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# Title: Use of artificial intelligence in the development of information systems in it companies, benefits, and legal challenges: A costa rican perspective

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# Introduction

Artificial intelligence (AI) has emerged as one of the technologies that has most impacted the 21st-century society.

In Costa Rica, this transformation has brought benefits such as increased productivity, optimized resources, and improved quality of products and services.

But it has also revealed significant weaknesses, including the exposure of sensitive data, technological dependence, the lack of specific regulations, and risks related to the transparency of the algorithms used.

The main objective of this article is to analyze the impact of artificial intelligence on the development of computer systems in Costa Rican technology companies, considering its operational benefits, technical vulnerabilities, and legal implications.

# Methodology

The research focuses are a descriptive and evaluative approach.

The scope of this research is descriptive.

A mixed-methods approach are adopted, integrating both quantitative and qualitative methods in the investigation of the object of study.

A non-probability sample was used in the study, selected according to specific criteria directly linked to the content and objectives of the research.

Interviews and structured surveys were used as methods for data collection.

The triangulation technique was used for data analysis. Furthermore, in this case, the information analysis was performed using graph analysis techniques.

# Results

Eighty percent of respondents from information technology companies use AI tools daily, while 20% do so monthly. This data demonstrates a high level of technological dependence and, at the same time, reflects a competitive advantage derived from the systematic use of AI, particularly in terms of time optimization and improved operational performance.

Organizations in some stages of maturity within the technology sector have begun incorporating artificial intelligence-based tools across diverse functional areas. This integration responds both to the need to improve operational efficiency and to the pursuit of innovation and competitive advantage in an increasingly digital environment.

Intelligent automation contributes to the reduction of human errors, minimizing failures caused by fatigue or distraction, particularly in critical processes such as programming or data management.

Another important benefit is the boost to innovation in products and services, by enabling the development of more advanced technological solutions, with adaptive and personalized capabilities geared towards the needs of end users.

# Results

The rapid development of artificial intelligence has also exceeded the adaptive capacity of conventional legal frameworks. Among the most critical aspects are the determination of legal responsibility, the guarantee of transparency in automated processes, the protection of fundamental rights, and the need for effective mechanisms of institutional oversight and control.

Costa Rica currently has a key opportunity to establish regulatory frameworks that guide the ethical, legal, and technical development of artificial intelligence within information technology companies. Below is a table that explains this frameworks.

# Annexes

Recommendations by level

| Level | Proposal | Justification |
|---|---|---|
| National | Specific law on AI | Guaranteeing rights and legal security |
| National | Supervisory authority | Monitor usage and certify solutions |
| Business | Supervisory authority | Ethical and controlled use in companies |
| Business | Governance committee | Monitoring and traceability |
| Public | Ethical AI Education | Training of critical and responsible talent |
| Public | Innovation incentives | Sovereign development of technology |

# Conclusions

Main conclusions:

Artificial intelligence-based tools play an important role in improving work performance within IT companies that develop information systems.

The absence of a specific regulatory framework governing the use of artificial intelligence in technology sector companies in Costa Rica has been identified as one of the main obstacles.

The implementation of artificial intelligence tools in a technology company should be carried out progressively and in a planned manner, in order to facilitate a smooth transition within the staff.

Future reflections on the incorporation of artificial intelligence in Costa Rican technology companies are promising, provided that its incorporation is carried out in a strategic and planned manner.

# References

*Background*

González, G. [2024]. The Rise of AI: A Look at the Technology's Past and Present. Telefónica España.

Iberdrola. [2024]. Historia de la inteligencia artificial: desde sus orígenes hasta hoy. Iberdrola.

Quiroz, C. & Goodwin, M. [2024]. ¿Qué es la inteligencia artificial (IA) en los negocios? IBM

IBM. [2025]. ¿Qué es la IA empresarial?

Itequia. [2025]. Cómo la Inteligencia Artificial revoluciona el desarrollo de software.

