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ORIGINAL

Benefits of Artificial Intelligence in human talent management

Beneficios de la Inteligencia Artificial en la gestión del talento Humano

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ABSTRACT

Human talent and artificial intelligence have been closely related, having a great impact on the performance and productivity of today's organizations. In this research work, we sought to identify the challenges posed by the implementation of artificial intelligence tools in human talent management, such as data privacy, discrimination and automated decision making, through the review of scientific literature, this as the main objective. To develop it, sources of research articles, magazines and previous research carried out on the topic in the last ten years were used, with which it was possible to identify the use of AI for the selection and retention of human talent, the development of skills and skills, in addition to benefiting the well-being of collaborators; but also disadvantages such as its impact on privacy and the growing concern about job replacement. Concluding, to take full advantage of the benefits and minimize the problems associated with AI in human talent, it is necessary to have clear and transparent regulations, encouraging collaboration and development of knowledge in employees and ensuring ethics in the use of AI. within the organization.

Keywords: Automation; Evolution; Skills; Technology; Transformation.

RESUMEN

El talento humano (TH) y la inteligencia artificial (IA) han estado estrechamente relacionados teniendo un gran impacto en el rendimiento y la productividad de las organizaciones actuales. En este artículo, se buscó identificar los retos que plantea la implementación de herramientas de inteligencia artificial en la gestión de talento humano, tales como la privacidad de los datos, la discriminación y la toma de decisiones automatizada, a través de la revisión de la literatura científica, esto como objetivo principal. Para desarrollarlo, se utilizaron fuentes de artículos de investigación, revistas e investigaciones anteriores realizadas sobre el tema en los últimos diez años, con lo que se pudo identificar el uso de la IA para la selección y retención del talento humano, el desarrollo de habilidades y competencias, además de beneficiar al bienestar de los colaboradores; pero también desventajas como su impacto en la privacidad y la creciente preocupación por el reemplazo de trabajos. Concluyendo, que para aprovechar al máximo los beneficios y minimizar los problemas asociados con la IA en el talento humano, es necesario tener regulaciones claras y transparentes, fomentando la colaboración y desarrollo de conocimientos en los empleados y asegurando la ética en el uso de la IA dentro de la organización.

Palabras clave: Automatización; Evolución; Habilidades; Tecnología; Transformación.

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INTRODUCTION

The convergence between artificial intelligence (AI) and human capital has attracted significant interest in contemporary business.[1,2,3,4,5] has been defined as the ability of machines to execute tasks that would typically require human intervention, is intertwined with the concept of human capital that encompasses the skills, knowledge, and experiences contributed by individuals in an organization.[6,7,8,9,10,11] This complex intertwining establishes an essential starting point for exploring how AI and human capital interact and influence each other.[12,13,14,15,16]

Several approaches have been delineated in the current scientific literature that shed light on the dynamics between artificial intelligence and human capital.[17,18,19,20,21] These approaches, based on digital transformation, machine learning, talent management, diversity, and decision-making, offer valuable insights into how these two forces converge and affect the business domain.[22,23,24,25,26]

Despite the advances and opportunities afforded by this convergence, crucial issues emerge in implementing artificial intelligence in enterprises' human capital context.[27,28,29,30,31] These issues include resistance to change, the skills gap, ethical issues in decision-making, data privacy, and the need for effective change management.[32,33,34,35,36] These fundamental challenges frame the complex landscape that organizations must address to fully capitalize on the benefits of AI in the workplace.[37,38,39,40,41]

In the specific context of companies in Colombia, these issues take on particular nuances.[42,43,44] Cultural dynamics, evolving technological infrastructures, and government regulations complicate artificial intelligence and human capital intersection.[45,46,47,48] Understanding these specific issues is essential to addressing the challenges in implementing AI and optimizing human capital in the Colombian context.[49,50,51,52,53]

This analysis seeks to contrast the issues identified in the scientific literature with the contextual reality of companies in Colombia. This comparison aims to offer a comprehensive view of the challenges organizations face when integrating artificial intelligence and managing their human capital in a constantly evolving Colombian business context.

