentary, non-experimental, cross-sectional study with a descriptive-analytical approach was conducted through a review of scientific literature published between 2015 and 2025 in Spanish and English. Approximately 30 relevant sources were analyzed, organizing the information into a thematic matrix and applying content analysis. The results showed that nearly 44% of current labor skills are expected to transform in the coming years due to automation. Professions based on repetitive tasks tend to decline, while those requiring critical thinking, creativity, empathy, and technological ethics are strengthening. In conclusion, AI does not replace human beings but rather redefines their role, highlighting the need for continuous training oriented toward digital literacy and the responsible use of technology.

Keywords: artificial intelligence; 21st-century professions; labor transformation; digital competencies; technological ethics

Correspondencia: daniel.maupome@itspanuco.edu.mx

Fecha de recepción: 08/julio/2025 | **Fecha de aceptación:** 02/octubre/2025 | **Fecha de publicación:** 26/marzo/2026

*Instituto Tecnológico Superior de Pánuco, Extensión Pueblo Viejo, México

Resumen

La inteligencia artificial (IA) se ha consolidado como una de las transformaciones tecnológicas más influyentes del siglo XXI, con un impacto profundo en la configuración del trabajo humano, la educación y los marcos éticos de las profesiones. Su incorporación progresiva ha generado cambios significativos en los procesos productivos, particularmente mediante la automatización de tareas rutinarias, lo que ha modificado los perfiles laborales y las competencias requeridas en múltiples sectores. Ante este escenario, resulta necesario analizar de manera sistemática cómo la IA está redefiniendo el ejercicio profesional y cuáles son los desafíos emergentes asociados a su adopción. El objetivo del estudio fue analizar el impacto de la inteligencia artificial en las profesiones del siglo XXI, considerando los cambios laborales, las competencias profesionales emergentes y los desafíos éticos, sociales y educativos. Se realizó una investigación documental, no experimental, transversal y con enfoque descriptivo-analítico, mediante la revisión de literatura científica publicada entre 2015 y 2025 en español e inglés. Se analizaron aproximadamente 30 fuentes relevantes, organizando la información en una matriz temática y aplicando análisis de contenido. Los resultados evidenciaron que cerca del 44 % de las habilidades laborales actuales se transformarán en los próximos años debido a la automatización. Las profesiones basadas en tareas repetitivas tienden a disminuir, mientras que se fortalecen aquellas que requieren pensamiento crítico, creatividad, empatía y ética tecnológica. En conclusión, la IA no sustituye al ser humano, sino que redefine su papel, destacando la necesidad de una formación continua orientada a la alfabetización digital y al uso responsable de la tecnología.

Palabras clave: inteligencia artificial; profesiones del siglo XXI; transformación laboral; competencias digitales; ética tecnológica





Artificial intelligence and its influence on 21st-century professions: a documentary analysis

Daniel Arturo Maupomé, Juan Eduardo Alvarado, Itzel Esmeralda Sanchez, Leonel Castillo, Estefany Lizeth Hernández

Instituto Tecnológico Superior de Pánuco Extensión Pueblo Viejo

INTRODUCTION

This study presents a documentary, descriptive, and analytical review aimed at examining the current impact of artificial intelligence (AI) on professional fields. The research identifies the main transformations occurring in labor, education, and ethical domains. The findings indicate that AI not only automates routine tasks but also promotes new forms of collaborative work between humans and intelligent systems, generating an increasing demand for digital, cognitive, and ethical competencies. At the same time, significant challenges emerge in terms of regulation, equity, and continuous professional training, highlighting the need for adaptive strategies within educational and labor systems.

OBJETIVE

General Objective

To analyze the impact of artificial intelligence on 21st-century professions, focusing on labor transformations, emerging professional competencies, and ethical challenges.

Specific Objectives

To examine transformations generated by AI including automation, productivity changes, and evolving professional roles.

To identify emerging competencies required in AI-driven environments.

To analyze ethical, social, and educational challenges associated with AI and propose strategies for responsible adaptation.