Amazon Web Services. [2024]. ¿Qué es la inteligencia artificial?. AWS.

News Center Microsoft Latinoamérica. [2025]. 50% de las PyMEs en Costa Rica utilizan algún tipo de IA. Microsoft.

# References


CINDE. [2025]. Inteligencia artificial y Machine Learning. Costa Rica.

Slack Technologies. [2023]. ¿Qué son las herramientas de inteligencia artificial? *Slack*.

OECD. [2019]. OECD Principles on Artificial Intelligence. Organisation for Economic Co-operation and Development.

Comisión Europea. [2021]. Proposal for a Regulation on Artificial Intelligence. European Commission.

Baiocchi, A. & Leicht, A. [2023]. Inteligencia Artificial en Costa Rica: justicia, ética e inclusión para no dejar a nadie atrás. UNESCO.

Barquero, R. [2025]. Inteligencia artificial en Costa Rica: Retos y oportunidades para el sector financiero y Fintech. Consortium Legal.

Salas, J. [2024]. Cinco principios para una inteligencia artificial ética". Universitat Oberta de Catalunya.

# References


Sistemas Costarricense de Información Jurídica. [2011]. Ley de Protección de la Persona frente al tratamiento de sus datos personales Nº 8968. San José, Costa Rica.

Sistemas Costarricense de Información Jurídica. [2002]. Protección al ciudadano del exceso de requisitos y trámites administrativos N° 8220. San José, Costa Rica.

Revista Summa. [2024]. La masificación de la inteligencia artificial en Costa Rica y la región: retos y oportunidades. San José, Costa Rica.

*Basics*

Creswell, J.W. [2018]. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. 5th ed., Sage Publications.

Hernández, R., Fernández, C. and Baptista, P. [2021]. Metodología de la investigación.7th ed., McGraw-Hill.

# References

Microsoft. [2023]. ¿Qué es Microsoft Forms?

Saiz, R. [2016]. Resumen de Técnicas de análisis de información.

López-Roldan, P. & Fachelli, S. [2015]. Metodología de la investigación social cuantitativa. Universitat Autonoma de Barcelona.

*Support*

Redacción BDM. [2023]. El 78% de los empleados que utilizan la IA generativa creen que ayuda a mejorar el rendimiento, el ahorro de tiempo y la creatividad en el trabajo. BigDatamagazine.

Job Market Insights. [2024]. La inteligencia artificial sigue avanzando: 1 de cada 3 empleados ya la usa en su día a día. InfoJobs.

Gonzalo, C. [2024]. Aplicación de inteligencia artificial aplicada a la empresa.

# References


Sombret, P. [2025]. La IA en la oficina: Los equipos informáticos entran en una nueva era. Deskbird.

GitHub. [2024]. Copilot: Your AI pair programmer.

Accenture. [2024]. AI and Machine Learning in Data Analytics. Accenture Insights.

Amazon Web Services. [2024]. Machine Learning for Infrastructure Optimization. AWS Use Cases.

IBM. [2024]. Watson Assistant: AI for Customer Service. IBM Cloud. https://www.ibm.com/cloud/watson-assistant

World Economic Forum. [2023]. AI Adoption in Latin America: Opportunities and Risks. WEF Report.

PWC. [2023]. AI in Business: Global Impact and ROI. PwC Global AI Study.

CAMTIC. [2017]. Costa Rica: Alta nota en economía digital pero baja en uso e impacto de las TIC.

# References

Alfaro, P., Alfaro, R. y Herrera, R. [2024]. Valor de negocio de TI para pequeñas y medianas empresas durante el periodo de COVID-19: una revisión sistemática de la literatura. Revista de Investigación en Tecnologías de la Información.

AI-360. [2025]. Costa Rica- CAIDP.

Asamblea Legislativa de Costa Rica. [2023]. Proyecto de Ley N.º 23.771.

IAPP. [2023]. Análisis del proyecto de ley de regulación de la inteligencia artificial en Costa Rica.

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