METHOD

The methodological design is descriptive, a product of documentary reviews and research, developed under qualitative approaches, which allowed the investigation of the topic raised on the benefits of artificial intelligence in the management of human talent in organizations, allowing different authors to intervene in the description of the analyzed topic.

The documentary review and research were carried out from the bibliographic search in theses, articles, books, and scientific publications in journals indexed in the SCOPUS Elsevier database.

The information presented in this article was carried out in the following phases:

- In the exploratory phase, a search of several documents related to the research topic was carried out in the Scopus Elsevier database using the keywords "human talent management" or "human talent" or "human capital "OR firm or business.
- In the selection phase, a detailed analysis of the information gathered from the different sources consulted was generated; in this way, only the information that had a direct relationship with the research topic was taken, and the open-access literature in Spanish and English was reviewed. A total of 53 documents were obtained from the search.
- In the results phase, the information obtained was downloaded in CSV format. The analysis was initially carried out in Excel format. Vosviewer software was used to analyze publication trends and the most important topics.

The document was formed from research and scientific journals during the first phase; in the second phase, as mentioned above, the relevant information was taken to complement the document. Finally, coherence was generated, and the information was joined reasonably to consolidate the document.

RESULTS AND DISCUSSION

Integrating artificial intelligence (AI) into business management revolutionizes how organizations operate and make strategic decisions.[54,55,56,57,58] AI, with its ability to analyze large volumes of data and generate valuable insights, is transforming performance management, career development, human resource (HR) management, and workforce planning.[59]

The main field of application of artificial intelligence is developing human talent in companies

From performance management, AI offers tools for predictive analytics, allowing organizations to anticipate future trends and behaviors. This predictive capability is crucial to identify areas for improvement and suggest actions for employees' professional development.[60,61] AI algorithms can analyze historical performance and, through predictive models, identify patterns that suggest specific competencies or skills that need to be developed.[62,63]

In addition, AI facilitates the implementation of continuous feedback systems.[64] These platforms can offer real-time job performance assessments, providing employees and managers with valuable information for immediate adjustments.[65,66] AI-based feedback can be more objective and specific, contributing to a more productive and motivating work environment.[67,68]

Regarding professional development, AI is crucial in personalizing learning and training.[69,70,71] AI-based systems can analyze employee profiles to suggest customized training and development programs.[72,73] This personalization ensures that employees receive relevant and practical training, which improves their skills and, thus, their job performance.[74,75]

Concerning human resource management, AI contributes significantly to the automation of administrative tasks. For example, it can handle personnel selection processes and filter candidates based on pre-established criteria, which saves time and resources.[76] In addition, these technologies can help eliminate unconscious biases in the hiring process, promoting a more diverse and inclusive workforce.[77]

Another exciting application of AI in HR is sentiment analysis.[78] AI-based tools can assess employee emotional well-being through surveys and feedback, providing managers with valuable information to improve work climate and employee satisfaction.[79]

In workforce planning, AI-based predictive models are instrumental. These models can forecast an organization's future staffing needs, aiding in hiring planning and capacity management.[80] For example, they can predict the demand for specific skills and competencies in the marketplace, allowing the company to anticipate and prepare accordingly.[81]

Finally, AI plays a crucial role in organizational culture and collaborative data analysis.[82] By analyzing team communications and interactions, AI can assess organizational culture's health and suggest areas for improvement. This includes identifying effective communication patterns, team collaboration, and employee engagement and satisfaction.[83]

Figure 1. Number of AI and human capital related publications from 2010-2024
Note: the figure shows the number of academic publications per year.

Each point represents a specific year, and the line connects these points to show the trend over time. You can see how the number of publications has fluctuated over the years. A significant increase in recent years due to the worldwide interest in the use of AI in business and the improvement of business conditions.

Figure 2. Keywords related to AI and human capital
Note: the figure shows the most frequent terms in the titles.