METHODOLOGY

This research employed a documentary, non-experimental, and cross-sectional design with a descriptive-analytical approach. The study reviewed scientific literature published between 2015 and 2025 in both Spanish and English, focusing on artificial intelligence and its impact on professional sectors. Approximately 30 relevant and reliable sources were analyzed. Data were organized in a matrix according to three analytical categories:

- Labor impact
- Emerging competencies
- Ethical and regulatory implications

A content analysis approach was applied to identify patterns, trends, and differences across the literature. Summary tables were used to facilitate interpretation.

RESULTS

The study revealed that artificial intelligence is reshaping the structure of employment across nearly all sectors. According to the reviewed analyses, approximately 44% of current workplace skills are expected to transform in the coming years due to automation. The professions most affected are those characterized by repetitive and routine tasks, while professions related to creativity, data analysis, and technological ethics are becoming increasingly valuable. The findings also highlight:

- Growing demand for digital competencies
- Greater emphasis on critical thinking
- The need for continuous professional training to adapt to technological change

Overall, the results indicate that AI does not replace human beings but rather redefines their role, fostering collaboration between individuals and intelligent systems.

Instead of eliminating professions entirely, AI enables human-machine collaboration, allowing greater precision and productivity.

Occupations requiring empathy, creativity, and critical reasoning are strengthened, as they combine uniquely human capabilities with intelligent technological tools.

CONCLUSIONS

Artificial intelligence is transforming the labor market and redefining the meaning of human work. Rather than replacing jobs entirely, AI highlights the importance of distinctively human competencies, such as empathy, creativity, and ethical judgment. Routine tasks are increasingly automated, while professions requiring critical thinking, social sensitivity, and interdisciplinary problem-solving gain relevance. Education plays a fundamental role in this transition by preparing individuals capable of understanding and responsibly using emerging technologies. In this context, digital literacy and ethical awareness have become indispensable competencies. The impact of AI ultimately depends on how it is implemented: it can drive technological and social progress or exacerbate existing inequalities. The true challenge is not competing with machines but learning to coexist with them while preserving human values and social responsibility.

REFERENCES

1. Arntz, M., Gregory, T., & Zaretskiy, J. (2020). Digitalization and the future of work: Macroeconomic consequences. OECD Social, Employment and Migration Working Papers, No. 285. <https://doi.org/10.1787/1921191884>
2. Banco Interamericano de Desarrollo. (2022). El futuro del trabajo en América Latina y el Caribe. Reinventamiento y habilidades digitales. BID. <https://publications.iadb.org/>
3. Bostrom, N. (2017). *Superintelligence: Paths, dangers, strategies*. Oxford University Press.
4. Brynjolfsson, E., & McAfee, A. (2022). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. W. W. Norton & Company.
5. Davenport, T. H., & Dyer, J. (2021). Only humans need apply: Winners and losers in the age of smart machines. *Harvard Business Review*.
6. Frey, C. B., & Osborne, M. A. (2017). The future of employment: How susceptible are jobs to computerization? *Technological Forecasting and Social Change*, 114, 254-280. <https://doi.org/10.1016/j.techfore.2016.08.014>
7. Floridi, L. (2020). *The ethics of artificial intelligence*. Oxford University Press.
8. Foro Económico Mundial. (2024). *The Future of Jobs Report 2024*. World Economic Forum. <https://www.weforum.org/>
9. Kaplan, A., & Haenlein, M. (2019). *See, so, so, so: Who's the boss in the land? Or the interpretations, illustrations and implications of artificial intelligence*. *Business Horizons*, 62(1), 15-25. <https://doi.org/10.1016/j.bushor.2018.08.002>
10. López Moyá, A., Rodríguez Vázquez, C., Díaz Pérez, J., & Rodríguez Hernández, E. (2022). La inteligencia artificial y su impacto en la educación y el empleo. *Revista Universidad y Sociedad*, 14(5), 309-330. Universidad de Ciego de Avila. <http://ruv.uca.edu.cu/index.php/ruv/article/view/33847>