The more extensive terms represent words or topics that appear more frequently, which provides a quick overview of the predominant themes in the literature you are analyzing. This analysis helps to quickly identify key focus areas and popular topics in your dataset. This highlights human capital, artificial intelligence digitization, productivity, technologies, development, and research.[84]

Table 1. Most representative authors in AI and human talent in the periods 2010-2024

Article	Authors	Quotations	Year of Publication
Influences of the industry 4.0 revolution on the economy and society	Sima V.; Gheorghe I.G.; Subić J.; Nancu D.	263	2020
The Challenges and Opportunities in the Digital Era: Smart E-Tourism	Almeida F.; Duarte Santos J.; Augusto Monteiro J.	202	2020

Auditing in times of social distancing: the effects of COVID-19 on auditing quality	Albitar K.; Gerged A.M.; Kikhia H.; Hussainey K.	87	2021
Rebooting employees: upskilling for artificial intelligence in enterprises	Jaiswal A.; Arun C.J.; Varma A.	62	2022
The risks of digitalization and the adaptation of regional labor markets in Russia	Zemtsov S.; Barinova V.; Semenova R.	48	2019
A review paper on artificial intelligence at the edge	Berhil S.; Benlahmar H.; Labani N.	43	2019
Knowledge investments, business R&D and innovation success	van Hemert P.; Nijkamp P.	38	2010
Relationships among healthcare digitalization, social capital, and supply chain performance	Kim H.K.; Lee C.W.	34	2021
Amenity proximity analysis for sustainable brownfield development	Beames A.; Broekx S.; Schneidewind U.; Landuyt D.; Others	23	2018

Note: the table lists the most representative authors of AI and human capital publications published in the Scopus database Elsevier. It was constructed from the visibility factor of several citations.

Of particular note is the research by Sima et al.[86] entitled "Influences of the Industry 4.0 Revolution on the Economy and Society." This group of authors has made a remarkable contribution by exploring the impacts of the Industry 4.0 revolution. Their work focuses on how this revolution affects human capital development and consumer behavior, a crucial issue in digitization and automation.[85]

In "The Challenges and Opportunities in the Digital Era: Smart E-Tourism," their study addresses the challenges and opportunities of digitalization in the tourism industry. This sector is constantly evolving thanks to technology.[86] Albitar et al.[8] "Auditing in times of social distancing: the effects of COVID-19 on auditing quality": This team has investigated how the COVID-19 pandemic has impacted audit quality, a fundamental aspect in the financial and business world, especially relevant in the context of recent global changes. His contribution arises from the use of AI tools that are used in financial auditing processes, which allow for predicting possible fraud in organizations.[87]

On the other hand, the study by Jaiswal et al.[55] in "Rebooting Employees: Upskilling for Artificial Intelligence in Enterprises" Focuses on the importance of training and skills development in artificial intelligence for employees in enterprises.[88] Their research highlights the need to adapt the workforce to emerging technologies. In the same vein, Zemtsov et al.[103], in "The Risks of Digitalization and the Adaptation of Regional Labor Markets in Russia," have explored the risks associated with digitalization and how it affects regional labor markets in Russia, an essential study for understanding the impact of technology in different geographic and economic contexts.[89]

On the other hand, Berhil et al.[31], in "A Review Paper on Artificial Intelligence at the Edge," have focused on AI in edge computing. This fast-growing area combines artificial intelligence with telecommunications networks and data processing at the network's edge. Likewise, Van Hemert et al.[91] investigated the relationship between knowledge investments, business R&D, and innovation success, providing a valuable tool for developing R&D-based business strategies.[90]

On the other hand, Kim et al.[62] in "Relationships among Healthcare Digitalization, Social Capital, and Supply Chain Performance" have studied how digitalization in the healthcare sector relates to social capital and supply chain performance, a critical area in global healthcare and supply chain management. Beames et al.[27], in their paper "Amenity proximity analysis for sustainable brownfield development,": this team has focused on amenity proximity analysis for sustainable brownfield development, an essential aspect of urban planning and sustainable development.[92,93]

Focus on related studies in the academic literature associated with artificial intelligence and human talent

The topics related to AI are becoming more and more permanent in studies worldwide. There are more and more applications of AI in the business field worldwide.[94]

Artificial Intelligence (AI)

This topic is one of the most prominent, which is unsurprising given its growing importance in various fields. Artificial intelligence frequently appears in studies on technology, ethics, impact on society and business, and the development of new applications.

These authors have contributed to understanding AI in various contexts, from its practical applications to ethical and social considerations.[95]

Digitization

This topic covers digital transformation and its impact on healthcare, education, and industry sectors. Studies focus on how digitalization changes traditional operations and creates new opportunities and challenges. Authors have explored how digitalization is reshaping industries and societies. They focus on digital transformation and its impact on different sectors.[96]

Human Capital Development

This approach relates to the impact of technology and innovation on developing skills and competencies. Studies here focus on education, training, and workforce preparation for the digital era. Authors have investigated the impact of technology and innovation

on the development of skills and competencies, highlighting the importance of adapting the workforce to the digital age.[97]

Economic and Social Impact

This theme discusses how technological advances, especially artificial intelligence and digitization, redefine the economic and social landscape. It includes studies on the influence on consumer behavior, labor market dynamics, and business ethics. Economic and Social Impact: Although this theme is cross-cutting and may include several authors from the other approaches, especially those focused on artificial intelligence and digitization.[98]

Sustainability and Urban Development

This approach focuses on sustainability in the context of urban planning and development. Studies address issues such as sustainable development and efficient resource management in the context of urbanization and digitalization. Sustainability and Urban Development: Similar to the previous case, this approach may be implicit in several works related to digitization and AI.[99]

Figure 3 shows the different themes highlighted according to the frequency of keywords used.

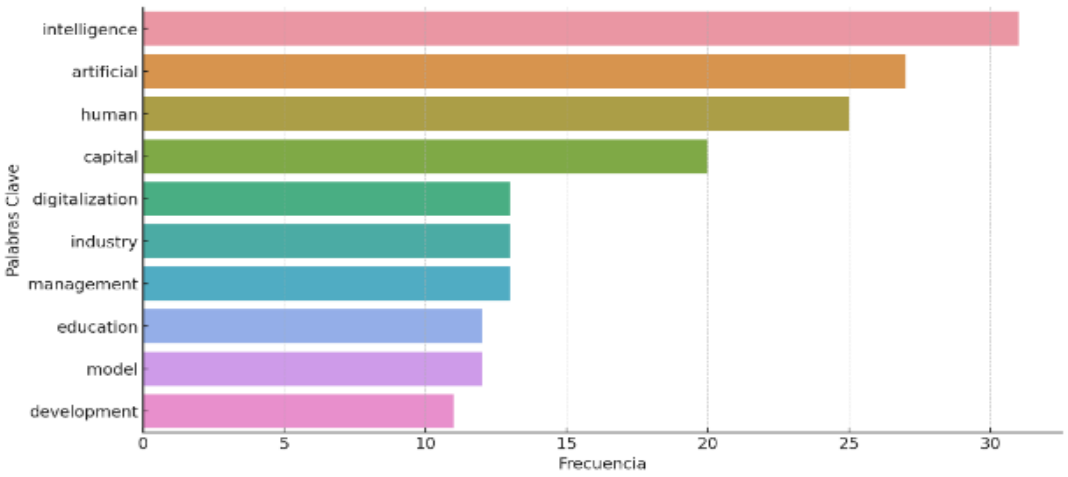

Figure 3. Themes highlighted by frequency of keywords

Note: the figure shows the topics addressed about AI and human talent. The main focuses of each study are highlighted. Its construction is based on the abstracts of the Scopus database Elsevier.

In academia, several key terms and authors stand out for their contribution to specific topics. For example, Intelligence, which encompasses both artificial and human Intelligence, has been an area of focus for authors such as Aldhyani et al.[11] and Matute-Pinos et al.[75], who have explored its multiple applications and theories. On the other hand, the subject of artificial Intelligence focuses mainly on its influence on technology, ethics, society, and business. This field has been notably enriched by the work of authors Artemenko et al.[23].[100,101,102]

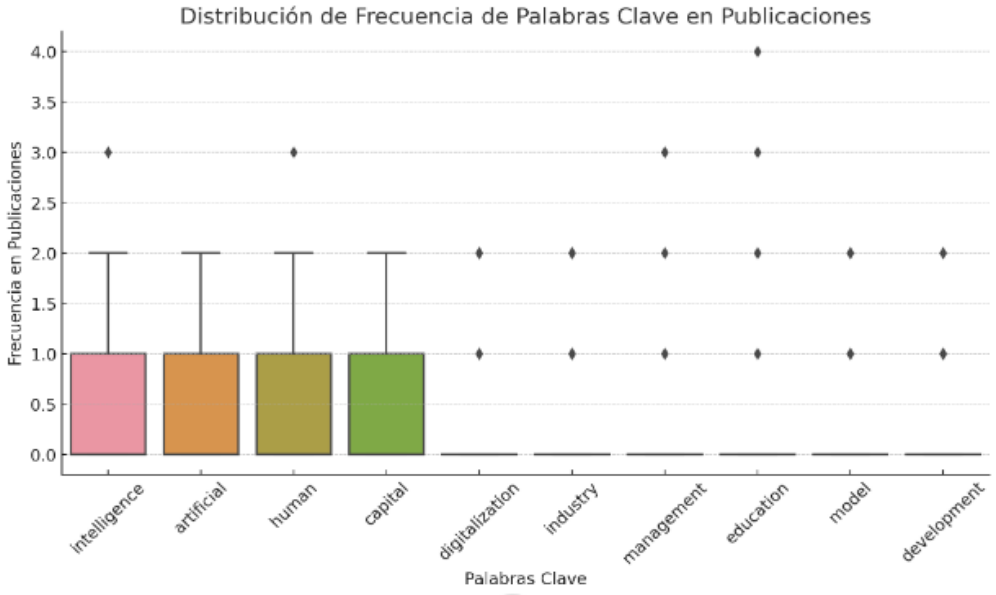

Figure 4. Box plot by keyword quartile frequency

As for the term Human, it is related to studies on human behavior, Development, and capabilities. Authors have contributed significantly to this field, offering new perspectives and discoveries. Management, which encompasses administration and Management in sectors such as business, technology, and Education, has been addressed by AlQershi N., Ramayah T., and Panchenko V. These authors have provided valuable insights and management strategies adapted to contemporary challenges.[103]

Focusing on educational processes, methodologies, and teaching technologies is a crucial study area. To develop innovative and effective educational practices for Kuzior[66]. Model refers to using theoretical or computational models to simulate and understand systems or processes in various disciplines. Authors have been instrumental in this field, providing models that help to better understand complex phenomena.[104]

Finally, Development, which addresses growth and progress in areas such as urban, technological, and social Development, has been explored by authors such as Kuzior A., Heijungs R., and Migliaccio K. Their research has been crucial to understanding development patterns and their impact on society. Each of these topics and authors represents an essential component of the tapestry of contemporary research, contributing to the evolution of knowledge in their respective fields.[105]

Figure 4 shows the frequency distribution of the 10 most frequent keywords in the publications in your database. Each box represents the frequency distribution of a specific keyword in all publications. In this graph, the center line of each box indicates the median frequency, while the ends represent the first and third quartiles. Vertical lines (or "whiskers") extend to the minimum and maximum values within a reasonable range, and points outside these whiskers indicate outliers.

CONCLUSIONS

This paper highlights the importance of integrating artificial intelligence into human talent management in companies. AI offers tools to improve talent selection and retention, skills and competency development, and employee well-being. However, significant challenges, such as resistance to change, the skills gap, ethical issues in decision-making, and data privacy, are also identified.

To minimize the problems associated with AI in privacy and discrimination, transparency and accountability measures in decision-making must be implemented. In addition, precise and effective regulations should be developed to ensure AI's ethical and responsible use in the workplace.

In terms of possible future research trends, AI's effects on organizational culture and team collaboration can be further explored. The implications of AI on diversity management and inclusion in the workplace can also be investigated. In addition, comparative studies can be developed across different countries and regions to identify best practices in implementing AI in human talent management.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORSHIP CONTRIBUTION

Conceptualization: Julio Cesar Gama Espinosa, Lina María Leiva Sánchez, Melisa Andrea Fajardo Pereira.
Formal analysis: Julio Cesar Gama Espinosa.
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Writing - revision and editing: Julio Cesar Gama Espinosa, Lina María Leiva Sánchez.

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